Office of **Emergency Management**
Monroe County, New York

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Monroe County Pre-Disaster Mitigation Plan

APPROVED BY FEMA, July 29, 2011

Monroe County Legislative Adoption, November 15, 2011

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Foreword

Monroe County's *Pre-Disaster Mitigation Plan* is a multi-jurisdiction Plan. This community planning process engaged all the municipal subdivisions within the County: ten villages, nineteen towns, and the City of Rochester. In addition to county government departments, other representatives included government authorities, school districts, special districts, fire and EMS jurisdictions, and community partners including Red Cross, business, utility and agricultural interests.

This document represents their collective expression of Mitigation practices. Several municipalities have created an annex to this Plan that specifies local conditions and details their attention in these areas. Where a local annex has been developed, additional community members have been engaged in the process. Community participants at all levels have demonstrated a commitment to the intent of this program, and to its process.

To all of you who have researched, written, commented and otherwise contributed . . . thank you. Your work has added tremendous value to your community's Emergency Management Program. We acknowledge New York State Emergency Management Office staff and other state and federal agency personnel who have offered guidance through meetings, correspondence, and telephone inquiries. Your assistance was always helpful. And, special thanks to the County's Office of Emergency Management staff for your (always) professional contributions.

Muffy Meisenzahl (retired 12.30.10)
Monroe County Emergency Manager
June 11, 2010

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INTRODUCTION

Before the introduction of the Disaster Mitigation Act 2000, mitigation planning was primarily a State function. States were required to have a statewide hazard mitigation plan that was updated after every disaster.

Although not required, some local governments did choose to prepare a mitigation plan for their community. Local plans took many different forms: National Flood Insurance Program (NFIP) Repetitive Loss Plans, Floodplain Management Plans, Flood Mitigation Plans (since 1984) and All-Hazard Mitigation Plans. Several municipalities prepared these plans to meet the Community Rating System (CRS) mitigation planning criteria so that their residents could obtain NFIP insurance premium reduction.

This plan is designed to establish a viable direction for the mitigation of natural and technological disasters within Monroe County. It is a comprehensive document that exceeds federal planning requirements. Specifically, we identify all hazards (29) that may adversely impact our community. Low risk/low probability hazards reside within this Plan to utilize the document's infrastructure. This ensures ease of access to all hazards, consolidates archival information about local experience in one document, and ensures a comprehensive approach to all local hazard mitigation activities. The low risk/low probability hazards do not reflect the volume and depth of information noted on the higher risk hazards as they remain under construction. This Plan was approved by FEMA on February 24, 2005. This document dated, June11, 2010 is the second version in compliance with FEMA's requirement to up-date every five (5) years.

AUTHORITY

The Disaster Mitigation Act of 2000 amends the Robert T. Stafford Disaster Assistance and Emergency Act 42 USC 5133 by adding a new section, 322 – Mitigation Planning. Section 322 establishes a new requirement for local mitigation plans. The Act provides a framework for linking pre-and post-disaster mitigation planning and initiatives with public and private interests to ensure an integrated, comprehensive approach to disaster loss reduction. It requires all local governments to have an approved All-Hazard Mitigation Plan in place to be eligible to receive Hazard Mitigation Grant Program (HMGP) project funding.

Under 44 Code of Federal Regulations (CFR) which contains the implementing regulations for the Act, Section 201.2, defines local government as one of the following:

County	Special district
City	Intrastate district
Municipality	Public Authority
School District	Regional or interstate government entity
Council of Governments	Indian Tribe/Alaskan Native Village
Town	Agency of a local government
Township	Other public entity

In developing the local plan criteria, other FEMA planning requirements were considered (CRS, Flood Mitigation Act (FMA) among others) to allow for the production of a single, comprehensive local mitigation plan that will fulfill the planning requirements of the various programs.

MISSION

Monroe County's Plan is a "multi-jurisdictional plan." As prescribed by regulation it is *a combined planning effort of two or more local governments* (i.e. two municipalities sharing a common political boundary, or a county plan encompassing several, or all municipalities within its boundaries, etc).

Participating local governments include:

- Monroe County
- City of Rochester
- Towns: Brighton, Chili, Clarkson, Gates, Greece, Hamlin, Henrietta, Irondequoit, Mendon, Ogden, Parma, Penfield, Perinton, Pittsford, Riga, Rush, Sweden, Webster, Wheatland
- Villages: Brockport, Churchville, East Rochester, Fairport, Hilton, Honeoye Falls, Pittsford, Scottsville, Spencerport, Webster
- Authorities: Monroe County Water Authority, Rochester-Genesee Regional Transportation Authority, Monroe County Airport Authority
- Other Public Entities: Monroe Community College, through the Homeland Security Management Institute, and the Agriculture and Life Sciences Institute
- Community Participants: American Red Cross, Rochester Gas & Electric

The planning regulations require an open public involvement process in the formation of the Plan. Broad public participation enables the development of mitigation measures that are supported by the various stakeholders within the community. The planning process must include: opportunities for the public to view and comment on the plan during its formation; involvement of any pertinent neighboring communities, interested agencies, private and non-profit organizations; and, review of any existing plans or studies and incorporation of these, if appropriate.

SITUATION

A. Monroe County applied for and was awarded a Pre-Disaster Mitigation Planning Grant which the Legislature authorized as Resolution No. 112 of 2003, on April 8, 2003. This grant was used to develop our 2005 FEMA-approved Plan. NOTE: Monroe County applied for a Pre-Disaster Mitigation Planning Grant on October 3, 2008, for our 2010 Plan Revision. But in November 2009, with only four months remaining in the Plan's 5-year lifecycle, the Office of Emergency Management absorbed the workload within its Annual Operating Budget.

B. Monroe County respects the jurisdictional autonomy of the participants in this multi-jurisdictional planning process.

C. In compliance with grant requirements, the County (through the Office of Emergency Management) will submit its Plan as a "DRAFT" to the State, for their submission to FEMA for final approval.

D. When FEMA has approved the Plan, each municipal participant will submit the Plan to their respective legislative body for adoption.

E. With FEMA approval, and local legislative adoption, all municipal participants will be eligible for Federal Mitigation funding authorized by the Act.

F. This Plan and subsequent up-dates will comply with FEMA's required 5-year planning cycle. Two years prior to expiration of the authorized Plan, the County will convene a Planning Committee, representing all municipal jurisdictions, and the conventional roster of partner agencies represented on all County planning committees. This timeframe will allow coordination with New York State and FEMA to complete the process before the expiration date on the existing Plan.

LOCAL PLANNING PROCESS

A. Planning Committee. The Planning Committee roster includes representatives from the participating local governments, and community partners. The Committee Roster is attached as Appendix E.

County OEM, the County Mitigation Coordinator and County GIS provided staff support to the Planning Committee. The Mitigation Coordinator attended all meetings and shared his role with the local Mitigation Grant process and the County's Mitigation Program at OEM. County GIS Staff attended all meetings to compile information into datasets that can be formatted as maps, charts and other graphic representations useful for the Plan and for Mitigation Measures/Projects. OEM Staff provided administrative support for the Planning Committee. They established meeting schedules with agendas, materials, and Minutes to document Planning Committee actions for the 2010 Plan. OEM drafted Plan components based on Committee direction, prepared them for Committee review and evaluation, and then incorporated approved information into the 2010 Draft.

Committee members identified and supplied local information for the Plan: local mitigation projects, the status of these projects, and new activities projected for the lifespan of the 2010 Plan. Each member reported on their local community out-reach to schools, emergency service jurisdictions, community service organizations, professional municipal organizations and shared this public input during the development of our initial Plan Draft. Members also assisted in researching and organizing mitigation projects since 2005 for reference and credit in the 2010 Plan.

The Planning Committee met:

- November 9, 2009 for a briefing on the planning process and the planning requirements, and to establish a framework for our multi-jurisdictional planning effort. Planning components for our 2010 Plan were discussed: risk assessment, public participation, document format, review and approval process, and planning timeline. Resources and references were provided. By unanimous consent, the Committee adopted: (1) the 2010 "Monroe County HAZNY Ranking Proposal," as amended with Hazard Title corrections (from the 2005 Plan); (2) to retain the Goals and Objectives stated in the 2005 Plan as pertinent for continuance with the County's 2010 Plan; (3) to retain the Mitigation Measures stated in the 2005 Plan as pertinent for continuance with the County's 2010 Plan; and, (4) to identify Action Plans that correspond with each of the Mitigation Measures for the 2010 Plan.

- December 11, 2009 to review progress, the plan format, the timeline, and administrative parameters associated with the Plan. The Planning Committee reviewed the status of the Plan, and we discussed public outreach and engaging more local agency representatives on local planning committees. OEM staff presented an overview of the Plan template, and the menu of references/resources used to gather and document data. Planning Committee members shared their experience through comments, and a questions and answer forum. By unanimous consent, the Committee adopted: (1) the general Action Plan for continuance with the 2010 Plan, and recognized that these Actions are pertinent for all twenty-nine hazards; and, (2) Appendix C-1, C-2, C-3, C-5, C-13, C-14, C-17, C-20. Committee members agreed that mitigation activities completed since the 2005 Plan should be cataloged as "Appendix D," in the 2010 Plan.

- January 29, 2010 to review the planning activity, solicit mitigation measures, and review administrative procedures associated with the process. The Planning Committee reviewed the status of the planning document, and OEM provided an up-date on the planning timeline. The main focus of the meeting was to identify mitigation projects that have been completed since 2005, and begin to credit them appropriately in our 2010 Plan.

- April 9, 2010 to review all suggestions for revision of the 2005 Plan, and the timeline moving forward to local adoption. OEM summarized Committee actions associated with the 2010 Plan. The Committee adopted Appendix C and Appendix D for these hazards: Ice Storm, Flood, Severe Storm, Winter Storm Severe, Landslide, Tornado, Ice Jam and Extreme Temperatures. Committee members agreed that (at local municipal discretion) specific local municipal information will continue to be carried within the document as an "Annex" (see Appendix G). We decided that our next meeting would approve a Draft 2010 Plan for submission to SEMO.

- June 11, 2010 to complete administrative tasks, to review Appendix B, C and D content for corrections, additions and completeness, and to adopt a 2010 Plan Draft (DRAFT #1) for submission to New York SEMO for their review and comment. We also reviewed the timeline for additional Committee expectations, the local process to adopt the Plan, and FEMA's process requirements to approve our 2010 Plan.

Letters of invitation, agendas, and attendance rosters for these meetings are available at the Office of Emergency Management. Copies of the Meeting Minutes are attached as Appendix J.

In addition to these meetings, communications with the Planning Committee was facilitated via e-mail from the Office of Emergency Management. OEM conveyed references/resources, various drafts for sections of the plan, questions and answers, status of various planning elements, and administrative functions like meeting invitations and minutes. (These are available at the Office of Emergency Management.)

B. Risk Assessment. Monroe County's Plan includes a local risk assessment that provides the factual basis for activities proposed in our strategy to reduce losses from these hazards. Based on geography and built landscape, some municipalities have more or less vulnerability than others to specific hazards. Community-wide mitigation activities are supported by all Planning Committee Partners regardless of their local vulnerability to each individual hazard. Appendix A reflects the

collective vulnerability across the County. Appendix B details each hazard and begins to identify more specific geographic locations within the County that are vulnerable to the hazard. Appendix C details municipal/local community mitigation projects/activities to reduce the threat of the hazard. And, Appendix D reports mitigation activity since FEMA authorized our initial Pre-Disaster Mitigation Plan in February, 2005. Appendix D reports mitigation activities that benefit the entire community and those that have a more local benefit and are directly related to reducing local vulnerability.

The community may be affected by any, or all of the following categories of hazards:

Natural Hazards: These are naturally occurring hazards that pose a risk to life and property when they adversely impact the built environment. Examples of natural hazards include ice storms, floods, severe storms, severe winter storms, landslides, tornadoes, ice jams, extreme temperatures, drought and earthquake among others.

Technical Hazards: These hazards are caused by human processes that have developed along with our dependence on modern technology. Technological hazards include explosions, structural collapse, dam failure, air contamination, transportation incidents, fuel shortage, urban fires, uncontrolled chemical or hazardous materials release (either at a fixed location or in transit), nuclear radiation release and utility failure among others.

Human-Caused Hazard: This type of hazard is caused by the direct (purposeful) actions of humans. Possible human-caused hazards include civil disturbance and terrorism (either small scale or large scale).

NOTE: The Plan incorporates these three categories on the "Hazard Analysis Matrix, Appendix A." An analysis of each hazard that has potential to threaten Monroe County is addressed in Appendix B.

1. Municipal Assets. The Planning Committee will consider datasets that catalog structures and infrastructure by type, number, and assessed valuation. Resources may include census information, tax assessment files, land-use, and other available government sources. This level of detail is the next phase of the Plan's development. Various components of this level of detail are already captured in the datasets available for use through the County's Geographic Information System (GIS). The County's GIS datasets include a building inventory (tax maps), property values (property assessments), land-use (zoning boundaries, Pictometry (photo images), critical infrastructure/key resources (water, sewer, electric, natural gas, national pipeline intercepts, telecommunications, information technology – facilities and distribution systems), and special population facilities (hospitals, schools, nursing homes, group homes, day care facilities, malls, arenas/stadiums) among others. These datasets can be used for reporting the information on maps, charts, tables, and other graphic formats.

   Although these datasets of structure and infrastructure inventories will reside in a separate Appendix of this Plan (for ease of use and reference), the existing hazard areas mapped in Appendix F can be overlaid on the assets to express vulnerability for the built landscape.

This same presentation can be utilized to demonstrate vulnerability when development proposals are considered. "Development" is regulated at the local government level in New York State. The County Planning Department has plat review authority and exercises a local process with the towns, villages, and the City. All GIS dataset information and mapping identified and described in the Plan, is available to each local government and they have experience with it in their local planning process.

Risk analysis also considers population, age, economic status and language data:

Census Data
Monroe County, New York

Municipality	Total Population	Population Under Age 5	Population 65 and Over	Individuals Below Poverty	Speak Language other than English at Home
Brighton town	35,588	1,892	6,813	2,080	5,682
Chili town	27,638	1,607	3,338	974	2,194
Clarkson town	6,072	423	723	288	285
East Rochester (town/village)	6,650	404	981	619	577
Gates town	29,275	1,617	5,086	1,617	3,775
Greece town	94,141	5,398	14,446	4,505	8,210
Hamlin town	9,355	651	607	565	476
Henrietta town	39,028	1,934	3,617	3,045	4,039
Irondequoit town	52,354	2,773	11,770	2,794	5,843
Mendon town	8,370	514	908	251	473
Honeoye Falls village	2,595	125	481	64	127
Ogden town	18,492	1,096	1,642	498	1,129
Spencerport village	3,559	189	461	55	189
Parma town	14,822	927	1,489	610	725
Hilton village	5,856	427	587	256	310
Penfield town	34,645	2,043	5,170	1,260	3,416
Perinton town	46,090	3,122	5,366	1,335	3,712
Fairport village	5,740	376	678	187	295
Pittsford town	27,219	1,585	4,326	727	2,355
Pittsford village	1,418	80	230	74	62
Riga town	5,437	325	521	208	194
Churchville village	1,887	103	208	78	49
Rochester city	219,773	17,227	21,977	54,713	36,083
Rush town	3,603	175	398	17	114
Sweden town	13,716	583	1,073	1,539	809
Brockport village	8,103	260	627	1,123	539
Webster town	37,926	2,370	4,935	1,484	3,302
Webster village	5,216	353	735	610	786
Wheatland town	5,149	311	593	182	239
Scottsville village	2,128	137	280	48	139
Monroe County, New York	735,343	46,977	95,779	79,311	83,632

Source: 2000 U.S. Census
Town totals include associated Village totals
Prepared by: Monroe County Department of Planning and Development. August, 2010

2. Municipal Loss Estimates. The next phase of the Plan's development includes identifying the number and types of vulnerable assets as described in section #1 (above). This inventory may then be used to estimate losses that could occur. Loss can be defined in terms of dollar value and/or the percentage of loss attributed to a hazard.

   Loss, and potential loss, can be calculated for each hazard using the GIS datasets to overlay assessed property value on the area adversely impacted. The GIS infrastructure allows this on a case-by-case basis. This tool is available as municipalities implement mitigation activities and specific projects on the Action Plan. Estimates for potential losses are noted with each hazard in Appendix B.

   The Stafford Act provides FEMA Public Assistance, Individual Assistance, and/or Mitigation Awards with a Presidential Disaster Proclamation. Financial assistance to Monroe County and its eligible local governments/non-profit agencies is:

Presidential Disaster Declarations

FEMA Financial Assistance

Disaster	all counties	Monroe County
**Winter Storm '92 974-DR-NY		$14,795 Mitigation (HMGP)
Blizzard '93 3107-EM-NY	$8.5 M, PA	$260,562 PA
(N. Country) Ice Storm '98 1196-DR-NY	$16.2 M, IA $25.3 M, PA	$1,042,303 (DRI, Mitigation) $937,624 Mitigation (HMGP)
**July '98 Flooding 1233-DR-NY County declared IA 7-21-98	$30,259,594	$534,772 IA only
Wind Storm '98 1244-DR-NY	$36.1 M	$4 M PA
Blizzard '99 3138-EM-NY	$4.2 M	$1.99 M PA
**West Nile Virus 3155-EM-NY declared 10-11-00 statewide	$4.75 M	$69,790 PA
World Trade Center **(September 11, 2001)** 1391-DR-NY	$6.1 B	$40,897.02 PA
April 2003 Ice Storm 1467-DR-NY	$45,322,019	$16 M ± IA $9,258,040.35 PA $76,426 Mitigation (HMGP)
** Severe Storms, et.al. 1486-DR-NY		$345,366 Mitigation (HMGP)
Power Outage of 2003 3186-EM-NY	$5 M	$39,927.21 PA
**Hurricane Frances, 2004 1564/1565-DR-NY PA declared 10-1-04 IA declared 11-16-04	$10.5 M, PA	$ 256,481.00 PA 1,964,092.96 IA 72,426 Mitigation(HMGP)

**Hurricane Katrina, 2005 3262-EM-NY declared 9-30-05 for local gov't services to victims		Ineligible: only leased housing was reimbursable. County used Temporary Assistance Program cash funds. FEMA RPA Claim withdrawn on 2.13.06 by OEM
**Buffalo Snow, 10/06 1665-DR-NY		$183,878 Mitigation (HMGP)
**Severe Storms, et.al. 1692-DR-NY		$772,196 Mitigation (HMGP)
**Severe Storms & Flood 1710-DR-NY		$1,100,616 Mitigation (HMGP)
**Severe Storms, Flooding & Tornado 1724-DR-NY		$108,598 Mitigation (HMGP)

**** no EOC activation**

NOTE: The March 1991 Ice Storm …total FEMA assistance to NYS was $63,131,035,
(898-DR-NY**)** total FEMA assistance to Monroe County was $35,020,258

3. Analyzing Development Trends. Development and land use are local government decisions. In New York State, local government has regulatory authority for land use decisions, e.g. development planning, zoning, plat determination, subdivision, etc. Local adoption and implementation of the Plan brings mitigation activities into focus with land use decisions and the local process that reviews and considers land use proposals. At the County level, the Plan will be integrated into the County Planning Department's checklist for review as local proposals are submitted for this agency's review and recommendations.

   To assist in providing a general description of land uses and development trends within the County, the County Department of Planning and Development has provided information on population, and housing units. The information expressed on the following Tables is provided to the County by the Genesee/Finger Lakes Regional Planning Council:

   - Population (1980, 1990, 2000, July 2008 estimate), Monroe County
   - 1990 Housing Units, Monroe County, NY
   - 2000 Housing Unites, Monroe County, NY

Population (1980, 1990, 2000, 2008)
Monroe County, New York

Geographic Area	Total Population				Change (1980 - 2008)	
	1980 Census	1990 Census	2000 Census	July,2008 Estimate	Number	%
Monroe County, New York	702,238	713,968	735,343	732,762	30,524	4.17%
Brighton town	35,776	34,455	35,588	34,403	-1,373	-3.99%
Chili town	23,676	25,178	27,638	28,650	4,974	17.36%
Clarkson town	4,016	4,517	6,072	6,359	2,343	36.85%
East Rochester (town/village)	7,596	6,932	6,650	6,269	-1,327	-21.17%
Gates town	29,756	28,583	29,275	28,656	-1,100	-3.84%
Greece town	81,367	90,106	94,141	93,362	11,995	12.85%
Hamlin town	7,675	9,203	9,355	9,032	1,357	15.02%
Henrietta town	36,134	36,376	39,028	45,684	9,550	20.90%
Irondequoit town	57,648	52,377	52,354	50,007	-7,641	-15.28%
Mendon town	5,434	6,845	8,370	8,869	3,435	38.73%
Ogden town	14,693	16,912	18,492	19,293	4,600	23.84%
Parma town	12,585	13,873	14,822	15,870	3,285	20.70%
Penfield town	27,201	30,219	34,645	35,850	8,649	24.13%
Perinton town	38,329	43,015	46,090	45,693	7,364	16.12%
Pittsford town	22,620	24,497	27,219	28,290	5,670	20.04%
Riga town	4,309	5,114	5,437	5,509	1,200	21.78%
Rochester city	241,741	231,636	219,773	206,886	-34,855	-16.85%
Rush town	3,001	3,217	3,603	3,470	469	13.52%
Sweden town	14,859	14,181	13,716	13,891	-968	-6.97%
Webster town	28,925	31,639	37,926	41,749	12,824	30.72%
Wheatland town	4,897	5,093	5,149	4,970	73	1.47%
Brockport village	9,776	8,749	8,103	8,342	-1,434	-17.19%
Churchville village	1,399	1,731	1,887	1,979	580	29.31%
Fairport village	5,970	5,943	5,740	5,472	-498	-9.10%
Hilton village	4,151	5,216	5,856	6,319	2,168	34.31%
Honeoye Falls village	2,410	2,340	2,595	2,647	237	8.95%
Pittsford village	1,568	1,488	1,418	1,320	-248	-18.79%
Scottsville village	1,789	1,912	2,128	2,040	251	12.30%
Spencerport village	3,424	3,606	3,559	3,464	40	1.15%
Webster village	5,499	5,464	5,216	5,185	-314	-6.06%

Source: U.S. Census Bureau

Prepared by: Monroe County Department of Planning and Development. May, 2010

Housing Units

Monroe County, NY

1990

	Housing Units			Rural Housing	
	Urban	Rural	Total	Farm	Non-Farm
City of Rochester	101,154	0	101,154	0	0
Brighton	16,068	0	16,068	0	0
Chili	7,788	0	7,788	26	969
Clarkson	0	0	0	17	1,544
East Rochester (Village/Town)	2,926	0	2,926	0	0
Gates	11,022	0	11,022	0	110
Greece	33,564	0	33,564	12	1,057
Hamlin	0	0	0	61	3,202
Henrietta	10,368	0	10,368	18	1,975
Irondequoit	22,182	0	22,182	0	0
Mendon	0	0	0	44	2,535
Ogden	3,537	0	3,537	26	2,419
Parma	0	1,857	1,857	46	3,004
Penfield	9,941	0	9,941	55	1,762
Perinton	14,946	0	14,946	23	1,148
Pittsford	8,095	0	8,095	0	452
Riga	0	0	0	50	1,828
Rush	0	0	0	0	0
Sweden	0	0	0	35	1,086
Webster	10,387	2,502	12,889	24	1,978
Wheatland	0	0	0	0	1,708
Village of Brockport	0	0	0	8	1,965
Village of Churchville	0	2,502	2,502	0	0
Village of Fairport	2,367	0	2,367	4	704
Village of Hilton	0	0	0	0	0
Village of Honeoye Falls	0	1,857	1,857	0	0
Village of Pittsford	648	0	648	9	1,020
Village of Scottsville	0	0	0	0	0
Village of Spencerport	1,392	0	1,392	0	729
Village of Webster	2,362	0	2,362	0	0
Total	**258,747**	**8,718**	**267,465**	**458**	**31,195**

Source: U.S. Census Bureau

Prepared by: Genesee/Finger Lakes Regional Planning Council, 2004

Housing Units
Monroe County, NY
2000

	Housing Units			Rural Housing	
	Urban	Rural	Total	Farm	Non-Farm
City of Rochester	99,820	0	99,820	0	0
Brighton	16,705	0	16,705	0	0
Chili	9,564	863	10,427	7	856
Clarkson	800	1,290	2,090	17	1,273
East Rochester (Village/Town)	2,919	0	2,919	0	0
Gates	12,054	0	12,054	0	0
Greece	37,590	725	38,315	0	725
Hamlin	1,736	1,767	3,503	35	1,732
Henrietta	12,616	627	13,243	10	617
Irondequoit	23,040	0	23,040	0	0
Mendon	1,241	1,897	3,138	20	1,877
Ogden	5,451	1,285	6,736	10	1,275
Parma	2,700	2,806	5,506	57	2,749
Penfield	12,101	1,572	13,673	28	1,544
Perinton	17,505	536	18,041	8	528
Pittsford	9,384	322	9,706	0	322
Riga	737	1,281	2,018	34	1,247
Rush	0	1,300	1,300	32	1,268
Sweden	3,711	1,132	4,843	0	1,132
Webster	14,539	679	15,218	6	673
Wheatland	1,432	661	2,093	35	626
Village of Brockport	2,605	0	2,605	0	0
Village of Churchville	727	19	746	0	19
Village of Fairport	2,429	0	2,429	0	0
Village of Hilton	2,131	0	2,131	0	0
Village of Honeoye Falls	872	286	1,158	0	286
Village of Pittsford	643	0	643	0	0
Village of Scottsville	813	33	846	0	33
Village of Spencerport	1,382	43	1,425	0	43
Village of Webster	2,306	0	2,306	0	0
Total	**299,553**	**19,124**	**318,677**	**299**	**18,825**

Source: U.S. Census Bureau

Prepared by: Genesee/Finger Lakes Regional Planning Council, 2004

4. Multi-Jurisdictional Risk Assessment. All towns, villages, and the City of Rochester are participants in the Plan. Municipal representatives have worked together as the Plan's "Planning Committee" (see Appendix E), and they have worked independently with their respective municipality to ensure their local perspective is represented in the Plan. The following table identifies NFIP participation, and is a graphic summary of municipal risk assessment for the twenty-nine hazards enumerated in Appendix B.

Multi-Jurisdictional Risk Assessment

Jurisdiction	NFIP Participant *	Ice Storm	Flood	Severe Storm	Haz. Mater. (Trans.)	Winter Storm Severe	Fire	Terrorism	Utility Failure	Explosion	Structural Collapse	Civil Disturbance	Dam Failure	Landslide	Tornado	Haz. Mater. Fixed Facility	Radiological (Fixed)	Ice Jam	Air Contam.	Transport. Incident	Extreme Temperature	Radiological (Transit)	Water Supply Contam.	Drought	Epidemic	Earthquake	Fuel Shortage	Blight	Food Shortage	Infestation
Towns																														
Brighton	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Chili	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Clarkson	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Gates	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Greece	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Hamlin	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Henrietta	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Irondequoit	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Mendon	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Ogden	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Parma	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Penfield	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Perinton	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Pittsford	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Riga	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Rush	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Sweden	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Webster	X	X	X	X	X	X	X	X	X	X	X	X			X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wheatland	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Villages																														
Brockport	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Churchville	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
E. Rochester	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Fairport	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Hilton	X	X	X	X		X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X

Jurisdiction	NFIP Participant *	Ice Storm	Flood	Severe Storm	Haz. Mater. (Trans.)	Winter Storm Severe	Fire	Terrorism	Utility Failure	Explosion	Structural Collapse	Civil Disturbance	Dam Failure	Landslide	Tornado	Haz. Mater. Fixed Facility	Radiological (Fixed)	Ice Jam	Air Contam.	Transport. Incident	Extreme Termperature	Radiological (Transit)	Water Supply Contam	Drought	Epidemic	Earthquake	Fuel Shortage	Blight	Food Shortage	Infestation
Honeoye Falls	X	X	X	X		X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Pittsford	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Scottsville	X	X	X	X		X	X	X	X	X	X	X			X	X		X	X	X	X		X	X	X	X	X	X	X	X
Spencerport	X	X	X	X	X	X	X	X	X	X	X	X			X			X	X	X	X		X	X	X	X	X	X	X	X
Webster	X	X	X	X	X	X	X	X	X	X	X	X			X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
City of Rochester	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

* FEMA. "Community Status Book Report: NY, Communities Participating in the National Flood Program, 5.28.10

5. Based on local vulnerability to our community hazards, we calculate percentage loss estimates at 1%, 5%, 10% and 25% for the Critical Infrastructure identified in Appendix F. The following chart depicts the hazards and defines the dollar value of the loss cross-referenced with these percentages:

CIKR Grid Map

CIKR Type	Map Grid ID	CIKR Name	1% Loss	5% Loss	10% Loss	25% Loss	Total Asset Value(based on July 2010 Monroe County, NY Parcel Data)
EMS	H7	Brighton Volunteer Ambulance, Inc	4800	24000	48000	120000	480000
EMS	F6	Gates Volunteer Ambulance	2678	13390	26780	66950	267800
EMS	F4	Greece Volunteer Ambulance	2678	13390	26780	66950	267800
EMS	G8	Henrietta Volunteer Ambulance, Inc	10447	52235	104470	261175	1044700
EMS	H11	Honeoye Falls/Mendon Volunteer Ambulance	6373	31865	63730	159325	637300
EMS	I5	Irondequoit Volunteer Ambulance	3600	18000	36000	90000	360000
EMS	G6	Monroe Ambulance	884	4420	8840	22100	88400
EMS	J6	Penfield Volunteer Emergency Ambulance, Inc	8600	43000	86000	215000	860000
EMS	K8	Perinton Volunteer Ambulance/Southeast Quadrant ALS (SEQ)	6162	30810	61620	154050	616200
EMS	I8	Pittsford Volunteer Ambulance Service	21785	108925	217850	544625	2178500
EMS	G8	RIT Volunteer Ambulance	276731	1383655	2767310	6918275	27673100
EMS	H6	Rural/Metro Medial Services	2717	13585	27170	67925	271700
EMS	E5	Spencerport Volunteer Ambulance	1806	9030	18060	45150	180600
EMS	G7	University of Rochester River Campus MERT	Merged with University of Rochester (School)				
EMS/ Police	J7	East Rochester Volunteer Ambulance/Police	Merged with East Rochester Middle/High School (School)				
Fire	G7	Airport - CFR	567670	2838350	5676700	14191750	56767000
Fire	G5	Barnard Fire Department	11419	57095	114190	285475	1141900
Fire	I7	Brighton Fire Department	19600	98000	196000	490000	1960000
Fire	H7	Brighton Fire Department	9500	47500	95000	237500	950000
Fire	I6	Brighton Fire Department	4300	21500	43000	107500	430000
Fire	B5	Brockport Fire Department	2110	10550	21100	52750	211000
Fire	B4	Brockport Fire Department	1802	9010	18020	45050	180200
Fire	B5	Brockport Fire Department	2353	11765	23530	58825	235300
Fire	J8	Bushnell's Basin Fire Department	29617	148085	296170	740425	2961700
Fire	K9	Bushnell's Basin/Egypt Fire Department	4273	21365	42730	106825	427300
Fire	F7	Chili Fire Department	4978	24890	49780	124450	497800
Fire	F8	Chili Fire Department	2381	11905	23810	59525	238100
Fire	D7	Chili Fire Department	5199	25995	51990	129975	519900
Fire	C7	Churchville Fire Department	2362	11810	23620	59050	236200

Fire	D9	Clifton Fire Department	5165	25825	51650	129125	516500
Fire	J7	East Rochester Fire Department	8072	40360	80720	201800	807200
Fire	K8	Egypt Fire Department	11392	56960	113920	284800	1139200
Fire	K7	Fairport Fire Department	12655	63275	126550	316375	1265500
Fire	K7	Fairport Fire Department	16616	83080	166160	415400	1661600
Fire	F7	Gates-Chili Fire Department	6547	32735	65470	163675	654700
Fire	F6	Gates-Chili Fire Department	29593	147965	295930	739825	2959300
Fire	F7	Gates-Chili Fire Department	20509	102545	205090	512725	2050900
Fire	G5	Greece Ridge Fire Department	1650	8250	16500	41250	165000
Fire	F5	Greece Ridge Fire Department	5929	29645	59290	148225	592900
Fire	F5	Greece Ridge Fire Department	24700	123500	247000	617500	2470000
Fire	F8	Henrietta Fire Department	3560	17800	35600	89000	356000
Fire	F9	Henrietta Fire Department	12136	60680	121360	303400	1213600
Fire	H8	Henrietta Fire Department	3837	19185	38370	95925	383700
Fire	G9	Henrietta Fire Department	1026	5130	10260	25650	102600
Fire	H8	Henrietta Fire Department	13986	69930	139860	349650	1398600
Fire	G8	Henrietta Fire Department	12608	63040	126080	315200	1260800
Fire	H11	Honeoye Falls Fire Department	4300	21500	43000	107500	430000
Fire	G6	Kodak Fire Department	28217	141085	282170	705425	2821700
Fire	G3	Lake Shore Fire Department	4061	20305	40610	101525	406100
Fire	G4	Lake Shore Fire Department	2060	10300	20600	51500	206000
Fire	F3	Lake Shore Fire Department	2341	11705	23410	58525	234100
Fire	I6	Laurelton Fire Department	14000	70000	140000	350000	1400000
Fire	H4	Marine Volunteer Fire Department	3150	15750	31500	78750	315000
Fire	J10	Mendon Fire Department	15110	75550	151100	377750	1511000
Fire	A2	Morton Fire Department	2750	13750	27500	68750	275000
Fire	D10	Mumford Fire Department	6250	31250	62500	156250	625000
Fire	F4	North Greece Fire Department	2545	12725	25450	63625	254500
Fire	G4	North Greece Fire Department	12007	60035	120070	300175	1200700
Fire	F4	North Greece Fire Department	7725	38625	77250	193125	772500
Fire	J6	Penfield Fire Department	4670	23350	46700	116750	467000
Fire	K7	Penfield Fire Department	10204	51020	102040	255100	1020400
Fire	J7	Penfield Fire Department	32000	160000	320000	800000	3200000
Fire	I8	Pittsford Fire Department	28699	143495	286990	717475	2869900
Fire	I8	Pittsford Fire Department	15000	75000	150000	375000	1500000
Fire	H5	Point Pleasant Fire Department	5650	28250	56500	141250	565000
Fire	I5	Ridge-Culver Fire Department	19600	98000	196000	490000	1960000
Fire	G5	Rochester Fire Department	7021	35105	70210	175525	702100
Fire	H6	Rochester Fire Department	3088	15440	30880	77200	308800
Fire	G6	Rochester Fire Department	3075	15375	30750	76875	307500

Fire	H6	Rochester Fire Department	5464	27320	54640	136600	546400
Fire	H7	Rochester Fire Department	880	4400	8800	22000	88000
Fire	G6	Rochester Fire Department	2523	12615	25230	63075	252300
Fire	H6	Rochester Fire Department	12068	60340	120680	301700	1206800
Fire	G6	Rochester Fire Department	3426	17130	34260	85650	342600
Fire	H7	Rochester Fire Department	1500	7500	15000	37500	150000
Fire	H6	Rochester Fire Department	5960	29800	59600	149000	596000
Fire	H6	Rochester Fire Department	3064	15320	30640	76600	306400
Fire	G7	Rochester Fire Department	1800	9000	18000	45000	180000
Fire	H4	Rochester Fire Department	2753	13765	27530	68825	275300
Fire	I6	Rochester Fire Department	1191	5955	11910	29775	119100
Fire	H6	Rochester Fire Department	2960	14800	29600	74000	296000
Fire	H6	Rochester Fire Department	2428	12140	24280	60700	242800
Fire	F10	Rush Fire Department	745	3725	7450	18625	74500
Fire	E5	Spencerport Fire Department	3756	18780	37560	93900	375600
Fire	D6	Spencerport Fire Department	11133	55665	111330	278325	1113300
Fire	E5	Spencerport Fire Department	45000	225000	450000	1125000	4500000
Fire	H4	St Paul Fire Department	1500	7500	15000	37500	150000
Fire	L4	Union Hill Fire Department	1773	8865	17730	44325	177300
Fire	D3	Walker Fire Department	4200	21000	42000	105000	420000
Fire	K6	Webster Fire Department	11631	58155	116310	290775	1163100
Fire	G8	West Brighton Fire Department	14400	72000	144000	360000	1440000
Fire	G8	West Brighton Fire Department	2375	11875	23750	59375	237500
Fire	I4	West Webster Fire Department	8775	43877	87754	219385	877540
Fire	J6	West Webster Fire Department	8900	44500	89000	222500	890000
Fire/EMS	I4	Sea Breeze Fire Department/Ambulance	6450	32250	64500	161250	645000
Fire/EMS	B5	Brockport Fire/Volunteer Ambulance	21930	109650	219300	548250	2193000
Fire/EMS	E7	Chili Fire Department/Ambulance	10872	54360	108720	271800	1087200
Fire/EMS	C7	Churchville Fire Department/Rescue Squad	2990	14950	29900	74750	299000
Fire/EMS	B3	Hamlin Fire Department/Volunteer Ambulance	11350	56750	113500	283750	1135000
Fire/EMS	E3	Hilton Fire Department/Ambulance	450	2250	4500	11250	45000
Fire/EMS	G5	Kodak Fire Department/Emergency Services	158470	792350	1584700	3961750	15847000
Fire/EMS	I5	Point Pleasant Fire Department/Ambulance	6750	33750	67500	168750	675000
Fire/EMS	G10	Rush Volunteer Fire Department/Ambulance	7397	36985	73970	184925	739700
Fire/EMS	E10	Scottsville Fire Department/Rescue Squad	22850	114250	228500	571250	2285000
Fire/EMS	H5	St Paul Fire Department/Ambulance	14500	72500	145000	362500	1450000
Fire/EMS	K5	Webster Fire Department/NOrtheast Quadrant ALS (NEQ)	31538	157690	315380	788450	3153800
Fire/EMS	J5	West Webster Fire Department/Ambulance	8192	40960	81920	204800	819200
Fire/EMS	K5	Xerox Fire Department/Ambulance	713469	3567345	7134690	17836725	71346900
Fire/Govt	G7	Rochester Fire Department/PSTF/EOC	21624	108120	216240	540600	2162400

Fire/Police	H6	Rochester Fire Department/Police Department/Public Safety Building	116350	581750	1163500	2908750	11635000
Govt	H6	911 Call Center	160500	802500	1605000	4012500	16050000
Govt	B5	Brockport Village Offices	5481	27405	54810	137025	548100
Govt	E8	Chili Town Hall	40686	203430	406860	1017150	4068600
Govt	C7	Churchville Village Office	5938	29690	59380	148450	593800
Govt	B4	Clarkson Town Hall	1450	7250	14500	36250	145000
Govt	H6	County Office Building	5000	25000	50000	125000	500000
Govt	J7	East Rochester Village Offices	17424	87120	174240	435600	1742400
Govt	F4	Greece Town Hall	97191	485955	971910	2429775	9719100
Govt	B3	Hamlin Town Hall	7250	36250	72500	181250	725000
Govt	H8	Henrietta Town Hall	70514	352570	705140	1762850	7051400
Govt	E3	Hilton Village Offices	12904	64520	129040	322600	1290400
Govt	H11	Honeoye Falls Village Hall	2910	14550	29100	72750	291000
Govt	H5	Irondequoit Town Hall	60000	300000	600000	1500000	6000000
Govt	H11	Mendon Town Hall	2510	12550	25100	62750	251000
Govt	H6	Monroe County Office Building	39500	197500	395000	987500	3950000
Govt	E4	Parma Town Hall	13364	66820	133640	334100	1336400
Govt	J6	Penfield Town Hall	16094	80470	160940	402350	1609400
Govt	K8	Perinton Town Hall	80005	400025	800050	2000125	8000500
Govt	I8	Pittsford Town Hall	7485	37425	74850	187125	748500
Govt	I8	Pittsford Village Hall	3967	19835	39670	99175	396700
Govt	H6	Rochester City Hall	80725	403625	807250	2018125	8072500
Govt	G10	Rush Town Hall	13888	69440	138880	347200	1388800
Govt	B5	Sweden Town Hall	10341	51705	103410	258525	1034100
Govt	D5	Village of Spencerport	2600	13000	26000	65000	260000
Govt	J5	Webster Town Hall	16431	82155	164310	410775	1643100
Govt	E9	Wheatland/Schottsville Town & Village Offices	19000	95000	190000	475000	1900000
Nursing Home	K7	Aaron Manor Rehabilitiation and Nursing Center	86000	430000	860000	2150000	8600000
Nursing Home	J8	Alterra Clare Bridge of Perinton	20000	100000	200000	500000	2000000
Nursing Home	F5	Atria Greece	20826	104130	208260	520650	2082600
Nursing Home	J7	Atria Penfield	37950	189750	379500	948750	3795000
Nursing Home	H5	Baird Nursing Home	5884	29420	58840	147100	588400
Nursing Home	I6	Blossom Health Care Center	14800	74000	148000	370000	1480000

Nursing Home	H5	Blossom North Nursing and Rehabilitation Center	624930	3124650	6249300	15623250	62493000
Nursing Home	H7	Blossom South Nursing and Rehabilitation Center	16500	82500	165000	412500	1650000
Nursing Home	H9	Brentland Woods	32565	162825	325650	814125	3256500
Nursing Home	H7	Church Home of the Protestant Episcopal Church	74950	374750	749500	1873750	7495000
Nursing Home	K8	Crest Manor Living and Rehabilitation Center	24000	120000	240000	600000	2400000
Nursing Home	G4	Crimson Ridge Gardens/Crimson Ridge Meadows	31800	159000	318000	795000	3180000
Nursing Home	G8	DePaul Adult Care Communities, Inc	38090	190450	380900	952250	3809000
Nursing Home	G4	Edna Tina Wilson Living Center	30591	152955	305910	764775	3059100
Nursing Home	K7	Fairport Baptist Homes	186034	930170	1860340	4650850	18603400
Nursing Home	G6	Family Srvs/Rochester EHP1 Danforth Towers East	3348	16740	33480	83700	334800
Nursing Home	G6	Family Srvs/Rochester EHP2 Jonathan Child Project	290	1450	2900	7250	29000
Nursing Home	H5	Family Srvs/Rochester EHP3 Hudson-Ridge Towers	130000	650000	1300000	3250000	13000000
Nursing Home	I8	Glenmere at Cloverwood	212500	1062500	2125000	5312500	21250000
Nursing Home	J7	Grande Vie Senior Living Community	66002	330010	660020	1650050	6600200
Nursing Home	G5	Grande Ville Senior Living Community	30951	154755	309510	773775	3095100
Nursing Home	F5	Hamilton Manor Nursing Home	6180	30900	61800	154500	618000
Nursing Home	I8	Heather Heights of Pittsford	67000	335000	670000	1675000	6700000
Nursing Home	J8	Highlands Living Center	95192	475960	951920	2379800	9519200
Nursing Home	I6	Hill Haven Nursing Home	31926	159630	319260	798150	3192600
Nursing Home	E3	Hilton East Assisted Living	34540	172700	345400	863500	3454000

Nursing Home	H7	Jewish Home & Infirmary of Rochester NY Inc	244300	1221500	2443000	6107500	24430000
Nursing Home	H6	Kirkhaven	41152	205760	411520	1028800	4115200
Nursing Home	B5	Lakeside - Beikirch Care Center, Inc	177500	887500	1775000	4437500	17750000
Nursing Home	G4	Latta Road Nursing Home	15450	77250	154500	386250	1545000
Nursing Home	J8	Laurelwood at the Highlands	174150	870750	1741500	4353750	17415000
Nursing Home	K5	Maplewood Nursing Home	42303	211515	423030	1057575	4230300
Nursing Home	H7	Monroe Community Hospital	230000	1150000	2300000	5750000	23000000
Nursing Home	F5	Park Ridge Housing	37286	186430	372860	932150	3728600
Nursing Home	F5	Park Ridge Nursing Home	50356	251780	503560	1258900	5035600
Nursing Home	J7	Penfield Place	16000	80000	160000	400000	1600000
Nursing Home	K8	Perinton Park Manor	36523	182615	365230	913075	3652300
Nursing Home	J5	Ranier Grove at Cherry Ridge	300000	1500000	3000000	7500000	30000000
Nursing Home	G7	Rochester Presbyterian Home	27000	135000	270000	675000	2700000
Nursing Home	I5	Sage Harbor at Baywinde	28000	140000	280000	700000	2800000
Nursing Home	F7	Seabury Woods	81412	407060	814120	2035300	8141200
Nursing Home	I5	Shire at Culverton Adult Home	55000	275000	550000	1375000	5500000
Nursing Home	H5	St Anns Community	179000	895000	1790000	4475000	17900000
Nursing Home	H7	St Johns Health Care Corporation	6240	31200	62400	156000	624000
Nursing Home	H7	The Brightonian, Inc	23700	118500	237000	592500	2370000
Nursing Home	I7	The Friendly Home	149100	745500	1491000	3727500	14910000

Nursing Home	H7	The Highlands at Brighton	83500	417500	835000	2087500	8350000
Nursing Home	H8	The Hurlbut	43000	215000	430000	1075000	4300000
Nursing Home	B5	The Landing	36500	182500	365000	912500	3650000
Nursing Home	K7	The Northfield	27600	138000	276000	690000	2760000
Nursing Home	H4	The Shore Winds, LLC	400	2000	4000	10000	40000
Nursing Home	G6	Unity Living Center	94900	474500	949000	2372500	9490000
Nursing Home	D5	Wedgewood Nursing Home	6350	31750	63500	158750	635000
Nursing Home	H6	Wesley Gardens Corporation	96000	480000	960000	2400000	9600000
Nursing Home	F5	West Side Manor	44000	220000	440000	1100000	4400000
Nursing Home	F7	Westgate Nursing Home	1380	6900	13800	34500	138000
Nursing Home	D7	Westwood Commons Adult Home	33855	169275	338550	846375	3385500
Nursing Home	H7	Wolk Manor Enriched Living Center	217500	1087500	2175000	5437500	21750000
Nursing Home	H7	Woodside Manor Nursing Home, Inc	16700	83500	167000	417500	1670000
Police	B5	Brockport Police Department	3386	16930	33860	84650	338600
Police	H6	Federal Bureau of Investigation	141000	705000	1410000	3525000	14100000
Police	F5	Greece Police Department Greece Ridge Center Mall	N/A - Part of Greece Ridge Center Mall, no data available				
Police	G4	Greece Police Department Headquarters	17996	89980	179960	449900	1799600
Police	G5	Greece Police Department Precinct 2	1854	9270	18540	46350	185400
Police	H5	Irondequoit Police Department	60000	300000	600000	1500000	6000000
Police	H6	Monroe County Sheriff Headquarters	240370	1201850	2403700	6009250	24037000
Police	J7	Monroe County Sheriff Zone A Substation	5500	27500	55000	137500	550000
Police	G8	Monroe County Sheriff Zone B Substation	19393	96965	193930	484825	1939300
Police	E7	Monroe County Sheriff Zone C Substation	9803	49015	98030	245075	980300
Police	J7	New York State Troop E Penfield	39257	196285	392570	981425	3925700
Police	G7	New York State Troop E Rochester	40903	204515	409030	1022575	4090300
Police	G6	Rochester Police Department	23490	117450	234900	587250	2349000
Police	G5	Rochester Police Department Net Office Area A	4000	20000	40000	100000	400000

Police	G6	Rochester Police Department Net Office Area B	1369	6845	13690	34225	136900
Police	G7	Rochester Police Department Net Office Area C	2020	10100	20200	50500	202000
Police	H7	Rochester Police Department Net Office Area C	2236	11180	22360	55900	223600
Police	H6	Rochester Police Department Net Office Area E	1308	6540	13080	32700	130800
Police	H5	Rochester Police Department Net Office Area F	2260	11300	22600	56500	226000
Police/Govt	H7	Brighton Police Department/Town Hall	43100	215500	431000	1077500	4310000
Police/Govt	K7	Fairport Police Department/Village Hall	12520	62600	125200	313000	1252000
Police/Govt	F6	Gates Police/Town Hall	56376	281880	563760	1409400	5637600
Police/Govt	C7	New York State Troop E Churchville/Riga Town Hall	20244	101220	202440	506100	2024400
Police/Govt	D6	Ogden Police Department/Town Hall	72500	362500	725000	1812500	7250000
Police/Govt	J5	Webster Police Department/Town Hall	16431	82155	164310	410775	1643100
Police/School	H6	Rochester Police Department/Young Mothers Program/OACES/NorthSTAR	38200	191000	382000	955000	3820000
School	G4	Abelard Reynolds School No 42 ES	15500	77500	155000	387500	1550000
School	B5	AD Oliver Middle School	223416	1117080	2234160	5585400	22341600
School	E6	Ada M. Cosgrove Junior High School	113583	567915	1135830	2839575	11358300
School	G6	Adlai E Stevenson School No 29 ES	27177	135885	271770	679425	2717700
School	F6	All Saints Catholic Junior High School	47036	235180	470360	1175900	4703600
School	I7	Allen Creek Elementary School	36100	180500	361000	902500	3610000
School	I7	Allendale Columbia School	136296	681480	1362960	3407400	13629600
School	J7	Alternative Junior Senior High School	25788	128940	257880	644700	2578800
School	H6	Andrew J Townson School No 39 ES	16083	80415	160830	402075	1608300
School	G5	Apollo Middle School	180694	903470	1806940	4517350	18069400
School	G5	Aquinas Institute of Rochester	68970	344850	689700	1724250	6897000
School	G4	Arcadia High/Arcadia Middle School	318714	1593570	3187140	7967850	31871400
School	F6	Archangel School	32125	160625	321250	803125	3212500
School	H5	Archangel School	53300	266500	533000	1332500	5330000
School	F4	Athena High School/Athena Middle School	268618	1343090	2686180	6715450	26861800
School	F5	Autumn Lane Elementary School	30478	152390	304780	761950	3047800
School	I8	Barker Road Middle School	129683	648415	1296830	3242075	12968300
School	G5	Barnard Elementary School	26149	130745	261490	653725	2614900
School	I5	Bay Knoll Seventh Day Adventist School	13200	66000	132000	330000	1320000
School	J6	Bay Trail Middle School/Scribner Road Elementary School	166591	832955	1665910	4164775	16659100

School	H5	Benjamin Franklin High School/Career Schools @/BioScience & Health Careers HS @/International Finance & Eco Dev HS @/Global Media Arts HS @/Franklin Montessori School	66906	334530	669060	1672650	6690600
School	H5	Bishop Kearney High School/Bishop Hogan Catholic Academy/Derech Hatorah Rochester	159700	798500	1597000	3992500	15970000
School	F9	BOCES	N/A - No Data Available				
School	J7	BOCES Foreman Center	161963	809815	1619630	4049075	16196300
School	E5	BOCES Vocational Education Center	101689	508443	1016885	2542213	10168850
School	I6	Bread of Life Christian Academy	22105	110525	221050	552625	2210500
School	H5	Briarwood Elementary School	18700	93500	187000	467500	1870000
School	F5	Brookside Elementary School	32656	163281	326562	816404	3265615
School	H5	Brookview Elementary School	27676	138380	276760	691900	2767600
School	G5	Buckman Heights Elementary School	181059	905295	1810590	4526475	18105900
School	I8	Calkins Road Middle School	343000	1715000	3430000	8575000	34300000
School	H6	Calvary Chapel Christian School	3704	18520	37040	92600	370400
School	E6	Canal View Elementary School	61953	309765	619530	1548825	6195300
School	G6	Cathedral School at Holy Rosary	9901	49505	99010	247525	990100
School	I6	Charles Carroll School No 46 ES	14044	70220	140440	351100	1404400
School	H9	Charles H Roth Middle School	130239	651195	1302390	3255975	13023900
School	H4	Charlotte High School	39367	196835	393670	984175	3936700
School	E8	Chestnut Ridge Elementary School	57433	287165	574330	1435825	5743300
School	B5	Christ Community Church School	12579	62895	125790	314475	1257900
School	H5	Christ the King School	42618	213090	426180	1065450	4261800
School	C7	Churchville Elementary School	26043	130215	260430	651075	2604300
School	D7	Churchville-Chili Senior High/Junior High/Middle High School	238025	1190125	2380250	5950625	23802500
School	G6	Clara Barton School No 2 ES	21800	109000	218000	545000	2180000
School	J7	Cobbles Elementary School	47138	235690	471380	1178450	4713800
School	H6	Cobblestone School	4070	20350	40700	101750	407000
School	H7	Colgate Rochester Divinity School	66040	330200	660400	1651000	6604000
School	B5	Cornerstone Christian Academy/Nativity of the Blessed Virgin Mary	14493	72465	144930	362325	1449300
School	H6	Corpus Christi School	21712	108560	217120	542800	2171200
School	I7	Council Rock Elementary School	72800	364000	728000	1820000	7280000
School	F5	Craig Hill Elementary School	38660	193300	386600	966500	3866000
School	F8	Crestwood Children's Center	51035	255175	510350	1275875	5103500
School	H6	Dag Hammarskjold School No 6 ES	17417	87085	174170	435425	1741700
School	H8	David B Crane Elementary School	38105	190525	381050	952625	3810500
School	H7	Destiny School for the Gifted and Talented	43700	218500	437000	1092500	4370000
School	I5	Dewitt Road Elementary School	26754	133770	267540	668850	2675400

School	G7	Dr Charles T Lunsford School No 19 ES	21125	105625	211250	528125	2112500
School	H6	Dr Martin Luther King Jr School No 9 ES	55578	277890	555780	1389450	5557800
School	G7	Dr Walter Cooper School No 10 ES	12292	61460	122920	307300	1229200
School	H6	Dr. Freddie Thomas High School/Young Adult Evening High School	65178	325890	651780	1629450	6517800
School	G6	Dr. Louis A. Cerulli School No 34 ES	13530	67650	135300	338250	1353000
School	K7	Dudley Elementary School/Northside Elementary School	139160	695800	1391600	3479000	13916000
School	I5	Durand Eastman Intermediate School	71400	357000	714000	1785000	7140000
School	I6	Early Childhood Center	31017	155085	310170	775425	3101700
School	G6	Early Childhood School of Rochester No 57 ES	8470	42350	84700	211750	847000
School	I6	East High School	102953	514765	1029530	2573825	10295300
School	I5	East Irondequoit MS	114700	573500	1147000	2867500	11470000
School	J7	East Rochester Elementary School/East Rochester High School	212650	1063250	2126500	5316250	21265000
School	I5	Eastridge High School	175900	879500	1759000	4397500	17590000
School	G6	Edison School/Applied Technology/Business, Finance, & Entrepreneurship/Engineering & Manufacturing/Imaging and Information Technology	127250	636250	1272500	3181250	12725000
School	H6	Elohim Bible Academy	3061	15305	30610	76525	306100
School	H8	Emma E Sherman Elementary School	47866	239330	478660	1196650	4786600
School	I6	Empire State College	7350	36750	73500	183750	735000
School	G4	English Village Elementary School	28541	142705	285410	713525	2854100
School	G6	Enrico Fermi School No 17 ES	21560	107800	215600	539000	2156000
School	G8	Ethel K Fyle Elementary School	39288	196440	392880	982200	3928800
School	H6	Eugenio Maria De Hostos Charter School	5000	25000	50000	125000	500000
School	H6	Eugenio Maria De Hostos Charter School	16000	80000	160000	400000	1600000
School	D7	Fairbanks Road Elementary School	28667	143335	286670	716675	2866700
School	K8	Fairport Senior High School	233218	1166090	2332180	5830450	23321800
School	F5	First Bible Baptist School	30292	151460	302920	757300	3029200
School	E7	Florence Brasser Elementary School	31835	159175	318350	795875	3183500
School	H6	Florence S Brown Pre-K Center/Audubon School No 33 ES	48038	240190	480380	1200950	4803800
School	H8	Floyd S Winslow Elementary School/Ninth Grade Academy	121727	608635	1217270	3043175	12172700
School	H6	Francis Parker No 23 ES	4100	20500	41000	102500	410000
School	I6	Frank Fowler Dow School No 52 ES	13797	68985	137970	344925	1379700
School	B5	Fred W Hill Elementary School/Barclay Elementary School/Ginther Elementary School/Brockport High School	523384	2616920	5233840	13084600	52338400
School	H7	French Road Elementary School	104600	523000	1046000	2615000	10460000
School	E6	Gates Baptist Temple School	19937	99685	199370	498425	1993700
School	F6	Gates Chili High/Middle School	360858	1804290	3608580	9021450	36085800
School	G6	General Elwell S Otis School No 30 ES	20500	102500	205000	512500	2050000

School	H6	Genesee Community Charter School	87000	435000	870000	2175000	8700000
School	G6	George Mather Forbes School No 4 ES	11256	56280	112560	281400	1125600
School	B5	Golden Heights Christian Academy	5760	28800	57600	144000	576000
School	H9	Good Sheperd School	19719	98595	197190	492975	1971900
School	E7	Grace Covenant Christian School	5643	28215	56430	141075	564300
School	F4	Greece Christian School	37200	186000	372000	930000	3720000
School	F5	Greece Montessori School	26462	132312	264624	661560	2646240
School	H8	Guardian Angels School	24760	123800	247600	619000	2476000
School	I5	Halpern Cay Treatment Education Center	27142	135710	271420	678550	2714200
School	I7	Harley School	200000	1000000	2000000	5000000	20000000
School	J7	Harris Hill School	52875	264375	528750	1321875	5287500
School	H5	Helen Barrett Montgomery School No 50 ES	0	0	0	0	0
School	I6	Helendale Road School	28000	140000	280000	700000	2800000
School	H8	Henrietta Christian School	9030	45150	90300	225750	903000
School	I6	Henry Hudson School No 28 ES	30151	150755	301510	753775	3015100
School	H6	Henry Lomb School No 20 ES	8765	43825	87650	219125	876500
School	G9	Henry V Burger Middle School/BOCES Alternative High School at Burger/BOCES Vollmer Satellite School/Mary K Vollmer Learning Center	145918	729590	1459180	3647950	14591800
School	H6	Henry W Longfellow School No 36 ES	10006	50030	100060	250150	1000600
School	H7	Hillel School	42700	213500	427000	1067500	4270000
School	H7	Hillside Childrens Center School	79345	396725	793450	1983625	7934500
School	E3	Hilton High School	262285	1311425	2622850	6557125	26228500
School	F5	Holmes Road Elementary School	252	1260	2520	6300	25200
School	H8	Holy Childhood School	39722	198610	397220	993050	3972200
School	H4	Holy Cross School	3100	15500	31000	77500	310000
School	G6	Holy Family School	5500	27500	55000	137500	550000
School	K5	Holy Trinity School	28044	140220	280440	701100	2804400
School	H11	Honeoye Falls-Lima Middle School	120000	600000	1200000	3000000	12000000
School	F6	Hope Hall School	22139	110695	221390	553475	2213900
School	G6	Im Ready Community Learning Center	11756	58780	117560	293900	1175600
School	I6	Indian Landing Elementary School	36000	180000	360000	900000	3600000
School	F10	Industry Secure School	110889	554445	1108890	2772225	11088900
School	H5	Irondequoit High School/Listwood Elementary School/Dake Middle School	356500	1782500	3565000	8912500	35650000
School	H4	Iroquois Middle School/Colebrook Elementary School	77800	389000	778000	1945000	7780000
School	H5	Ivan L. Green Elementary School	35000	175000	350000	875000	3500000
School	H6	James Monroe High School/Childrens School of Rochester No 15 ES	56500	282500	565000	1412500	5650000
School	H7	James PB Duffy School No 12 ES	38970	194850	389700	974250	3897000

School	J8	Jefferson Avenue Elementary School	66977	334885	669770	1674425	6697700
School	I8	Jefferson Road Elementary School	50259	251295	502590	1256475	5025900
School	K8	Johanna Perrin Middle School/Brooks Hill Elementary School	144097	720485	1440970	3602425	14409700
School	G5	John Marshall High School	45250	226250	452500	1131250	4525000
School	G7	John Walthon Spencer School No 16 ES	11082	55410	110820	277050	1108200
School	G6	John Williams School No 5 ES	24677	123385	246770	616925	2467700
School	G7	Joseph C Wilson Magnet High School Academy	38400	192000	384000	960000	3840000
School	G6	Joseph C Wilson Magnet HS Foundation Academy	61050	305250	610500	1526250	6105000
School	G4	Kirk Road Elementary School	38997	194985	389970	974925	3899700
School	J5	Klem Road South/Klem Road North Elementary School	55836	279180	558360	1395900	5583600
School	G5	Kodak Park School No 41 ES	16328	81640	163280	408200	1632800
School	G4	Lakeshore Elementary School	34136	170680	341360	853400	3413600
School	I5	Laurelton-Pardee Intermediate School	40600	203000	406000	1015000	4060000
School	E6	Leo Bernabi Elementary School	47435	237175	474350	1185875	4743500
School	G7	Lincoln Park School No 44 ES	12559	62795	125590	313975	1255900
School	H6	Lincoln School No 22 ES	11434	57170	114340	285850	1143400
School	G5	Longridge Elementary School	34280	171402	342805	857012	3428046
School	H11	Manor Elementary School/Honeoye Falls-Lima High School	130000	650000	1300000	3250000	13000000
School	J8	Martha Brown Middle School	85532	427660	855320	2138300	8553200
School	I6	Martin B Anderson School No 1 ES	11385	56925	113850	284625	1138500
School	H7	Mary Cariola Childrens Center	115000	575000	1150000	2875000	11500000
School	H6	Mary Mcleod Bethune School No 45 ES	53392	266960	533920	1334800	5339200
School	G7	MCC Applied Technology Center	63200	316000	632000	1580000	6320000
School	H7	McQuaid Jesuit High School	151700	758500	1517000	3792500	15170000
School	I8	Mendon Center Elementary School	193612	968060	1936120	4840300	19361200
School	D3	Merton Williams Middle School	201643	1008215	2016430	5041075	20164300
School	J8	Minerva DeLand 9th Grade Center	114192	570960	1141920	2854800	11419200
School	G10	Monica B Leary Elementary School	43166	215830	431660	1079150	4316600
School	H7	Monroe Community College	1693004	8465020	16930040	42325100	169300400
School	H7	Montessori School of Rochester	41900	209500	419000	1047500	4190000
School	J7	Morgan Middle School/Lois Bird Elementary School	106544	532720	1065440	2663600	10654400
School	G6	Most Precious Blood School	13870	69350	138700	346750	1387000
School	H6	Nathaniel Hawthorne School No 25 ES	5820	29100	58200	145500	582000
School	H6	Nathaniel Rochester Community School	27500	137500	275000	687500	2750000
School	G6	Nazareth Academy	13483	67415	134830	337075	1348300
School	I7	Nazareth College of Rochester	614488	3072440	6144880	15362200	61448800
School	G6	Nazareth Hall School	9885	49425	98850	247125	988500
School	F6	Neil Armstrong Elementary School	48298	241490	482980	1207450	4829800
School	J7	New Covenant Christian School/Charles G Finney High	47328	236640	473280	1183200	4732800

		School					
School	G6	New Jerusalem Christian School	1709	8545	17090	42725	170900
School	F5	New Testament Christian School	4414	22070	44140	110350	441400
School	H8	Norman Howard School	27424	137120	274240	685600	2742400
School	H5	North Baptist Christian School	32395	161975	323950	809875	3239500
School	D7	North Chili Christian School	25016	125080	250160	625400	2501600
School	F6	North Star Christian Academy	49752	248760	497520	1243800	4975200
School	H6	Northside Christian Academy	10516	52580	105160	262900	1051600
School	H6	Northwest College Prep High School @ Douglas	53661	268305	536610	1341525	5366100
School	F5	Northwood Elementary School	42000	210000	420000	1050000	4200000
School	G5	Odyssey Academy	73625	368125	736250	1840625	7362500
School	G5	Olympia High School/Buckman Heights Elementary School	181059	905295	1810590	4526475	18105900
School	H6	Ora Academy	2704	13520	27040	67600	270400
School	I6	Our Lady of Mercy High School	189800	949000	1898000	4745000	18980000
School	G4	Our Mother of Sorrows School	95975	479875	959750	2399375	9597500
School	H7	Our School	13187	65935	131870	329675	1318700
School	G4	Paddy Hill Elementary School	32066	160330	320660	801650	3206600
School	J9	Park Road Elementary School	61725	308625	617250	1543125	6172500
School	G4	Parkland Elementary School	31409	157045	314090	785225	3140900
School	F7	Paul Road Elementary School	41444	207220	414440	1036100	4144400
School	J7	Penfield Senior High School	131628	658140	1316280	3290700	13162800
School	J7	Penfield Village Nursery School & Kindergarten	39319	196595	393190	982975	3931900
School	F4	Pine Brook Elementary School	59195	295975	591950	1479875	5919500
School	H8	Pinnacle Lutheran School	26649	133245	266490	666225	2664900
School	H7	Pinnacle School No 35 ES	19236	96180	192360	480900	1923600
School	I8	Pittsford Central School District	48599	242995	485990	1214975	4859900
School	I8	Pittsford Mendon High School	205000	1025000	2050000	5125000	20500000
School	I8	Pittsford Sutherland High School	110116	550580	1101160	2752900	11011600
School	J6	Plank Road North/South Elementary School	85000	425000	850000	2125000	8500000
School	D3	Quest Elementary School	70435	352175	704350	1760875	7043500
School	G6	Roberto Clemente School No 8 ES	72491	362455	724910	1812275	7249100
School	E7	Roberts Wesleyan College	365473	1827365	3654730	9136825	36547300
School	H6	Rochester Academy of Medicine	10700	53500	107000	267500	1070000
School	G6	Rochester Academy of Seventh Day Adventists	5701	28505	57010	142525	570100
School	H7	Rochester Childfirst Network	11000	55000	110000	275000	1100000
School	H7	Rochester Children & Youth Services	360000	1800000	3600000	9000000	36000000
School	I6	Rochester Christian School	23787	118935	237870	594675	2378700
School	G8	Rochester Institute of Technology	3741820	18709100	37418200	93545500	374182000
School	G6	Rochester School For The Deaf	55000	275000	550000	1375000	5500000
School	H5	Rogers Middle School/Southlawn Elementary School	68300	341500	683000	1707500	6830000

School	H8	Rush-Henrietta Senior High School	171000	855000	1710000	4275000	17100000
School	G5	Sacred Heart Cathedral School/Flower City School No 54 ES	8658	43290	86580	216450	865800
School	K4	Schlegel Road Elementary School	34405	172025	344050	860125	3440500
School	H6	School of the Arts	162645	813225	1626450	4066125	16264500
School	H6	School Without Walls Commencement Academy	16506	82530	165060	412650	1650600
School	H6	School Without Walls Foundation Academy	5850	29250	58500	146250	585000
School	J5	Schroeder High School	176520	882600	1765200	4413000	17652000
School	H4	Seneca Elementary School	18500	92500	185000	462500	1850000
School	I7	Seton Catholic School	45400	227000	454000	1135000	4540000
School	I7	Siena Catholic Academy	71700	358500	717000	1792500	7170000
School	E6	Spencerport High School	30728	153640	307280	768200	3072800
School	K5	Spry Middle School	84362	421810	843620	2109050	8436200
School	H6	St Andrews School	10283	51415	102830	257075	1028300
School	H7	St Boniface School	17252	86260	172520	431300	1725200
School	G5	St Charles Borromeo School	66623	333115	666230	1665575	6662300
School	G7	St Helens School	27334	136670	273340	683350	2733400
School	I7	St John Fisher College	610226	3051130	6102260	15255650	61022600
School	I6	St John Neumann/St Ambrose School	53300	266500	533000	1332500	5330000
School	J8	St John of Rochester School	54038	270190	540380	1350950	5403800
School	D5	St John the Evangelist School	19414	97070	194140	485350	1941400
School	F5	St John the Evangelist School	55252	276260	552520	1381300	5525200
School	I6	St John the Evangelist School/Urban Choice Charter School	27800	139000	278000	695000	2780000
School	B2	St Johns Lutheran School	16300	81500	163000	407500	1630000
School	J7	St Josephs School	64523	322615	645230	1613075	6452300
School	G5	St Josephs Villa	103000	515000	1030000	2575000	10300000
School	F5	St Lawrence School	34000	170000	340000	850000	3400000
School	H5	St Margaret Mary Elementary School	73000	365000	730000	1825000	7300000
School	G7	St Monica School/Rochester Academy Charter School	10631	53155	106310	265775	1063100
School	E3	St Pauls School	52826	264130	528260	1320650	5282600
School	F7	St Pius X School	57520	287600	575200	1438000	5752000
School	J5	St Ritas School	48000	240000	480000	1200000	4800000
School	F10	State Agricultural and Industrial School	110889	554445	1108890	2772225	11088900
School	K5	State Road Elementary School	35237	176185	352370	880925	3523700
School	B5	State University College at Brockport	3560000	17800000	35600000	89000000	356000000
School	H6	Talmudical Institute of Upstate New York	6944	34720	69440	173600	694400
School	E5	Terry Taylor Elementary School	77762	388810	777620	1944050	7776200
School	G6	Theodore Roosevelt School No 43 ES	10688	53440	106880	267200	1068800
School	J5	Thomas High School	102253	511265	1022530	2556325	10225300
School	G6	Thomas Jefferson Middle School	68370	341850	683700	1709250	6837000
School	I8	Thornell Road Elementary School	87500	437500	875000	2187500	8750000

School	E9	TJ Conner Elementary School	35950	179752	359504	898759	3595037
School	K5	Toddlers' Workshop Kindergarten	14040	70200	140400	351000	1404000
School	K8	Tot-Al Care	1165	5825	11650	29125	116500
School	J7	Trinity Montessori School	17797	88985	177970	444925	1779700
School	G7	True North Rochester Prepartory Charter School	8000	40000	80000	200000	800000
School	H7	Twelve Corners Middle School/Brighton High School	495000	2475000	4950000	12375000	49500000
School	G7	University of Rochester	3086389	15431945	30863890	77159725	308638900
School	D3	Village Elementary School	201643	1008215	2016430	5041075	20164300
School	G6	Virgil Grissom School No 7 ES	26671	133355	266710	666775	2667100
School	F7	Walt Disney Elementary School	32136	160680	321360	803400	3213600
School	J4	Webster Christian School	27901	139505	279010	697525	2790100
School	J5	Webster Montessori School	6727	33635	67270	168175	672700
School	K4	Webster Presbyterian Society School	3196	15980	31960	79900	319600
School	F5	West Ridge Elementary School	6400	32000	64000	160000	640000
School	H7	Westfall Academy	45141	225705	451410	1128525	4514100
School	E9	Wheatland-Chili Middle/Senior High School	87072	435360	870720	2176800	8707200
School	J5	Wilink Middle School	163205	816025	1632050	4080125	16320500
School	E6	William C. Munn Elementary	32507	162535	325070	812675	3250700
School	H6	World of Inquiry School No 58 ES/Chester Dewey School No 14 ES	23579	117895	235790	589475	2357900

C. Mitigation Strategy

1. Goals and Objectives. Goals are broad or general statements (that cannot be quantified) indicating potential accomplishments. Objectives are measurable. Local goals are to:

   a. Reduce vulnerability to life-safety threats. Objectives include: increasing public awareness by identifying ways to increase public knowledge of threats and preparedness measures; enhancing and expanding Public Alerting and notification means.

   b. Reduce property and economic losses. Objectives include: increasing public awareness; enhancing and expanding Public Alerting and notification means; identifying appropriate insurance for vulnerabilities; identifying protective measures.

   c. Keep emergency plans current. Objectives include: plan review for accuracy; maintenance of resource databases and contacts; acknowledging and practicing review cycles that satisfy regulatory requirements.

   d. Maintain readiness for an effective and safe response. Objectives include: provision of state-of-the-art training programs and equipment for Public Safety providers; identification of voids in the Public Safety infrastructure; coordination of resources for effective and efficient response.

   e. Expedite the recovery process. Objectives include: identification and deployment of assistive resources; ensuring accurate and timely communication with the public; promoting neighbor helping neighbor concepts.

   f. Strive to be "the best we can be." Objectives include: seeking professional accreditations; continuing personal and professional development opportunities; seeking additional community partnerships; informing municipal officials about activities and eliciting their support; seeking funding sources to assist program goals and objectives.

2. Mitigation Measures. The Planning Committee reviewed the various types of projects that could be employed to mitigate the identified hazards, i.e. actions that may reduce the risks from the identified hazards. Mitigation Measures may include:

   a. "Prevention. Measures such as planning and zoning, open space preservation, land development regulations, building codes, storm water management, fire fuel reduction, soil erosion, and sediment control.

   b. "Property Protection. Measures such as acquisition, relocation, storm shutters, rebuilding, barriers, floodproofing, insurance, and structural retrofits for high winds and earthquake hazards.

   c. "Public Education and Awareness. Measures such as outreach projects, real estate disclosure, hazard information centers, technical assistance, and school age and adult education programs.

d. "Natural Resource Protection. Measures such as erosion and sediment control, stream corridor protection, vegetative management, and wetlands preservation.

e. "Emergency Services. Measures such as hazard threat recognition, hazard warning systems, emergency response, protection of critical facilities, and health and safety maintenance.

f. "Structural Projects. Measures such as dams, levees, seawalls, bulkheads, revetments, high flow diversions, spillways, buttresses, debris basins, retaining walls, channel modifications, storm sewers, and retrofitted buildings and elevated roadways (seismic protection)."[1]

D. Action Plan. The local Action Plan identifies feasible and cost-effective Mitigation Measures that should be implemented to eliminate or reduce the identified hazards. A lead agency, or a responsible individual, is required to guide the implementation of each identified Mitigation Measure.

Figure 1. identifies and prioritizes Mitigation Projects (as decided by the Planning Committee) in each of the six "Mitigation Measures" categories defined above. The Planning Committee directed that this Action Plan be placed here within the document to reflect their premise that these Projects have mitigation value for all hazards on our menu, i.e. their value is not limited to a specific hazard, it may have universal application.

Cost effectiveness was considered in deciding the Action Plan, Figure 1. The priority ranking considered affordability, and public support for projects. The Planning Committee recognized the value-added component of public education, as well as the obvious value inherent in necessary structural alterations. They also advocate continuing the use of a collaborative approach with community resources, i.e. partnerships of existing resources to accomplish a project on the Action Plan.

Action Plans that are specific to a hazard identified in Appendix B, are addressed with their respective hazard in Appendix C.

Since FEMA's approval of the 2005 Plan, the community has actively pursued the Action Plans identified for each of the six "Mitigation Measures" categories defined above. The resulting Mitigation Projects are identified as Figure 2. in Appendix D of this document. As with Figure 1. many of these Projects have mitigation value for all hazards on our menu, i.e. their value is not limited to a specific hazard, but has universal application. Mitigation Projects since 2005 that are specific to a hazard identified in Appendix B, are addressed with their respective hazard in Appendix D.

NOTE: The Stafford Act Amendment adopted by Congress defines six (6) Mitigation Measures, noted above, that may reduce risk to hazard vulnerability: Prevention, Property Protection, Public Education and Awareness, Natural Resource Protection, Emergency Services, and Structural Projects. FEMA requires local government to have an authorized Pre-Disaster Mitigation Plan to preserve their eligibility for a suite of mitigation grants that traditionally funds flood-related projects or structural projects. The Monroe County Plan contains local references

1 FEMA, "STATE AND LOCAL MITIGATION PLANNING how-to-guide: Getting Started." p.1-8.

for flood-related projects and structural projects in both Appendix C and Appendix D. The level of detail is limited as these grants require local applicants to submit a Letter of Intent for FEMA review and consideration. The level of detail in this Plan is appropriate to identify the community concern, our recognition that the concern may be reduced with a measure of mitigation, and that we will monitor grant program opportunities to abate the hazard. Readers of this Plan will find multiple examples of local mitigation projects that cross-walk with the six Mitigation Measures defined in the Stafford Act Amendment and yet are not included in FEMA's suite of mitigation grants. Our Plan is written to express the community's vulnerability and to document our continuous, thoughtful work to reduce vulnerability through projects across the spectrum of all six Measures regardless of FEMA Mitigation Grant funding.

Figure 1.

A. **Prevention.**

Measure: (describe measure)	**#1. Enforce Building Code as required for existing and new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal Code Enforcement Officers**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Comply with applicable federal and state regulations**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal officials and employees**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. County Planning Department review of local municipal subdivision and zoning proposals under General Municipal Law, Sections 2391., 239m, and 239n. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget**				
Lead Agency	**County Planning Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. Annual Review of the County's *Comprehensive Emergency Plan***				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget, state Local Emergency Management Preparedness Grant (LEMPG), state All-Hazards Comprehensive Emergency Management Planning Program**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#5. Regular review of Local Laws**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal legislative body**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

Measure: (describe measure)	**#1. Identify "special hazard" areas**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants**				
Lead Agency	**local municipalities (agency identified locally)**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Measure: (describe measure)	**#2. Maintain public infrastructure. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**appropriate municipal authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. Solicit intermunicipal and interagency cooperation**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local government, private-sector**				
Lead Agency	**local municipal officials and employees**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. Promote purchase of appropriate hazard insurance policies. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local government, Mitigation Grants**				
Lead Agency	**local governments (assistance available from NYS Insurance Dept., e.g. brochures)**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

Measure: (describe measure)	**#5. Property acquisition**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local government, Mitigation Grants**				
Lead Agency	**local municipal legislative body**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

C. **Public Education and Awareness.**

Measure: (describe measure)	**#1. Expand emergency Public Alerting means**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Provide Education and training for municipal officials**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. Review Utility Service & restoration plans.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**utility**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. Identify and utilize a "Speakers Bureau"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials and employees**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#5. Participate in annual "Weather Awareness Campaigns"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants, National Weather Service budget, state funds**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#6. <u>County Project</u>. Continue accreditation as a NOAA/NWS, *StormReady* community**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. Ensure proper disposal of Hazardous Waste**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, private-sector funding, user fees, Mitigation Grants**				
Lead Agency	**various government authorities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Enforce government permit processes. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, state/federal operating funds**				
Lead Agency	**local municipal authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. Provide comprehensive inspection services. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. Administer a Floodplain Management Program. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal authority in concert with Federal & State officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#5. Maintain "Urban Forests"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants, private-sector funds**				
Lead Agency	**local municipal officials and/or private utilities**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Continue County systems and services through the Public Safety Communications Division**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget and Capital Improvement Program, categorical grants, Mitigation Grants**				
Lead Agency	**County government**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Maintain inventory of community resources for local use and compliance with NIMS**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants**				
Lead Agency	**911/ECD**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. Establish an active Recruitment and Retention (of providers) Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, private-sector funding, categorical grants, Mitigation Grants**				
Lead Agency	**local jurisdiction authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. Stockpile emergency supplies**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#5. Solicit "Mutual Aid" agreements**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal authorities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#6. Engage emergency service jurisdictions in local municipal government processes**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#7. <u>County Project</u>. Continue recruitment and training for local residents in partnerships with NOAA/NWS for their SKYWARN Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget, federal and state budgets, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Measure: (describe measure)	**#1. Disaster "proof" public facilities. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

Measure: (describe measure)	**#2. Secure and provide redundant critical systems and facilities. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

Measure: (describe measure)	**#3. "Target Harden" facilities. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials and Chief Executive Officers associated with community Critical Infrastructure/Key Resources**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Measure: (describe measure)	**#4. Expand fiber telecommunications networks**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, private-sector funding, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials (may be in conjunction with private-sector vendors)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

LOCAL IMPLEMENTATION, MONITORING & EVALUATION

A. Documentation and Plan Adoption.

1. Public Involvement. Public participation is an integral component of the planning process. Participation in the development of this Plan includes:

   - The Planning Committee – through the County meetings (5); through the local municipal meetings at the village, town, and city levels; through their outreach to solicit local input intra and inter-agency.

- Local Officials. Meetings with the County Legislature – Public Safety Committee (3-31-03), Ways & Means Committee (4-2-03), the Legislature (4-8-03); meeting with County Department Directors (4-24-03); meeting with the County's Fire Advisory Board (1-27-03, 5-19-03, 11.16.09), EMS Advisory Board (2-18-03, 4-15-03, 11.16.09), Law Enforcement Council (11.5.09), Western District Emergency Managers Association (monthly meetings with Monroe County's Report), Urban Area Working Group (6.9.10), NIMS Steering Group (2.1.10, 5.10.10), Animal Advisory Committee (3.29.10, 5.3.10), Special Operations Committee (7.15.09, 1.20.10, 2.17.10, 6.16.10), Underground Utility Coordinating Council (7.16.09, 10.15.09, 4.15.10), the Monroe County NIMS Steering Group (7.19.10), and the Local Emergency Planning Committee; meeting with the Monroe County Supervisor's Association (5-16-03); meeting with the Monroe County Association of Villages (6.17.10). In addition to the Western District Association monthly meetings with other county Emergency Managers, the 2010 DRAFT Plan will be formally shared with our adjacent County Emergency Managers for their review and comment.

- Professional Organizations. Meetings with: Monroe County Bar Association, Municipal Attorney Section (2-6-03); the Institute of Traffic Engineers (5-9-03); the Institute of Real Estate Managers (3-19-03, 6-27-03); the American Public Works Association (2-25-03); and, the Monroe County Volunteer Firemen's Association (7.14.10); article published in the Monroe County Volunteer Firemen's "The Monroe County Siren," Spring 2003.

- Community Organizations. Speaking presentations with numerous groups including: Citizen Police Academies (1-26-03, 3-20-03); local Veteran's Administration Health Care providers (2-26-03); Rochester Business Alliance (3-27-03); and, Kodak's Advisory Committee (4-14-03). RG&E briefings for Executives and Control Center Operators (by Dick Marion, RG&E Committee representative).

- Schools. Letter of solicitation for participation, March 25, 2003 to: Monroe County School Boards Association, Monroe County School Superintendent's Association, Board of Cooperative Education Services #1, and #2; presentations to University of Rochester Health Care providers (4-25-03), Rochester Institute of Technology Management Team (6-10-03), and the Churchville-Chili Central School District (by the Churchville-Riga local planning committee for the 2010 planning process).

- Solicitation of Public Input and Information to the Public through published and electronic municipal newsletters, public official's local newspaper columns and local newspaper articles, local newspaper notices: of local committee meetings and meeting minutes availability; of draft plan availability; and, soliciting public input on draft plans. The DRAFT 21010 Plan will be announced on OEM Twitter and Facebook accounts and the County Website. The Plan will be available for public review and comment via a dedicated e-mail account for collection at OEM. Planning Committee members will solicit public comment through their respective municipal means. Public comment will also be gathered locally when each municipality holds a Public Hearing prior to legislative adoption.

2. Legislative Authorization. All villages (10), towns (19), and the City of Rochester joined the County in a multi-jurisdictional Plan, with the understanding that their local Legislative body would need to formally adopt the Plan. A sample Resolution for municipal adoption together with a list of the municipalities, and the date of their Legislative adoption is noted in Appendix I. All local, municipal resolutions will be Certified by the Legislative Clerk and be retained on-file at the County Office of Emergency Management.

   All municipalities, County department representatives, and the community partner agencies have engaged in the planning process to achieve this document for our community.

   This document is submitted to the NYS Division of Homeland Security & Emergency Services (DHSES). DHSES will submit the Plan to FEMA for review. When FEMA approves our Plan, it will be submitted to the local Legislative bodies for adoption, and then filed with DHSES and FEMA.

   All local Legislative bodies will follow statutes and local policy with regard to the Plan adoption process. In New York State, this includes a Public Hearing before each Legislative Body.

B. Plan Implementation.

This Plan may be institutionalized by reference and/or integration with government practices. For example:

1. The Monroe County Comprehensive Emergency Plan (CEMP) integrates this Plan in its "Risk Reduction" section. The menu of hazards and Action Plan for threat reduction are addressed in the CEMP.

2. The Plan may be considered during the review and development of municipal operating budgets and capital improvement budgets.

3. Local municipalities may incorporate the Plan in their review of: land use decisions and plat review, local development proposals, local municipal services, and local policy.

4. Plan implementation is also achieved by applying FEMA Mitigation grant awards for local projects. These grants and their projects are identified in Appendix I.

C. Plan Monitoring & Evaluation.

1. Plan Review. The Plan will be reviewed annually by the County Office of Emergency Management, to keep Appendix B current for occurrences and to document the impact of these hazards.

   A committee representing all initial Planning Committee municipalities and agencies will be designated to convene in Year-4 following the Plan's adoption, and in subsequent cycles during Year-4, to evaluate the Plan: to review and re-evaluate its stated risks and hazards; to evaluate the relevance of its goals and objectives; to evaluate the effectiveness and

appropriateness of its mitigation action plan and measures; and, to document the community's progress in accomplishing the Plan's stated goals and objectives.

2. Plan Approval. Subsequent Plan revisions will be submitted for local Legislative body approval. This approval will be subject to statutes and local policies regarding legislative authorization, i.e. Legal Notice, Public Hearing.

   Activities leading to Legislative consideration should include the same measure of public participation that was engaged in the initial development stages of the Plan. Public participation is an integral component of the plan maintenance process. Participation in the maintenance of this Plan will be consistent with the procedures used during the development of the plan. Public agencies and the general public will continue to be integral components of the Plan Monitoring and Evaluation process.

3. State and Federal Review. After local legislative review and revision, the County Plan will be compiled by the County Office of Emergency Management, and submitted to the New York State Division of Homeland Security & Emergency Services (DHSES), and the Federal Emergency Management Agency for their review. This action will obtain local compliance with the requirement for state and federal review of Plan revisions on a 5-year cycle.

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APPENDICES

APPENDIX A

Hazard Analysis Matrix

Hazard Analysis Matrix - Monroe County

		SCOPE							FREQUENCY				IMPACT										ONSET					DURATION								
		Potential Area Of Impact				Cascade Effect			Frequency				People				Private Property			Public Facilities			Warning					Hazard					Recovery				
Hazard	Rating	Single Location	Several Individual Location	Small Region	Large Region	Highly Unlikely	Some Potential	Highly Likely	A Rare Event	An Infrequent Event	A Regular Event	A Frequent Event	Injury or Death Unlikely	Injury/Death Small #'s	Injury/Death Large #'s	Injury/Death Extreme #'s	Little or No Damage	Moderate Damage	Severe Damage	Little or No Damage	Moderate Damage	Severe Damage	No Warning	Several Hours Warning	Up to One Day Warning	Up to One Week Warning	More Than a Week Warning	Less Than One Day	One Day	Two to Three Days	Four days to One Week	More Than One Week	Less Than One Day	One to Two Days	Three Days to One Week	One to Two Weeks	More Than Two Weeks
ICE STORM	336				■			■				■		■					■			■										■				■
FLOOD	335				■			■				■		■					■			■		■							■				■	
SEVERE STORMS	297				■			■				■		■					■		■			■					■						■	
HAZMAT (IN TRANSIT)	290		■				■					■		■				■			■		■						■						■	
WINTER STORM (SEVERE)	281				■		■					■		■				■		■				■						■				■		
FIRE	280		■				■					■		■					■		■		■					■						■		
TERRORISM	262		■					■			■			■				■				■	■						■					■		
UTILITY FAILURE	259			■			■					■	■				■				■		■						■					■		
EXPLOSION	256	■					■				■			■					■			■	■					■						■		
STRUCTURAL COLLAPSE	250	■					■				■			■				■			■		■								■			■		
CIVIL UNREST	246		■					■			■			■				■		■			■							■				■		
DAM FAILURE	232		■					■	■						■				■			■	■					■								■
LANDSLIDE	231		■					■			■		■					■			■		■					■						■		
TORNADO	227			■				■		■				■					■		■		■					■						■		
HAZMAT (FIXED SITE)	225		■					■			■			■				■		■			■					■					■			
RADIOLOGICAL (FIXED SITE)	224		■				■			■					■				■		■			■				■								■
ICE JAM	211		■					■			■		■					■		■				■						■			■			
AIR CONTAMINATION	210				■		■				■		■				■			■				■						■			■			
TRANS ACCIDENT	208	■					■				■			■				■		■			■					■					■			
EXTREME TEMPS	196				■		■				■			■			■			■						■					■		■			
RADIOLOGICAL (IN TRANSIT)	188		■				■			■				■			■				■		■						■				■			
WATER SUPPLY CONTAMINATION	187			■		■				■			■				■			■			■							■				■		
DROUGHT	165				■			■		■			■					■		■							■					■		■		
EPIDEMIC	160				■		■		■						■		■			■							■					■				■
EARTHQUAKE	159				■			■	■					■			■			■			■					■					■			
FUEL SHORTAGE	158				■		■			■				■			■			■							■					■		■		
BLIGHT	152				■		■			■			■					■		■							■					■	■			
FOOD SHORTAGE	152				■		■			■			■				■			■						■				■			■			
INFESTATION	152				■		■			■			■				■			■						■				■			■			

High 321-400 Moderately High 241-320 Moderately Low 161-240 Low 44-160

HAZARD DEFINITIONS*

AIR CONTAMINATION: This is pollution caused by atmospheric conditions, (as opposed to a chemical spill or release type of situation) such as a temperature inversion induced smoggy condition sufficiently serious to create some danger to human health.

BLIGHT: A disease of agricultural crops or non-agricultural plants resulting in withering, lack of growth, and death of its parts without rotting.

CIVIL UNREST: An individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g., riot).

DAM FAILURE: 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.

Background: Dams may be either man-made or exist because of natural phenomena, such as landslides or glacial deposition. The majority of dams are man-made structures normally constructed of earthfill or concrete. There are approximately 6,000 dams throughout New York State, of which many are small and do not constitute a serious threat to the downstream area if they were to fail.

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. For concrete dams, the major reason for failure is associated with foundations. For earthen dams, piping was the main reason for failure. Over topping affects both concrete and earthfill dams which do not have adequate spillways to allow for high water levels to pass through without damaging the structure.

NYS DEC classifies dams as “High Hazard”, “Moderate Hazard” and “Low Hazard”. The dams in Monroe County are already classified using these categories. Our 2005 Plan recognizes and utilizes these Classifications.

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

Background: Droughts can occur during any period of time in any region of New York State. Even though the State normally possesses an adequate water supply with sufficient annual precipitation to replenish the State's reservoirs, lakes, rivers and groundwater aquifers, certain areas have a history of being more susceptible to periods of drought.

Drought periods progress through stages and drought intensity may vary considerably during the drought period. They are not sudden, extreme events like floods. The time of occurrence and duration can cause significant variations in drought impacts. For example, a drought which occurs in the fall and winter months has little direct impact on crop production. For public water

supplies, drought is more serious during the reservoir refill and groundwater recharge periods in the spring.

EARTHQUAKE: 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).

Background: The most seismically active regions in the state 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).

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.

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.

EPIDEMIC: The occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal.

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

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

FIRE: The uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed area.

FLOOD: Flooding usually is a natural, cyclic occurrence in existing waterbodies. When a waterbody 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.

Background: Flooding is New York's most consistently damaging natural hazard. Since 1955 New York has recorded more flood events than any other state in the Northeast.

Flooding can be caused by, or by a combination of, excessive precipitation, rapid snowmelt, ice jams, beaver dams, dam failures, and tidal surges. Urban or street flooding is caused by excessive precipitation and/or clogged storm sewers. Ruptured water main can also cause urban flooding.

FOOD SHORTAGE: 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.

FUEL SHORTAGE: A situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments is interrupted.

HAZARDOUS MATERIAL - FIXED SITE: 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.

HAZARDOUS MATERIAL - IN TRANSIT: The uncontrolled release of materials 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.

ICE JAM: 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.

ICE STORM: Freezing rain which accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines.

INFESTATION: An excessive population of insects, rodents, or other animals requiring control measures due to their potential to carry diseases, destroy crops, or harm the environment.

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

RADIOLOGICAL (FIXED SITE): A release or threat of release of radioactive material from a nuclear power generating station or research reactor or other stationary source of radioactivity.

Background: Commercial nuclear power generating facilities have the greatest concentration of radioactive materials of any private source. There are three nuclear sites with six operating reactors in New York State that are capable of releasing substantial concentrations of radioactive materials in mass quantities. The three nuclear power sites are Indian Point in Westchester County, with two operating reactors; Nine Mile Point in Oswego County, with three operating reactors; and Ginna in Wayne County with one operating reactor.

There are numerous small research reactors and other facilities that use radioactive material in New York State.

RADIOLOGICAL - IN TRANSIT: A release or threat of release of radioactive material from a transportation vehicle including truck, rail, air, and marine vehicle.

SEVERE STORM : For this category, you should consider hail storms, windstorms, and severe thunderstorms (with associated severe wind events such as derechos, gustnados, and downbursts).

> **SEVERE THUNDERSTORM** is defined as a thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage may imply the occurrence of a severe thunderstorm.

STRUCTURAL COLLAPSE: A sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health.

TERRORISM: The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths.

TORNADO: A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. 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 of funnel. Winds have been estimated to be as high as 400 miles per hour.

Background: New York State has an average of five tornadoes a year which can occur in any region. A tornado is a great threat to life and usually causes catastrophic damage to property within its path. Due to the large amount of damage tornadoes cause in a relatively short amount of time, they are considered one of the most destructive natural hazards.

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

UTILITY FAILURE: Loss of electric and/or natural gas supply, telephone service or public water supply as a result of an internal system failure and not by the effects of disaster agents.

WATER SUPPLY CONTAMINATION: 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.

WINTER STORM SEVERE: A storm system that develops in late fall to early spring and deposits wintry precipitation, such as snow (including lake effect), sleet, or freezing rain, with a significant impact on transportation systems and public safety. For this analysis, the following could meet this definition:

HEAVY SNOW - Six inches in 12 hours or less.

BLIZZARD - Characterized by low temperatures, winds 35 mph or greater, and sufficient falling and/or blowing snow in the air to frequently reduce visibility to 1/4 mile or less for duration of at least three hours.

SEVERE BLIZZARD - Characterized by temperatures near or below 10 degrees F, winds exceeding 45 mph, and visibility reduced by snow to near zero for duration of at least three hours.

NOTE: Ice Storm should be analyzed as a separate hazard.

APPENDIX B

Hazard-Specific Analyses: Local Profile and Vulnerability

Appendix B-1

Hazard Specific Analysis: Ice Storm

Definition:

"Freezing rain which accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines."[1]

Description:

Winter storms are frequent, widespread, and potentially life threatening events within Monroe County. The most dangerous manifestation of this event is the Ice Storm. Ice Storms are the number one identifiable hazard in Monroe County with a High hazard numerical rating of 336.[2] They can significantly affect life, property, communications, and emergency response capabilities. "Heavy accumulations of ice can bring down trees, power poles and communication towers. It can disrupt communications and power for days…. When arctic temperatures follow…conditions will become life-threatening for those…without a reliable source of heat. If temperatures warm quickly and produce a thaw…those without power suffer flooding…when sump pumps fail to operate."[3] In addition, Ice Storms are likely to produce cascading events, and may be prolonged events, further adding to their danger and inconvenience.

"A credible worst case event would be expected to cover a large region and be highly likely to trigger cascade effects, such as power failures and transportation accidents. Severe damage to private property, such as utility transmission wires and poles, would be expected, with more than two weeks required for recovery before emergency operations returned to normal."[4]

Overview of specific hazard locations and the extent of the hazard:

While ice storms may affect any part or all of Monroe County, these areas have been selected for their high potential for hazard:

- Roads and highways, particularly Interstate Routes I-90, 390, 490, 590 and 531 that traverse the County north to south, and west to east (reference Map #7).
- Trees, utility poles, and wires.
- These events may also cause ice jams and floods as cascade events.
- These events may further cause harm and personal injury due to increased falls, motor vehicle accidents, and falling ice from buildings overhead surfaces, lines and trees.

Previous occurrences of the hazard:

Monroe County experiences icing on some level almost annually. The most significant ice storm events in recent history are:

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09
3 NWS Buffalo Office, *The Lake Breeze*, Winter 2005-06, page 4
4 Monroe County Hazard Analysis Report by SEMO, January 1999

March 2-7, 1976. This event, "…is recorded as the worst ice storm in history for the region…"[5] prompting a Disaster Declaration by President Ford on March 19, 1976. This storm identity is FDAA-494-DR.

March 3-6, 1991. This event prompted an activation of the County's Emergency Operations Center (EOC) that lasted for 14 days. This storm resulted in a Disaster Declaration by President George Bush on March 21, 1991. This storm identity is FEMA-0898-DR. Additional information is available at County OEM: Monroe County's "Post Disaster Assessment Report – Ice Storm '91"; NYS Disaster Preparedness Commission "After Action Report: Ice Storm in Western, Lake and Central New York State, March 3, 1991."

January 13, 1993. Freezing rain combined with 2-4 inch snowfall on the South shore of Lake Ontario categorized this as an ice/snow storm. Most schools were closed throughout the Finger Lakes region. There were numerous power outages and downed phone lines.[6]

January 27, 1994. "Significant icing occurred across Western New York. No unnecessary travel was recommended as roads iced up and numerous accidents resulted."[7] There were also numerous power outages across the area.

March 14, 1997. "Ice caused a 727 jet to skid-off the runway at the Rochester Airport" (WHAM Weather Book, 4.29.10).

January 2-11, 1998. Northern New York and Canada experienced severe icing (up to 4 inches[8]) which caused severe flooding in our area.

January 31, 2002. "A 3-5 inch snowfall overnight on the 30th-31st turned to freezing rain during the morning hours. Ice accumulation of ½ - ¾ inches occurred. Hundreds of thousands were without power for up to 72 hours. Winds increased with gusts to 55 mph. States of Emergency were declared across the Niagara Frontier Counties. This event caused approximately $500,000.00 in damage."[9]

April 3, 2003. This event prompted an activation of the County's Emergency Operations Center that lasted 6 days. This storm resulted in a Disaster Declaration by President George W. Bush on May 12, 2003. The storm identity is FEMA-1467-DR-NY. Additional information is available in County OEM's "April 2003 Ice Storm: Disaster Response File."

December 22, 2006. Part of our region received a "Freezing Rain Advisory" from the NWS Buffalo Office.

January 15, 2007. This was a 2-day event that reached western, central, northern and the Capital District of New York State. The Buffalo NWS Office issued a "Winter Storm Warning (1900 hours 1.14.07 – 1900 hours 1.15.07) at 0712 hours on 1.14.07. This storm caused numerous motor vehicle accidents, prompted road closures due to accidents, trees and wires down, closed schools, cancelled

5 NWS Buffalo Office, *The Lake Breeze*, Winter 2005-06, page 4
6 National Weather Service, Storm Data Report, May 28, 2003
7 National Weather Service, Storm Data Report, May 28, 2003
8 National Weather Service "Lake Breeze," Winter 2005-06
9 National Weather Service, Storm Data Report, May 28, 2003

events, delayed air traffic, and caused power outages for about 26,000 customers just in the Rochester area. The icing transitioned to a Snow Storm (Democrat & Chronicle, 1.15.07, 1.16.07).

February 8, 2008. "Police closed several city streets because of ice falling from several downtown buildings. County officials said ice had been falling from the upper levels of some taller structures. The falling ice posed a risk to pedestrians and motorists" (Democrat & Chronicle, 2.9.08).

March 6, 2008. This event included snow, ice and sleet.

	3/1991	4/2003	1.15.07	2.1.08	3.6.08
Ice Load	1.75"	1.25"	.50"	.75"	.25"

*Ice Loading is referenced from News Media reports from WHAM-TV13, and the Democrat & Chronicle.

Probability of future occurrences and potential magnitude:

Due to the widespread geographic area and the probability for cascade events, the probability of future occurrences and potential event magnitude is very high. Forecasting generally provides about 24-hour warning. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). The hazard may be present for more than one week, with the recovery phase lasting more than two weeks.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Cause failure of utility systems.
- Delay or restrict transportation.
- Cause damage to buildings, utility poles, and other structures.
- Restrict emergency response, and hamper emergency communications.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

FEMA & State Recovery Assistance (Stafford Act)
for Ice Storm Disaster Declarations

March 1991 Public Assistance - $58M

April 2003 Public Assistance - $9.258M
Individual Assistance - $16M
Mitigation (HMGP) - $76,426

This event can complicate emergency response and require Technical Rescue specialty components including: Structural Collapse, Water Rescue, Rope Rescue and Confined Space Rescue.

Additional information is available at County OEM:

- Monroe County Office of Emergency Management, "Post Disaster Assessment Report – Ice Storm '91"

- NYS Disaster Preparedness Commission, "After Action Report: Ice Storm in Western, Lake and Central New York State, March 3, 1991"

- SEMO Mitigation Branch, "FEMA State PAAS Report 5.5: Public Assistance Summary By Disaster, for FEMA-0898-DR"

- Monroe County Office of Emergency Management, "April 2003 Ice Storm: Disaster Response File."

- Monroe County Office of Emergency Management, *Pre-Disaster Mitigation Plan*, "2010 Plan File."

Notes on data limitations: local, state or federal information on March 1976 Storm, FDAA-494-DR.

Appendix B-2

Hazard Specific Analysis: Flood

Definition:

"Flooding usually is a natural, cyclic occurrence in existing waterbodies. When a waterbody 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. Flooding can be caused by, or by a combination of, excessive precipitation, rapid snowmelt, ice jams, beaver dams, dam failures and tidal surges. Urban or street folding is caused by excessive precipitation and/or clogged storm sewers. Ruptured water main can also cause urban flooding."[1]

"Additionally, a floodplain is defined as an area adjoining a watercourse, which is expected to be flooded as a result of severe combinations of meteorological and hydrological conditions.[2] The United States Geological Survey (USGS) divides flooding into six categories: regional, flash, ice-jam, storm-surge, dam failure and mudflow" (Democrat & Chronicle, 4.29.05).

Description:

Flood is identified as a High hazard at 335.[3] "Flooding is New York's most consistently damaging natural hazard. Since 1955 New York has recorded more flood events than any other state in the Northeast" (SEMO. HAZNY 2004). Flooding is likely to impact a large region, and highly likely to cause numerous cascade events as it disrupts all facets of daily routine, restricts critical services and can severely damage public and private infrastructure. Flooding is a frequent event, occurring more than once a year in Monroe County. Monroe County has had Federally Declared Major Flood Disasters in 1972, 1973, 1998 and 2004.

Precipitation data for Monroe County indicates 1873 as our wettest year at 49.89 inches. The greatest precipitation in a 24-hour period was 4.14 inches on August 29, 1893. On July 31, 1841, Dr. Chester Dewey, Rochester Collegiate Institute, recorded 1.2 inches of rain in one hour (WHAM Weather Book, 4.29.10). Monthly precipitation:

Month	Average Precipitation (inches)	Extreme (inches : year)
January	2.34	8.05 : 1878
February	2.04	5.4 : 1876
March	2.58	7.02 : 1873
April	2.75	6.13 : 1857
May	2.82	6.87 : 1894
June	3.36	8.53 : 1830
July	2.93	9.7 : 1947
August	3.54	7.26 : 1886

1 SEMO. HAZNY 2004
2 County of Monroe, Department of Planning, Floodplain Management, Rochester, NY, January 1974
3 Monroe County Hazard Analysis, 11.9.09

September	3.45	7.41 : 1868
October	2.60	8.67 : 1873
November	2.84	7.12 : 1927
December	2.73	6.17 : 1878

Data from the WHAM Weather Book, 4.29.10

Overview of specific hazard locations and the extent of the hazard:

The National Weather Service reports Monroe County's Flash Flood potential as: low risk in the northern half of the County, while moderate risk in the southern half of the County (HAZNY, 1999).

Floods affect these areas of Monroe County:

- Residential property in the City of Rochester, the towns, and the villages
- Agricultural property throughout the County
- Locations around major creeks and riverbeds, including Red Creek, Black Creek, Oatka Creek, Honeoye Creek, Irondequoit Creek, Allens Creek, and the Genesee River.
- The south shore of Lake Ontario

"While hurricanes and tornadoes often make more headlines than any other weather event, flooding can take the blame for the most weather related fatalities. On average, nearly 125 people in the United States lose their lives each year due to floods…. Flood damage averages more than $2 billion annually. We have been lucky in recent years across Western New York in that flooding has been more of a problem for property rather than lives, but nonetheless that threat will always be present.

"Flooding for Western New York can occur at any time of year. During the Spring and Summer months, all areas experience the threat of heavy rain from thunderstorms. Slow moving thunderstorms, and thunderstorms that "train" (repeatedly move across the same area), often produce flooding. The 'training' of thunderstorms is most common along stationary fronts and is also often observed along Lake Breeze Fronts sagging south from Lake Ontario.

"One to three inches of rain in a short span of time can raise smaller creeks and streams to near bank-full, with urban areas experiencing flooding from poor drainage. In urban areas where land has been converted from fields and woodlands to roads and parking lots, the surface loses its ability to absorb rainfall. During periods of urban flooding, streets can become swift moving rivers, while basements can become death traps as they fill with water. Urbanization increases runoff some 2 to 6 times over what would occur on natural terrain.

"The Summer and early Fall months are also favorable months for excessive rain from the remains of tropical systems. Some of the worst flooding in recent times has come from such events. Devastating floods wracked the Southern Tier, Eastern Finger Lakes and east of Lake Ontario regions during Hurricane Agnes in June 1972, with serious flooding in the Buffalo area after Tropical Storms David and Frederic in September 1979. Tropical Storm Opal brought very strong winds and flooding rains to parts of western New York in October of 1995.

"Possibly the largest contributors to flooding in Western New York is from excessive winter snowmelt, combined with heavy Spring rains. One of the most classic cases of this type of flooding took place in the Genesee Valley and Finger Lakes region in 1993. The area most affected from this kind of flooding is the Black River Basin east of Lake Ontario where lowland flooding from snowmelt and Spring rains is a yearly ritual.

"The winter of 1997-98 will conjure up memories of the historic ice storm which struck the North Country in January, but what some us don't realize is that an all-time flood event took place at the same time for the Black and Salmon Rivers. El Nino dumped 3 to 4 inches of rain and freezing rain on the area with snow melt helping to send rivers to all time crests.

"True Flash Flooding is rare in western New York, but as mentioned urban drainage and small stream flooding can occur at virtually anytime of year. This type of flooding is usually short lived, but can cause serious problems in the metropolitan areas of Buffalo and Rochester as the terrain is relatively flat with a lot of bridges and viaducts. A rough guide of an inch of rain in an hour can be used to predict significant problems in urban areas."[4]

"The U.S. Geological Survey operates and monitors a network of streamflow gages throughout the state of New York. The New York State Department of Environmental Conservation (DEC) for many years has supported data collection totally or in conjunction with other agencies at various gages. The data from this network are used for flood and drought forecasting; water-supply, water-quality, and environmental studies; reservoir-release monitoring for legal and wildlife purposes; and determination of the general availability and variability of the surface waters of the state."[5]

FEMA identifies repetitive loss with Monroe County towns, villages and the City of Rochester. NFIP properties and the FEMA data are referenced in Appendix H.

Previous occurrences of the hazard:

National Weather Service, Buffalo Office, data on Flash Floods indicates:

EVENT beg DATE/TIME	EVENT end DATE/TIME	ZONE	COUNTY	LOCATION	WARNING ISSUED
05/24/04 0130	05/24/04 0300	NYC055	MONROE	IRONDEQUOIT Basement and Road flooding	YES
08/29/04 1510	08/29/04 1700	NYC055	MONROE	ROCHESTER Widespread street flooding	YES
06/10/05 1355	06/10/05 1600	NYC055	MONROE	CHARLOTTE Basement flooding	YES
07/14/05 2015	07/14/05 2200	NYC055	MONROE	CHILI Basements flooded	YES
07/12/06 1450	07/12/06 1700	NYC055	MONROE	ROCHESTER I390 closed	YES
07/23/08 1650	07/23/08 1850	NYC055	MONROE	2W ROCHESTER Rte 490 closed BTW Mt Read and 390	YES

Judy Levan, NWS email, 5.10.10

Historical information on these record storm events is available at the County Office of Emergency Management. The following storms are referenced on pages H-1 to H-3 in the U.S. Army Corps of Engineers, "Genesee River Flood Emergency Exercise Manual, February 1992: March 1865, March 1875, June 1889, May 1894, April 1896, March 1902, July 1902, March 1913, March 1916, May 1916, December 1927, July 1935, July 1942, March-April 1950, November 1950 (NOTE: Downstream flooding was influenced by the Mt. Morris Dam beginning with this flood.), March 1956, March-April 1960, April 1961.

The most significant floods beginning with Hurricane Agnes are:

June 23 – June 26, 1972. These dates signify Monroe County flooding that occurred as a residual effect of Hurricane Agnes. A Federal Disaster Declaration was issued on June 23, 1972, and is identified as 338-DR. In

4 Levan, Judy. National Weather Service (Buffalo Office) SKYWARN E-NEWSLETTER, July 2003
5 Moore, L. Grady, US Geological Survey District Chief, Letter to Monroe County, February 23, 1995

the Flood History section of the State's, "406 Hazard Mitigation Plan, September 1986," this Tropical Storm is cited as, "The worst flood disaster in the Northeast U.S. Areas received 18.8 inches of rain. 100,000 people were evacuated. 600 homes were destroyed. 25 deaths" (p.4-25).

"Tropical Storm Agnes and associated weather systems produced the most destructive widespread flooding of record over eastern United States. In the Genesee Basin, the predominant portion of the rainfall occurred from 9 p.m. 20 June, to 6 a.m. on 23 June. The maximum total storm rainfall, 13.72 inches, and maximum daily rainfall, 6.57 inches, were recorded at the Wellsville gage. A "bucket survey" of the Genesee Basin made by the Corps personnel indicated a maximum of about 16 inches of rainfall in the upper reaches of Dyke Creek near Andover, New York. The average total basin rainfall for the period 20-25 June was 7.1 inches while the average for the same period on the upper basin (above Mount Morris dam) was 10.20 inches.

"Regulation during a portion of this flood required the controlled release of dam outflows in excess of downstream channel capacity to prevent overtopping the spillway with debris laden flows. The reservoir pool reached a maximum elevation of 755.8 feet, thus occupying approximately 96 percent of total reservoir storage. This was the highest pool elevation ever attained in the Mount Morris Reservoir. Detailed information on this flood is contained in Buffalo District's "Report of Flood, Tropical Storm Agnes, 21-23 June 1972, Genesee River Basin," dated August 1973" (U.S. Army Corps of Engineers, "Genesee River Flood Emergency Exercise Manual, February 1992," p. H-4). "Rochester received more than 4 inches of rain. Meanwhile, destructive floods washed out roadways, bridges and even caused building damage on the upper Genesee River. It took nearly all summer to drain local fields" (Democrat & Chronicle, 6.22.06).

1972. High levels, Lake Ontario.

March 16 – 23, 1973. Lakeshore flooding with a Federal/State Disaster Declaration, identified as 367-DR. " . . . Storm waves resulting from the action of strong northerly winds on a high lake level caused damage estimated at $25M to both public and private property along the New York shore of Lake Ontario."[6]

October 29, 1974. "A sewer tunnel being constructed under the Barge Canal in Bushnell's Basin cracked and gave way, sending over 200 million gallons of water down Tributary 21 and into Brook Hollow Rd. Because the flood was so localized it was not designated a disaster area."[7]

41 homes damaged, 2 demolished
power outages in 165 homes
100 homes without gas
displaced residents
roads destroyed
millions of dollars in property damage
1 minor injury

February & July 1976. Severe storms, heavy rains, flooding and thunderstorms.

"During the period 16-23 February, approximately 2.6 inches of rain fell over the upper basin. This rainfall augmented by about two inches of snowmelt runoff resulted in a peak reservoir elevation on 23 February of 727.6, or about 71 percent of available storage. During the remainder of February, every effort was made to

6 SEMO, New York State 406 Hazard Mitigation Plan, September 1986. p 4-9
7 Eric Johnston, Dept. of Geology, State University College of Arts & Science, Geneseo, NY, February 1986 (RE: Case study for American Red Cross)

discharge as much water as possible consistent with downstream conditions. At the end of the month, the pool elevation was 709, or about 56 percent of capacity. During the period 1-6 March, about 2.5 in. of rain, including some snowmelt, caused the pool to again rise.

"On 6 March, the reservoir pool peaked at 744.1 feet, thus utilizing 85% of the total storage. Peak inflows to Mount Morris Reservoir during the February and March runoff events reached 32,500 cfs and 28,000 cfs, respectively. Although the peak inflows were not particularly impressive, the volume of water received caused the pool elevation to be the second highest of record, exceeded only by that of Tropical Storm Agnes" (U.S. Army Corps of Engineers, "Genesee River Flood Emergency Exercise Manual, February 1992," p. H-4).

The National Weather Service (NWS) issued 30 flood/flash flood warnings between 1993 and 2002. The following information was compiled from NWS record data and office files:

March 28, 29, 30, 1993. Flooding on some creeks and rivers. "The most significant occurred along Black Creek in Monroe County. A dozen homes along the creek were surrounded by water. Large segments of roads were inundated and still closed at months end. The Genesee River rose just above floodstage at Avon and Rochester even with closure of all gates at the Mt. Morris Dam. The dam stored over 5 inches of runoff and used 85% of its storage capacity."[8] The County EOC was activated on March 30th for 4 hours.

April 1-5, 1993. Flooding continued as a result of additional rain and snowmelt. It was the worst flooding since Hurricane Agnes in 1972. The County EOC was activated on April 1st for 39.5 hours. Additional information is available at County OEM: U.S. Army Corps of Engineer's, "After Action Report for the Flood of 1993;" National Oceanic and Atmospheric Administration's, "Natural Disaster Survey Report: The Great Flood of 1993," and the County's Disaster Response File.

(beginning) April 1993. High levels, Lake Ontario. County response files available at the Office of Emergency Management.

March 23 & 24, 1994. Rainfall combined with snowmelt caused flooding. Black Creek at Churchville reached flood stage on the 23rd. Oatka Creek reached flood stage at Garbutt on the 24th.

April 14, 1994. Spring rains together with saturated ground, raised the level of the Genesee River about a foot and a half above flood stage. A few roads had minor flooding.

January 21, 1995. Heavy rains on the 20th caused Black Creek to exceed flood stage and overtop its banks at various locations along its reach.

August 3, 1995. Flash flooding in Monroe County caused $35,000.00 in damages.

January 19, 1996. The County EOC was activated for 2 hours to assess and coordinate agency activity associated with rising waters due to a "January Thaw," and rainfall.

April 14 &15, 1996. A general one to two-inch rainfall combined with lingering snowmelt from higher elevations resulted in considerable lowland flooding. Most major creeks and rivers rose to bankfull. The Genesee River was above flood stage for five hours. Oatka Creek was above flood stage for 31 hours. Black Creek was above flood stage for eight hours and caused $15,000.00 in damages.

8 National Weather Service, Storm Data Report, May 28, 2003

June 12, 1996. Thunderstorms moving across the southern portion of the county produced torrential rains and caused flash flooding on the west side. Several roads in Chili were flooded and had to be closed until sewers could handle the storm runoff. Estimated property damage was $20,000.00.

July 30, 1996. Thunderstorms during the late afternoon hours dropped over two inches of rain in four hours resulting in flash floods. The waters flooded over 200 basements in the City of Rochester and caused an estimated $45,000.00 in damages.

October 19 & 20, 1996. Flash flooding occurred causing an estimated $100,000.00 in damages.

1997. High levels, Lake Ontario. County response files available at the Office of Emergency Management.

February 5, 1997. An earthen dam gave way causing flood waters to spill onto roadways and several backyards. Damage was estimated at $4,000.00.

1998. High levels, Lake Ontario. County response files available at the Office of Emergency Management.

January 8 & 11, 1998. Western (and Central) New York was drenched with unprecedented January rainfalls over a 36-hour period. A general three to four inches of rain fell on bare, saturated ground across the Genesee basin. The Genesee River crested at 36.4 feet at Avon (the highest since 1972) and at 16.8 feet in Rochester (the highest since 1984). The Black Creek crested at Churchville at 9.2 feet (the highest since 1960). At Garbutt, the Oatka Creek crested at 8.7 feet (a record flood). Damages were estimated at $375,000.00 Local fire fighting and public works departments were called to pump water from flooded basements. The floodwaters overwhelmed several municipal wastewater treatments plants and water emergencies were declared. Several States of Emergency were declared in various locations in Western/Central NY. The Town of Webster had estimated damages of $100,000.00 resulting from flash flooding. The County EOC was activated for 30 minutes on January 8th. This event prompted a Disaster Declaration by President Clinton, FEMA-1196-DR-NY.

June 13, 1998. Thunderstorms crossed the western Finger Lakes during the early evening hours dropping several inches of rain in less than an hour. The heavy rains flooded roads forcing closures throughout Monroe County. Chili Center had estimated damages of $30,000.00.

June 30, 1998. Thunderstorms throughout the day dropped several inches of rain over the same area. The heavy rains resulted in urban and drainage flooding in the Rochester metro area. The Town of Brighton had estimated damages of $13,000.00.

July 8, 1998. Nearly three inches of rain fell at the Rochester airport with slightly higher amounts reported over the southern suburbs. Urban flooding resulted in Rochester, Pittsford and Penfield. In Penfield, basements of the Forest Hills Condominium complex flooded for the second time that year. Many of the basements and appliances had just been repaired and replaced following floods in January. The Town of Penfield had damages estimated at $100,000.00 and the Town of Pittsford reportedly had $150,000.00 in damages.

August 25, 1998. Slow moving thunderstorms moved across the Rochester metro area producing two to four inches of rain in just a few hours. Widespread urban flooding occurred. The Sheriff reported numerous roads closed across the south and southeast areas of the County. Estimated damages were $35,000.00.

January 23 & 24, 1999. Warm temperatures melted the snowpack from record snowfall in late December and early January. Nearly two feet of ripe snowpack dissolved to just a few inches. The runoff caused flooding in poor drainage and low lying regions across the area with roads closed in some locations for a couple of days. One of the hardest hit areas in Monroe County was the Town of Chili where evacuations occurred. Damages were estimated at approximately $55,000.00.

May 12 & 13, 2000. Thunderstorms rolled across the Niagara Peninsula and then along the Lake Ontario south shore counties. Only small hail was reported with the storms, however the storms produced hurricane-force winds. In the Town of Irondequoit, Kings Highway and Bayview Road caved in as a result of erosion. Damages were estimated at $45,000.00. A second round of thunderstorms crossed the area during the early afternoon hours. The heavy rains that fell on already saturated ground resulted in flash flooding in Monroe and Wayne Counties. In Webster, for example, four to six inches of water covered Schlegel Road. Road closures were common in the area for several hours. The Town of Webster had estimated damages of $135,000.00.

July 16, 2000. Thunderstorms brought heavy rains to the area dropping two to three inches of rain. West Henrietta and Jefferson Roads had to be closed due to the flood waters. In the City of Rochester, police closed Ramona Street, Mt. Read Boulevard, and Lexington, Driving Park and LaGrange Avenues. Damages were estimated at $15,000.00.

Hurricane Frances, September 9, 2004 (1564/1565-DR-NY). Monroe County did not activate the EOC for this event. Hurricane Frances, "…inundated western and central New York with drenching rain as its remnants drifted north across the region. Areawide rainfall totaled 3 to 5 inches with the bulk of it falling in a 6 to 9-hour period from very late September 8th to midday September 9th. Several creeks recorded their greatest flows and highest gage levels ever in a non-winter/spring season. The heaviest rain was in a swath …across Monroe and western Wayne counties, with between 3.5 to 4.5 inches" (National Weather Service, *The Lake Breeze*, Spring 2006). The National Weather Service, Buffalo Office issued a Flood Warning (0300 hours). Three villages and one town declared States of Emergency due to flooding and road closures. The Hilton Fire Department evacuated their Fire Station due to flooding. The Red Cross and local community shelters housed 163 evacuees. The Ogden Highway Superintendent evacuated two houses on Washington Street because flood waters from the Erie Canal had reached the first floor windows. OEM distributed 1,350 sandbags. The Red Cross distributed 75 clean-up kits. FEMA opened a Disaster Recovery Center at the Ogden Town Hall (November 22 – December 3, 2004) and deployed a Community Relations Team. FEMA financial assistance: $256,481 – Public Assistance; $1,964,092.96 – Individual Assistance; and $72,426 – Mitigation, HMGP (OEM Disaster Response File).

July 16-17, 2005. "More than half an inch of rain fell within 60 minutes and 20 minutes respectively on each of these evenings. The National Weather Service, Buffalo Office, explained that the strength of the rain that caused streets to look and feel like creeks. Lightening struck a house and caused a fire" (Democrat & Chronicle, 7.18.05).
September 16, 2005. "...More than 2 inches of rain fell in the Rochester area within the span of three hours and 3.08 inches for the entire day. The amount broke a 130-year record of the day. ...Some residents experienced a severe backup of sewer lines into their basement. Water from flooded streets was blamed...as well as surcharging of basement drains" (Democrat & Chronicle, 10.22.05). "This rainfall fits the definition of flash flooding" (Democrat & Chronicle, 9.18.05).

June 26-28, 2006. ****** Southern Tier Flooding ****** Monroe County resources responded to flooded Southern Tier counties when called for Mutual Aid. Ambulances, Special Operations tactical teams from the Fire Service, and 911 Dispatchers deployed in Task Forces and Strike Teams through requests from the NYS

Fire Mobilization Plan, the NYS Department of Health, and local Emergency Managers for assistance with specific assets (OEM Disaster Response File).

July 12, 2006. "Rochester's rainiest July day on record (3.33 inches) overflowed creeks, flooded basements and even created sinkholes behind some Irondequoit homes. Thirty percent of city firefighters' calls were for water-related problems. In Irondequoit the force of water pushing through a drainage system forced the ground to implode, creating a 25-foot wide by 10-foot deep crater. The heavy showers came in a series of 'training' storms. Flooding closed a portion of Interstate Route 390, and stranded cars in several shopping center parking lots. NYS Route 404 was closed after a 25-foot wide sinkhole formed. Localized flash flooding resulted in drain and sewer back-ups, many of them clogged by debris. The County Health Department discouraged swimming in Lake Ontario for 72 hours due to heavy discharge from streams, bays and the Genesee River (Democrat & Chronicle, 7.13.06, 7.14.06). The Erie Canal was re-opened. A significant stretch was forced to close due to flooding, stranding boaters for up to two weeks (Democrat & Chronicle, 7.15.06).

July 28, 2006. "Heavy rain...caused flooding and accidents throughout the area. Parts of the Empire State Games were delayed. Nearly 2 inches of rain fell at the Airport, and 3 inches fell in Webster. Numerous accidents were reported and NYSDOT closed a portion of Route 104 due to flooding. Rochester firefighters pumped water from the roof of Rural/Metro Medical Services. And, the rainfall is believed to have caused a landslide in Irondequoit at German Village" (Democrat & Chronicle, 7.29.06).

April 15-18, 2007. A nor'easter that battered the East Coast affected our area beginning on the 15th with the National Weather Service, Buffalo Office issuing of a Coastal Flood Advisory that included the Lake Ontario shoreline in Monroe County. The 911 Center deployed "HyerReach" calls to more than 2,200 homes along the shore to inform them of the impending flood threat and to encourage them to take precautionary measures from the rising water. The County Parks Department placed sandbags around the historic carousel at Ontario Beach Park to mitigate wave run-up and water damage. NOTE: subsequent to this storm, Monroe County provided sandbags to shoreline municipalities for residential and business flood fighting efforts. Conditions in other areas affected airline transportation imposing delays and cancellations at the Rochester Airport. About 4.7 inches of snow prompted extended shifts for DPW crews and several motor vehicle accidents. Black Creek flooded on the 17th, prompting a Flood Warning by the National Weather Service, Buffalo Office. Monroe County closed Ellison Park due to flooding on Irondequoit Creek. The city fire department responded to about 25 structural damage calls due to the weather. Precipitation on the 16th set a new daily record of 1.1 inches of rain at the Airport (Democrat & Chronicle, 4.16.07, 4.18.07; OEM Disaster Response File; Monroe County New Release, 4.30.07).

April, 2007. "A nor'easter earlier in April, recent rainfall and snow that's still melting have delayed the opening of New York's canal system, traditionally scheduled to open on May 1st. Until water levels recede, operations to place water control structures in position and set buoys and other critical navigational aids can not commence" (Democrat & Chronicle, 4.30.07). " 'The flooding from last month's nor'easter might seem mild if the thousands of dams in the state continue to decline, Senator Charles Schumer said.' There are nearly 2,000 federally recognized dams in New York...and the April storm exposed serious flaws in dams" (Democrat & Chronicle, 5.8.07).

June, 2009. "The last week of June featured a variety of weather (including) thunderstorms that produced localized flooding...." (Democrat & Chronicle, 7.2.09).

July 13, 2010. "A severe thunderstorm dumped heavy rain on the eastern part of Monroe County, causing: pooling water on some roadways; hydroplaning on Interstates 490 and 590 and Route 104 as water pooled to

nearly a foot deep in some pockets; and, power outages for about 800 RG&E customers" (Democrat & Chronicle, 7.14.10). At 1447 hours, the National Weather Service, Buffalo Office issued a Flash Flood Warning for "'Eastern Monroe County, including the City of Rochester, Irondequoit, East Rochester and Brighton until 1745 hours" (NWS Bulletin, 7.13.10).

NOTE: More specific information on the above referenced events, and others, is contained in municipal Flood Insurance Studies, and "Flood Plain Information" reports as referenced on the Flood Insurance chart and the Flood Plain Study charts in later pages of this section.

"River Stage Data" (National Weather Service, Storm Data Report, May 28, 2003) for Oatka Creek at the Garbutt Gage, Black Creek at the Churchville Gage, and the Genesee River at the Rochester and Avon Gages is on file at County OEM. The information: defines categories of flood types and correlates their elevation, and provides stream crests exceeding the flood stage together with the date of the flood event (from 1947 on the creeks, and 1865 on the River). It also describes the flood impact on the areas affected with each category – Bankfull, Flood Stage, Moderate Flood, and Major Flood.

Probability of future occurrences and potential magnitude:

Probability of future occurrences is very high. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). "One in three Federal disaster declarations is a result of flooding. An increase in population, more development in flood-prone areas, an increase in the frequency of heavy-rain events over the last fifty years, and impacts of...land use changes have resulted in an increase in flood-related losses. Many of these losses are mainly caused by inundation but can also be the result of strong currents damaging structures and undermining foundations. In the last 100 years more than 9,000 people have died as a result of inland flooding in the United States. In 2002 alone, 42 fatalities resulted from severe flooding, a majority of which could have been avoided if the victims had practiced risk-wise behavior. Property damage from all types of flooding, from flash floods to large river floods, averages $2 billion a year" (National Science and Technology Council, G*rand Challenges for Disaster Reduction*, January 2008).

Monroe County experiences floods and/or flash floods of varying magnitude every year. We can expect several hours of warning on flood events. Flash Floods can be immediate with little or no warning time, although the National Weather Service, Buffalo Office issues advisory products for ice jams which may cause flash flooding. Flooding can last from four days to one week, with a one-two week recovery phase (Monroe County Hazard Analysis, 11.9.09).

"In New York State, flood damage is often the result of development within flood zones, dam failures, inadequate urban drainage, construction of river channels, tropical storms, and a limited ability to obtain accurate river level and local precipitation data. The State has no specific flood season, however, hurricanes tend to occur during late summer and fall and the early spring snowmelt contributes to flooding during storms which occur in that season."[9] And, "With frozen ground, any large amount of rainfall won't be absorbed and will quickly turn into runoff," leaving us prone to flood events in winter months as well (Democrat & Chronicle, 2.5.08).

Urban flooding issues associated with excessive street flows and sewer system surcharge will continue to be a problem, especially in older community systems where residences and building drain collection and/or drainage

9 SEMO, New York State 406 Hazard Mitigation Plan, September 1986, p 4-1

systems are connected to sanitary sewers. "If water from the roof is going to the sanitary sewer from several locations, it does not take long for an 8-inch pipe to be overwhelmed" (Democrat & Chronicle, 10.22.05).

Monroe County provides sandbags to municipalities engaged in flood fighting. The County inventory and distribution log of this resource:

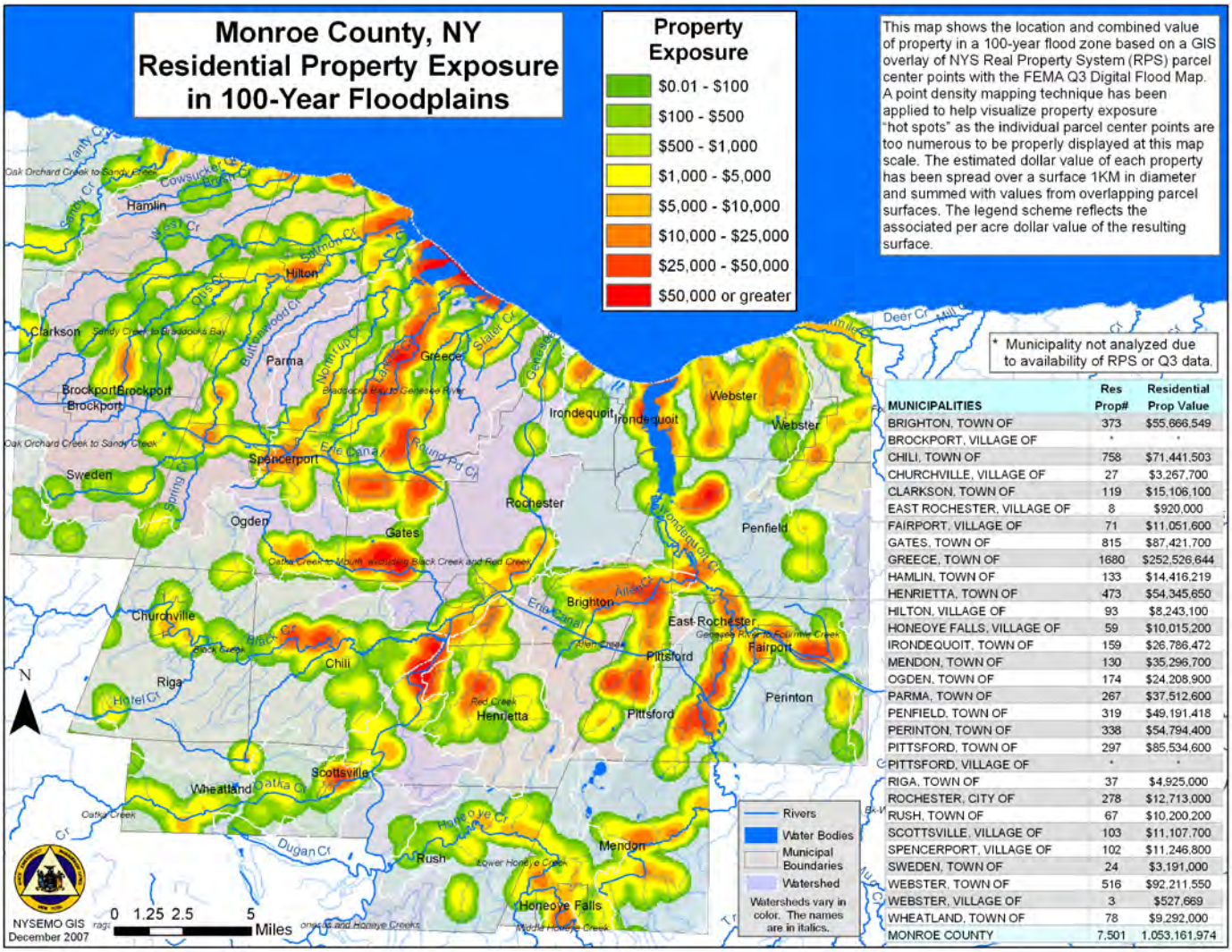
County Sandbag Distribution

date	# bags released/ received	receiver/supplier	purpose	inventory balance
6.9.04	- 50	M.C. Parks	property protection	49,650
9.8.04	- 200	Spencerport Amb.	property protection	49,450
9.8.04	- 150	T/Pittsford	property protection	49,300
9.9.04	- 1,000	T/Henrietta	property protection	48,300
11.30.04	- 200	T/Sweden	flood control	48,100
4.3.05	- 500	V/Honeoye Falls	Flood control	47,600
6.8.05	- 6	OEP	Ginna-R/CCC exer.	47,594
5.1.06	- 100	T/Gates	Flood protection	47,494
7.20.06	- 500	T/Pittsford	Flood protection	46,994
4.15.07	- 300	M.C. Parks	Property protection	46,694
4.17.07	- 3,500	T/Greece	Lakeshore residents	43,194
5.7.07	- 1,000	T/Chili	Property protection	42,194
5.15.07	- 1,000	T/Irondequoit	Lakeshore residents	41,194
12.30.08	- 1,200	T/Chili	Flood protection	39,994
8.21.09	- 10	Mendon FD	Dept. Exercise	39,984
1.25.10	- 3,000	T/Greece	potential flooding	36,984
2.2.10	County DOT	inventory	correction	35,400

OEM Sandbag File, 6.1.10

The Mount Morris Dam is an Army Corps of Engineer project, authorized with the "Flood Control Act, 78th Congress, 2nd Session (House Document #615), approved December 22, 1944. Construction began in March, 1948. The dam was completed on May 16, 1952 and dedicated July 27, 1952. Regulation of the Genesee River for flood control began on November 24, 1950. The total cost was $23,365,559 and damages prevented to October 2006 are estimated at $1,332,255,000. The dam is 67 miles upstream of Rochester. It is a single purpose dam for flood control. The dam prevented an estimated $210,000,000 damage (1972 dollars) during Tropical Storm Agnes in June-July, 1972. During this flood, early releases were made to prevent overtopping the spillway by flow laden with debris. This was the only time in its operation that the dam made releases that increased flood damages. It was estimated that this action increased the flood stage at the Genesee River, Avon gage by one foot" (Army Corps of Engineers presentation, August 27, 2007, Mt. Morris Dam Emergency Action Plan, December 1, 2007).

Maps of hazard areas:



* Municipality not analyzed due to availability of RPS or Q3 data.

MUNICIPALITIES	Res Prop#	Residential Prop Value
BRIGHTON, TOWN OF	373	$55,666,549
BROCKPORT, VILLAGE OF	*	*
CHILI, TOWN OF	758	$71,441,503
CHURCHVILLE, VILLAGE OF	27	$3,267,700
CLARKSON, TOWN OF	119	$15,106,100
EAST ROCHESTER, VILLAGE OF	8	$920,000
FAIRPORT, VILLAGE OF	71	$11,051,600
GATES, TOWN OF	815	$87,421,700
GREECE, TOWN OF	1680	$252,526,644
HAMLIN, TOWN OF	133	$14,416,219
HENRIETTA, TOWN OF	473	$54,345,650
HILTON, VILLAGE OF	93	$8,243,100
HONEOYE FALLS, VILLAGE OF	59	$10,015,200
IRONDEQUOIT, TOWN OF	159	$26,786,472
MENDON, TOWN OF	130	$35,296,700
OGDEN, TOWN OF	174	$24,208,900
PARMA, TOWN OF	267	$37,512,600
PENFIELD, TOWN OF	319	$49,191,418
PERINTON, TOWN OF	338	$54,794,400
PITTSFORD, TOWN OF	297	$85,534,600
PITTSFORD, VILLAGE OF	*	*
RIGA, TOWN OF	37	$4,925,000
ROCHESTER, CITY OF	278	$12,713,000
RUSH, TOWN OF	67	$10,200,200
SCOTTSVILLE, VILLAGE OF	103	$11,107,700
SPENCERPORT, VILLAGE OF	102	$11,246,800
SWEDEN, TOWN OF	24	$3,191,000
WEBSTER, TOWN OF	516	$92,211,550
WEBSTER, VILLAGE OF	3	$527,669
WHEATLAND, TOWN OF	78	$9,292,000
MONROE COUNTY	7,501	1,053,161,974

<u>Map #1</u>, "FEMA-Regulated Flood Hazard Zones" including Floodways and Floodplains for 100 and 500-year floods.

<u>Map #2</u>, Waterways

Monroe County has many natural and artificial waterways. Some are navigable, many are used for recreational purposes. Sources for the map we created include the U.S. Geological Survey, the National Wetlands Inventory, and the NYS Department of Environmental Conservation (NYSDEC). Features include: name of waterway, stream gage locations, NYSDEC stream classification, flood mitigation ponds, watersheds, and federal and state-regulated wetlands. Dams are not identified for security purposes, nor are the flood protection structures on the Erie Canal.

FULLNAME	2000EST	% Pop Change	Population 1990	Population 2000	Pop Estimate July 1, 2005	Pop Change 2000 - 2005	CRS_CLR	Repetitive Loss #s	Repetitive Loss Paid	# of Policies	TOT_COVER
BRIGHTON, TOWN OF	35,588	-2.72	34,455	35,588	34,620	-968	0	1	$6,240	125	$21,037,200
BROCKPORT, VILLAGE OF	7,959	0.39	8,749	8,103	7,990	31	0	0	$0	3	$540,900
BROCKPORT, VILLAGE OF	144	0.00	0	0	144	0	0	0	$0	3	$540,900
CHILI, TOWN OF	27,638	3.17	25,178	27,638	28,513	875	0	0	$0	207	$20,188,100
CHURCHVILLE, VILLAGE OF	1,887	0.74	1,731	1,887	1,901	14	0	0	$0	9	$1,086,900
CLARKSON, TOWN OF	6,072	4.89	4,517	6,072	6,369	297	0	0	$0	14	$1,823,700
EAST ROCHESTER, VILLAGE OF	6,650	-4.27	6,932	6,650	6,366	-284	0	0	$0	0	$0
FAIRPORT, VILLAGE OF	5,740	-2.86	5,943	5,740	5,576	-164	0	0	$0	8	$1,211,200
GATES, TOWN OF	29,275	-2.04	28,583	29,275	28,677	-598	0	1	$4,162	307	$36,679,900
GREECE, TOWN OF	94,140	-0.17	90,106	94,141	93,981	-159	9	1	$9,781	353	$51,122,700
HAMLIN, TOWN OF	9,355	-2.16	9,203	9,355	9,153	-202	0	2	$26,298	115	$15,534,800
HENRIETTA, TOWN OF	39,028	6.62	36,376	39,028	41,612	2,584	0	0	$0	233	$38,266,800
HILTON, VILLAGE OF	5,876	1.38	5,216	5,856	5,957	81	0	0	$0	32	$5,728,000
HONEOYE FALLS, VILLAGE OF	2,595	-0.92	2,340	2,595	2,571	-24	0	0	$0	11	$1,961,300
IRONDEQUOIT, TOWN OF	52,354	-2.45	52,377	52,354	51,072	-1,282	0	0	$0	211	$13,427,000
MENDON, TOWN OF	8,370	4.34	6,845	8,370	8,733	363	0	0	$0	20	$2,974,900
OGDEN, TOWN OF	18,495	3.67	16,912	18,492	19,173	678	0	0	$0	22	$3,502,500
PARMA, TOWN OF	14,822	3.68	13,873	14,822	15,367	545	0	1	$23,172	137	$16,323,200
PENFIELD, TOWN OF	34,645	2.63	30,219	34,645	35,557	912	0	6	$314,815	88	$12,357,500
PERINTON, TOWN OF	46,090	0.06	43,015	46,090	46,119	29	0	3	$68,726	48	$9,567,000
PITTSFORD, TOWN OF	27,219	3.78	24,497	27,219	28,249	1,030	0	3	$103,127	73	$17,576,600
PITTSFORD, VILLAGE OF	1,418	-4.65	1,488	1,418	1,352	-66	0	0	$0	2	$390,000
RIGA, TOWN OF	5,434	0.15	5,114	5,437	5,442	8	0	0	$0	10	$1,131,000
ROCHESTER, CITY OF	219,774	-3.95	231,636	219,773	211,091	-8,683	0	1	$22,142	82	$12,963,400
RUSH, TOWN OF	3,603	-3.05	3,217	3,603	3,493	-110	0	0	$0	3	$412,000
SCOTTSVILLE, VILLAGE OF	2,128	-2.68	1,912	2,128	2,071	-57	0	0	$0	12	$1,248,800
SPENCERPORT, VILLAGE OF	3,559	-1.12	3,606	3,559	3,519	-40	0	1	$101,375	15	$2,126,500
SWEDEN, TOWN OF	13,716	0.21	14,181	13,716	13,745	29	0	0	$0	4	$875,000
WEBSTER, TOWN OF	37,926	8.13	31,639	37,926	41,010	3,084	0	1	$8,230	54	$10,552,600
WEBSTER, VILLAGE OF	5,216	-2.43	5,464	5,216	5,089	-127	0	0	$0	2	$600,000
WHEATLAND, TOWN OF	5,149	-2.43	5,093	5,149	5,024	-125	0	2	$200,120	11	$1,682,800
MONROE COUNTY		0.00	750,417	771,845	769,536	-2,329	9	23	888,188	2,214	305,433,200

FULLNAME	Total Premiums	Total Claims Since 1978	Paid Claims Since 1978	V_ZONE	A_ZONE	Insurance in Force
BRIGHTON, TOWN OF	$89,063	22	$39,058	0	80	$21,037,200
BROCKPORT, VILLAGE OF	$997	1	$1,238	0	0	$0
BROCKPORT, VILLAGE OF	$997	1	$1,238	0	0	$0
CHILI, TOWN OF	$123,920	47	$108,724	0	183	$0
CHURCHVILLE, VILLAGE OF	$3,270	1	$0	0	2	$1,086,900
CLARKSON, TOWN OF	$6,423	7	$9,711	0	7	$1,823,700
EAST ROCHESTER, VILLAGE OF	$0	0	$0	0	0	$0
FAIRPORT, VILLAGE OF	$6,653	1	$500	0	5	$1,211,200
GATES, TOWN OF	$184,260	32	$21,056	0	236	$36,679,900
GREECE, TOWN OF	$222,672	96	$151,253	0	303	$51,122,700
HAMLIN, TOWN OF	$75,448	32	$100,160	0	93	$15,534,800
HENRIETTA, TOWN OF	$188,373	38	$99,398	0	176	$38,266,800
HILTON, VILLAGE OF	$22,437	16	$435,823	0	26	$5,728,000
HONEOYE FALLS, VILLAGE OF	$7,868	5	$17,355	0	7	$1,961,300
IRONDEQUOIT, TOWN OF	$40,223	29	$19,825	0	187	$13,427,000
MENDON, TOWN OF	$12,628	3	$2,381	0	11	$2,974,900
OGDEN, TOWN OF	$13,832	7	$143,578	0	10	$3,502,500
PARMA, TOWN OF	$88,421	15	$46,158	0	113	$18,323,200
PENFIELD, TOWN OF	$68,731	37	$415,085	0	67	$12,357,500
PERINTON, TOWN OF	$35,265	21	$148,408	0	26	$9,567,000
PITTSFORD, TOWN OF	$42,828	30	$112,882	0	25	$17,576,600
PITTSFORD, VILLAGE OF	$1,399	0	$0	0	0	$390,000
RIGA, TOWN OF	$3,898	5	$1,476	0	5	$1,131,000
ROCHESTER, CITY OF	$57,360	40	$82,974	0	45	$12,963,400
RUSH, TOWN OF	$1,167	3	$1,850	0	1	$412,000
SCOTTSVILLE, VILLAGE OF	$4,749	6	$2,920	0	4	$1,248,800
SPENCERPORT, VILLAGE OF	$17,257	15	$161,551	0	11	$2,126,500
SWEDEN, TOWN OF	$1,153	3	$1,515	0	0	$875,000
WEBSTER, TOWN OF	$31,660	32	$73,254	0	20	$10,552,600
WEBSTER, VILLAGE OF	$1,622	0	$0	0	1	$600,000
WHEATLAND, TOWN OF	$5,095	17	$138,657	0	5	$1,682,800
MONROE COUNTY	1,359,669	562	2,338,028	0	1,649	284,163,300

Flood Plain Information (Studies) on Record at OEM

Waterway	Date
Irondequoit Creek	February 1975
Little Black Creek	August 1975

NOTE: Studies "Prepared for New York State Department of Environmental Conservation by the Department of the Army, Buffalo District, Corps of Engineers, Buffalo, NY."

Monroe County also has "The Oatka Creek Watershed: State of the Basin Report," prepared in December 2002, by a Professor at Monroe Community College with guidance from the Oatka Creek Watershed Committee that included representation from Monroe County.

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Cause failure of utility systems and/or sewage and drainage systems.
- Delay or restrict transportation.
- Cause damage to structures including basement flooding, and other water damage.
- Cause soil degradation, crop destruction, and other agricultural damage.
- Lead to loss of business: production/ manufacturing, and retail losses to closed businesses.

1. Regarding critical facilities and the Lake Ontario South Shore:

   Monroe County's 36.5 miles of shoreline with Lake Ontario accounts for more than 50% of the south shore threat associated with high water. It is subject to erosion from high lake levels and wave action. Lakeshore erosion begins at an elevation of 246.3 feet. This problem erodes private property, threatens local infrastructure (highways, water, wastewater, and gas and electric utilities), and can compromise sensitive environmental features. Private property owners have formally complained to federal and state officials and their local property assessors, through public forums with local, state, federal, and international officials and through statutory claims processes. When high lake levels threaten water and wastewater facilities, public officials can seek and have sought emergency relief from the International Joint Commission, per the U.S. – Canadian Boundary Waters Treaty of 1909, that governs regulation of water levels on the Great Lakes. In 1998, New York State and the Federal Highway Administration spent $549,000 to protect Yanty Creek Marsh in Hamlin Beach State Park when a high lake level threatened to inundate the area and destroy it completely (Democrat & Chronicle, October 10, 1998).

   The constant tug of nature, coupled with the artificial capacity to control the lake level, result in public debate at the local, state and federal government levels. Competing interests and government policies in both countries constantly struggle to identify solution(s). Monroe County government officials have been leaders in advocating community interests at state, federal and international venues. Monroe County's leadership engaged other counties along New York's south shoreline to partner on matters of mutual interest through the *Lake Ontario South Shore County Collaborative on Lake Level*.

2. Regarding critical infrastructure and flooding of Roads and Bridges:

   "Flood damage to highways and associated structures is a significant problem in New York State. New York State's development patterns have caused many highways and associated structures to be located in floodplains.

   "In many cases, highways are needed to connect localities within floodplains. In others, the cost-effective construction of highways requires their location in low-lying, flood prone areas. Bridges, of course, are by their nature required to be located in floodplains."[1]

   Flooded road rights-of-way cause numerous problems for residents, commercial traffic, school buses, utility and service vehicles, and impede the delivery of Public Safety services. There are numerous examples within Monroe County of road closures in and around the areas of creeks, the Genesee River, and the Lake Ontario shoreline. In 1993 and 1998, the County Office of Emergency Management requested a waiver from the NYS Office of Parks, Recreation and Historic Preservation for permission for commercial vehicles, specifically utility and municipal fleets/contractors, and emergency service vehicles, to travel the Lake Ontario State Parkway when local roadways were flooded. (Reference Map #3 for Transportation Corridors.)

   The County works cooperatively with the NYS Department of Transportation (NYSDOT) on matters of mutual concern. Unfortunately, NYSDOT reported that the NYS Route 251 Bridge over the Genesee River was too far along in their design stage, to modify the plans and elevate the east side approach out of the floodplain. NOTE: The County has no information on NYSDOT's compliance with state regulation 6NYCRR-502 (Article 36, ECL), "Floodplain Management Criteria for State Projects." When this bridge is out of service from flooding on its approaches, the next bridge north is also isolated leaving the southwest area of the County without eastward egress for a 14-mile north/south distance.

   During the March 1993 floods it (quickly) became apparent that Emergency Management could not rely on the federal agencies (USGS, NOAA/NWS, U.S. Corps of Engineers, and others) for real-time, hydrological snapshots to reveal a realistic flooding pattern on our landscape. Using the resources available to the EOC-response agencies, we formulated a plan to obtain the federal agency information and synthesize it for our use. Post-emergency, the County Bridge Engineer re-calculated our make-shift formula and inserted a factor that is derived from measuring the distance between the water's surface and a survey point on all County Bridges that is correlated to a known point on the floodplain. When the National Weather Service issues a Flood Warning, County DOT Bridge Spotters are dispatched to obtain this reading and we begin steps to assess the adverse impact of the flood event.

3. Regarding Business and Agricultural interests:

   " . . . With respect to agriculture . . . one area of concern is farmsteads including farm homes, farm buildings, and other structures. The second is farmlands which includes cropland, pastures, and other land.

   "A very small percentage of farmsteads (in the County) are located in floodplains. The ones that are in floodplains were built there in order to be close to a water source for homes, buildings and animals. When flooding occurs, homes and buildings could be damaged, animals in holding pens could be injured or killed and other structures such as fences and silos can be destroyed.

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1 SEMO, New York State 406 Hazard Mitigation Plan, September 1986, p. 4-17

"The flooding of farmland constitutes a more serious problem than flooding of farmsteads. There are thousands of acres of cropland and pastures located in floodplains. The reason for this is that most of this land contains very productive soils that are easy to work due to the levelness of the fields. Many pastures are in floodplains to provide a water source for grazing animals. Most of the landowners who work these fields realize the potential for flooding.

"There are cases where flooding does cause a great deal of damage. The type of damage depends upon the intensity of the flood, location of the fields, type of soils, ground cover, and condition of streambanks."[2] Typical problems within Monroe County include: debris and gravel left on fields after flooding; streambank erosion; loss of topsoil; loss of crops; and, damage to existing conservation practices.

Agricultural flooding is persistent and predictable. It first presents in low-lying areas adjacent to natural and artificial waterways, and it has exacerbated agricultural interests for both Farmsteads and Farmlands. The most prominent local example is damage and disruption to the Rodney Horse Farms with frontage on the west bank of the Genesee River and its confluence with Oatka Creek in the Town of Wheatland. Flooding here in 1993 and January 1998, severely impacted operations by flooding housing, animal barns and other structures, and pasture. Media attention to this situation raised public concern for the welfare of several hundred horses leading to Veterinary monitoring via boat, and offers of assistance to the owners from equestrian interests around the region.

Farm Service Agency (FSA) loan assistance is available to farmers who suffer losses and their area is declared eligible for disaster emergency loan assistance. Monroe County was included in a declaration that began for, "Family farmers who have lost at least 30 percent of their production because of excessive rain, flash flooding and flooding since August 1, 2006. Farmers have until October 2, 2007 to submit a loan application with a documented record of their losses" (Democrat & Chronicle, 3.19.07).

4. Regarding infrastructure and Flood Warning & Dissemination:

Federal and state agencies and professional organizations are all proponents of local Flood Warning and Dissemination Plans/Systems. Their information includes:

- National Flood Insurance Program/Community Rating System (NFIP/CRS), "CRS Credit for Flood Warning Programs," by ISO Commercial Risk Services, Inc., July 1992.

- U.S. Army Corps of Engineers, "Community Handbook on Flood Warning and Preparedness Programs: Research Report 81-R06," August 1981.

- U.S. Army Corps of Engineers, "Implementation Aspects of Flood Warning and Preparedness Planning Alternatives: Research Report 81-R07," August 1981.

- Hydrology Subcommittee of the Federal Interagency Advisory Committee on Water Data, "Guidelines on Community Local Flood Warning and Response Systems," August 1985.

- FEMA and the Federal Insurance Administration, "The Application of Geographic Information Systems Technology to The National Flood Insurance Program,"
  September 30, 1987.

2 SEMO, New York State 406 Hazard Mitigation Plan, September 1986, p. 4-13

- U.S. Department of Commerce, NOAA/NWS, "Automated Local Flood Warning Systems Handbook: Weather Service Hydrology Handbook No. 2," February 1997.

- NYS Department of Environmental Conservation (NYSDEC): "Background Materials on Local Flood Warning and Preparedness Programs; Prototype Local Flood Warning Plan; Prototype Local Flood Warning and Preparedness Program; and, Technical Guidance Manual for Local Flood Warning and Preparedness Programs," September 1984.

- The Association of State Floodplain Managers, Inc.

NOTE: All mentioned references are available at the County Office of Emergency Management.

Monroe County endorses the "Seven-Step, Integrated System" (Hydrology Subcommittee Guidelines... p. 49) for Flood Warning and Dissemination Plans. Their first four steps provide an outline for a local flood warning system. They are named here with reference to Monroe County activity. (NOTE: Steps 5 – 7 reference "Response" actions that are not discussed as the reference here is Flood Warning and Dissemination.) We:

Step 1. Collect Data . . . from the U.S. Corps of Engineers, USGS and NYSDEC gages, the National Weather Service, NAWAS, NYSPIN, and local intelligence/surveillance

Step 2. Assess Data . . . using historical perspective, local experience, local databases and maps employing Geographical Information Systems (GIS) technology

Step 3. Inform Local Officials . . . via: the County's "Severe Weather Group," and "Flood Group" on our proprietary paging system; local government and emergency agency fax network; specific local fax network for flood-prone towns/villages and lakeshore towns/City of Rochester; and 911 broadcast on emergency services radio frequencies

Step 4. Warn Local Residents . . . through a menu of options that includes the Emergency Alert System (EAS), re-activation of the National Weather Radio (by the National Weather Service, or by Monroe County), media outlets, and the County's public calling system (a "Reverse 911" concept)

Steps 5. to 7. are response-oriented and address evacuation and re-entry in the affected area.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Specific information regarding past damage value estimates is based on 2000 National Flood Insurance Program (NFIP) data reported by SEMO, "HARPP-2000 Flood Damage Reduction Measures: Monroe County, NY, March 2000" (p.1):

- Between 1978 and 1999, insured Monroe County property owners filed 430 insurance claims for flood damage, with a damage value of $997,820.
- In 1999, the total number of insured structures within Monroe County was 2,009.
- The towns of Greece (88), Chili (36), and the City of Rochester (34) have the largest numbers of claims since 1978.
- It is estimated that only 20% of structures within Monroe County flood plains are insured against flooding.

Regarding the January, 1998 Flooding: Monroe County received a HUD, *Disaster Recovery Initiative* Grant for $1,042,303 to support eleven mitigation projects for local government damages associated with this storm.

Additional information is available at County OEM:

- U.S. Army Corps of Engineers, "After Action Report for the Flood of 1993"
- NOAA, "Natural Disaster Survey Report: The Great Flood of 1993"
- County "1993 Flooding: Disaster Response File"
- County "January, 1998 Flooding: Disaster Response File"
- County "Lake Ontario Flooding: Disaster Response File"

Notes on data limitations: Limited local, federal and state data on pre-1980 floods.

Appendix B-3

Hazard Specific Analysis: Severe Storm

Definition:

"This category…considers Hail storms, windstorms, severe thunderstorms (with associated severe wind events such as derechos, gustnados and downbursts).

"Severe Thunderstorm is defined as a thunderstorm which produces tornadoes, hail 0.75 inches or more in diameter, or winds of 50 knots (58 mph) or more. Structural wind damage may imply the occurrence of a severe thunderstorm."[1]

"Windstorms are also defined "as an event with sustained wind speeds of 40 mph or greater lasting for 1 hour or longer, or winds of 58 mph or greater for any duration."[2] "A Gale Warning is issued (by the National Weather Service for Lake Ontario) for winds forecast from 35 to 49 knots (National Weather Service, Buffalo Office, 5.3.10). Whenever the wind speed is this high, the wave heights will be significant – greater than 6 feet" (Democrat & Chronicle, 11.16.05).

Description:

Severe Storm is identified as a Moderately High hazard with a numerical rating of 297.[3] This is a frequent event in Monroe County, occurring more than once a year, and highly likely to cause cascade events such as utility failure, floods/flashfloods, structural collapse and transportation incidents. The suite of Severe Storms usually impacts a large region. There have been occurrences of loss of life, injury and structural damage although these events generally pass without widespread destruction.

"The damaging winds associated with some storm systems are called derechos. A derecho is a widespread convective windstorm made up of complex thunderstorm cells that usually develop into squall lines or even the more impressive Mesoscale Convective Complex. Although the destructive path of these winds can extend for hundreds of kilometers along the storm's path, they are not to be confused with tornadoes. Instead, they are in the same family as downburst winds and move primarily from northwest to southeast" (Glenn Johnson, Meteorologist, Democrat & Chronicle, 7-5-03).

"The Beaufort Wind Scale provides a classification of wind speeds and the effects of the wind over land and water. The scale ranges from 0 – 12, with zero being calm winds and 12 being hurricane force winds. The record wind speed of 89 mph at the Airport (9.7.98), ranks as an 11 on the Beaufort Wind Scale" (Democrat & Chronicle, 12.23.07). The Saffir-Simpson Hurricane Scale also considers wind speed as it ranks damage. Its Category 1 through Category 5 rankings equate wind speed ranges from 74 to more than 155 mph with general descriptions of damage assessment (Democrat & Chronicle, 9.16.03).

1 SEMO. HAZNY 2004
2 National Weather Service, NSW Buffalo Products, May 3, 2010
3 Monroe County Hazard Analysis 11.9.09

"Wind speed is the average wind over a 2-minute span" (Democrat & Chronicle, 12.23.07). "A wind gust is defined as a quick increase in wind speed, usually lasting 20 seconds or less. A sustained wind is the average wind speed recorded over a 60-second period" (Democrat & Chronicle, 11.7.05). Wind speed is measured and recorded in knots and miles per hour/mph. The windiest period appears to be October 1 through December 10, 2004, when we had 18 days, or 25 per cent, with a peak wind speed greater than 25 mph (Democrat & Chronicle, 1.30.08).

Month	(average mph) Wind Speed	(highest mph) Wind Speed
January	10.7	
February	10.1	77 (2.17.06); 71 (2.1.02)
March	10.3	70 (3.9.02)
April	10	
May	9.1	
June	8.2	75 (6.6.73)
July	7.6	
August	7.1	
September	7.6	89 (9.7.98)
October	8.5	
November	9.7	
December	10.1	
Annual Average	9.1	

Table data from the WHAM Weather Book, 4.29.10, and the TV13 Weather Office, 2.17.06

"The fast development of thunderstorms that persist over the same area can dump extreme amounts of rain in a short period of time. This causes streams and rivers to rise rapidly and overflow their banks. It can also result in poor drainage flooding on urban streets**" (**Democrat & Chronicle, 11.19.06). "Some thunderstorms are notorious for causing flash flooding. This is especially the case for 'training' thunderstorms. Training is a term used to describe the way thunderstorms continuously develop and move over the same area. This can cause torrential downpours and lead to flash flooding of creeks, rivers and low-lying areas. A 'back-building' thunderstorm is very similar and can also lead to flooding. In these storms, new development forms on the upwind (back end) of the thunderstorm, so the storm appears to remain stationary or even move backward. In both cases, very heavy rain falls over the same area over an extended period of time" (Democrat & Chronicle, 7.28.07).

Overview of specific hazard locations and the extent of the hazard:

All or part of Monroe County may be affected by Severe Storms. The National Weather Service, Buffalo Office supplied data on Severe Storm events in Monroe County:

High Wind Data

EVENT BEGIN DATE/TIME	EVENT END DATE/TIME	ZONE	COUNTY	* Times in EST LOCATION - EVENT	WATCH ISSUED	WARNING ISSUED
02/17/06 0700	02/17/06 1700	NYZ003	MONROE	ROC ASOS MG67KT	YES	YES

12/01/06 1629	12/01/06 2400	NYZ003	MONROE	ROC EG50KT	YES	YES
01/09/08 0742	01/09/08 1100	NYZ003	MONROE	BRIGHTON TREES DOWN EG74MPH	NO	YES
01/30/08 0544	01/30/08 1800	NYZ003	MONROE	ROC ASOS MG60MPH	YES	YES
02/12/09 1000	02/12/09 1800	NYZ003	MONROE	BRIGHTON EG60MPH	YES	YES

Judy Levan, NWS email 5.10.10

High Wind.

Most susceptible are:

- Structures, especially those of less sustainable construction e.g. mobile homes, storage sheds
- Trees
- Utility lines and poles
- High-rise buildings in the urban environment

According to National Weather Service data for Monroe County:

- Between 1993-2002, there were 14 occurrences of High Wind (synoptic), and
- In the same period, the Buffalo Office issued 13 High Wind Warnings. Ten were verified.[4]

Many of our high wind events are caused by the passage of a strong Cold Front. "Cold fronts have the ability to mix high winds from the upper atmosphere down to the Earth's surface. This process can be enhanced if thunderstorms develop along the cold front" (Democrat & Chronicle, 1.30.08).

The National Weather Service will issue a "Storm Warning," one of its Marine Forecast Products, with forecast winds of 50 knots or greater. "The forecast contains wind, wave, and significant weather/visibility forecasts for five days" (National Weather Service, Buffalo Office, 5.3.10). One such forecast (October 28-29, 2006), indicated that "the open waters (beyond 5 miles from shore) of Lake Ontario is for wave heights of 15 to 20 feet. The buoy that measures wave height, wind speed, water temperature, etc. is Station 45012, located 20 nautical miles north northeast of Rochester" (Democrat & Chronicle, 10.29.06).

The National Weather Service, Buffalo Office supplied data on High Wind events in Monroe County:

Severe Storm Data

EVENT DATE/TIME	ZONE	COUNTY	EVENT	LOCATION	WARNING ISSUED
04/18/04 1205	NYC055	MONROE	HAIL	SPENCERPORT 0.88"A	YES
04/18/04 1230	NYC055	MONROE	HAIL	FAIRPORT 0.88"A	YES
05/14/04 1500	NYC055	MONROE	TSTM WIND	GREECE TREES DOWN ON HOUSE E50KTS	YES
05/14/04 1520	NYC055	MONROE	TSTM WIND	ROCHESTER TREES DOWN E50KTS	YES
05/22/04 2230	NYC055	MONROE	TSTM WIND	SPENCERPORT TREES DOWN E50TK	YES
05/24/04 0800	NYC055	MONROE	TSTM WIND	WEBSTER POWER LINES DOWN E55KT	YES
07/20/04 1500	NYC055	MONROE	HAIL	PITTSFORD 0.75"A	YES

4 National Weather Service, Storm Data Report, May 28, 2003

08/29/04 1435	NYC055	MONROE	TSTM WIND	HENRIETTA POWER LINES DOWN E50KT	YES
08/29/04 1455	NYC055	MONROE	TSTM WIND	BRIGHTON LARGE TREE DOWN E50 KT	YES
06/13/05 1610	NYC055	MONROE	TSTM WIND	MENDON Trees down EG50KTS	YES
06/13/05 1830	NYC055	MONROE	TSTM WIND	CLARKSON Trees/Limbs down EG50KTS	YES
07/14/05 1559	NYC055	MONROE	TSTM WIND	ROCHESTER ASOS MG56KTS	NO
07/14/05 1630	NYC055	MONROE	TSTM WIND	ROCHESTER Tree limbs/chimney down EG55KTS	YES
07/14/05 1945	NYC055	MONROE	TSTM WIND	SPENCERPORT Wires and Trees down EG50KTS	YES
07/26/05 1831	NYC055	MONROE	TSTM WIND	HONEOYE FALLS Trees down EG50KTS	YES
09/29/05 0642	NYC055	MONROE	TSTM WIND	BROCKPORT Trees/Wires down EG50KTS	YES
11/06/05 1422	NYC055	MONROE	TSTM WIND	HAMLIN Wires Down EG50KTS	YES
11/09/05 1518	NYC055	MONROE	HAIL	HENRIETTA 0.75"A	YES
04/13/06 1850	NYC055	MONROE	HAIL	GREECE 1.00"A	YES
05/13/06 1640	NYC055	MONROE	HAIL	ROCHESTER 1.0"A	YES
06/28/06 1700	NYC055	MONROE	TSTM WIND	WEBSTER Trees Down, Garage door blown in EG53KT	YES
06/28/06 1650	NYC055	MONROE	HAIL	PENFIELD 1.5"A	NO
06/29/06 1611	NYC055	MONROE	HAIL	HENRIETTA 1.50"A	YES
07/10/06 1729	NYC055	MONROE	TSTM WIND	WEBSTER Trees down, on shed EG52KT	YES
07/29/06 1745	NYC055	MONROE	TSTM WIND	LOCKPORT Trees down EG50KT	YES
08/02/06 1406	NYC055	MONROE	TSTM WIND	HILTON Power Lines down EG50KT	YES
06/08/07 1835	NYC055	MONROE	TSTM WIND	HENRIETTA Trees/wires down EG50KT	YES
06/19/07 1300	NYC055	MONROE	TSTM WIND	ROCHESTER Trees down 1 dead; 1 inj	YES
06/19/07 1320	NYC055	MONROE	TSTM WIND	ROCHESTER Trees down EG50KT	YES
06/19/07 1545	NYC055	MONROE	TSTM WIND	BROCKPORT Trees/wires down EG50KT	YES
06/21/07 1420	NYC055	MONROE	HAIL	PENFIELD 1"A	YES
06/21/07 1529	NYC055	MONROE	HAIL	HONEOYE FALLS 0.75"A	YES
08/16/07 1645	NYC055	MONROE	TSTM WIND	SCOTTSVILLE Wires down EG50KT	NO
09/11/07 2215	NYC055	MONROE	TSTM WIND	MENDON Trees/Wires down; Tree on home EG55KT	YES
01/09/08 0505	NYC055	MONROE	TSTM WIND	ROC ASOS MG75MPH	YES
04/26/08 1535	NYC055	MONROE	HAIL	ROCHESTER 1"A	YES
06/05/08 2310	NYC055	MONROE	TSTM WIND	ROCHESTER Roof blown off building EG50KT	YES
06/10/08 0945	NYC055	MONROE	HAIL	HONEOYE FALLS 0.75"A	YES
06/10/08 1000	NYC055	MONROE	TSTM WIND	PITTSFORD Trees and wires down EG50KT	YES
06/13/08 2005	NYC055	MONROE	TSTM WIND	GREECE Wires down EG50KT	YES
06/16/08 1355	NYC055	MONROE	HAIL	CHILI CENTER 0.88"A	NO
06/16/08 1415	NYC055	MONROE	HAIL	3S PENFIELD 0.75"A	YES
06/16/08 1415	NYC055	MONROE	HAIL	FAIRPORT 0.75"A	YES
06/16/08 1418	NYC055	MONROE	HAIL	2SE FAIRPORT 0.88"A	YES
06/16/08 1425	NYC055	MONROE	HAIL	FAIRPORT 0.75"A	YES
06/16/08 1423	NYC055	MONROE	HAIL	3S FAIRPORT 0.75"A	YES
06/16/08 1810	NYC055	MONROE	HAIL	2S BROCKPORT 0.75"A	YES
06/29/08 1446	NYC055	MONROE	TSTM WIND	HAMLIN Trees Down EG50KT	YES
07/16/08 1830	NYC055	MONROE	HAIL	BROCKPORT 0.75"A	YES
07/23/08 0150	NYC055	MONROE	HAIL	HENRIETTA 1"A	NO
07/23/08 1545	NYC055	MONROE	TSTM WIND	1NW HONEOYE FALLS Trees down EG50KT	YES
07/23/08 1558	NYC055	MONROE	TSTM WIND	GATES Trees down EG50KT	YES
06/26/09 1308	NYC055	MONROE	HAIL	GREECE 1"A	YES
06/26/09 1245	NYC055	MONROE	HAIL	N.BROCKPORT 0.75"A	YES
06/26/09 1245	NYC055	MONROE	HAIL	5SW BROCKPORT 1.5"A	YES
06/26/09 1253	NYC055	MONROE	HAIL	BROCKPORT 0.75"A	YES
07/25/09 1755	NYC055	MONROE	TORNADO	HILTON F0 1755-1805	YES
07/25/09 1829	NYC055	MONROE	TSTM WIND	BROCKPORT Trees/wires down	YES

07/25/09 1848	NYC055	MONROE	TSTM WIND	CHURCHVILLE Trees/wires down	YES
07/25/09 1935	NYC055	MONROE	TSTM WIND	WEST WEBSTER Tree on house	YES
07/26/09 1947	NYC055	MONROE	TSTM WIND	ROCHESTER -LYELL RD Trees down	YES
07/25/09 1955	NYC055	MONROE	TSTM WIND	IRONDEQUOIT - Power transformers down	YES
07/25/09 2010	NYC055	MONROE	TSTM WIND	ROCHESTER - Trees down in city	YES
08/22/09 1700	NYC055	MONROE	HAIL	2W SPENCERPORT 0.75"A	YES
09/28/09 1217	NYC055	MONROE	TSTM WIND	BROCKPORT Trees/wires down	YES
09/28/09 1226	NYC055	MONROE	TSTM WIND	HILTON Trees/wires Railroad/Underwood	YES
09/28/09 1239	NYC055	MONROE	TSTM WIND	4NW ROCHESTER Trees down West Ridge Rd	YES
06/26/09 1310	NYC055	MONROE	HAIL	ROCHESTER 1"A	YES

Judy Levan, NWS email 5.10.10

Thunderstorms. "The typical thunderstorm is 15 miles in diameter and lasts an average of 20 to 30 minutes. Of the estimated 100,000 that occur each year in the United States, only about 10 percent are classified as severe" (National Weather Service, *The Lake Breeze*, Spring 2006). "Thunderstorms have been known to occur every month of the year in Rochester, as logged on the table below. Lake effect snow squalls occurring during the spring and autumn months have, on rare occasions, produced thunder. Most thunderstorms in Rochester occur during the summer months. The maximum thunderstorm days in one year are 44 days, in 1945" (WHAM Weather Book, 4.29.10).

Month	Thunderstorm Days
January	0.1
February	0.1
March	0.8
April	1.9
May	3.5
June	5.2
July	5.9
August	5.5
September	2.8
October	0.9
November	0.4
December	0.2
Annual Average	27.3

Table data from the WHAM Weather Book, 4.29.10

"Straight-line winds are often responsible for most of the wind damage associated with a severe thunderstorm. These high-speed winds are common with the gust front of a thunderstorm or they originate with a downburst from a thunderstorm. These winds are often confused with tornadoes because of the amount of damage that can be produced. For example, winds clocked at 116 mph did more than $50 million in damage (June 19, 1990, Wichita, Kansas)" (Democrat & Chronicle, 7.6.2006).

Previous occurrences of the hazard:

NOTE: Unless otherwise noted, all information is from the National Weather Service, Storm Data Report, May 28, 2003.

Monroe County activated the EOC for wind related events in 1992, 1995, and 1998.

June 6, 1973. "Unofficially, the Rochester Airport (at the FAA Tower) had a wind gust of 100 mph" (Democrat & Chronicle, 2.22.06, 2.12.09).

November 12, 1992. The County EOC was activated for 13.25 hours for a severe wind storm that knocked-out power, downed trees and power lines (County Office of Emergency Management, Disaster Response File: *1992 Wind Storm*).

August 13, 1993. Thunderstorms developed in a moist flow ahead of a cold front. The thunderstorm winds downed trees and power lines. Hail up to an inch in diameter was reported with the storms. Some structural damage was reported from fallen trees and limbs. Damages were estimated at $4,000.00 for Fairport.

August 28, 1994. Thunderstorms developed in a moist, southwest flow ahead of a cold front. The thunderstorm winds downed trees and power lines, resulting in power outages scattered across the region, including Webster and Spencerport. Damages were estimated at $4,000.00.

June 26, 1995. Severe thunderstorms moved across portions of Western and Central New York. The thunderstorm winds downed trees and power lines. Power outages were scattered across the entire area. Damage estimates were estimated at $6,000.00 for Pittsford and $10,000.00 for Macedon Center.

July 6, 1995. Severe thunderstorms moved across the area ahead of a cold front. There were numerous reports of downed trees and wires and power outages. Damages were estimated at $8,000.00 for Penfield.

July 15, 1995. The County EOC was activated for 3 hours to assist coordination of resource identification and deployment to northern New York State after a "Wind Burst" (County Office of Emergency Management, Disaster Response File: *July 1995 North Country Wind Burst*).

July 17, 1995. Thunderstorms with wind caused damages estimated at $4,000.00 for Brockport.

August 3, 1995. Severe thunderstorms crossed the area resulting in fallen trees and power lines, nearly continuous lightning and record rainfall. In Monroe County, traffic was disrupted by flash flooding caused by over two inches of rain in a very short time. Numerous power outages were also reported. Damages were estimated at $25,000.00 for Rochester, $5,000.00 for Henrietta, and $35,000.00 for the County.

August 31, 1995. A fast moving line of severe thunderstorms crossed the region causing widespread damage. There were countless reports of downed trees and power lines, many onto cars and houses. Several SKYWARN observers recorded wind gusts of 60-70 mph as the storms moved through. Damages were estimated at $8,000.00 for Irondequoit.

January 27, 1996. Deep low pressure over the upper Great Lakes brought strong winds to the area. The high winds downed trees and power lines in Mendon. Damages were estimated at $15,000.00.

March 25, 1996. Thunderstorms accompanying a cold front produced damaging winds, which downed trees and power lines. Damages were estimated at $20,000.00.
April 20, 1996. Severe thunderstorms developed in the late afternoon. The thunderstorms dropped large hail across the region. Thunderstorm winds downed trees and power lines. Damages were estimated at $15,000.00 for Hamlin.

May 20, 1996. A line of severe thunderstorms crossed the area producing damaging winds. The thunderstorm winds downed trees and power lines. In Riga, the winds damaged a large road sign. Damages were estimated at $35,000.00.

June 22, 1996. Severe thunderstorms produced damaging winds, which downed trees and power lines. Damages were estimated at $8,000 for Irondequoit.

October 30, 1996. Low pressure moving northeast across Lake Superior brought strong winds to the area. The winds brought down trees, tree limbs, and power lines. In Penfield, two persons were injured when a tree fell on the car they were driving. Winds gusted to 52 mph. Damages were estimated at $25,000.00.

February 22, 1997. A strong cold front crossed the region during the morning hours. Temperatures dropped 40 to 45 degrees with the passage of the front. The funneling effect of the Great Lakes combined with rapid pressure rises behind the front combined to produce hazardous winds. Trees, power lines and poles were downed across the entire area. Hundreds of thousands were left without power. Reports of homes and autos damaged by the falling trees and limbs were numerous. The strong winds caused structural damage in some locations tearing off roofs and shingles, blowing-out windows, and collapsing walls. Air travel from the Buffalo and Rochester airports was interrupted. A 54-year-old volunteer fireman was killed in Spencerport while responding to an emergency call when a large tree fell on his car crushing him. His 15-year-old son also riding in the car suffered injuries. Reported gusts included: 61 knots at Rochester. Damages were estimated at $500,000.00.

February 27, 1997. Deep low pressure moved from Indiana to Ontario bringing high winds to the area. The strong winds downed trees and telephone and power lines. Power outages were reported throughout the area. Several cities and towns declared States of Emergency because of the prolonged lack of power. Windows were blown-out of buildings. The strong winds caused structural damage in some locations tearing-off roofs and sidings and collapsing walls. Home and autos were damaged by falling limbs. An electric lineman was injured in Perinton, when he was knocked from a pole by a falling tree. Damages were estimated at $150,000.00.

July 15, 1997. Strong thunderstorms crossed the region during the afternoon hours. The thunderstorm winds downed trees and power lines. Scattered power outages lasting several hours were reported. In Henrietta, a dozen utility poles were downed by the thunderstorm winds leaving nearly 24,000 customers in the Rochester area without power for several hours. Damages were estimated at $75,000.00 for Henrietta.

September 29, 1997. Severe thunderstorms rolled across the area during the evening hours producing damaging winds estimated at sixty to seventy miles per hour. The winds downed trees and power lines and resulted in thousands being left without power. Damages were estimated at $15,000.00 for Penfield.

March 28, 1998. A fast moving squall line crossed the area during the afternoon hours. Winds, gusting over 70 mph, downed numerous trees and wires. Power outages were reported throughout the area. Damages were estimated at $40,000.00.

May 31, 1998. An outbreak of severe storms began across the region during the early morning hours. The storms were particularly dangerous because of their speed moving across the region – sometimes in excess of 60 mph. Most of the damage associated with these storms occurred from a combination of high winds and hail. There were reports of numerous trees and wires down as well as power outages. Tens of thousands were without power. Several flights were delayed or cancelled at the Buffalo and Rochester airports due to the storms. Damages were estimated at $18,000.00 for Gates Center, $17,000.00 for Hamlin, $15,000.00 for Scottsville, and $15,000.00 for Rochester. There was one reported injury – a person in Henrietta was struck by lightening.

A second round of storms for the day moved across the region during the evening hours. Again the thunderstorms produced high winds, large hail and torrential rains. Trees and power lines were downed across western New York. In the Rochester area, the power company reported 30 poles snapped by the winds and 40,000 customers were without power. Lightning throughout the area shattered trees and set a number of fires. At Locust Hill Country Club, the nationally televised Ladies Pro Golf Association tournament was delayed four times by the storms. Damages were estimated at $30,000.00 for Rochester.

June 16, 1998. Scattered thunderstorms crossed the area during the early evening hours. The thunderstorm winds downed trees and power lines. The heavy rains, which accompanied the thunderstorms, resulted in widespread poor drainage and urban flooding in the Rochester metro area. Damages were estimated at $40,000.00 for Rochester.

June 25, 1998. Thunderstorms accompanied by almost continuous lightning, torrential rains, damaging winds and pea to marble-sized hail swept across the area. Over 15,000 were without power when thunderstorm winds downed power lines and poles. Damages were estimated at $10,000.00 for Webster.

August 24, 1998. Thunderstorms moved across the southern Lake Ontario counties during the early morning hours. The thunderstorms produced damaging winds, which downed trees and power lines. Several thousand customers were left without power for several hours. Winds were estimated in some areas at 60-70 mph. Damages were estimated at $50,000.00 for Greece.

September 6-7, 1998. Several thunderstorms moved onshore over northeast Niagara County shortly before midnight. The line of storms quickly moved across Orleans, Monroe, Wayne, Ontario and northern Cayuga counties. Across the area the damage path was nearly one hundred miles long and five to ten miles wide. Winds were estimated between 80 and 100 mph throughout the two-hour event. Along the entire path, damage and debris all laid in an easterly direction consistent with the damage from straight-line winds. Most of the damage consisted of downed trees and limbs. The falling trees and limbs in-turn downed power and telephone lines and resulted in damage to buildings and automobiles. Power outages, some lasting nearly a week, were widespread across parts of Orleans, Monroe and Wayne counties. Hundreds of thousands of customers were without power. The strong winds themselves also resulted in structural damage to homes, barns and buildings along the path including some in Brockport and Bushnells Basin among other locations. Several aircraft

were damaged at the Rochester Airport where wind gusts were measured at 89 mph. States of Emergency were declared throughout Monroe and Wayne counties and sections of Orleans County. Monroe, Wayne, and Cayuga counties were declared federal disaster areas. The strong winds severely damaged apple crops and trees from Niagara across Orleans and Monroe through Wayne counties. Damages were estimated at $20 million for the Rochester Airport, $350,000.00 for Brockport, $1.2 million for Pittsford, and $2 million in crop damages.

This storm, known locally as the "1998 Labor Day Windstorm," was later classified by the National Weather Service as a Derecho. Its associated straight line winds were predominant on a path that followed the Erie Canal and NYS Route 31, from Orleans County stretching almost to Albany. The County EOC was open for 113.75 hours. The Presidential Disaster Declaration on September 22, 1998 for seven counties identified this storm as FEMA-1244-DR-NY. Reimbursement to all counties for Public Assistance was $36.1M. Of that amount, Monroe County communities received $4M (County Office of Emergency Management, Disaster Response File: *1998 Labor Day Windstorm*).

November 10, 1998. Low pressure over the Central Plains moved across the Great Lakes and brought high winds to western New York and the North Country. The strong winds, gusting to 62 mph, brought down tree limbs and power lines across the region. Several windows were blown-in. In East Rochester, several buildings were damaged as walls were blown-in. One cinderblock wall was over 30 feet high and 100 feet long. Thousands were without power as outages were scattered across the area. Power outages were reported in Victor and Rochester as well as other cities and towns in the region. Damages were estimated at $150,000.00.

July 3, 1999. Several thunderstorms crossed the region during the late afternoon hours. The thunderstorms produced heavy downpours, up to three inches in some spots, strong winds and large hail. The heavy downpours resulted in localized poor drainage flooding. The strong winds downed trees and power lines throughout the region. Structural damage was also reported. Greece reportedly had $25,000.00 in damages.

July 24, 1999. Severe thunderstorms developed across the counties along the south shore of Lake Ontario. The thunderstorms produced downpours and strong winds. The damaging winds downed trees and power lines with scattered outages reported. Greece reportedly had $15,000.00 in damages.

July 31, 1999. Violent thunderstorms ripped across western New York and the Finger Lakes Region during the evening hours. The strong thunderstorms downed trees and power lines and left hundreds of thousands without power. Several roads were blocked by fallen debris. Several of the falling trees caused damage to houses and automobiles. In Monroe County, at the Freeman Park in Mumford four people at a company picnic were injured when high winds picked up a tent and dragged it through the crowd. They were treated and released from an area hospital.

August 4, 1999. Severe thunderstorms crossed the Finger Lakes during the late afternoon hours. The thunderstorms produced damaging winds, which downed trees and power lines. Damages were estimated at $8,000.00 for Rochester.

October 13, 1999. A strong cold front crossed the area. The thunderstorms that accompanied the front produced damaging winds and large hail. The winds downed trees and power lines. About 10,000 customers lost their power. Falling trees damaged houses in Webster among other areas.

Damages in Webster were estimated at $35,000.00.

November 2, 1999. An intense storm, which moved from the eastern Gulf of Mexico to New Western New York, brought high winds to the region. Trees and lines were downed and power outages were scattered throughout the area. In Rochester, an overhead highway sign was blown into the path of a minivan. The driver of the vehicle, a 41-year-old male, died while his wife and daughter were not injured in the accident. Damages were estimated at $100,000.00.

January 4, 2000. Strong winds accompanied the passage of a cold front across the area during the late morning and early afternoon hours. Trees and power lines were downed by the winds. In Rochester, a smokestack was blown over. Gusts of 55 mph at Rochester were recorded. Power outages were scattered throughout the area. Damages were estimated at $50,000.00.

March 9, 2000. Spring thunderstorms rolled-in off Lake Ontario during the afternoon hours. The storms produced three-quarter inch hail and damaging winds that downed trees and power lines. Damages were estimated at $25,000.00.

May 12, 2000. Thunderstorms rolled across the Niagara Peninsula and then along the Lake Ontario shore counties. Only small hail was reported with the storms, however the storms produced hurricane-force winds. The high winds buffeted the area taking down trees and power lines. Various communities reported power outages of 12 hours or more. In Irondequoit, Kings Highway and Bayview Road caved-in as a result of erosion. Damages in Gates Center were estimated at $35,000.00.

May 24, 2000. Thunderstorms roared across the Genesee Valley and the Finger Lakes Region during the late morning and early afternoon hours. In addition to producing hail up to one inch in diameter, the thunderstorms produced damaging winds. Damages were estimated at $8,000.00 for Henrietta.

August 1, 2000. Thunderstorms developed along lake breezes during the afternoon hour. The thunderstorm winds downed trees and power lines. In addition to producing hail up to an inch and a quarter in diameter, the thunderstorms produced torrential rains, which resulted in localized poor drainage flooding. Damages were estimated at $25,000.00 for Brockport.

December 12, 2000. Deep low pressure over Ohio tracked northeast across the region. The strong pressure gradient on the back side of the low combined with rapid pressure rises resulted in very strong northwest winds across the region. The damaging winds downed trees and lines throughout the area. Specific reports of damage were received from Spencerport along with many other areas outside of Monroe County. Nearly 100,000 customers were without power across the region. Flights on the morning of the 12th were either delayed or cancelled at both the Buffalo Niagara International Airport and the Rochester Airport. Damages were estimated at $200,000.00.

February 10, 2001. Deep low pressure over the western Great Lakes moved across Ontario to Quebec and dragged a cold front across the area. Sustained winds of 20 to 30 mph were reported across the area with recorded gusts up to 76 mph. The strong winds downed trees and utility lines throughout the 14-county area. Several hundred thousand customers were without power. Roads were blocked by downed trees. There were numerous reports of property damage from the winds, mostly from trees falling on buildings and cars. Specifically, this was reported from Pittsford and Honeoye Falls along with many other areas outside of Monroe County. In Fairport, a winter carnival

had to be cancelled because the high winds tore apart a large tent erected for the carnival. Damages were estimated at $300,000.00.

February 25, 2001. Deep low pressure over the northern Great Lakes moved northeast to Quebec and pulled a strong cold front across the area. The strong winds that accompanied the system downed trees and power lines. Sustained winds of 51 mph were reported at the Rochester Airport. Damages were estimated at $100,000.00.

May 27, 2001. Thunderstorms crossed the area during the afternoon hours producing hail up to ¾ inch in Gates Center and damaging winds estimated to 68 mph. Trees and power lines were downed by the strong winds in western Monroe County. Damages were estimated at $5,000.00 in Gates Center and $20,000.00 in Rochester.

July 1, 2001. Thunderstorms ahead of a cold front crossed the western Finger Lakes Region and Eastern Lake Ontario counties during the morning hours. The storms produced damaging winds, which downed trees and power lines across the area. Damages were estimated at $10,000.00 in Webster.

July 10, 2001. Strong thunderstorms moved across parts of the Finger Lakes Region during the late evening hours. The storms downed trees and power lines in Chili. Damages were estimated in Chili Center at $10,000.00.

February 1, 2002. An intensifying storm moved across the Great Lakes and lifted northeast to the St. Lawrence Valley. Very strong winds behind the low blasted the region with wind gusts exceeding 55 mph. Trees and power lines were downed by the strong winds. Hundreds of thousands were without power…some for several days. Fallen trees and limbs littered the area and closed roads. Numerous reports of damage to homes and automobiles were received from throughout the area. Driving bans and States of Emergency were declared in several counties. Numerous school districts were forced to close on the first and several remained closed through the beginning of the following week. In Monroe County, two injuries resulted from the high winds. A man was briefly hospitalized after gusts blew apart the trailer he was working in at the Greater Rochester Airport. Also in Rochester, a woman was blown from the sidewalk into the street where she was hit by an oncoming car. Damages were estimated at $750,000.00.

March 3, 2002. Low pressure over Indiana deepened as it moved northeast. Trees and power lines were downed. Damages were estimated at $100,000.00.

March 9, 2002. Low pressure over Wisconsin deepened as it moved across Lake Superior and into northern Ontario. Strong winds accompanied and followed the passage of a cold front. The damaging winds affected the entire area, downing trees and power lines and causing some structural damage. Nearly 100,000 customers completely lost power with thousands of others experiencing brief power outages. In Rochester, a roof was blown-off a building supply store. In Mendon, a two-story, 100-year old barn was pushed over. Damages were estimated in Webster at $50,000 and overall at $500,000.00.

April 28, 2002. Thunderstorms developed across the eastern Great Lakes Region during the afternoon hours. The thunderstorm's downburst winds ripped down trees and power lines. Scattered power outages were reported. Several structures and automobiles were damaged by falling trees.

Wind damages were estimated at $10,000.00 in Henrietta.

May 29, 2002. Thunderstorms developed in warm, moist, unstable air during the afternoon and evening hours downing trees and power lines. Up to 5,000 homes were without power at the peak of the storm. Damages were estimated at $25,000.00 for the Rochester Airport.

May 31, 2002. Thunderstorms moved across the region ahead of a cold front. The thunderstorms produced damaging winds and hail up to ¾ inch in diameter. The winds downed trees and power lines and scattered power outages were reported. A home suffered damage in Bushnells Basin. Damages were estimated at $50,000.00 in Bushnells Basin.

June 26, 2002. Thunderstorms developed in a warm, moist, unstable flow during the late morning and afternoon hours. Eight thousand customers lost power in the Rochester Metro area. Damages were estimated at $35,000.00 in Rochester, and $30,000.00 in Irondequoit.

June 27, 2002. Thunderstorms developed ahead of an approaching cold front. The thunderstorms produced damaging winds which gusted to near 70 mph. Damages consisted mainly of downed trees and power lines, although some structural damage occurred. Damages were estimated in Greece at $20,000.00.

May 11, 2003. Spencerport had straight-line winds (60-70 mph) with a localized microburst. A microburst is defined as a, "Highly localized downburst of air released from within a thunderstorm. Winds associated with microbursts can exceed 150 mph. That is equal to the force of an F-2 tornado" (Glenn Johnson, Meteorologist, Democrat & Chronicle, 5-14-03).

2004 Spring Storms:

- On May 20th, "An electrical storm followed by a heavy downpour rolled into the Rochester area shortly after 8:00 p.m." Lightening struck the First Presbyterian Church in the Village of Pittsford. About 30 people were attending choir practice. Everyone was safely evacuated, but there was major damage to the structure (Democrat & Chronicle, 5.21.04, 5.22.04).
- On May 23rd, Henrietta's Memorial Day Parade was canceled due to thunderstorms. "Frontier officials say recent storms have knocked out telephone service for an estimated 1,100 business and residential customers across the Rochester region. The company has no official estimate for when most customers will regain service (some maybe 3 days)" (Democrat & Chronicle, 5.24.04, 5.25.04). Thunderstorms on the 23rd and 24th, "...delivered as much as 2 to 4 inches of rain over most of western New York. On the 24th, the National Weather Service issued two severe thunderstorm warnings for Monroe County within six hours' time. With the ground being saturated, any rainfall will create the potential for significant additional flooding" (Democrat & Chronicle, 5.25.04).
- On May 24th, Durand-Eastman Park closed portions of the park due to standing water. And, Pine Brook Elementary School in Greece had the day off because a lightening strike cut power. Rochester firefighters pumped 72 basements. RG&E reported outages for 6,700 customers (Democrat & Chronicle, 5.25.04). The Rush Fire Department cancelled their routine water rescue training because of unsafe conditions on Honeoye Creek. They were subsequently called to rescue four people who were rafting in the creek near the bridge on NYS Route 15A. One person was trapped in the creek. "Two of the rescuers and the person trapped were brought to shore by ropes" during the rescue (Democrat & Chronicle, 5.26.04).

- The Damage Assessment for these storms:

Municipality	Public Damage	Individual Damage
Town of Greece	$165,000	$500,000
Village of Honeoye Falls	7,000	
Ridge Road Fire District	13,600	
Town of Irondequoit	1,000	300,000
Rush Fire District	6,000	
Town of Webster		3,000

Data from OEM "2004 Spring Storms" file.

July 14, 2005. "Thunderstorms that ripped through parts of Monroe County, are to blame for power outages, localized flooding, at least one house fire and one minor incident of a person struck by lightening. The woman struck was shocked by lightening that traveled through the home's telephone line. The National Weather Service, Buffalo Office said strong storms blew through western Monroe County between 7:30 and 8:30 p.m. They reported indications of rainfall greater than 3 inches an hour, which is the whole monthly average rainfall in about an hour. The rain caused numerous flooded basements and some flooded roadways. The power outages affected about 5,700 RG&E customers" (Democrat & Chronicle, 7.15.05).

July, 26, 2005. "Violent Thunderstorms…toppled trees and power lines in Honeoye Falls. Emergency Services and DPW crews cleared debris from roadways and attended occupants of a car who were trapped when a falling tree struck their vehicle. Local damage was reported on TV13 newscast the following morning" (The Sentinel, 8.4.05). "Peak gusts of 37 mph were recorded at the Airport. The winds downed tree limbs and power lines. A man was struck by lightening in his home when it traveled through electric wiring in his house" (Democrat & Chronicle, 7.27.05).

September 29, 2005. "The winds were strong enough to cause damage to trees, homes and scattered power outages to more than 5,600 RG&E customers. A wind gust of 45 mph was registered at the Rochester Airport. .the strong winds accompanied by thunderstorms were leading a cold front into New York" (Democrat & Chronicle, 9.30.05, 10.2.05, The Sentinel, 10.6.05).

November 6, 2005. "Supercell thunderstorms raced across the area at 60 mph. Supercells are capable of producing tornadoes, large hail, dangerous bursts of wind or flash flooding, as well as significant lightening. …The separation between updraft and downdraft leads to longer storm life, helping the storm maintain itself for several hours. 4,000 RG&E customers lost power. Most of the problems were from tree limbs on power lines. The peak wind gust at the Airport was 47 mph" (Democrat & Chronicle, 11.8.05). "WHAM-TV13 was knocked off the air for about half an hour, until 6:35 p.m., by transmitter problems" (Democrat & Chronicle, 11.7.05).

November 9, 2005. Heavy rains, lightening and hail tore through the Rochester area making for some pretty bizarre weather. Four people on the Roberts Wesleyan College Campus were treated for non life-threatening injuries when lightening struck nearby. Multiple accidents, multiple alarm calls and some flooding the low areas were reported to the 911 Center. About 500 RG&E customers lost power (Democrat & Chronicle, 11.10.05).

February 17, 2006. "The area had an official wind gust of 77 mph; this is second on the all-time list" (Democrat & Chronicle, 2.12.09).

October 29, 2006. "Winds ranged from 25 to 35 mph, with gusts above 40 mph coming off Lake Ontario. Drivers were warned to use caution on roadways and bridges. At its peak, more than 4,500 customers were without power. The National Weather Service, Buffalo Office issued a wind advisory until 6:00 p.m. There were no cancellations or delays at the Rochester Airport. The high winds caused tree branches to fall on homes and take down power lines" (Democrat & Chronicle, 10.30.06).

December 1, 2006. The National Weather Service, Buffalo Office reported a wind gust of more than 40mph at the Airport. RG&E had about 3,600 customers without power. Several flights were cancelled at the Airport (Democrat & Chronicle, 12.2.06). The high winds produced a seiche on Lake Ontario. "Water is pushed from one end of the lake and piles-up on the opposite side. Seiches can cause changes in water level of several feet before diminishing over time" (Democrat & Chronicle, 12.3.06).

June 8, 2007. "Strong winds, frequent lightening and briefly heavy rain caused scattered power outages. Fallen tree limbs were reported throughout the area. A house was struck by lightening but no injuries were reported. About 8,000 RG&E customers lost power" (Democrat & Chronicle, 6.9.07).

June 19, 2007. "A man on an ATV was killed near Riverside Cemetery when a treetop snapped and landed on him during a fast-moving heavy thunderstorm that brought wind gusts of more than 60 mph." In the city, a 500-pound street vendor cart was lifted by the wind and slammed into a car. The fire service responded to calls for people trapped in their cars from falling trees, and DPW crews responded to remove trees that blocked streets. Multiple reports of trees on houses, into houses and obstructing building access were received at the 911 Center. More than 11,500 RG&E customers lost power, and some traffic signals were dark as a result (Democrat & Chronicle, 6.20.07, 6.21.07).
November 30, 2007. A peak wind gust at the Airport registered 52 mph. The cold front that produced this wind contained a narrow squall line of moderate snowfall (Democrat & Chronicle, 12.1.07).

January 9, 2008. The winds gusted to hurricane force at 75 mph, downing trees and causing power outages. This is the fourth-highest recorded gust in Rochester history (Democrat & Chronicle, 2.4.08, 2.16.08).

January 30, 2008. The peak wind speed was 63 mph, again downing trees and causing power outages (Democrat & Chronicle, 1.31.08, 2.4.08).

May 8, 2010. On May 7, 2010 the National Weather Service, Buffalo Office, issued a High Wind Warning for May 8th from 066 – 2200 hours, and predicted 25 – 40 mph winds with gusts to 55 mph (OEM Storm File). "14,000 customers lost power due to winds that took down trees and power lines." Two-tenths of an inch of snow fell in Charlotte and a trace was measured at the Airport on Sunday morning (Mother's Day). A freeze warning was in effect the morning of May 10th as the cold front that brought the high winds made its way across the region (Democrat & Chronicle, 5.8.10, 5.10.10).

June, 2009. "The last week of June featured thunderstorms that produced localized flooding and damaging hail, which was reported up to 1.75 inches in diameter" (Democrat & Chronicle, 7.2.09).

July 21, 2010. "Just before 1:00 p.m., a Thunderstorm produced downpours, quarter-sized hail and damaging winds up to 60 MPH in Monroe County. About 3,000 RG&E customers, including Highland Hospital were without power for hours. Wind also knocked down trees, branches and power lines. Worst hit were Perinton, Pittsford, Chili, Henrietta, Rochester and Irondequoit. NWS Buffalo reported a total of 1.88 inches of rain fell at the Airport by 5:00 p.m., breaking the record of 1.77 inches for the day set in 1919" (Democrat & Chronicle, 7.22.10). The National Weather Service, Buffalo Office issued a Severe Thunderstorm Warning and a Flood Warning in Monroe County related to this storm (NWS Bulletins, 7.21.10).

Probability of future occurrences and potential magnitude:

The geography of our landscape, our positioning with respect to latitude and longitude, the predominant weather patterns associated with our global position, together with the recorded history of this hazard and our local experience, we know the probability of future occurrences is likely. The magnitude of events will be determined by the duration, intensity, and location of the storm, as well as the structures found within its path. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). We are likely to receive several hours warning from the National Weather Service. The presence of this hazard is usually one day, with a recovery phase of three days to one week (Monroe County Hazard Analysis, 11.9.09). Additional information on the probability of events:

"…Western New York can expect between 30 and 40 days of thunderstorm activity each year. Most of these storms occur from May to September; however, thunderstorms can form as early as mid-March and appear as late as mid-November. These storms rarely feature tornadoes, especially north of the Thruway, where the Great Lakes limit severe weather activity" (Democrat & Chronicle, 4.30.07). Data on lightening strikes that accompany thunderstorms reveals that, "Each year there are about 225,000 lightening strikes in New York State. Lightening will hit within one mile of your home about four times per year" (SEMO Emergency Management Times, June 2008).

The National Weather Service reports that, "While western and central New York do not experience derechos as frequently as some other nearby portions of the country, we are sill affected by these systems from time to time – some of which have been notable for their strength, and for the time of year at which they occurred. As with any other thunderstorm, derechos pose the greatest threat to those participating in outdoor activities, with falling trees typically the cause of most casualties; the same is true for people in cars. Boaters are also at very high risk, as strong winds and resulting high waves can easily overturn their boats. High-profile vehicles (such as buses and trailers) and certain structures (including mobile homes, barns, and other outbuildings)… can easily…overturn or collapse" (National Weather Service, *The Lake Breeze*, Summer 2006).

Maps of hazard areas:

A Hazard Map is not required due to widespread geographic potential of Severe Storms. "In 2007, New York State recorded 690 Severe Weather events: 6 Tornadoes; 234 Hail Storms; and, 450 storms that brought damaging winds" (Democrat & Chronicle, 2.24.08).

Map #10, Woodlots

The NYS Department of Environmental Conservation "Woodlots" within Monroe County are mapped and identified here because they are vulnerable to Windstorms. They are also at risk during Ice Storms, however the predominance is high winds, so we chose to catalog the Woodlot map with this hazard.

This map is useful in assisting responders in estimating the volume of debris from storms, the associated clean-up time, and the cost of clearance and disposal. When this map is overlaid with the Waterways Map (Map #2), it is a useful tool in calculating stream debris and its associated clearance costs.

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Injure or kill, but in small numbers.
- Damage roads and highways, buildings and other structures.
- Trigger cascade events such as power failures, transportation incidents.
- Complicate emergency response through damage to vehicles, and the infrastructures for transportation and communication.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Known information is referenced with each occurrence. The National Weather Service provides general about wind speed and its potential to cause damage:

- "40 -54 mph Twigs break off trees; wind impedes walking; slight structural damage done to chimneys and shingles
- 55-72 mph Damage to roofs and antennas; shallow rooted trees pushed over; large limbs (greater than 2" in diameter) are broken off trees
- 73-112 mph Peels surface off roofs; windows broken" (National Weather Service, *The Lake Breeze*, Spring 2006).

- The National Weather Service reports that the Labor Day derecho of 1998 caused, "An estimated $130 million in wind damage along a swath from Rochester to Utica, where tens of thousands of trees were blown over and thousands of homes were damaged. During the event…three people were killed and ten were injured at the New York State Fairgrounds (in Syracuse)" (National Weather Service, *The Lake Breeze*, Summer 2006).

Notes on data limitations: None

Appendix B-4

Hazard Specific Analysis: Hazardous Materials (Transportation)

Definition:

"The uncontrolled release of materials 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."[1]

Description:

Transportation corridors within Monroe County that carry hazardous materials include: highways, railroads, air/flight paths, pipelines, and navigable waterways.

Major highways are more likely to experience this type of hazard because of interstate and local commercial transport of hazardous materials. Transport vehicles do not typically travel through residential areas unless enroute to destinations such as a gasoline service station or storage facility. Local experience with these incidents is shown on the chart below. Because this hazard is likely to occur at any time it is rated at 290,[2] a Moderately High hazard.

Overview of specific hazard locations and the extent of the hazard:

A hazardous material incident of this type is most likely to occur on:

- Interstate Routes 90, 490, 590, 390, and 531
- Potential also exists on routes destined for industry/business purposes
- CSX (railroad) east-west corridor
- Rochester & Southern (railroad) north-south corridor
- flight paths over the community and those serving the Greater Rochester International Airport
- underground petroleum and gas (natural and propane) pipelines
- navigable waterways including the Erie Canal and Lake Ontario

Previous occurrences of the hazard:

Level*	1992	'93	'94	'95	'96	'97	'98	'99	2000	'01	'02	'03	'04
0							9	14	17	15	18	18	12
1	3	1	1	2	1	1	1	3	1	4	2	4	
2				1									

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Level*	'05	'06	'07	'08	'09	'10							
0	14	16	15	29	22	8							
1		1	1										
2													

*Definitions:

" Level 0 - A hazardous materials incident that is not likely to adversely impact or threaten life, health, property or the environment; where control of the incident is within the capabilities of resources available to the local response jurisdictions.

" Level 1 - A hazardous materials incident that may adversely impact or threaten life, health, property or the environment within an area immediately surrounding the point of release or potential release; where control of the incident is within the capabilities of the resources locally available to responders in Monroe County.

" Level 2 - A hazardous materials incident that may adversely impact or threaten life, health, property or the environment beyond the point of release; may be across municipal jurisdictions; where control of the incident is within the capabilities of the resources based within Monroe County."[3]

Probability of future occurrences and potential magnitude:

Numerous hazardous materials are transported to and through our community every day leading to a high probability that there may be future occurrences. The magnitude of an event will be determined by the mode of transport, the product, flow of other traffic, weather conditions and a number of other factors. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004).

Due to the potential magnitude of transportation incidents involving hazardous materials, the County has emergency response plans related to transportation:

- *Monroe County Hazardous Materials Response Plan: January 2010 Revision*
- *Monroe County NYS Thruway Exit 46 Emergency Plan*
- *Monroe County Railroad Emergency Plan*
- *Greater Rochester International Airport Emergency Plan*
- *Monroe County Aircraft Emergency Disaster Plan: Off-Site of the Greater Rochester International Airport*
- *Monroe County Marine Emergency Plan*

And, other levels of government have plans:

- New York State Canal Corporation
- U.S. Coast Guard *Eastern Great Lakes Area Contingency Plan: Volume 3, Rochester/Oswego*

3 Monroe County Local Emergency Planning Committee, *Monroe County Hazardous Materials Response Plan, January 2010 Revision*, pp. 9-10

Maps of hazard areas:

Map #2, Waterways

Monroe County has many natural and artificial waterways. Some are navigable, many are used for recreational purposes. Sources for the map we created include the U.S. Geological Survey, the National Wetlands Inventory, and the NYS Department of Environmental Conservation (NYSDEC). Features include: name of waterway, stream gage locations, NYSDEC stream classification, flood mitigation ponds, watersheds, and federal and state-regulated wetlands. Dams are not identified for security purposes, nor are the flood protection structures on the Erie Canal.

Map #7, Transportation Corridors

Monroe County's natural landscape is criss-crossed by multiple transportation corridors for rail, highway, marine, and air traffic. The active rail lines, inter-state, state and local highways, the navigable waterways, the commercial airport, and several private air fields are mapped.

Analysis of the impact on business, infrastructure & critical facilities:

Transportation incidents have disrupted traffic flow on highways, caused damage to the environment and critical infrastructure, disrupted routine operations at schools, hospitals and government facilities and destroyed private property. As with every transportation incident, there are immediate and unexpected financial losses even with insurance protection. Transportation incidents of this nature generally involve significant emergency response resources and community resources for Environmental Assessment, the Human Needs requirements of people within the incident radius, and recovery operations.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

A summary of several events conveys the impact these incidents can have on the community:

- December 23, 2001 – CSX derailment in Charlotte neighborhood within the City of Rochester. "CSX has publicly taken responsibility, blaming a worker who failed to properly set the train's brakes" (Democrat & Chronicle, 7-10-03).

  Loss of Life. None

  Personal Injuries. Some residents and emergency services providers

  Property Damage: destroyed private home (partial settlement, $200,000)
  destroyed privately owned boats and cards
  damaged structures by fire, explosion
  railroad track and cars

  Business Loss: shut down a year-round Marina (Democrat & Chronicle, 7-26-03)
  delayed Spring opening of seasonal businesses
  disrupted product shipment by rail

Transportation System: severed highway pattern, and destroyed section of highway
required reconstruction and new pattern design
required rail reconstruction

Environmental Damage: soil and Genesee River received spill of diesel fuel, acetone, and methylene chloride; air emission from fire and smoke

Legal Activity: residents, businesses, City, CSX, Kodak

Claims: property damage, business loss, medical expenses, mental anguish

- April 29, 2003 – Tanker Fire at Lake Avenue and West Ridge Road in the City of Rochester. "On April 29, the tanker truck carrying more than 12,000 gallons of gasoline flipped onto its side on West Ridge Road just east of Lake Avenue. The spilled fuel sparked a blaze that killed one woman, injured 11 people and damaged 23 houses" (Democrat & Chronicle, 6-28-03).

  Loss of Life. One in the fire. One about five weeks later from a heart attack that may be related to the incident.

  Personal injuries. Eleven people.

  Property Damage: 23 houses
  automobiles, vehicles, and other personal property

  Transportation System: highways closed for emergency response
  highways closed and lanes reduced for recovery phase
  highway design and maintenance investigated

  Environmental Damage: soil infiltration (from gasoline)
  air emission from fire and smoke
  natural landscape from fire and intense heat

  Litigation: residents, trucking company, truck driver, City

  Claims: property damage, faulty highway design and maintenance, wrongful death, personal expenses

- March 12, 2003 – "An underground gasoline leak was discovered at the Buckeye Terminal, 754 Brooks Avenue (Rochester). An estimated 50,000 gallons spilled, seeping gasoline and gasoline-related chemicals into the Erie Canal and – more than two months later – into the basements of some nearby houses. Residents were informed of the incident in June . . ." (Democrat & Chronicle, 7-16-03).

  Loss of Life. None.

  Personal Injuries. None reported.

Property Damage. No fire hazard in impacted homes

Business Loss: from lost product
cost of remediation

Transportation System. Cost of repair to and relocation of infrastructure

Environmental Damage. Soil and ground water infiltration (14,000+ gallons fuel extracted from soil as of 7-6-03)

Litigation (pending): residents, business

Claims (pending): " . . . for compensation and medical testing and to assure that property values don't tank" (Democrat & Chronicle, 7-16-03)

Notes on data limitations: Time and record access

Appendix B-5

Hazard Specific Analysis: Winter Storm Severe

Definition:

"A storm system that develops in late fall to early spring and deposits wintry precipitation, such as snow (including lake effect), sleet, or freezing rain, with a significant impact on transportation systems and public safety. For this analysis, the following could meet this definition:

> "Heavy Snow – six inches in 12 hours or less.
>
> "Blizzard – Characterized by low temperatures, winds 35 MPH or greater, and sufficient falling and/or blowing snow in the air to frequently reduce visibility to ¼ mile or less for duration of at least three hours. (NOTE: snowfall amounts are not a factor.)
>
> "Severe Blizzard – Characterized by temperatures near or below 10 degrees F, winds exceeding 45 MPH, and visibility reduced by snow to near zero for duration of at least three hours."[1]

Other definitions associated with snow events include:

> "Blowing Snow…represents wind driven snow that is lifted from the ground to a height of 6 feet or higher in which horizontal visibility is reduced.
>
> "Snow Squalls…are intense snow showers, accompanied by gusty winds where significant accumulations can develop" (Democrat & Chronicle, 12.13.09).
>
> "Heavy Snow Warning…issued when snow accumulations is expected to exceed 7 inches over a given period of time (Democrat & Chronicle, 3.17.07).
>
> "Lake Effect Snow…forms when cold Canadian air passes over Lake Ontario and picks –up moisture from the warmer lake surface. Snow squalls often form downwind of the lakeshore when this moisture is squeezed out of the air by colder land surfaces. The location of snow squalls is then determined by the most persistent wind direction" (WHAM Weather Book, 4.29.10).

National Weather Service Winter Weather Products and their definition are on file at OEM.

Description:

Winter Storms Severe is identified as a Moderately High hazard with a numerical rating of 281.[2] This is a frequent event in our area occurring more than once a year. It impacts a large region, is likely to last from four days to one week, and may limit transportation, disrupt routine community mobility, delay emergency response, and inhibit communication. Winter Storms may cause cascade events, such as power failure, transportation accidents, flooding and fires.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09

"On average, Lake Effect snow accounts for approximately half the snowfall we receive in a given winter season. The remainder of the snow comes from larger-scale storms that affect a much broader area" (Democrat & Chronicle, 1.31.10). Lake Effect adds to our notoriety as the "Snow Belt" region of the Northeast (Democrat & Chronicle, 12.31.05).

Winter Weather data of note:

- Record snowfall on one calendar day is 23 inches on January 3, 1996 (Democrat & Chronicle, 2.15.07).
- The maximum snowfall in 24 hours is 29.8 inches, on 3.1.1900
- The snowiest season is 1959-1960 with 161.7 inches
- The maximum snowfall in one storm is 43.5 inches that fell during a 63-hour period from February 28 to March 2, 1900
- The average monthly snowfalls are…October, 0.1 inches; November, 8.1 inches; December, 21.9 inches; January, 25.8 inches; February, 22.2 inches; March, 16.6 inches; April, 5.1 inches; and May, 0.5 inches (WHAM Weather Book, 4.29.10).
- The average date for the first major snowstorm (6 inches or more) is December 27th (Democrat & Chronicle, 10.12.06).
- The average date for the first snowfall (0.1 inches) is November 5th. The average date for the last snowfall is April 16th
- The earliest recorded accumulation of snow was 0.1 inches on October 27, 1997. The largest, late accumulation (0.4 inches) was May 19, 1976 (Democrat & Chronicle, 10.18.09).
- The half-way point of snowfall can be calculated two ways – using half the total accumulation yields January 25th; using halfway on the calendar yields January 21st (Democrat & Chronicle, 12.23.08).
- The earliest date for the last snowfall is March 23, 1998 (Democrat & Chronicle, 4.11.06).
- Meteorological Winter runs from December 1 to February 28 (Democrat & Chronicle, 12.10.06).

Overview of specific hazard locations and the extent of the hazard:

This event may cause injury/deaths in small numbers. "Winter storms are considered deceptive killers because most deaths are indirectly related to the storm. The leading cause of death…is from automobile or other transportation accidents. Exhaustion and heart attacks caused by overexertion are the two most likely causes of winter storm-related deaths. Elderly people account for the largest percentage of hypothermia victims. Many older Americans literally 'freeze to death' in their own homes after being exposed to dangerously cold indoor temperatures, or are asphyxiated because of improper use of fuels such as charcoal or propane grills, which produce carbon monoxide" (National Disaster Education Coalition, "Talking About Disaster: Guide for Standard Messages, Winter Storm, page 147)." It may result in moderate damage to private property, and little or no damage to public property.

While Winter Storms may affect any part or all of Monroe County, these areas are selected because of the adverse impact that presents with this hazard:

- Transportation modes of air, rail and highways, particularly expressway routes I-90, 390, 490, 590, and 531.
- Buildings and other structures that are prone to collapse from excessive weight.

- Utility conveyances that are subject to damaging wind and significant cold.
- Limits and restrictions imposed on emergency response and communications.

Previous occurrences of the hazard:

National Weather Service, Buffalo Office, data on Winter Storms indicates:

EVENT VERIF DATE/TIME	EVENT END DATE/TIME	ZONE	COUNTY	EVENT	LOCATION	WATCH ISSUED	WARNING ISSUED
01/17/06 0705		NYZ003	MONROE	LAKE EFFECT	PERINTON 7"	NO	YES
01/22/06 1600		NYZ003	MONROE	WINTER WX	PERINTON 7"	YES	YES
03/01/06 0518		NYZ003	MONROE	HEAVY SNOW	SPENCERPORT 7"	NO	NO
10/12/06 2100	10/13/06 0500	NYZ003	MONROE	LAKE EFFECT	BROCKPORT 3" TOTAL	NO	NO
01/25/07 1800	01/26/07 0000	NYZ003	MONROE	LAKE EFFECT	PERINTON 7"	NO	YES
02/14/07 0700	02/14/07 1900	NYZ003	MONROE	HEAVY SNOW	PERINTON 8"	YES	YES
03/17/07 1515	03/18/07 0600	NYZ003	MONROE	HEAVY SNOW	BRIGHTON 9"	NO	YES
12/04/07 0800	12/05/07 0400	NYZ003	MONROE	LAKE EFFECT	PERINTON 7"	YES	YES
12/16/07 1212	12/17/07 0700	NYZ003	MONROE	HEAVY SNOW	PERINTON 7"	YES	YES
02/01/08 1400	02/01/08 1500	NYZ003	MONROE	WINTER STORM	4" & FZRAPL	YES	YES
02/27/08 0100	02/27/08 0400	NYZ003	MONROE	WINTER STORM	IRONDEQUOIT 7"	YES	YES
03/05/08 0735	03/05/08 1000	NYZ003	MONROE	WINTER STORM	PENFIELD SNOW/ICE	YES	YES
03/08/08 0800	03/09/08 0400	NYZ003	MONROE	WINTER STORM	GREECE 8"	YES	YES
12/19/08 1450	12/19/08 2200	NYZ003	MONROE	WINTER STORM	PITTSFORD 7"	YES	YES
12/31/08 0900	12/31/08 1300	NYZ003	MONROE	WINTER STORM	PERINTON 9"	NO	YES
01/28/09 1550	01/29/09 0100	NYZ003	MONROE	WINTER STORM	PERINTON 9"	YES	YES
12/10/09 1745	12/10/09 2100	NYZ003	MONROE	LAKE EFFECT	CHILI 7"	NO	YES
01/03/10 1200	01/03/10 2200	NYZ003	MONROE	LAKE EFFECT	ROCHESTER 9"	NO	YES
02/26/10 0700	02/26/10 0730	NYZ003	MONROE	WINTER STORM	ROC AIRPORT 9"	YES	YES

Judy Levan, NWS email 5.10.10

Monroe County experiences Winter Storms annually. The most significant of these events in the recent past were the Blizzards of 1966, 1977, 1993 and 1999. The blizzards of 1993 and 1999 prompted activation of the County's Emergency Operations Center (EOC), for 40 hours and 89.5 hours respectively.

The Blizzard of 1977 (January 28 – February 2) prompted a Presidential Disaster Declaration and is identified as, FDAA 527. The Blizzard of March 1993, prompted a Presidential Disaster Declaration on March 17, 1993 and is identified as, FEMA-3107-EM-NY. The Blizzard of March 1999, prompted a Presidential Disaster Declaration on March 9, 1999, and is identified as, FEMA-3138-EM-NY.

The following data is noted because of its significance throughout the area:

December 11-12, 1944. Nearly two feet of snow fell, paralyzing the City for several days. "That snowstorm…put a major crimp in efforts to deliver optics, gun turrets, fuel tankers, shell fuses and myriad other products rolling out of the factories…during World War II." National Guard, locally-stationed sailors, and even German War Prisoners aided the clean-up. Buses could not travel to accommodate factory workers forcing warplants to operate with fewer than half their workers on

extended shifts. Some had to close and face long start-up procedures. Some scheduled extended hours on Sundays to make-up for the lost production time. Due to the massive clean-up, some areas were not addresses which caused major problems for service delivery like coal for heating. Businesses and schools were forced to curtail hours in order to achieve continuity with service provision and reduce total loss of these functions. Kodak was working on two tanks, one of which was commandeered to shuttle critical workers: no mention of this was reported by the local news as it may have compromised the security of the mission and elevated the City as a target (Democrat & Chronicle, 2.19.07, 3.5.07).

January 30, 1966. (The peak day of this Blizzard.) "This storm is sometimes referred to as the biggest snowstorm in recorded weather. Several factors compounded this storm: January 23rd snowfall of 18.2 inches (sometimes at a rate of 2-inches per hour); below freezing temperatures the following week; 18-inch snowfall on the 30th; 8.7-inch snowfall on the 31st; and, wind gust over 60 MPH across most of this period. Some snow drifts covered homes. The total measured snowfall from this storm was 34 inches by February 1st" (Democrat & Chronicle, 2.4.06). This Blizzard is attributed with cancelling 58 flights at the Rochester Airport, crippling emergency service delivery and one casualty (Democrat & Chronicle, 1.15.07).

January 28, 1977. November (1976) through January were the coldest on record for western New York. With Lake Erie nearly frozen-over, 3 to 5 feet of snow accumulated on top of the frozen waters. "That afternoon the National Weather Service, Buffalo Office issued a Blizzard Warning because a strong cold front was approaching. As forecast, that cold front swept across the area with a vengeance. Temperatures fell rapidly, winds increased to 45 to 50 MPH with gusts near 75 MPH, visibility was down to zero for nearly 25 hours and wind chills approached 60 degrees below zero" (Democrat & Chronicle, 2.28.07).
February 28, 1984. 15.6 inches of snow fall was recorded as Rochester's eighth-greatest snowfall (at that time) (Democrat & Chronicle, 2.14.07).

Mother's Day, 1989. Rochester reported a record-breaking snowfall of 10.7 inches at the Airport. May, 1989 holds the snowfall record for the month of May, at 10.9 inches (Democrat & Chronicle, 5.14.06).

March 13-14, 1993. "A major winter storm system which produced blizzard conditions from the Southeastern United States to Quebec also left its mark on Western and Central New York. Snow began across the Western and Central Southern Tier on Saturday the 13th and quickly overspread the entire area. The snow continued through Sunday the 14th. A northwest flow of cold air following the storm produced lake effect squalls on the 14th Sunday afternoon and night, which only added to the snowfall amounts. The heavy snow combined with high winds of 20-40 mph and gusts to 60 mph to produce extensive blowing and drifting snow with zero visibilities. The blowing and drifting was so bad highway superintendents pulled the snowplows off the road. Snow and drifts of 5-10 feet were reported. Trees and wires were also downed by the high winds. Minor power outages were scattered across the area. For those airports which remained officially open, most commercial airlines cancelled all flights in and out of the area. The New York State Thruway was closed from Buffalo east. Driving bans and restrictions were in place in all counties in the area with the exception of Erie and parts of Erie and parts of Chautauqua Counties. Driving in those areas however was still treacherous. Most bans were being lifted Monday morning the 15th. Several persons died in auto accidents related to the storm. The impact of the storm on the region is believed to have been lessened by advance warnings with allowed early preparation for the storm. Snowfall

amounts were around 2 feet across the Western Finger Lakes and in excess of 3 feet across the Eastern Finger Lakes" (National Weather Service, Storm Data Report, May 28, 2003). FEMA Public Assistance to all declared counties was $8.5M. Monroe County's portion was $260,562. This event is also known as the March "Superstorm" as the official two-day snowfall tally was 23.2 inches (Democrat & Chronicle, 2.14.07).

January 4, 1996. "A major winter storm brought record snowfall to the area. Enhancement off Lake Ontario due to northeast winds brought snowfall amounts of 18-24 inches to the Rochester metro area. A 24-hour snowfall record was set at the Rochester airport. At Rochester 23 inches fell and at Webster the snow totaled 18 inches. School closings were the rule and there were numerous delays in airline flights at the Rochester airport. The winter road conditions were blamed for many automobile accidents, some with injuries. Damages were estimated at $300,000.00.

November 26 & 27, 1996. "Low pressure moving across the Great Lakes brought snow to the area. The snow became enhanced by the lake producing amounts of 8-12 inches. The heavy snow resulted in school closings. Numerous traffic accidents were blamed on the whiteout conditions. Damage estimates were $10,000.00.

November 14, 1997. "An early season winter storm brought heavy snow to the area as low pressure moved north along the Atlantic coast. Snowfall amounts ranged from six to twelve inches across the region with the highest amounts over the Genesee Valley and western Finger Lakes. The snow was wet and heavy and snarled traffic badly. Countless accidents were reported, many with injuries. Several school districts were forced to close. At Rochester, the 10.6 inches that fell also established a record for the date. Damage estimates were $20,000.00.

December 30, 1997. "A strong storm moved up the East Coast of the U.S. and dropped up to a foot and a half of snow across the Finger Lakes and eastern Lake Ontario regions. The heavy snow downed power lines and trees east of Rochester. Numerous auto accidents, several with injures, were a result of the snow. Strong winds combined with the snowfall to produce blowing and drifting snow resulting in significantly reduced visibilities. Damages were estimated at $15,000.00.

March 21, 1998. "Deep low pressure tracked from Kentucky to New England and brought heavy snow to the entire region. The storm began as a period of freezing rain and sleet Friday evening the 20th and changed over to snow early Saturday morning. The heaviest snow from the storm fell over the northern counties from the Buffalo-Niagara Falls area to Rochester and Oswego County. The snow made roadways extremely slick and innumerable accidents resulted. The heavy ice and snow on power lines and trees resulted in scattered power outages throughout the area. Specific snowfall reports included: 12 inches in Rochester. Damages were estimated at $20,000.00.

March 4, 1999. "Deep low pressure moved from West Virginia north across New York to Quebec, Canada. Heavy rain changed to heavy snow as cold air circulated into the region. Snow fell at the rate of two to three inches per hour. Across Monroe and Wayne counties snowfall amounts were greatest with over two feet falling. The strong winds off Lake Ontario resulted in Blizzard conditions over Monroe and Wayne counties for nearly six hours. Drifts reached four to five feet in places. The New York State Thruway (I-90) was closed from Depew to Syracuse. Several hundred cars were stranded in the closed section. The Governor declared Monroe, Wayne, Oswego, Wyoming, Livingston, and Cayuga Counties State Disaster Areas. Orleans, Ontario, Wyoming, Livingston, Monroe and Wayne Counties were also declared Federal Disaster Areas. The National

Guard was called on to help remove cars, rescue stranded motorists and deliver food and medical supplies. Schools and businesses were closed throughout the area. Nearly 10,000 customers lost power during the storm. Specific snowfall reports included: Hamlin 28", Perinton and Fairport 26", Penfield 25", Rochester Airport 24", Victor 22", Greece and Webster 20". First estimates of damage were $250,000.00 with actual Blizzard damage estimates of $1,500,000.00

March 6, 1999. "A strong storm moved from Ohio to New England and dropped a general six to twelve inches of snow across the entire region. The snow fell just two days after much of the area was recovering from another major winter storm. The heavy snow was blamed for numerous auto accidents- some with injuries. Specific snowfall reports included: Rochester 19", Fairport and Penfield 18", Pittsford 17", Webster and Greece 16. Damages were estimated at $500,000.00" (National Weather Service, Storm Data Report, May 28, 2003). FEMA Public Assistance for Monroe County was $1.99M. Rochester received a total of 40.7 inches in these back-to-back storms, referred to as the Blizzard of 1999 (Democrat & Chronicle, 2.14.07).

January 26, 2000. "Low pressure moved up the East Coast with western New York on the fringe of the system. The north-northeast flow across Lake Ontario resulted in enhanced snowfalls downwind of the lake. Snowfalls included: Rochester metro area – 12" in the city, 16" in the eastern suburbs, and 6-10" west and south. Damages were estimated at $35,000.00.

December 31, 2000. "Low pressure developed off the mid-Atlantic coast then moved north along the coast bringing a general snowfall to the area. Between 6 and 12 inches of snow fell across the area with higher amounts downwind from Lakes Erie and Ontario due to lake enhancement. The heavy snowfall was accompanied by brisk northwest winds that resulted in blowing and drifting snow and wind chills of ten to twenty degrees below zero. Visibilities were near zero at times in intense snow and blowing snow. Specific snowfall reports included: Perinton 10", Greece, Fairport and Western Monroe 8," and Rochester 7". Damages were estimated at $100,000.00.

March 5, 2001. "A complex low pressure system that plagued the Northeast brought significant snowfall to western and central New York. The snow in western New York came in two phases from Sunday night to early Monday morning (4th-5th) and again Monday night to Tuesday morning (5th-6th). The heaviest snow fell during the first period and was associated with upper level energy, while the second snow period resulted from the western fringe of a large coastal storm south of New England. East of Lake Ontario, the snow was nearly continuous from late Monday night through Tuesday morning (4th-6th). Snowfall totals for the 48-hour event were generally between 12-18" from the Genesee Valley eastward and 8-12" across far western New York. Specific storm totals reported: Mendon 19", Greece16", Webster 15", Honeoye Falls 14", Penfield, Perinton and Rochester 10". Damages were estimated at $200,000.00.

December 25, 2002. "Low Pressure moved northeast along the Appalachians and brought a general heavy snow to much of the region on Christmas Eve and Christmas day. The heavy snow slowed holiday travelers and caused limited delays at the Rochester airport" (National Weather Service, Storm Data Report, May 28, 2003). The Rochester Airport recorded a 24-hour accumulation of 12.3 inches of snow (Democrat & Chronicle, 2.14.07).

January 22-23, 2005. "The area had a two-day snow total of 16.3 inches" (Democrat & Chronicle, 2.14.07).

January 17, 2007. A "Lake Effect Storm Watch" (until 1000 hours) followed an Ice Storm. The National Weather Service expected 2-6 inches, with high winds and below-freezing temperatures. More than 17,000 RG&E customers lost power in the Ice Storm, but most were restored by 0200 hours (Democrat & Chronicle, 2.17.07).

February 14, 2007. This "Valentine's Day Snowstorm," was part of a storm from Kentucky to Maine that caused 12 deaths, prompted Blizzard Warnings, left more than two feet of snowfall and disrupted power to more than 300,000 customers. In Rochester, the National Weather Service issued a "Heavy Snow Warning," as the area braced for the, "Heaviest snowfall here since the Blizzard of March 1999." The impacts of this storm include:

- Transportation…21 delayed and cancelled flights, rail delays, Amtrak cancelled service (2.15.07, 2.16.07), dozens of highways and bridges were closed due to motor vehicle accidents as the low temperature inhibited road salt
- Closings…schools (most on 2.14.07, some again on 2.15.07)
- Municipal operations…round-the-clock snowplow operations, City contractors engaged for snowplowing streets and sidewalks, City declared a "Snow Emergency" to regulate parking and assist with snowplow operations, request for homeowners to clear fire hydrants, routine service interruption for garbage pick-up and public transportation schedules
- New York State…Governor activated the National Guard, NYSDOT issued a ban (2.14.07 and 2.15.07) prohibiting oversize and overweight trucks on state roads except for emergencies, NYS Insurance Department instituted its toll-free hotline to assist with insurance-related issues
- Community members responded to Homeless shelter requests for warm clothing, and shelters extended their hours of operation and added beds
- An employee of Westgate Nursing Home was trapped for about an hour when a shed roof collapsed; she was treated for hyperthermia (Democrat & Chronicle, 2.14.07, 2.15.07, 2.16.07).

March 5, 2007. "The Rochester area was hit by a combination of high winds, blowing snow and bone-chilling temperatures that made driving treacherous, closed some schools and led to two fatalities." Wind chills about minus 16, with 5.2 inches of snow and wind gusts up to 50 mph created difficult conditions for ground and air traffic. Local roads and Interstates were closed for periods of time throughout the storm. Three Monroe County Sheriff's Patrol vehicles were struck while Deputies assisted travelers. A tow truck driver rescued a motorist who drove off Route 390 into a pond. Section V Tournament games were cancelled and many schools were running out of their allotted snow days (Democrat & Chronicle, 3.6.07).

March 17-18, 2007. Amid flooding from February's snowmelt and a "Flood Warning," the National Weather Service Buffalo Office also issued a "Heavy Snow Warning" for most of western New York until the morning of 3.18.07. Below freezing temperatures with 15-20 MPH winds accompanied up to 14 inches of snowfall. Some airlines cancelled flights, but except for those closed due to flooding, area roads were passable from the snowfall (Democrat & Chronicle, 3.17.07, 3.18.07).

December 3-4, 2007. The National Weather Service Buffalo Office issued a "Lake Effect Snow Warning" through 12.4.07 with a snowfall total expected at 11-14 inches, with blowing snow (winds up to 35 MPH gusts) and drastically reduced visibility. Numerous traffic accidents and slow moving rush-hour traffic impacted motorists. Part of the New York State Thruway was closed. Church and school activities were cancelled. The Airport closed for 36 minutes on 12.3.07 to facilitate snow removal. Some flights were delayed in addition to this downtime (Democrat & Chronicle, 12.4.07).

December 15, 2007. "A winter storm that threatened to shut down much of the area didn't...(Democrat & Chronicle, 12.17.07). But, it did affect the air traffic at the Rochester Airport as flights were cancelled or delayed. OEM was engaged with the National Weather Service, Buffalo Office to provide up-to-the-minute assistance for promoters and officials charting a viable ground transportation route for a concert celebrity to move from Toronto to Rochester (OEM Disaster Response File).

March 7-8, 2008. The National Weather Service, Buffalo Office issued a Winter Weather Warning for a snow storm that dropped about 16 inches of snow on Rochester during a 36-hour period. RG&E reported 3,300 customers without power. Blowing and drifting snow caused whiteout conditions on roads and visibility at the Airport was an eighth of a mile. Thunder and lightening accompanied bands of heavy snow the afternoon and evening of March 8th (Democrat & Chronicle, 3.9.08).

December 19, 2008. By the next day, most of the area measured anywhere from 6-16 inches of snow. This was a record setting snowfall: 8.9 inches was measured at the Airport, breaking the old record for the day at 8.6 inches in 1981 (Democrat & Chronicle, 12.21.08).

December 31, 2008. A record breaking 11.7 inches of snow was recorded at the Airport (Democrat & Chronicle, 1.2.09).

December 10-12, 2009 (Lake Effect Storm "Amaryllis"). The National Weather Service Buffalo Office named this 54-hour storm and referred to it as a "Classic" event in their official Storm Report. We received anywhere from 3-9 inches (N to S), but the areas immediately adjacent to the east shores of the lakes received up to 40 inches. "An unusual wind shift above Lake Erie blew blizzard-like conditions into the Rochester area on December 10th, slowing the evening commute, and causing dozens of accidents" (Democrat & Chronicle, 12.11.09, OEM file).

January 3-9, 2010. Rochester Airport recorded 116 straight hours of snow, with an accumulation of 12.3 inches (Democrat & Chronicle, 1.10.10).

February 26, 2010. Rochester received 10-16 inches from a Nor'easter that affected Virginia to Maine and cancelled thousands of flights and stranded motorists across many states. Area schools were closed, and RG&E restored power to 1,311 customers in an hour when heavy snow dropped tree branches on a power line in Webster (Democrat & Chronicle, 2.2710).

Probability of future occurrences and potential magnitude:

There is a high probability of future occurrences. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). Monroe County experiences Winter Storms on an annual basis. The magnitude of this event would be exacerbated if coupled with cascading events of utility failure and/or fire. Due to the definition of this event, transportation disruption is expected. The nature and magnitude of this cascade event is determined by the duration of this event and its associated Recovery Phase which is forecast at three days to one week.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Cause failure of utility systems.
- Delay or restrict transportation.
- Cause damage to buildings, and other structures.
- Restrict emergency response, and hamper emergency communications.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Loss information is included with dates of occurrence.

Casualties:

- Blizzard of 1966. "...A Henrietta man died before ambulance crews could crawl over the drifts to reach him. They had to leave their ambulance behind, blocked by an 8-foot snowdrift in front of their garage" (Democrat & Chronicle, 1.15.07).

Costs. Tax payer related costs for snow removal are a large portion of local and regional municipal budgets.

Notes on data limitations: Time and record access

Appendix B-6

Hazard Specific Analysis: Fire

Definition:

"Self-sustaining, rapid oxidation of material resulting in the release of energy in the form of heat and light."[1]

"The uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed areas."[2]

Description:

"For the purpose of calling a fire major, the incident should meet any or all of the following criteria:

- Multiple loss of life
- $1,000,000 of property damage
- Major community impact, such as destruction of a major industry or employer in the community."[3]

"Fire, rated at 280[4], is considered a Moderately High hazard and requires the activation of the County's emergency forces more than once a year. A credible worst case fire would likely occur without warning, and cause serious injury or death, but not in large numbers."[4]

Overview of specific hazard locations and the extent of the hazard:

Fires can occur anywhere, but increased hazard exists in locations that are industrial, and have substantial combustible material and/or hazardous materials on site. Transportation incidents involving gasoline tanker fires have caused severe injury, death and significant property damage. The extent of this hazard is largely dependent on structure, location, response and suppression capabilities.

Previous occurrences of the hazard:

Previous occurrences are too numerous to list in detail. Significant events have occurred in every fire fighting jurisdiction within Monroe County. Two fire events have prompted activation of the Emergency Operations Center:

October 16, 1994	for 6.75 hours	3-Alarm Fire, City of Rochester
June 19, 2001	for 1 hour	Mill Seat Landfill Fire

1 Fire Protection Handbook (17th Ed.), p. 1-44
2 SEMO. HAZNY 2004
3 HAZNY
4 Monroe County Hazard Analysis, 11.9.09

Since the formalization of the County's Fire Mutual-Aid Plan, mutual aid calls average 1,000 – 1,500 per year.[5] Note: Additional data is available in the "Monroe County Fire Bureau's Annual Report."

Major fires have been the catalyst for significant cultural changes in Monroe County's fire fighting community. Examples are:

- the initiation of a mutual-aid system that was institutionalized within Monroe County and subsequently adopted as statute by the New York State Legislature
- standardization of fire fighter training for volunteers and paid staff, with the inclusion of industrial departments/brigades
- initiation of special operations teams, e.g. HAZMAT, Technical Rescue
- standardized public safety communication system
- centralization of alarm calls and dispatch even before the inception of 911
- a fire prevention program that became a model for a state-wide program
- support for an increase in the Volunteer Firefighter's Benefit Law
- the Juvenile Fire Intervention Program

Probability of future occurrences and potential magnitude:

Fires will continue to occur on some level on a consistent basis. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). The magnitude potential depends on a number of different factors in residential and commercial structures such as, but not limited to:

- Structural age, architectural design, type of construction and building materials
- Building code compliance and safety inspections
- Use or non-use of fire detection, e.g. smoke detectors, and/or fire suppression features, e.g. sprinkler/standpipe systems
- Building safety and evacuation plans
- Fire prevention and public education
- Arson arrests, prosecution and conviction

Maps of hazard areas:

Map of fires is not required due to widespread geographic potential.

Map #5, Monroe County Fire District Map

5 Schalabba, Steve, Monroe County Fire Bureau Assistant Fire Coordinator, September 7, 2010

Monroe County is served by career and volunteer fire fighters. A map of the fire jurisdictions is attached.

Analysis of the impact on business, infrastructure & critical facilities:

Fire adversely impacts business, infrastructure, and critical facilities. A worse case scenario can lead to property damage, losses of business due to closings and water supply if it is contaminated, environmental contamination, loss of life and personal injury to emergency service providers and the public. Significant property loss also leads to loss of assessed property value on the municipal tax roll. The Village of Honeoye Falls lost its public water supply when it was contaminated with run-off from a fire. Critical facilities, like hospital Emergency Departments, may be overwhelmed from an influx of fire victims.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

- May 3, 1867. At the Pendry Drug Store, 142 Main Street, Rochester, and then seven hours later at Washington Hall across the street. This fire was apparently ignited from a cinder on the roof that was deposited from the drug store fire. Three firefighters were killed when the ceiling and roof timbers fell (Democrat & Chronicle, 1-10-00).

- November 9, 1888. At the Steam Gage & Lantern Co., in Rochester, "was one of the deadliest in Rochester's history, killing 38 workers, many of whom leaped to their deaths from the upper floors of the Gorsline Building on Commercial Street" (Democrat & Chronicle, 1-10-00).

- January 7, 1901. At Kodak Park, Lake Avenue, Rochester. The fire started when nitric acid was released in an acid storage building. Kodak's apparatus was called and City firefighters responded. "More companies were called in, and for an hour the firefighters had a 'fierce fight' with the flames, retreating frequently when the acrid smoke became too much" (Democrat & Chronicle, 1-10-00). Three firefighters later died, their deaths attributed to inhalation of nitric acid fumes.

- February 26, 1904. At the Sibley, Lindsay & Curr retail store, in Rochester, "was one of the most destructive, raging for 40 hours and destroying several downtown buildings" (Democrat & Chronicle, 1-10-00).

- June 20, 2003. A seven-alarm fire (Democrat & Chronicle, 7-26-03) at the vacant site at Lyell Avenue and Whitney Street, Rochester. "The city marshaled all of its firefighting units except one to the blaze and also received help from some suburban fire departments" (Democrat & Chronicle, 6-22-03). Flames shot six-seven stories in the air and the glow was seen for miles. Firefighters fought the blaze and doused the roofs of 12 homes to make sure the fire didn't spread.

  Deaths & Injuries. None

  Cause. Arson ($2,000 award offered by *CrimeStoppers* and the U.S. Bureau of Alcohol, Tobacco, Firearms and Explosives)

Property Damage. Destroyed part of the 5-block complex

Clean-up Cost. Estimated at $750,000. This cost may fall to the City, as Corporation Counsel, " . . . Doesn't believe the property was insured and . . . is pessimistic about the assets behind the property owners" (Democrat & Chronicle, 7-2-03).

Fifty-two firefighters with the City of Rochester Fire Department have died in the line of duty. Firefighters in departments outside the City have also died in line-of-duty deaths at the fire scene, in response to an alarm, and post-event after answering an alarm.

Fire jurisdictions work closely with I.S.O. to credit equipment, training, response time, alerting and dispatch procedures, response protocols, and water supply to meet standards that translate to a reduction in fire insurance premiums for their communities.

"The U.S. Consumer Product Safety Commission reported 18,300 chimney-related fires in the U.S. in 1998, the last year for which the commission had statistics. These fires resulted in 160 injuries, 40 deaths and $158 million in property damage. Almost all of these could have been prevented through inspection and cleaning" (Democrat & Chronicle, 8-9-03).

Notes on data limitations: Time and record access

Appendix B-7

Hazard Specific Analysis: Terrorism

Definition:

"The threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths."[1]

Description:

"Due to widespread events involving September 11, 2001, new priority may be considered regarding this event."[2] Although the definition cites political or social motivation for violence, September 11, 2001 demonstrated various other factors that warrant consideration when looking at terrorism as a hazard. A hazard rating of 262[3] as a Moderately High hazard can be misleading given current events worldwide.

"Every community in the United States is vulnerable to the growing threat from weapons of mass destruction (WMD). Terrorist related events – especially the threatened use of nuclear, biological, and chemical material – have increased dramatically since 1970, rising from a single incident in the 1970s to three in the 1980s, to an exponential increase in the 1990s. A terrorist attack can take several forms depending on the technological means available to the terrorist, the nature of the political issue motivating the attack, and the points of weakness of the terrorists' target."[4]

Overview of specific hazard locations and the extent of the hazard:

Local information not included for security purposes. Local Risk Assessments have been conducted with local, state, and federal law enforcement agencies.

Previous occurrences of the hazard:

World events, and terrorist activity within the United States include:

1984	Oregon – restaurant salad bars contaminated with salmonella
February 29, 1993	World Trade Center – parking garage bombing
March, 1995	Tokyo, Japan – sarin gas released in subway
April 19, 1995	Oklahoma City – Murrah Federal Building bombing
since 1997	U.S. – anthrax hoaxes
September 11, 2001	World Trade Center, Pentagon, PA air crash, "Attack on America"
October-November, 2001	Florida, New York City, Washington D.C. – anthrax mailed

Local information not included for security purposes.

1 SEMO. HAZNY 2004
2 HAZNY
3 Monroe County Hazard Analysis, 11.9.09
4 U.S. Dept. of Justice *Senior Officials' Workshop* Participant Manual, p. ES-2. September 1, 1999

Probability of future occurrences and potential magnitude:

Probability is impossible to predict, but current world events must be considered. Given that the potential magnitude could be catastrophic depending on event factors, this hazard is considered a "Regular Event" by HAZNY definition meaning that it may occur between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004).

These factors, coupled with world and national events, led County Executive Jack Doyle to request the Office of Emergency Management to draft an emergency plan for his review and consideration. Locally-based federal and state stakeholders and local agencies collaborated to draft the *Monroe County Terrorism Response Plan*, which the Executive authorized on October 4, 1999 as an Annex to the County's "Comprehensive Emergency Plan."

The April 1999 shooting that killed thirteen students and staff members at Columbine High School, near Denver, prompted many states to review their school safety and security plans. New York State is among them. By July 1, 2001 public school districts were required to up-date their district-wide plans and to develop individual school building-level plans across their districts. These plans, " . . . Describe how school officials and local police would respond to a life-threatening situation in a school building. And, they must be on file with local law enforcement agencies" (Democrat & Chronicle, 11-24-00). This new mandate is one component of the NY "Safe Schools Against Violence and Education Act," referred to as Project SAVE.

Maps of hazard areas:

Local information not included for security purposes.

Analysis of the impact on business, infrastructure & critical facilities:

Local information not included for security purposes.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

On September 11, 2001, County Executive Jack Doyle requested activation of the County's Emergency Operations Center (EOC). The EOC was activated from 1000-1830 hours. President George W. Bush declared a Disaster for the Attack on America. This Disaster's identity is FEMA-1391-DR-NY. Of the $6.1 Billion claimed, Monroe County recovered $40,897.02 in Public Assistance Funding for costs associated with: canceling the scheduled Primary Election, Emergency Medical Services (EMS) assistance at Ground Zero, and Emergency Management assistance at the state's EOC.

Other local information not included for security purposes.

Notes on data limitations: None

Appendix B-8

Hazard Specific Analysis: Utility Failure

Definition:

"Loss of electric and/or natural gas supply, telephone service or public water supply as a result of an internal system failure and not by the effects of disaster agents."[1]

Description:

Utility failure is described as the failure of primary sources of electricity, gas, telephone, water, or sewage disposal. These events can significantly impact businesses, and create hazardous health conditions. Utility failure, defined above, is driven by an internal failure. In Monroe County, the loss of utilities, and/or the failure of a utility's infrastructure, may occur as a cascade event. Utility Failure is ranked as a Moderately High hazard in Monroe County with a hazard rating of 259.[2]

Overview of specific hazard locations and the extent of the hazard:

Utility failure may affect all of Monroe County, or may be specific to certain areas within the County. These hazards are most likely to disrupt:

- Locally-based, business and industry with high dependency on electric, gas, telephone, water supply, and/or sewage disposal.
- Locally-based business and industry with regional and national importance in our global economy.
- Critical facilities that may be especially susceptible to power failure, or that may not possess significant backup power or sustainable operations, such as hospitals, water and sewage treatment facilities.
- Highly populated and/or densely populated areas.
- Transportation patterns frustrated by traffic signal outages, fueling disruptions, and street lighting failures.
- Information transmission on Information Technology (IT) platforms.
- Communication systems dependent on IT platforms.
- IT-dependent system controls and system management programs

Power outages can be cascading events unto themselves. Although the grid has built-in, fail-safe mechanisms to prevent escalation and cascading, a failure in one area can have a domino affect and begin a chain of events that leads to a blackout like the events in 1959, 1961, 1965, 1977, and 2003. Other hazards can cascade from a power failure: fires, looting, explosions, water-supply failures, water-quality concerns, mass transit failure, transportation incidents, sewage overflows, and economic loss are all high-probability events when the power fails. All of these occurred during the August 2003 Blackout, but not all occurred in Monroe County.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09

"...Aging water distribution systems drain about 2.6 billion gallons (of treated water) annually from the City system. This equates to a loss of 24%, or 7.1 million gallons of the City's daily water supply. The Monroe County Water Authority lost 15% in 2009, or about 7.7 million gallons per day, in a system that processes almost twice as much water for three times as many customers and contains five times as many miles of pipe as the City" (Democrat & Chronicle, 6.28.10).

Previous occurrences of the hazard:

RE: Electric Power

1959, 1961. Major blackouts in the Northeast from an, "avalanche of failure. In 1959, 1961 and 1965, anywhere from one to a few cables failed in isolated places, causing overloads in a few more cables, and then a larger cascade of failures. The cascade gained momentum and produced catastrophe through the medium of the grid – which let those electrons flow where they pleased – and finally produced a shutdown of the whole system" (Democrat & Chronicle, 8-17-03).

November 9, 1965. Monroe County was "in the dark" with most of the east coast during the 1965 blackout.

"Power was out for more than four hours in Rochester that day after a faulty relay broke in an Ontario Hydro power plant in Queenston, Ontario, near Niagara Falls, triggering a cascade of power surges that shut down electrical systems throughout the Northeast. The Great Northeast Blackout, as it came to be known, struck Rochester at 5:23 p.m., during evening rush hour.

"Intersections became snarled when traffic signals tripped off, service stations couldn't pump gasoline, people became stuck in elevators, television stations were knocked off the air, and seven aircraft had to circle above what then was called Rochester-Monroe County Airport when landing strip lights blinked out. Civil defense officials mobilized and off-duty police officers and firefighters were called to work in case of unrest. None occurred.

"While stumped crews at Rochester Gas and Electric Corp. struggled to isolate the problem, customers of Niagara Mohawk Corp. in Riga, Wheatland, Rush and parts of Henrietta and Mendon still had power. RG&E's power-generating system, which normally could produce enough power to cover its service area, was connected with other power companies in upstate New York that provided power through an eight-county area. When the relay broke in Ontario, power demands from the other utilities caused a power drain that overtaxed RG&E's generators and shut them down.

"After RG&E engineers disconnected their system from the other companies, they fired up their own generators again. By 7:15 p.m., power began being restored to hospitals and other priority users. By 9:45 p.m., power was fully restored" (Democrat & Chronicle, 8-15-03).

1977. A blackout in New York City was caused, " . . . by a series of lightening strikes" (Democrat & Chronicle, 8-17-03). "This blackout affected 9 million people" (Democrat & Chronicle, 8-15-03).

August 11, 1996. "Blackouts in the West affected 4 million electric customers . . ." (Democrat & Chronicle, 8-15-03).

August 14, 2003. "The blackout began shortly after the 4:00 p.m. closing bell on Wall Street. It is probably the biggest blackout in North America history. It covered an area of 50 million people throughout the Northeast, affecting cities in New York, New Jersey, Ohio, Connecticut, Michigan, Massachusetts, as well as several major cities in Canada, including Toronto and Ottawa" (Democrat & Chronicle, 8-15-03). About 50 million people were without power. Ten million of them were in Canada, about 9.5 million were in New York State (Democrat & Chronicle, 8-15-03).

"Locally, the emergency management teams took stock of the situation. Officials fed what information they had to the media. People coped as they always cope with an electrical failure – they made do, helped their neighbors and waited for the lights to pop back on" (Democrat & Chronicle, 8-15-03). Data from Monroe County:

> The Emergency Operations Center was activated for 16.5 hours beginning at 1630 hours on August 14th.
>
> County Executive Jack Doyle declared a State of Emergency for all of Monroe County at 1700 hours on August 14th, and ordered "No unnecessary travel." The declaration and order were rescinded at 0600 hours on August 15th.
>
> Approximately 67-80 percent of RG&E customers (about 400,000) in the County were without power. Niagara Mohawk customers within the County were also affected.
>
> Kodak Park shifted electric load back to company generation for mission-critical areas. No employees sent home: no shifts cancelled (Democrat & Chronicle, 8-16-03).
>
> "Frontier officials said fewer than 1,000 telephone customers lost land-line service during Thursday's power outage" (Democrat & Chronicle, 8-16-03). Frontier operated some central offices and loop stations on batteries/back-up generators (EOC representative, 8-14-03).
>
> City of Rochester, "Fire Chief Floyd Madison said there were 12 minor fires Thursday night and Friday morning." Six were blackout-related. "Three fire stations lost power and were not able to get back-up power" (Democrat & Chronicle, 8-16-03).
>
> Ginna Station shut-down. Ginna is one of six in the state, and nine nationally, that were shut-down.
>
> 575 traffic lights were dark.
>
> Hospitals operated on back-up generators. The generator at Park Ridge Hospital failed. County Pure Waters deployed a generator. Their electricians and RG&E crews worked to repair the hospital's generator. Commercial power was restored in under two hours.

"The outage didn't disrupt play at the 85th PGA Championship at Pittsford's Oak Hill Country Club" (Democrat & Chronicle, 8-15-03).

"At (the airport) several hundred passengers sweated out the power interruption Thursday afternoon. The airport lost outside power, and one of its two back-up generators failed, leaving passengers unable to board flights for nearly three hours. (By 7:00 p.m.) most passengers had cleared security and were preparing to board flights. Airport security officials said planes headed to cities without major outages could leave . . ." (Democrat & Chronicle, 8-15-03).

Monroe County Water Authority and the Pure Waters District (sewage) both had pump stations on generated power.

Red Cross and County Health Department opened two venues for people with medical appliances who needed power access.

On the morning of the 15th, RG&E and Niagara Mohawk both announced that "rolling blackouts" were ordered by the ISO to stabilize the restoration effort.

Governor Pataki swept the state for local media conferences: Monroe County Office Building, 8-15-03, 1700 hours.

Governor Pataki asks for federal emergency declaration to provide federal money for relief efforts (Democrat & Chronicle, 8-17-03).

February 16, 2007. "About 2,500 RG&E customers lost power for an hour and 15 minutes as the result of an equipment failure at a substation. The power outage affected customers in Corn Hill and the western part of the South Wedge. The outage was between 4:30 and 5:45 p.m." (Democrat & Chronicle, 2.17.07).

September 7, 2007. "School was cancelled in Spencerport because of a failed electric transmission line that affected more than 38,000 RG&E customers in western Monroe County. Power failed around 7:45 a.m. and was restored to most customers by 8:30 a.m." (Democrat & Chronicle, 9.8.07). OEM files indicate this was not an Electric Grid problem. This was a supply failure on a 115KV transmission line that was scheduled for comprehensive maintenance testing within a week of the failure. RG&E's analysis of the problem and the system included inspection from the ground, the air, and thermal imaging. They also removed a section of the damaged line for testing and analysis. This failure resulted in some water pressure problems and water supply failure at the Wheatland-Chili School. With system redundancy through switching, all customers were restored by 9:25 a.m. (OEM file, 9.7.07).

June 2, 2008. "A power failure left about 900 RG&E customers in the dark for a little over an hour. The outage was reported about 9:00 p.m., and power was restored by 10:23. The cause was not reported" (Democrat & Chronicle, 6.3.08).

July 17, 2010. "About 1,000 households were temporarily without power in Monroe and Ontario counties after a tree fell onto electrical wires at 2:45 p.m. Affected areas included

Henrietta, Honeoye Falls and Webster (Monroe County) until restoration by 5:30 p.m." (Democrat & Chronicle, 7.18.10).

Rolling blackouts that began affecting California and became routine for months in several major cities in the late 1990's-2000, have not adversely impacted us, although "Electric Load Shedding" has been addressed by at least one of the area's distributors.[3] NationalGrid (previously Niagara Mohawk) and RG&E advise their customer base about Electric Load Shedding, encourage voluntary consumption reduction measures, and educate them about how they will be informed that electric supplies are being reduced (Niagara Mohawk News Release, 6.20.05, NationalGrid and RG&E customer billing inserts).

RE: Gas. November 17, 2006. "More than 300 Greece families (700 residents) had to find new temporary housing after a routine inspection of natural gas lines at the Cedar Commons apartment complex uncovered leaks so dangerous the complex's gas service had to be immediately disconnected...to ensure the safety of residents. RG&E said the gas lines are owned by the complex and that it is their responsibility to fix them. However, the utility company said it is helping to locate material and qualified workers to make the repairs as soon as possible. Jeff McCann, Greece Town Deputy Supervisor, said the town was made aware of the problem, and that complex managers told the town they would voluntarily relocate more than 316 families from the complex while repairs could be made. All residents were able to return with heat and hot water by 4:30 p.m. on November 22nd...after more than 9,000 feet of gas line was replaced throughout the 360-unit complex (Democrat & Chronicle, 11.18.06, 11.21.06, 11.22.06).

RE: Sanitary Sewer. "Residents of aging suburbs like Irondequoit, Brighton, East Rochester and Greece, face flooding caused by decaying sewer infrastructure. Some of the infrastructure pipes were laid early in the 1900's. Irondequoit residents report that heavy precipitation means sewage in their basement and tens of thousands of dollars of damage to their property. An Irondequoit DPW employee who has been dealing with sewers for 33 years, estimates that there have been problems in about 10,000 homes" (Democrat & Chronicle, 1.28.07).

Probability of future occurrences and potential magnitude:

There are three major private utilities that distribute electric and natural gas within Monroe County. There are three municipal electric providers and one municipal natural gas provider. Some areas are dependent on residential propane tanks for gas service. RG&E has Electric and Gas Emergency Plans, and the County Office of Emergency Management participates in exercises on these plans.

The probability of future occurrences is directly related to the demand. Increase in utility demand is attributable to technology growth and use, to real estate development and business demands that have not been offset with additional generation capacity, additional supply, and in some cases transmission system capacity. This hazard is considered a "Frequent Event" by HAZNY definition meaning that it may occur more than once a year (SEMO, HAZNY 2004). We consider this hazard a potential cascade event from terrorism, flooding, ice storms, windstorms, and other severe weather. A credible worst case event, either as a cascade event or a supply failure, would cover a large region and occur without warning,[4] as happens with blackouts, e.g. August 14, 2003.

3 RG&E Presentation to Elected Officials, "Electric Load Shedding: The Last Resort." May 4, 2000

4 Monroe County Hazard Analysis Report by SEMO, January 1999

Maps of hazard areas:

A hazard map of the electric and gas affected areas are not required due to widespread geographic potential.

Map #3, Water Supply in Monroe County

Monroe County's public water supply comes from Lake Ontario, two of the Finger Lakes – Hemlock Lake, and Canadice Lake, and from private wells. The accompanying map identifies the public supplies, the supplier, and the areas served by public supply and private wells. Water treatment facilities and distribution systems are not identified for security purposes. Many of the rural areas are dependent on private wells. Several large industries have their own supply source and treatment facilities. Many fire departments have an alternate water source for fire fighting: the City of Rochester has a parallel supply for fire suppression within the downtown area called the "Holley System," and many suburban and rural departments have standpipes on natural waterways.

Map #13, is based on a map of the Monroe County Pure Waters District (sewer system).

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Cause failure of utility delivery systems, affecting critical facilities such as hospitals, nursing homes, emergency services, water supply, sewage disposal, traffic signals, and mass transit.
- Result in significant health related concerns.
- May restrict emergency response, and hamper emergency communications.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

In addition to information provided in previous sections, data on the August 14, 2003 blackout:

- 50 million people without power in (an incident that took) nine seconds
- more than 100 power plants shut-down
- attributed deaths: New York (1), Connecticut (1), Canada (2)
- 656 miles of New York City subway closed
- water failure – Cleveland severe
- New York City police officers – 10,000 on-duty overnight 8-14-03
- New York City Council estimated revenue losses: $10 M overtime pay for first 24 hours; $40 M tax revenue; $750 M general revenue
- more than 50 assembly and other automotive plants affected

Notes on data limitations: Time and record access

Appendix B-9

Hazard Specific Analysis: Explosion

Definition:

"Sudden and rapid escape of gases from a confined space, accompanied by high temperatures, violent shock, and loud noise."[1]

"The threat or actual detonation of an explosive device or material with the potential of inflicting serious injury to people or damage to property."[2]

Description:

Explosions are usually a cascade effect of a primary event such as a structure fire or transportation accident. Natural Gas explosions have been headline news. There have also been other incidents of explosions with gasoline tanker incidents on the highway. Though unlikely, the possibility of an explosion as a result of a terrorist attack exists. The hazard rating for this hazard is 256,[3] a Moderately High hazard.

Overview of specific hazard locations and the extent of the hazard:

It is reasonable to assume that industrial areas and chemical storage facilities are the most likely to experience an explosion. However, our local incidents with natural gas distribution indicate that the possibility exists wherever explosive materials are present.

Previous occurrences of the hazard:

- September 21, 1951. Natural Gas explosions in the Town of Brighton impacted several residential streets.[4]

- August 1988. A natural gas explosion on Jersey Street in the City of Rochester was caused by a male resident using natural gas as a means to commit suicide. This particular incident caused total devastation of the house and substantial damage to a number of structures in the immediate vicinity.

- February 3, 1991. The explosion at 110 Delmar Street, Rochester caused the private residence to collapse "as it was blown off its foundation." The male occupant received only singed hair. The female occupant was burned over 40 percent of her body. She received a $5.85M award from a Supreme Court jury. (Democrat & Chronicle, 12-14-94).

1 NYS Office of Fire Prevention & Control, "Fire Investigation Training Manual," p. P-2
2 SEMO. HAZNY 2004
3 Monroe County Hazard Analysis, 11.9.09
4 Peter Polfleit, RG&E, August 14, 2003

- September, 1998. Two people were killed in their home on Turpin Street, Rochester from a natural gas explosion. The source was a leak on a flexible hose supply line to the kitchen stove. The homeowner went to the basement to investigate the problem and sparked the explosion when he switched-on the basement light providing an ignition source (Sam DeRosa, RG&E, August 5, 2003).

- August 26, 2010. During the refueling process, compressed Hydrogen caused an explosion at the County's Fueling Station, 1155 Scottsville Road. The person engaged in the process received second degree burns, and a worker at a nearby fast food restaurant was treated for ear damage as a result of the blast. Scottsville Road was closed from the time of the incident (about 12:30) until almost 3:00 p.m. The airport was closed for about one hour. Two flights were diverted to Buffalo. Area businesses and the Public Safety Training Center were evacuated for several hours until Emergency Service responders were assured the area was safe from the fire and the remaining fuel load (Monroe County OEM file).

Probability of future occurrences and potential magnitude:

There is a high probability of future occurrences. This hazard is considered a "Regular Event" by HAZNY definition meaning that it may occur between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Loss of life, personal injury and property damage are possible.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

This is dependent on the nature of the explosion, the product(s) involved, the exposures to population, and the geographic ring of exposure.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Specific information on losses is included with the occurrence.

Notes on data limitations: Time and record access

Appendix B-10

Hazard Specific Analysis: Structural Collapse

Definition:

"Sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health."[1]

Description:

Structural collapse can occur for many reasons. For example, a fire can lead to collapse as a cascade event because of compromised structural integrity due to heat from the fire or from the weight of water used in fire suppression. Other cascade events to be considered are terrorist attacks using explosive devices, weather-related events such as weight from an extremely heavy snowfall or wind storms. The hazard rating for structural collapse is 250, a Moderately High hazard, due to potential severity.[2]

Overview of specific hazard locations and the extent of the hazard:

The potential exists throughout the County in both urban and rural settings, and on the transportation systems that criss-cross the geography. Local community Building Inspectors and Code Enforcement Officials will be most familiar with this hazard.

Previous occurrences of the hazard:

No occurrences in recent history have prompted County-level emergency services:

- April 1, 1982. NYS Rt. 65 Bridge over Honeoye Creek at the four corners in the Village of Honeoye Falls.

- Numerous structures at fire scenes throughout the community

Probability of future occurrences and potential magnitude:

This hazard is considered a "Regular Event" by HAZNY definition meaning that it may occur between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Hazard analysis suggests the worst case scenario as full or partial collapse of the underground subway system that a transient community of homeless use for shelter.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Analysis of the impact on business, infrastructure & critical facilities:

In the case of Honeoye Falls, the immediate and sudden loss of this bridge disrupted a NYS Highway, school transportation routes, US Postal Routes, and transportation convenience for pedestrians and vehicles. Several businesses were adversely impacted by a 5+-mile (official) detour. Fire and Ambulance service had to accept an additional 1-2 minute response time. The cost of doing business was also affected by changes in the physical landscape with reconstruction and a new design which had implications on store fronts, parking, pedestrian access, vehicular patterns, and new infrastructure links to end users.

The taxpayers were faced with unexpected costs for necessary infrastructure design and reconstruction for the new bridge structure.[3]

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

The monetary loss can be on property owners, the private-sector and/or the public (taxpayers). Estimates can range from insurance deductibles associated with insured losses to millions of dollars that may burden taxpayers if property owners are unable to cover the debris removal and disposal. Monetary losses may or may not be recoverable from insurance or federal disaster resources.

Notes on data limitations:

County data is limited by the extent that local sources share it.

3 Mary Louise Meisenzahl, former Mayor of Honeoye Falls

Appendix B-11

Hazard Specific Analysis: Civil Disturbance

Definition:

"An individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g., riot)."[1]

Also defined by law as: Any public disturbance involving acts of violence by a group of 3 or more persons causing immediate danger, damage or injury to the property or person of another individual.[2]

Description:

Civil Disturbance presents a serious threat to communities within Monroe County. While racial tension was identified as the "trigger event" leading to the Rochester Riots of 1964, a civil disturbance can erupt because of politics, religion or a crime that is particularly disturbing to a specific group of people. Weather and technological hazards are typically frontrunners when rating hazards, but because of its potential to disrupt normal functions and cause harm on many levels, the hazard rating for Civil Disturbance is 246,[3] a Moderately High hazard.

Overview of specific hazard locations and the extent of the hazard:

It would be easy to classify impoverished neighborhoods as specific hazard locations in part due to the 1964 riots that occurred in the City of Rochester. However, a ripple effect could have resulted in problems spreading to other areas within Monroe County. The extent of damage and violence was contained to the urban area. Since a disturbance can occur anywhere, it would not be practical to target any particular geographic location.

Previous occurrences of the hazard:

The July 1964 riots erupted in the 3rd Ward of the City of Rochester. Although Joseph Avenue was the most noteworthy location in the local press, adjacent areas were also involved. There were also disturbances in Rochester, related to the Rodney King Case.

Probability of future occurrences and potential magnitude:

It is nearly impossible to predict future occurrences, but the possibility certainly exists as indicated by the hazard rating. This hazard is considered a "Regular Event" by HAZNY definition meaning that it may occur between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Data from the 1964 riots supports the case that the potential magnitude of Civil Disturbance could be substantial if an event occurred.

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1 SEMO. HAZNY 2004
2 Barron's Law Dictionary (Third Ed.), p. 73
3 Monroe County Hazard Analysis, 11.9.09

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

A credible worst case event could result in severe damage to private property, especially in terms of economic loss. The impact of such an event on the population could be serious injury or death. The year 2000 date change (Y2K) issue also had the potential for civil unrest depending upon its manifestation.[4]

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Specific information regarding potential loss is still pending.

Notes on data limitations: Time and record access

4 Monroe County Hazard Analysis Report by SEMO, January 1999

Appendix B-12

Hazard Specific Analysis: Dam Failure

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."[1]

Description:

"The majority of dams are normally constructed of earthfill or concrete. Other dams exist because of natural phenomena, such as landslides, glacial deposition or the work of beavers. There are approximately 6,000 dams throughout New York State, of which many are small and do not constitute a serious threat to the downstream area if they were to fail (HAZNY, 2004).

"Dam Failure, rated at 232[2], is a Moderately High hazard even though it is a rare event in Monroe County. The primary dam potentially impacting the County is the Mt. Morris Dam, upstream on the Genesee River, in Livingston County. A credible worst case event could inundate a large region of the County adjacent to the Genesee River, including a significant portion of the City of Rochester. The resulting water surge could cause water supply and sewer system failures, hazardous material releases, power failures, and transportation accidents. Such an event would likely cause severe damage to private property and the public infrastructure. However, because of the distance of the dam from Rochester, and the degree of emergency preparedness, there should be enough warning to evacuate most people from the more populated areas that would be affected. The number of casualties might require the full or near full activation of the County's medical facilities' disaster plans" (Monroe County Hazard Analysis Report by SEMO, January 1999).

Overview of specific hazard locations and the extent of the hazard:

"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 (seepage). For concrete dams, the major reason for failure is associated with foundation defects. For earthen dams, piping (seepage) was the main reason for failure. Overtopping affects both concrete and earthfill dams which do not have adequate spillways to allow for high water levels. Dams are classified as follows:

- High hazard – where failure would probably cause loss of human life/NYSDEC, Class "C"

- Moderate hazard – where failure would cause extensive property damage/NYSDEC, Class "B"

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

- Low hazard – where failure would only cause damage to undeveloped lands/NYSDEC, Class 'A'" (HAZNY/NYSDEC, 6 NYCRR 673).

Failure of the Mt. Morris Dam could result in a water surge affecting a large area surrounding the downstream corridor of the Genesee River. The NYS Department of Environmental Conservation (NYSDEC) regulates dams. Monroe County's inventory of dams includes three classifications. The Monroe County inventory for these three classifications is: 10 High Hazard Dams, 5 Moderate Hazard Dams, 14 Low Hazard Dams. There are thirty-plus non-classified NYSDEC dams. Some of these dams are flood control structures, others are impounds for water supply and navigable waterways.

"For many dams, a dam failure computer analysis has been conducted, which delineates the inundation zone in the event of a credible worst case scenario. Depending upon the number of dams and size of the inundation zone(s), the impact area will range from a single location to a large region.

"In the event of a dam failure, the sudden release of enormous amounts of water would cause major flash flooding. The resulting water surge can cause water supply and sewer system failures, hazardous material releases, power outages and transportation accidents due to road and bridge wash out. The water surge may be powerful enough to destroy another downstream dam, compounding the disaster" (HAZNY).

Previous occurrences of the hazard:

"Since 1890, there have been at least 41 dam failures in the state, resulting in the loss of 10 lives" (HAZNY).

Dam Failures in Monroe County include:

"September 1912. A flood resulted from a break in the Barge Canal at the crossing over Irondequoit Creek. The escaping canal waters washed out about 500 feet of embankment and the Barge Canal was inoperable for over a month.

"Spring 1934. This flood was caused by a sudden thaw after a cold spell. Chunks of ice took out the Daisy Flour Mill dam in Penfield near Ellison Park and forced them to change to diesel power.

"October 29, 1974. A collapse in the bottom of the Barge Canal by the Interstate 490 overpass in the Bushnell's Basin area caused severe local flooding with great property damage. The flood profile at the nearby Interstate 490 and Pittsford-Palmyra Road bridges on Irondequoit Creek approximated that of the Intermediate Regional Flood."[3]

Additional information on this event:

- Two homes destroyed, 39 damaged
- No deaths, no major injuries
- Eight-day response by emergency service providers

3 U.S. Army Corps of Engineers, "Flood Plain Information on Irondequoit Creek," February 1975, p. 20.

- 100 million gallons of water (estimate) evacuated in the break
- event anticipated by construction workers, so guard gates were closed
- some door-to-door Public Alerting by construction workers
- canal repairs took several weeks for full operation to be restored
- third break on wall at "The Great Embankment" in 63 years (The Perinton-Fairport Post, November 2, 1994)
- 400 (estimate) evacuees in 20 minutes
- inundation area approximately 3 square miles (Office of Emergency Management records)

Owners/operators of High Hazard Dams are mandated to report emergency conditions to local emergency services. Levels of seriousness requiring this notification are defined in the Emergency Action Plan for the dam, as are notification protocols for emergency services. The Office of Emergency Management is notified about emergency conditions at High Hazard Dams:

	date	time	condition	termination date	time
1.	1.20.08	2220 hours	B	121.08	0145 hours
2.	2.20.08	0714	B	2.20.08	0725
3.	12.30.09	0610	C	12.30.09	1010

Probability of future occurrences and potential magnitude:

This hazard is considered a "Rare Event" by HAZNY definition meaning that it occurs less than once every 50 years (SEMO, HAZNY 2004). While it is difficult to predict the probability of future occurrences in general, there is an ever-present threat of vulnerability. The worst case dam failure would be a sudden break, on a clear day, of the dam in the jurisdiction whose failure would imperil the largest number of people. Under these circumstances cascade effects would include the following:

- Potential for injury and death
- Property damage
- Power failure
- Water shortages
- Sewer system failure
- Hazardous materials release
- Transportation accidents[4]

In New York State, certain dam owners are required to prepare and maintain "Emergency Action Plans." NYSDEC may conduct investigations/inspections of dams and assign safety ratings to the structural integrity of the dam (NYSDEC, "Dam Safety Regulations: 6 NYCRR 673," January 1986).

The County Office of Emergency Management maintains records of dam sites, owners, dam classifications, and "Emergency Action Plans" (that are shared). Guidance documents available for review include:

4 HAZNY

- NYSDEC, "An Owners Guidance Manual For the Inspection and Maintenance of Dams in New York State," June 1987.

- FEMA, "Civil Preparedness Guide: National Dam Safety Program for State and Local Officials," September 1988.

- SEMO, "New York State 406 Hazard Mitigation Plan" September 1986.

Maps of hazard areas:

Map #6, Dam Locations – intentionally left blank

The NYS Department of Environmental Conservation (NYSDEC) regulates dams. Monroe County's inventory of dams includes three classifications. The Monroe County inventory for these three classifications is: 10 High Hazard Dams, 5 Moderate Hazard Dams, 14 Low Hazard Dams. There are thirty-plus non-classified NYSDEC dams.

These locations are not shown on the "Waterways" map for security purposes.

This information, together with inundation maps for the Mt. Morris Dam and the NYS Canal are on-file at the County Office of Emergency Management.

Analysis of the impact on business, infrastructure & critical facilities:

There could be a significant impact overall due to the aforementioned factors in potential magnitude.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

In the absence of specific event information, we consider that:

- "Dam failures are sudden events which often occur with little or no warning time. While monitoring/warning equipment and methods exist, they are not widely used.

- "The population within the inundation zone will determine the number of potential casualties. This number of potential casualties must be measured against the area's emergency medical system to determine the impact on people.

- "Direct impact on private (residential, commercial and industrial) property is certain for those properties located in the inundation zone, depending upon the level of development within the inundation zone.

- "Any government buildings, roads, bridges and water/sewer lines located in an inundation zone will most certainly be damaged in the credible, worst case dam failure.

- "The initial water surge will continue for a relatively short time after breach of the dam. After this initial surge, water will continue to flow through the downstream inundation area at a reduced flow and flood waters will likely remain up to several days.

- "The typical recovery period following a credible, worst case dam failure would last several weeks, before conditions would return to normal. However, the actual impact of any particular dam failure can vary widely depending on the inundation zone" (HAZNY).

County data on loss associated with the Canal Break in Bushnells Basin is limited, and it is available in documents with the "1994 Canal Break: Disaster Response File."

Notes on data limitations: Time and record access

Appendix B-13

Hazard Specific Analysis: Landslide

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 rockfalls, rockslides, creep, block glides, debris slides, earth-flow, mud flow, slump and other similar terms."[1]

Description:

"Landslide is identified as a Moderately Low hazard with a numerical score of 231[2]. It occurs between once a year and once every 7 years. Landslides usually happen as a result of flooding and erosion along the Lake Ontario shoreline and bluffs. Landslides also occur in some of the large open gravel pits. A credible worst case event may not result in serious injury or death, nor would it necessarily cause significant damage to private or public property.

Landslides can cause cascading events such as utility failures, fires, explosions, and hazardous materials incidents. Or they can be a cascade event from other hazards e.g. flooding, earthquake, dam failure, and structural collapse.

Overview of specific hazard locations and the extent of the hazard:

Landslides may affect any part of Monroe County, where large earthen slopes may be found, however, these areas have been found to be most susceptible:

- The high angle slope areas surrounding Irondequoit Bay and the south shore of Lake Ontario, including the houses and businesses and other nearby structures.
- Specific areas within Monroe County parks.
- Open mine pits.

Previous occurrences of the hazard:

There have been a number of occurrences in the recent past, however, none have caused personal injury, and none have required EOC activation.

1993, 1997, 1998. High water levels on Lake Ontario exacerbate erosion. Erosion occurs as a result of high water and/or wave action against the shoreline. Erosion escalates when the Lake level reaches 246.3 feet. In these years, erosion swallowed land mass, trees and other vegetation, and artificial fill that property owners utilized as bank stabilization, some of which was placed through a U.S. Army Corps of Engineers "Advanced Measures Program" in the 1970's. Natural features have

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09

also been adversely affected by landslide. Cliffs along the shoreline in the Town of Webster, and along the Irondequoit Bay have been eroded. In 1998, severe erosion exposed a sanitary sewage transmission main near Sea Breeze, in the Town of Irondequoit, prompting emergency measures for repair and a call for immediate protective relief from the International Joint Commission that regulates lake level.

April 2, 1997. A house on the west side of Irondequoit Bay, in the Town of Irondequoit, slid off its foundation into the Bay. No one was home at the time. No other properties were damaged. A mystery remains: did a water service break at the house site cause the slide, or did the slide rupture the water service? (Greg Merrick, Irondequoit Fire Marshal, telephone interview, 8-12-03)

January, 1998. In the Town of Webster, a basement wall on the uphill side of the house collapsed from the pressure of saturated soils and downhill drainage.

August 31, 2004. Town of Irondequoit Supervisor, David Schantz called OEM to report a major wash-out on the slope above "German Village," off Point Pleasant Road on the Westside of Irondequoit Bay. Five private homes were jeopardized. Town Officials, geo-technical Engineers, and utilities were involved. OEM briefed SEMO. "...Excessive rain saturated the hillside. That deluge caused brush and dirt to slide 40 feet toward about a dozen bayside houses known as German Village" (Democrat & Chronicle, 7.29.06).

July 28, 2006. An Irondequoit resident awoke, "...To find her lawn and walkway covered with water and debris, runoff from a neighboring hillside. "Water was gushing like a small river, and the sump pump is running constantly'" (Democrat & Chronicle, 7.29.06).

August 10, 2009. "County Executive, Maggie Brooks, today announced the County was forced to cordon off a section of Ellison Park from public use as a result of dangerous conditions created by unstable banks along Irondequoit Creek. Significant stretches of Irondequoit Creek within both Powder Mills and Ellison Parks have been greatly impacted by storm water flow and other forms of erosion, seriously compromising the structural integrity of its banks" (Monroe County News Release, 8.10.09).

Probability of future occurrences and potential magnitude:

Probability of future occurrences is likely. This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). The magnitude of this event will be determined by its size and location, as well as the structures found within its path. Zoning and other land-use regulations attempt to restrict and/or prohibit development on steep slopes. And municipalities strive to enact Local Laws to compel mining operators to remediate steep slopes as part of the operational closing process.

There is generally no warning prior to a landslide. Aside from the threat of erosion that can occur over a prolonged period of time, most landslides are quick events that last less than one day. Once land slides and exposes the remaining surface to the elements, the remaining surface may continue to sheet and/or slump, but each such occurrence is separate and distinct. The Recovery Phase may be prolonged, but emergency repairs to achieve initial stabilization or to secure the area, should generally be accomplished in 3 to 7 days.[3]

3 SEMO. HAZNY 2004

Data from Municipal Building Inspectors and the New York State 8-1-1 Call Center confirm the threat exposure from excavation on our built landscape. Figure 1. summarizes municipal data for years 2006 through 2009. And, Figure 2. summarizes the 8-1-1- calls for utility stake-out in 2009. The potential for landslides from excavations is documented in this data.

Figure 1.

SUMMARY	Excavations				Demolition			Structural Issues		Mining Operations		Parking Structures		Average Housing Age
	Basements	Footings	Pools	Utility	Issue Permit?	# Issued	Aware?	Inspection	Damage	Yes	No	Yes	No	Years
VILLAGES														
Brockport	37	56	0	NA	Yes	4	0	0	2		x		x	80
Churchville	15	62	0	NA	Yes	8	0	0	1		x		x	?
East Rochester	15	NA	2	29	Yes	9	0	3	5		x		x	80
Fairport	14	113	3	NA	Yes	13	0	5	2	x		x		100
Hilton	52	14	3	0	Yes	4	0	0	1		x		x	40+
Honeoye Falls	33	33	14	0	Yes	2	0	0	0		x		x	60+
Pittsford	5	5	1	NA	Yes	1	0	1	1		x		x	75
Scottsville	4	18	1	20	Yes	4	0	1	0		x		x	80
Spencerport	10	67	0	NA	Yes	2	0	NA	NA		x		x	59
Webster	42	16	11	2	Yes	3	0	2	3		x		x	60-70
TOWNS														
Brighton														
Chili	310	43	28	NA	Yes	66	0	10	8		x		x	25-35
Clarkson														
Gates	0	18	9	0	Yes	25	0	0	0	x			x	?
Greece	470	57	107	NA	Yes	274	0	19	36		x		x	45
Hamlin	12	42	0	NA	Yes	19	0	2	2	x			x	40
Henrietta	175	305	20	NA	Yes	24	0	14	14		x		x	?
Irondequoit														
Mendon	56	86	59	NA	Yes	17	0	1	1		x		x	45
Ogden	120	319	30	95	Yes	11	0	NA	NA	x			x	40+
Parma	118	87	27	155	Yes	45	0	1	3		x		x	48
Penfield														
Perinton	334	606	94	NA	Yes	65	0	0	10		x		x	?
Pittsford	164	440	64	NA	Yes	41	0	NA	NA		x		x	30-35
Riga	16	29	7	12	Yes	6	0	3	1		x		x	60
Rush	15	33	6	NA	Yes	9	0	0	1		x		x	?
Sweden														
Webster	431	NA	122	NA	Yes	87	0	1	4		x		x	34
Wheatland	13	53	3	20	Yes	1	0	0	1	x			x	80

Figure 2.

DIG SAFELY NEW YORK
2009 DATA
(16,500 TOTAL CALLS FOR WORK TYPES OF INTEREST)

FOUNDATIONS = 194

BASEMENTS = 416 **TOTAL = 846**

FOOTERS = 89

POOLS = 147

UTILITIES

- GAS
- ELECTRIC
- WATER
- SEWER
- TELEPHONE
- CABLE
- FIBER

TOTAL = 15,654

DRAINAGE

- STORMSEWERS
- GUTTERS
- DITCHES
- SWALES
- LANDSCAPING

CATEGORIES:

abandoned, addition, adjust, box-out, bury, cap, cave-in, change, clean, connect, cut, cut-back, cut-dead, cut-in, cut-off, demo, digging, dig-out, dig-up, disconnect, ditching, emergency, excavate, expand, exploratory, expose, extend, fill, fill-in, fix, flush, hook-up, install, investigate ,lay, level, locate, looking, lower, maintenance, manhole, modify, new, raise, re-activate, reconstruct, re-connect, relocate, restore, retire, renewal, running, re-build, repair, replace, remove, re-set, setting, splice, tie-in, tap, transfer, trench, trenching, test-pits, uncover, upgrade, verify, work

Maps of hazard areas:

Map #2, Waterways

Monroe County has many natural and artificial waterways. Some are navigable, many are used for recreational purposes. Sources for the map we created include the U.S. Geological Survey, the National Wetlands Inventory, and the NYS Department of Environmental Conservation (NYSDEC). Features include: name of waterway, stream gage locations, NYSDEC stream classification, flood mitigation ponds, watersheds, and federal and state-regulated wetlands. Dams are not identified for security purposes, nor are the flood protection structures on the Erie Canal.

Map #8, Steep Slopes

One of the areas at risk for landslides is ground with a 15% or greater slope. The Monroe County geography meeting these criteria is mapped.

Map #11, Geological Faults

U.S. Geological Service maps faults and other features that contribute to our vulnerability from an Earthquake. The map identifies the layers of aquifers, bedrock geology and surface geology. Seismographs are located in our area at the University of Rochester, Ginna Station, and the Mt. Morris Dam.

The following map is copied from the *2008 New York State Standard Multi-Hazard Mitigation Plan*, page 3-362. It is a graphic catalog of Landslide susceptibility across New York State. The source is USGS National Landslides Hazard Program.

Landslide Susceptibility

DRAFT

- High Landslide Incidence
- High Susceptibility / Moderate Incidence
- High Susceptibility to Landslide / Low Incidence
- Moderate Susceptibility to Landslide / Low Incidence
- Moderate Landslide Incidence
- Low Landslide Incidence

Weighted Rank =
Sum (% Polygon Area x LSRank)

COUNTY	Total_Area Sq. Mi In	TotArearin	Weighted Rank
Niagara	515.92	97.80%	3.04
Orleans	389.90	99.12%	2.93
Greene	267.33	43.70%	2.27
Oswego	734.72	72.44%	2.10
Monroe	473.46	71.38%	2.05
Putnam	76.00	30.90%	1.85
Suffolk	398.91	43.36%	1.73
Broome	500.99	70.05%	1.60
Ulster	358.31	31.74%	1.49
Essex	515.99	28.16%	1.41
Wayne	297.39	49.05%	1.37
Dutchess	185.08	22.45%	1.35
Saratoga	171.39	20.32%	1.22
Jefferson	497.78	38.67%	1.16
Nassau	61.98	28.52%	1.14
Albany	97.21	18.24%	1.09
St Lawrence	801.06	29.03%	1.07
Rensselaer	118.48	17.81%	1.07
Rockland	34.13	17.12%	1.03
Washington	148.27	17.62%	0.92
Erie	331.71	31.64%	0.92
Delaware	350.27	23.88%	0.87
Genesee	136.59	27.56%	0.83
Franklin	306.50	18.09%	0.81
Columbia	74.94	11.57%	0.69
Allegany	253.38	24.48%	0.67
Onondaga	184.31	22.90%	0.66
Orange	95.88	11.45%	0.58
Cayuga	152.79	20.81%	0.58
Sullivan	285.09	28.62%	0.57
Schenectady	13.73	6.55%	0.39
Oneida	169.38	13.48%	0.39
Cortland	96.52	17.27%	0.35
Clinton	90.22	8.56%	0.34
Westchester	19.66	4.15%	0.25
Schuyler	39.52	11.54%	0.23
Madison	48.24	7.30%	0.22
Chautauqua	111.45	10.25%	0.21
Tompkins	43.89	8.93%	0.18
Tioga	26.64	5.10%	0.13
Yates	19.92	5.30%	0.11
Chenango	38.36	4.27%	0.09
Steuben	48.58	3.46%	0.07
Cattaraugus	29.61	2.24%	0.07
Ontario	20.16	3.04%	0.06
Livingston	17.04	2.66%	0.05
Seneca	2.00	0.51%	0.01
Warren	0.87	0.09%	0.01
Hamilton	1.01	0.06%	0.00

Source: National Atlas
USGS National Landslides Hazards Program
http://www.usgs.gov/
Landslide Map Layer:
http://nationalatlas.gov/atlasftp.html

Analysis of the impact on business, infrastructure & critical facilities:

This event may cause:

- Injury or death, generally in limited numbers.
- Damage to roads and highways, buildings and other structures.
- This event may cause cascade events, such as power failures, fires, hazardous materials spills/leaks.
- This event can complicate emergency response and require Technical Rescue specialty components including: Structural Collapse, Trench Rescue, Water Rescue, Rope Rescue and Confined Space Rescue.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

In addition to information provided in other sections, the following is specific to Oklahoma Beach in the Town of Webster. "Senator Charles Schumer introduced legislation (April 22, 2010) that would require the Army Corps of Engineers to help bolster the shorelines along Oklahoma Beach, where residents say their homes are on the verge of sliding into Lake Ontario. The legislation…begins an immediate study to determine what is the most effective solution to combat the erosion along (this strip). During storms, waves crash into residents' backyards, and the land beneath their homes has steadily eroded. When the Bay Outlet Bridge was built, officials acknowledged that it could affect erosion patterns and threaten the homes along the lake, and vowed to assist residents when the erosion began posing a serious threat. The project will be funded federally. …The study could begin in the next month or two" (Democrat & Chronicle, 4.26.10).

Notes on data limitations: Time and record access

Appendix B-14

Hazard Specific Analysis: Tornado

Definition:

"A Local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. 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. Winds have been estimated to be as high as 400 mph,"[1] and are measured in intensity by the Fujita Scale (F0-F5). "On February 1, 2007 NOAA's National Weather Service fully implemented the Enhanced Fujita (EF) scale to rate tornadoes, replacing the original Fujita Scale. The EF scale refines and improves the original scale. The EF scale incorporates more damage indicators and degrees of damage than the original Fujita scale, allowing more detailed analysis and better correlation between damage and wind speed. A correlation between the original Fujita scale and the EF scale has been developed" (NWS Buffalo Office, "The Lake Breeze," Vol.2, Issue 2).

Description:

"Background: New York State has an average of five tornadoes a year which can occur in any region. A tornado is a great threat to life and usually causes catastrophic damage to property within its path. Due to the large amount of damage tornadoes cause in a relatively short amount of time, they are considered one of the most destructive natural hazards" (SEMO.HAZNY 2004).

Tornado is identified as a Moderately Low hazard with a numerical rating of 227.[2] A Tornado is an Infrequent Event in Monroe County requiring the activation of emergency forces between once every eight to fifty years.[3] There are confirmed tornado touchdowns in the County, all of relatively low intensity. The violent path of destruction of a tornado can trigger other hazards, such as structural collapse, power failures, fires, and explosions. A credible worst case tornado could strike a gathering of people in various settings, causing severe injury or death to large numbers. The number of casualties from such an event would require the full or nearly full activation of the County's medical facilities' disaster plans. Such a tornado could be expected to cause severe damage to private property, and moderate damage to public buildings and infrastructure.[4]

Monroe County is also prone to Waterspout sightings on Lake Ontario. "A waterspout can be considered a weaker cousin to a tornado, with winds of 50 to 100 miles per hour. These typically develop during the fall season. When a colder air mass moves over the warmer Lake water, the atmosphere becomes unstable. If other meteorological parameters are favorable, a waterspout can form from the water up to the cloud. Although waterspouts are weaker than tornadoes occurring over land, they can still be very dangerous to boaters. But waterspouts dissipate as they move toward land, and they usually are not associated with severe weather" (Democrat & Chronicle, 8.9.08).

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09
3 SEMO. HAZNY 2004
4 Monroe County Hazard Analysis Report by SEMO, January 1999

Overview of specific hazard locations and the extent of the hazard:

A tornado may affect any local area of Monroe County or small region of geography and would be particularly damaging in densely populated areas, and in areas of limited-sustainability construction, such as mobile home parks.

Previous occurrences of the hazard:

July 1, 1932. A tornado touched-down on Lyell Avenue in the City of Rochester. Dozens were injured but no one was killed (Democrat & Chronicle, 5-12-03). "This tornado destroyed six garages and lifted the roof off of one home on Lyell Avenue" (Democrat & Chronicle, 6.9.09).

April 6, 1979. Greece is reported to have had an F0 (40-72 mph) Tornado.

September 8, 1981. "…Tornado…struck Rush and Henrietta, said National Weather Service meteorologist Mike Pukajlo" (Democrat & Chronicle, 7.27.09).

September 9, 1987. Honeoye Falls is reported to have had an F1 (73-112 mph) Tornado.

May 11, 2003. Monroe County received wind damage from a storm that included a confirmed Tornado strike in neighboring Wayne County. We received the back-end of a storm that claimed 48 lives from Kansas to Georgia (Democrat & Chronicle, 5.12.03). The National Weather Service estimated the wind speed at 60-70 mph during the two-hour period of the strongest winds. Local damage included utility poles, wires and trees down, roof damage from wind and falling debris, power outage (1,4000 customers), and bleachers, fencing and trees at a school ($20,000 estimate). There were no injuries to the public, but a firefighter was injured in a fire that was spawned from lightening that accompanied this wind.

April 13, 2006. Based on Doppler Radar indications of a severe thunderstorm capable of producing a tornado, the National Weather Service Buffalo Office issued a Tornado Warning for Monroe County, at 1842 hours, until 1915 hours (NWS Bulletin – EAS Activation Request).

June 8, 2007. Based on Doppler Radar indications of a severe thunderstorm capable of producing a tornado, the National Weather Service Buffalo Office issued a Severe Thunderstorm Warning for Monroe County, at 1835 hours (NWS Bulletin – EAS Activation Request).

July 25, 2009. Based on Doppler Radar indications of a severe thunderstorm capable of producing a tornado, the National Weather Service Buffalo Office issued a Tornado Warning for West Central Monroe County, at 1703 hours, until 1745 hours (NWS Bulletin – EAS Activation Request). At 1746 hours they extended the Tornado Warning until 1830 hours and included specific mention of Hilton and Brockport (NWS Bulletin – EAS Activation Request). NWS updates continued until 2041 hours when the NWS cancelled its multiple Warnings for the severe thunderstorm and its funnel cloud that traveled across our County geography.

The following text is the National Weather Service, Buffalo Office "Public Information Statement" on this tornado:

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NOUS41 KBUF 261445 CCA
PNSBUF
NYZ001>008-010>014-019>021-085-262300-

PUBLIC INFORMATION STATEMENT...CORRECTED
NATIONAL WEATHER SERVICE BUFFALO NY
1045 AM EDT SUN JUL 26 2009

...TORNADO CONFIRMED NEAR HILTON IN MONROE COUNTY NEW YORK...

LOCATION...HILTON IN MONROE COUNTY NEW YORK
DATE...07/25/2009
ESTIMATED TIME...555 PM EDT
MAXIMUM EF-SCALE RATING...EF0
ESTIMATED MAXIMUM WIND SPEED...75 MPH
MAXIMUM PATH WIDTH...30 YDS
PATH LENGTH...0.75 MILE
BEGINNING LAT/LON...43.28N / 77.79W
ENDING LAT/LON...43.28N / 77.28W
* FATALITIES...0
* INJURIES...0

* THE INFORMATION IN THIS STATEMENT IS PRELIMINARY AND SUBJECT TO
CHANGE PENDING FINAL REVIEW OF THE EVENT(S) AND PUBLICATION IN NWS
STORM DATA.

...SUMMARY...
THE NATIONAL WEATHER SERVICE IN BUFFALO NY HAS CONFIRMED A TORNADO
NEAR HILTON IN MONROE COUNTY NEW YORK ON 07/25/2009.

A DAMAGE SURVEY HAS CONCLUDED THAT A EF0 TORNADO TOUCHED DOWN IN
THE VILLAGE OF HILTON NEW YORK. INITIAL TOUCHDOWN OCCURRED ON THE
SOUTHERN EDGE OF THE VILLAGE...JUST WEST OF HILTON PARMA RD /RTE
259/ AND CONTINUED IN A NORTHEAST DIRECTION FOR APPROXIMATELY
THREE-QUARTERS OF A MILE. THE TORNADO WAS NOT ON THE GROUND FOR
THE ENTIRE TIME. MOST OF THE DAMAGE WAS TO TREES HOWEVER ONE HOME
SUSTAINED STRUCTURAL DAMAGE. OTHER OUTDOOR ARTICLES /INCLUDING
PATIO FURNITURE...TRAMPOLINES...CHILDRENS` TOYS/ WERE TOSSED ABOUT
BY THE TORNADO.

AN ESTIMATED 250 WERE LEFT WITHOUT POWER BY THE STORM.

THIS INFORMATION CAN ALSO BE FOUND ON OUR WEBSITE AT
WEATHER.GOV/BUF.

FOR REFERENCE...THE ENHANCED FUJITA SCALE CLASSIFIES TORNADOES INTO
THE FOLLOWING CATEGORIES:

EF0...WIND SPEEDS 65 TO 85 MPH.
EF1...WIND SPEEDS 86 TO 110 MPH.
EF2...WIND SPEEDS 111 TO 135 MPH.
EF3...WIND SPEEDS 136 TO 165 MPH.
EF4...WIND SPEEDS 166 TO 200 MPH.
EF5...WIND SPEEDS GREATER THAN 200 MPH.

$$

LEVAN
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Prior to hitting Hilton, this tornado was an EF1 when it struck the Village of Corfu, southwest of us in Genesee County (Democrat & Chronicle, 7.27.09). When the Tornado Warning was broadcast from our 911 Center to local Emergency Service jurisdictions, the Hilton Fire Department stopped

their carnival and directed people to safe shelter.

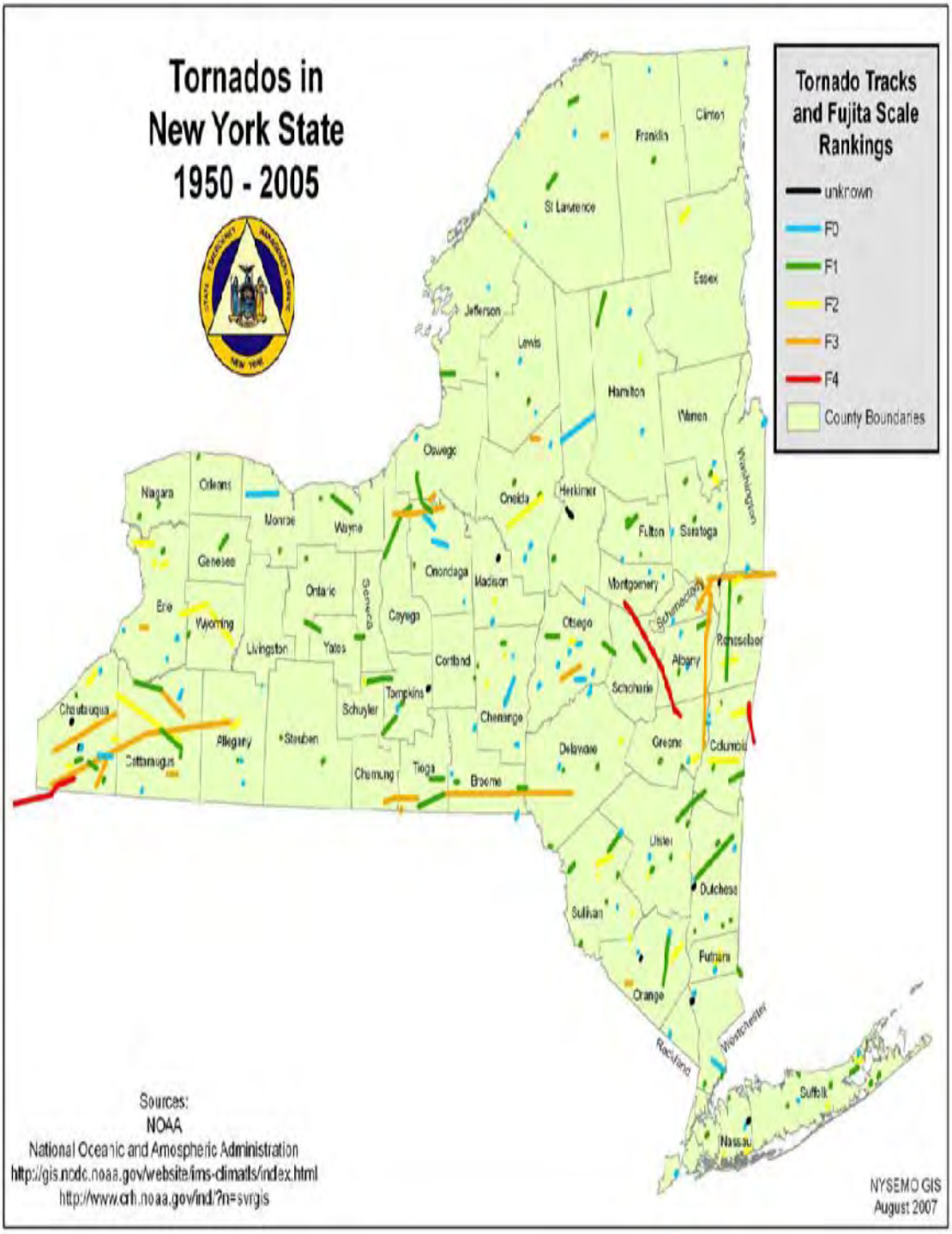
Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). "When we do experience a tornado it is usually an EF0 or EF1 on the Enhanced Fujita scale for tornado damage with winds between 65 and 110 mph" (Democrat & Chronicle, 2.13.09). Tornados can occur without warning however, "Doppler Radars have a unique ability to determine wind velocities moving toward and moving away from a radar site. The radar determines the position of storms, the intensity of the storm and gives valuable information about rotating winds within thunderstorm clouds" (Democrat & Chronicle, 5.22.08). When the National Weather Service observes Doppler Radar wind activity consistent with a tornado, they issue appropriate warning.

Maps of hazard areas:

Local map is not required due to widespread geographic potential.

The following map is copied from the *2008 New York State Standard Multi-Hazard Mitigation Plan*, page 3-188. It is a graphic catalog of Tornados in New York State from 1950 – 2005, from NOAA records.



Analysis of the impact on business, infrastructure & critical facilities:

This event may cause:

- Injury or death, generally in limited numbers, but this is dependent on the population in the path of destruction
- Damage to roads and highways, buildings and other structures

- Power failures, transportation accidents, utility failure, or other cascade events.
- And, tornadoes can hamper emergency response and communications.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Additional information about the tornado in Hilton on July 25, 2009 can be found in the Monroe County Office of Emergency Management.

The National Weather Service, Buffalo Forecast Office published a report on the July 25, 2009 tornadoes, available at http://www.erh.noaa.gov/buf/svrwx/090725/tornadoesJuly25_2009.htm

General information about tornadoes:

- "A tornado can strike a gathering of people in various settings for a credible worst case event could cause severe injury or death to large numbers.

- "Tornadoes are very powerful and, historically in New York State, they cause extensive damage to private property.

- "Structural damage to public facilities is not as substantial as private property since public facilities are usually made of stronger building materials.

- "Even though tornadoes are short lived, their effects can be felt for a long period of time. Extreme damage caused by a worst credible event will need ample time to rebuild. A worst credible event case should be more than two weeks.

- "Because of the advancements of tracking equipment, such as Doppler Radar, warnings may be provided well before a credible worse case event strikes" (HAZNY).

- "The average number of deaths from tornadoes each year is about 60, most of them from falling or flying debris" (Democrat & Chronicle, 5.25.08).

- This event can complicate emergency response and require Technical Rescue specialty components including: Structural Collapse, Rope Rescue and Confined Space Rescue.

Notes on data limitations: Time and record access

Appendix B-15

Hazard Specific Analysis: Hazardous Materials (at Fixed Facilities)

Definition:

"The uncontrolled release of materials 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."[1]

Description:

There are numerous facilities throughout Monroe County that use and store hazardous materials as they are defined by the federal Environmental Protection Agency (EPA). In compliance with the Congressional SARA Title III Act of 1986, more than 900 facilities have filed reports with the Monroe County Local Emergency Planning Committee (LEPC) at some point over the past 18 years. Therefore, the risk of an incident at a "fixed facility" is substantial and has a hazard rating of 225,[2] a Moderately Low hazard.

Overview of specific hazard locations and the extent of the hazard:

Facility types range from local gasoline service stations to multi-chemical storage and use facilities. The extent of the hazard depends on the chemical products involved, the number of employees on site, and the location of the facility and its proximity to residential communities.

Previous occurrences of the hazard:

Level*	1992	'93	'94	'95	'96	'97	'98	'99	'00	'01	'02	'03	'04	'05
0							25	30	19	34	23	38	19	32
1	6	4	8	4	6	6	9	9	5	6	1	6	4	2

Level*	'06	'07	'08	'09	'10									
0	36	29	31	32	28									
1	8	1	5	3	7									

*Definitions:

" Level 0 - A hazardous materials incident that is not likely to adversely impact or threaten life, health, property or the environment; where control of the incident is within the capabilities of resources available to the local response jurisdictions.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

" Level 1 - A hazardous materials incident that may adversely impact or threaten life, health, property or the environment within an area immediately surrounding the point of release or potential release; where control of the incident is within the capabilities of the resources locally available to responders in Monroe County."[3]

Probability of future occurrences and potential magnitude:

Regulations for use and storage, together with employee training should help reduce the number of incidents, however there is significant probability that events will continue to occur. This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Potential magnitude is site-related. A credible worst case event has the potential to cause cascade effects, such as an explosion or fire, and could result in serious injury or death to people.[4]

Maps of hazard areas:

Map #4, Hazardous Facilities (at Fixed Sites) – intentionally left blank

Monroe County's map of industrial/business sites that file Tier II Reports in compliance with SARA Title III, is not included for security purposes.

Analysis of the impact on business, infrastructure & critical facilities:

Analysis of impact is difficult to predict based on the wide range of facilities and locations.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

The economic impact can be huge. Incidents have cost the private-sector losses in facility, product manufacturing, jobs, clean-up, and damages in adjacent neighborhoods. Real estate and property damages have even led to buy-out by the company owner.

Notes on data limitations: None

3 Definitions are from the *Monroe County Hazardous Materials Response Plan, January 2010 Revision*, pp. 9-10
4 Monroe County Hazard Analysis Report by SEMO, January 1999

Appendix B-16

Hazard Specific Analysis: Radiological (Fixed)

Definition:

"Release or threat of release of radioactive material from a nuclear power generating station or research reactor or other stationary source of radioactivity."[1]

Description:

"An infrequent event that potentially could include a large, multi-jurisdictional area, and result in property damage, contamination of farm and water supplies, and economic damage."[2] The threat of a radiological event at a fixed facility is always a possibility because of the proximity of the Ginna Nuclear Power Station. There are substantial safety features and security measures in place at this facility, however by its existence and operational proximity this hazard has a rating of 224,[3] a Moderately Low hazard.

Overview of specific hazard locations and the extent of the hazard:

"Commercial nuclear power generating facilities have the greatest concentration of radioactive materials of any private source. There are three nuclear sites in New York State. The three nuclear power sites are Indian Point in Westchester County; Nine Mile Point in Oswego County; and Ginna in Wayne County. There are numerous small research reactors and other facilities that use radioactive materials in New York State.

"For commercial reactors the areas of risk from exposure to radiation releases are designated as (1) within the Plume Exposure Emergency Planning Zone (EPZ) of such sites (within a 10 mile radius of a site) for direct exposure or (2) within the Ingestion Pathway Emergency Planning Zone (within a 50 mile radius of a nuclear site) for exposure through the food chain. A credible worst case event of a radioactive release from a fixed site could affect a large region around the nuclear power site."[4]

The Ginna Nuclear Power Station is located on the South Shore of Lake Ontario in Wayne County. The federal Emergency Planning Zone (EPZ) and its 10-mile radius overlay portions of the towns of Webster and Penfield, and the Village of Webster. The 10-mile EPZ is sectored into Emergency Response Planning Areas (ERPA'S) for Emergency Management purposes. In coordination with New York State, and as tested by the Federal Emergency Management Agency, Monroe and Wayne County plans address public alerting and notification, emergency response, special need populations, evacuation routes, detection and monitoring, decontamination, and public health among other topics. The *Monroe County Radiological Emergency Preparedness Plan* and community Public Safety providers are annually tested on their readiness and response.

1 SEMO. HAZNY 2004
2 HAZNY
3 Monroe County Hazard Analysis, 11.9.09
4 HAZNY

Previous occurrences of the hazard:

Classification Level*	1975	’82	’83	’84	’85	’86	’87	’88	’89	’91	’94	’95	’99	2003	’04
NUE	**9**		**1**	**1**	**1**	**1**	**1**	**7**	**2**	**2**	**2**	**1**	**1**	**1**	**1**
SAE		**1**													

Classification Level*	’07	’08	’09												
NUE	**1**	**2**	**1**												
SAE															

Source: Letter from Peter Polfleit, RG&E, 8-11-03; Monroe County Office of Emergency Management records

*Definitions:

“Emergency Levels. Four classes of Emergency Action Levels have been established by the Nuclear Regulatory Commission (NRC) and incorporated into all Radiological Emergency Preparedness planning. Each class requires a different degree of response by the state, counties and RG&E. The four classes are:

“Notification of an Unusual Event (NUE) – (the lowest classification) Notification of an Unusual Event means a small problem has occurred. No radiation leak is expected. Federal, state and county officials will be told right away. No action on your part is necessary.

“Alert – Alert means a small problem has occurred and small amounts of radiation could leak inside the station. This will not affect you. Federal, state and county officials will stand by. You should not have to do anything.

“Site Area Emergency (SAE) – A Site Area Emergency is a more serious problem. Small amounts of radiation could leak from the station. If necessary, state and county officials will act to assure public safety. Area sirens may be sounded. Listen to the radio or television for detailed information.

“General Emergency – A General Emergency is the most serious classification. Radiation could leak outside the station and off site. The sirens will sound. Tune to an EAS radio or television station for reports. State and county officials will act to assure public safety. Be prepared to follow their instructions promptly” (RG&E, 2003 Calendar, p. 2).

Probability of future occurrences and potential magnitude:

Despite its safe operation and stringent facility security, nuclear facilities nationwide are potential targets for terrorist attack. This hazard is considered an “Infrequent Event” by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004).

Maps of hazard areas:

Map #9, Radiological (Fixed)

Monroe County geography within the 10-mile Emergency Planning Zone of Ginna Station is mapped to identify: the Emergency Response Planning Areas, special-population facilities, siren locations, and traffic control points.

Analysis of the impact on business, infrastructure & critical facilities:

Impact on business and infrastructure could be significant depending on the magnitude of the event. Critical facilities such as hospitals and nursing homes could be overwhelmed. Public Safety providers could be taxed to need Mutual Aid assistance.

"If an uncontrolled release of hazardous materials occurs from a fixed commercial site, its impact on people depends on the Emergency Planning Zone in which they are located. The Plume Exposure Pathway is the area within a 10-mile radius of a nuclear site. This Zone is where direct human exposure to radioactive material could occur. In the event of a credible worst case event, private property could be contaminated in the 10-mile Emergency Planning Zone with water, agriculture and livestock being contaminated in the up to 50-mile Emergency Planning Zone. There should be at least several hours warning in a credible worst case event for research facilities and commercial nuclear reactors. For a credible worst case event the radiation release hazard could remain in the environment for more than one week. This applies to the full 50 mile Emergency Planning Zone. For a research facility, the appropriate choice should be two or three days. It would likely take more than two weeks to recover from a credible worst case event. For a research facility the appropriate selection would be three days to one week" (HAZNY).

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Detail included in other sections

Notes on data limitations: None

Appendix B-17

Hazard Specific Analysis: Ice Jams

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."[1]

Description:

"Long cold spells can cause rivers and lakes to freeze. A rise in the water level or a thaw breaks the ice into large chunks which become jammed at man made and natural obstructions. Ice jams can act as a dam, resulting in severe flooding."[2]

Ice Jams are identified as a Moderately Low hazard with a numerical rating of 211[3]. They can occur as a cascade event of an ice storm or independently during the winter as a result of normal fluctuations in weather conditions. They occur frequently and are considered as a normal course of events in Monroe County. They are unlikely to cause injury or death. They have potential to cause moderate damage to private property, but we should expect little or no damage to public property given the conventional placement of public utilities in highway rights-of-way, and public buildings outside floodways. One of the largest exposures for public property damage is with bridges.

Ice Jams are highly likely to generate cascading events. They generally cause local flooding. This flooding occurs quickly and may occur in areas that are not necessarily prone to general stream flooding. The movement of large ice flows can fell trees and create a traveling debris field that exacerbates structural damage. Transportation disruption along adjacent highways and hazardous material incidents from residential and business flooding are examples of actual cascading events from local experience.

Overview of specific hazard locations and the extent of the hazard:

Specific hazard locations include local streams such as Oatka, Black, and Irondequoit Creeks, their tributaries, and the Genesee River. The extent of hazard would be determined by the specific location, and the size of the jam.

Previous occurrences of the hazard:

When Ice Jams are forecast, the County Office of Emergency Management usually receives several hours of warning from the National Weather Service Buffalo Office, together with additional information about the potential, the expected duration of the event and the impact on forecast stream elevations. OEM notifies local law enforcement agencies to have their road patrols monitor streams and report the impact on our landscape. Background on Ice Jams in New York State is described in Russell E. Wege's report for NYS Department of Environmental Conservation, titled "Ice Jam

1 SEMO. HAZNY 2004
2 FEMA, "Winter Storms: The Deceptive Killers," p. 3
3 Monroe County Hazard Analysis 11.9.09

Flooding – Evolution of New York State's Involvement," July 1986. (This report is available at the County Office of Emergency Management.)

Previous occurrences of the hazard in Monroe County include:

- March 17, 2003 on Four Mile Creek, in the Town of Webster. A house with five apartments was flooded from the Ice Jam.

- February 12, 2009. Honeoye Creek Ice Jamming affected about a quarter-mile portion of the stream along New York State Route 65, and flooded the adjacent geography across the convergence of three county boundaries (Monroe, Livingston and Ontario Counties). Emergency Service jurisdictions, local elected officials and Emergency Managers consulted to assess the situation and provide life-safety measures for those impacted. Three homes were evacuated for several days, utilities were discontinued, another 5-7 homes experienced flooding and local traffic was detoured while the road was flooded. There was structural damage to foundations walls at the evacuated residences (OEM Disaster Response File).

Probability of future occurrences and potential magnitude:

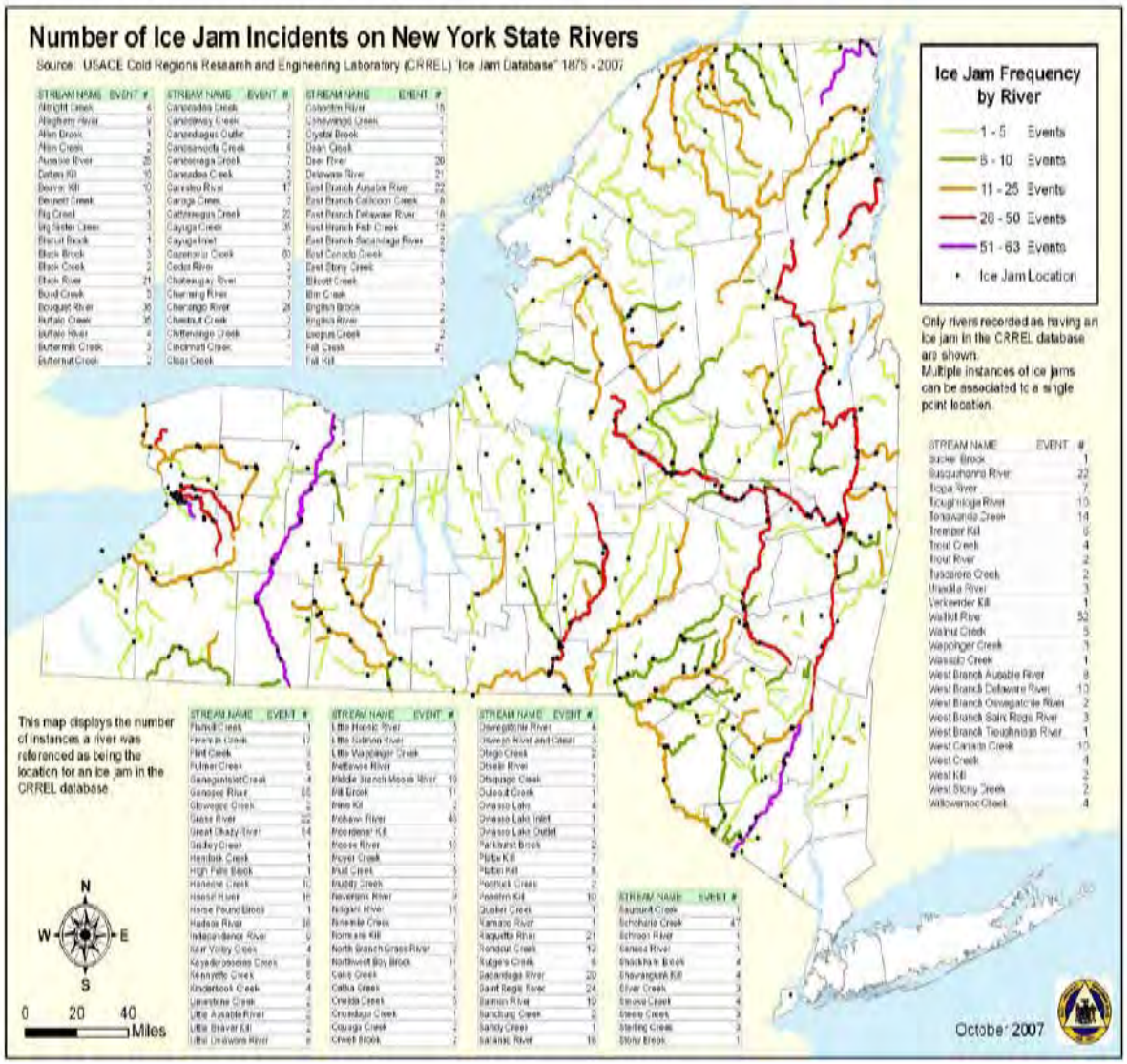
There is a high probability of future occurrence for this hazard with the potential magnitude determined by the specific location and other factors involved with the "event." This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004).

While it is impossible to predict if and where a jam will occur, typical ice jam locations are: at the decrease in slope of stream, bridge piers, bends in the stream, shallow reaches, and at stream confluences (U.S. Corps of Engineers, "Natural Disaster Response," p. Q-1). "Ice jams are most likely to form where the stream channel has been modified by construction, where the stream bed gradient flattens out into a flood plain, where the channel is restricted or bends sharply, where a tributary enters a river, or where a stream meets a stable ice sheet, as at a pool or a lake. Man-made or natural channel obstructions can also cause ice to pile up. Severe and frequent ice jamming is most likely where these conditions occur in some combination. Damage is worst where homes and businesses have been built on the floodplain" (NYSDEC, "Ice James: Preventing Ice Damage in New York State," tri-fold brochure).

Maps of hazard areas:

Map #2, Waterways, identifies bodies of water that are subject to Ice Jams.

The following map is copied from the *2008 New York State Standard Multi-Hazard Mitigation Plan*, page 3-23. It is a graphic catalog of Ice Jams on New York State rivers from 1875 – 2007, from U.S. Army Corps of Engineers records.



Analysis of the impact on business, infrastructure & critical facilities:

"Until the mid-1930s, ice jams . . . were considered a local problem. The great floods of 1935 and 1936 overwhelmed countless river communities and cities . . .. As a result, federal and state legislation in 1936 provided authority to develop local flood protection projects in severely damaged communities. But, without legislative mandate for involvement, ice jam problems until the 1960's were viewed by the state as little more than winter statistics. Reorganization of state government in 1967, led to the development of a flood control bureau within (now) NYSDEC. By December of 1976, it had become official state policy to provide technical assistance to communities having ice jam problems" (Wege Report, pp. 1-2). NYSDEC offered a state training program for state field personnel, local Emergency Managers, and community officials. County Office of Emergency Management staff attended this training on March 8, 1988.

As a result of the NYSDEC position/policy to assist local communities, and to coordinate with NYSDEC and SEMO officials, SEMO requested that each county Emergency Management Office appoint an "Ice Jam Coordinator." The County Emergency Manager fulfills this role.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

Ice Jam flood loss statistics include:

- " . . . Loss of life, although the number of fatalities in the United States is considerably less than non-ice jam flooding. In the last 30 years at least seven people have died as a result of ice jam flooding. Six of the deaths were attributed to rescue attempts; the other death occurred from injuries sustained when a basement wall collapsed due to pressure from flood waters and ice.

- " . . . Approximately $125 million in damages annually, including an estimated $50 million in personal property damage and $25 million in operation and maintenance costs to USACE navigation, flood control, and channel stabilization structures.

- " . . . Suspended or delayed commercial navigation causing adverse economic impacts. Although navigational delays are commonly short, they may result in shortages of critical supplies, such as coal and industrial feedstocks and large costs from the operation of idle vessels. Ice jams sometimes cause damage to navigation lock gates.

- " . . . Suspension of hydropower generation due to intake blockage, high tailwater, the necessity to reduce discharge, or damage to intake works. Lost power revenue due to such shutdowns can be substantial.

- " . . . Scouring and river bed and bank erosion that may lead to bridge or river bank failure. Ice jams can damage stream channels and improvements so that overall vulnerability to flooding is increased. Riprap can be undermined or moved out of place. Ice jam-related damage to river training structures costs millions of dollars each year" (U.S. Corps of Engineers, "Natural Disaster Response," p. 2-2).

This event can complicate emergency response and require Technical Rescue specialty components including: Structural Collapse, Water Rescue, and Rope Rescue.

Notes on data limitations: Time and record access.

Appendix B-18

Hazard Specific Analysis: Air Contamination

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."[1]

Description:

Pollution is an increasing national problem. For several years now California has suffered with regular smog alerts. Prolonged periods of extreme temperatures as well as an increase in industry, ozone depletion and other factors have resulted in Monroe County being included with the NYS Department of Environmental Conservation (NYSDEC) and/or the NYS Health Commissioner, "Ozone Alerts" advising those in the community with chronic lung problems to be aware of the potential health hazard. This hazard is considered moderately low with a rating of 210,[2] a Moderately Low hazard.

Overview of specific hazard locations and the extent of the hazard:

RE: "Ozone Alert." Beginning in the summer of 2000, Monroe County was named in "Ozone Alerts" issued by NYSDEC and/or the NYS Health Commissioner. "Ozone exposure has been linked to adverse health effects. Nose and throat irritation, respiratory symptoms and decreasing lung function have been observed in healthy exercising persons breathing air containing elevated levels of ozone. When ozone levels are elevated, the N.Y.S. Department of Health recommends that individuals consider limiting strenuous outdoor physical activity to reduce the risk of adverse health effects" (Monroe County "911 Procedure Manual," No. 00-03).

These alerts generally accompany hot, humid, overcast days when the atmospheric ceiling is low and heavy, trapping energy-producing exhaust close to the ground.

RE: Air Emissions. Local industries and motor vehicle exhaust are the obvious producers of air contaminants:

1. Local industry has reported regulated air emissions to the U.S. Environmental Protection Agency (EPA) since 1987 – the first year of federal emissions reporting.

    - The latest EPA, "Toxic Release Inventory (TRI)" Report released June 30, 2003 and covering the year 2001, shares reported data from Kodak Park, and Russell Station (RG&E power plant):

1 HAZNY
2 Monroe County Hazard Analysis, 11.9.09

2001 Toxics Release Inventory — NEW YORK

On-site and Off-site Releases for Top Ten Facilities Ranked on Total On-site Releases in the State (All Chemicals)

Facility, City, County	On-site Releases						Total On-site Releases* Pounds	Off-site Releases (Transfers Off-site to Disposal)	
			Underground Injection		On-site Releases to Land				
	Air Emissions Pounds	Surface Water Discharges Pounds	Class I Wells Pounds	Class II-V Wells Pounds	RCRA Subtitle C Landfills Pounds	Other On-site Land Releases Pounds		Transferred Within State Pounds	Transferred Out of State Pounds
Eastman Kodak Co. Kodak Park, Rochester, Monroe	3,880,472	1,070,855	0	0	0	6,965	4,958,292	93,503	3,068
CWM Chemical Services, L.L.C., Model City, Niagara**	3	184	0	0	4,544,217	139	4,544,543	0	8,342
Huntley Generating Station, Tonawanda, Erie	2,795,027	163,308	0	0	0	0	2,958,335	108,718	0
Dunkirk Steam Station, Dunkirk, Chautauqua	2,794,293	133,412	0	0	0	0	2,927,705	57,725	0
AES Somerset L.L.C., Barker, Niagara	197,699	1,439	0	0	0	2,381,446	2,580,584	0	0
Anheuser-Busch Inc., Baldwinsville, Onondaga	19,404	2,472,445	0	0	0	0	2,491,849	0	0
Russell Station, Rochester, Monroe	1,844,821	46	0	0	0	0	1,844,867	894	19
Danskammer Generating Facility, Newburgh, Orange	1,293,641	413	0	0	0	42,408	1,336,462	0	0
AES-Greenidge L.L.C., Dresden, Yates	1,101,461	529	0	0	0	178,662	1,280,652	0	0
Lovett Generating Station, Tomkins Cove, Rockland	1,065,605	0	0	0	0	0	1,065,605	36,855	95,088

- The TRI report records chemicals released to air, water or land, or shipped elsewhere for disposal. **The focus for this appendix is air.**

- The TRI, 2001 Report includes Monroe County data: "Forty-four reporting manufacturers and one utility recorded about 7.5 million pounds of legal pollution. The year before, the county figure was 7.8 million pounds" (Democrat & Chronicle, 7-10-03).

- "In 2001, Kodak released 6.54 grams of dioxins to the air; in 2000, that figure was about 5 grams (Democrat & Chronicle, 7-10-03).

- RG&E's Russell Station burns coal to generate power. In 2001, RG&E reported 0.2 grams of dioxins for the TRI Report (Democrat & Chronicle, 7-10-03).

- Kodak's "snapshot of its pollution totals for 2002 (not yet reported to EPA, for the TRI Report) . . . include a one percent drop in total air pollution. . . . Air releases of dioxin declined by about 16 percent – from 7 grams in 2001 to 6 in 2002 (Democrat & Chronicle, 7-10-03); lead releases declined about 19 percent, to 301 pounds" (Kodak "Update," July 2003, p. 2).

- Expressed in thousands of pounds, Kodak Park's Summary of its releases through air emission is:

1987	1997	1998	1999	2000	2001	2002
18,800	6,249	5,500	4,560	4,280	3,880	3,838

Source: Kodak "Update," July 2003, p. 2

2. Motor Vehicle exhaust: "TRI does not require reporting in all sectors, including transportation" (Democrat & Chronicle, 7-10-03).

- Kodak's calculation for dioxin release includes diesel truck emissions (Democrat & Chronicle, 7-10-03).

- "By the 2007 model year, federal regulations will require 90 percent cuts in exhaust particulate matter and nitrogen oxides from new buses . . . and the EPA has funds to retrofit many older vehicles. Federal environmental officials and a group representing school bus drivers promised Monday to work to reduce pollution reductions by idling buses less and retrofitting them for cleaner exhaust" (Democrat & Chronicle, 7-15-03).

"The future of pollution controls will be unregulated sources" (Democrat & Chronicle, 7-10-03), such as backyard trash burning, which EPA estimates for 2002-2004, at 58 percent responsible for dioxin discharges (Kodak "Update" – newsletter, July 2003, p. 2).

Previous occurrences of the hazard:

RE: Ozone Alerts. Since 2000, Monroe County has been named in about a dozen "Alerts."

RE: Industry. Known information is included in previous section.

Probability of future occurrences and potential magnitude:

This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Extreme temperatures seem to heighten the probability of this hazard. The potential magnitude or the "extent of hazard" is measured by the duration of the contamination, its adverse health impacts, and the number of victims it claims. By itself, this hazard has been manageable. As a cascade event, or in tandem with other hazards, this hazard could create a community emergency.

Maps of hazard areas:

Due to widespread geographical nature of this hazard, a map is not required.

Analysis of the impact on business, infrastructure & critical facilities:

States in the Northeast have discussed cooperative efforts "to slow the process of global warming by . . . limiting carbon-dioxide emissions from power plants . . . through a regional cap. In April, Governor Pataki invited governors from Northeast states to consider a regional cap. Pataki said he would announce July 23 whether Northeast governors were interested. If a regional cap went into place, New York's emissions would be reduced to 31 percent below the 1990 level by 2010, the state task force found. The power-plant industry supports a regional cap, but not a statewide carbon-dioxide limit, because both pollutants and electricity trading transcend state boundaries, said Gavin Donohue, president of the Independent Power Producers of New York. "We want clean air, but we want it done in a way that makes business and economic sense . . . so that we don't put New York at a disadvantage from other states we do business with" (Democrat & Chronicle, 7-15-03).

"Kodak recently announced that after four years of effort, it had met or exceeded seven out of eight of its five-year environmental goals. First announced in 1999, Kodak's goals were designed to reduce emissions, conserve natural resources, and strengthen its environmental management system. R. Hays Bell, Kodak vice president and director of Health, Safety, & Environment said, "These goals

have been the catalyst for substantial improvement in our environmental performance. Most of the progress has been made right here in Rochester." Bell concluded, "2003 is the fifth and final year of our work toward accomplishing these goals. Next year, we'll report on the full five years of progress, and then we'll announce a new set of goals. We intend to follow through on our commitment to continuous improvement" (Kodak "Update," July 2003, p. 4).

"This five year, $100 million project . . . met seven of eight promises for environmental improvements. The only unattained goal: It hasn't reduced emissions of greenhouse gases as much as it said it would. Kodak soon will announce a new five-year environmental plan" (Democrat & Chronicle, 8-9-03).

"Rochester's largest employer agreed to pay a $210,000 fine in connection with a number of incidents. The fine covers a collection of unrelated violations of New York's chemical bulk storage and hazardous waste rules dating back four years, Kodak said. The most potentially serious incident cited stems from an event last year in Building 218, where Kodak annually burns about 60 million pounds of chemicals that cannot be recycled. Pressure from a flash-fire in the rotary kiln incinerator blew out and dented a steel access door on May 30, 2002. No one was injured, but the incinerator was shut for six days for repairs. Kodak was cited for "failure to operate the facility" in a way that would have prevented the fire and explosion, spokesman Jim Blamphin said. Since the fine is cumulative for all the incidents, it's not possible to say how much of the $210,000 penalty stems from the event at the incinerator" (Democrat & Chronicle, August 9, 2003).

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

Known information included in previous sections.

Notes on data limitations: Time and records access.

Appendix B-19

Hazard Specific Analysis: Transportation Incident

Definition:

"Mishap involving one or more conveyances on land, sea, and/or in the air which results in mass casualties and/or substantial loss of property."[1]

Description:

"Transportation Incident, rated at 208, a Moderately Low hazard, (SEMO. HAZNY 2004) is a regular event wherein emergency forces respond to serious highway multi-casualty accidents between once a year and once every seven years (inclusive). An incident, highway or other, resulting in mass casualties could occur in any of several individual locations. The presence of the Greater Rochester International Airport, the Thruway (I-90) and other Interstate arteries, the railroad, underground pipes, and navigable waters provide the potential for a credible worst case event."[2]

Overview of specific hazard locations and the extent of the hazard:

Locations are general with the exception of main routes and locations as follows:

- Greater Rochester International Airport
- private airstrips
- Erie Canal
- Genesee River
- Lake Ontario
- other navigable waters
- Amtrak, CSX, Ontario-Midland, Livonia, Avon & Lakeville, and Rochester & Southern Railroads
- Routes 90, 390, 490, 590, 531, and 104
- underground pipelines

Previous occurrences of the hazard:

All previous occurrences are too numerous to list in detail. Data on significant events includes:

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis Report, 11.9.09

RE: Air. The following chart reflects information from the records at the County Office of Emergency Management (OEM).

ALERT*	1995	'96	'97	'98	'99	2000	'01	'02	'03	'04
II	4	9	10	14	13	25	19	17	15	16
III	1									
Off-Site Crash	1				1		2	1	1	1

ALERT*	'05	'06	'07	'08	'09					
II	17	25	25	28	23					
III										
Off-Site Crash		2	1	1						

*Definitions

"ALERT II - A large aircraft landing experiencing any emergency that hinders normal flight operations to the extent that there may be potential for an accident. An Alert II may be upgraded at any time by the Airport Fire Chief or the Airport Fire Captain. During an Alert II the Incident Commander may close all or part of the Airport as needed.

"ALERT III - A major airport accident on or in the vicinity of the airport with the possibility of many casualties requiring full implementation of the Airport Emergency Plan and AIRDIP.

"The Airport shall be CLOSED upon Alert III declaration."[3]

OEM files on these and other events, contain further detail than this summary:

- July 2, 1963. The newspaper headline read, "AIRLINER TOLL: 7 DEAD, 36 HURT, Mohawk Takeoff Fails in Violent Storm, 1st Liner Crash At Port Here" (Democrat & Chronicle, 7-3-63). "Not a seat was empty aboard Mohawk Airlines Flight 112 when it attempted to take off from the Rochester-Monroe County Airport in a severe thunderstorm 40 years ago this week. The twin-propeller Martin 404, bound for White Plains, Westchester County, cartwheeled wing-over-nose at the airport, broke apart and exploded at 4:49 p.m. on July 12, 1963. Of the 43 people aboard, seven were killed and 30 were seriously injured, including a man whose burned face had to be rebuilt, another who became paralyzed and another who lost a leg. It remains the Rochester area's worst aviation disaster" (Democrat & Chronicle, 6-29-03).

- July, 1964. A helicopter crashed in the City of Rochester. It was carrying the Civil Defense Director, Robert Abbott, on a survey of the area most severely impacted by the Civil Riots. Mr. Abbott later died of his injuries.

3 Definitions are from the Greater Rochester International Airport, "Emergency Plan (June 2009 Revision)," p. 17

- May 19, 1973. An "American Airlines DC-10 jumbo jet skidded off the runway during a landing. None of the 213 persons aboard was injured, and the plane was pulled from axle-deep mud a few days later" (The Times-Union, 7-10-78).

- July 9, 1978. Allegheny Airlines Flight 453 (a BAC-111), from Boston "crashed into a ravine at the end of the runway. The Plane, carrying 73 passengers, swerved . . . crossed a ravine, and came to rest 150 yards beyond the runway, short of the railroad tracks. Thirteen persons were treated at three area hospitals for cuts, bruises, and scratches – all were released after treatment" (The Times-Union, 7-10-78).

- April 6, 1995. "American Eagle Flight 4905, bound for Rochester from Kennedy Airport . . . with 24 passengers and crew on board, landed at the airport about 7:28 p.m. without its nose landing gear, which was jammed in the up position. The Saab SF-340B skidded on its nose down the runway, but nobody was injured in the landing . . ." (The Times-Union, 4-7-95). The County's Emergency Operations Center was activated for forty minutes, per procedure for an ALERT III at the Airport.

- October 10, 1995. A private plane carrying two people catches a wheel in power/telephone lines while attempting to land at the Honeoye Falls Airport. The plane is flipped and lands on a car below that was traveling on West Main Street. One of the three victims later died of the injuries he sustained in the crash. The Airport Fire Department (Rescue 4) responded to the scene. The highway was closed until the plane and car were removed and NTSB finished its site investigation. Since this crash a "Notice to Pilots" restricts the direction of take-offs and landings.

- September 19, 1999. "On Sunday, Sept. 19, at about 10:30 a.m., Honeoye Falls resident Jeffrey Cooper of Cheese Factory Road tried to land his Cessna 172 on the air strip at the Ev Lewis Ford Garage on Main Street. A man walking his dog on the runway caused Cooper to swerve the plane, and in so doing, he crashed into the trees on the side of the runway. Cooper was taken to Strong Memorial Hospital but apparently suffered only minor injuries. The accident is still under investigation by the Federal Aviation Administration" (The Sentinel, 9-23-99).

- August 12, 2001. Plane crash, 2400 Colby Road in the Town of Sweden. The Brockport Fire Department responded to the site. There were two victims onboard the plane.

- September 11, 2001. "The Attack on America." Four commercial airplanes were hijacked by terrorists who used them as weapons of mass destruction. Two were deliberately crashed into the Twin Towers of the World Trade Center in New York City; one targeted the Pentagon in Washington, D.C.; and, one crashed in a field in Pennsylvania. All aboard were killed, along with hundreds of others at the crash sites.

- December 5, 2001. A small, single-engine plane crashed off West Ridge Road in the Town of Parma. The pilot was severely injured.

- November 14, 2002. A single engine plane crash landed on an athletic field near a parking lot for Strong Memorial Hospital, just off the intersection of Crittenden Blvd. and Kendrick Road. The pilot was killed. No other injuries.

- September 2, 2003. "Two people received minor injuries after their small plane crashed on Manitou Road . . . about 3:00 p.m. The cause of the accident is under investigation" (Democrat & Chronicle, 9.22.03).

- June 17, 2006. "A small plane (Taylorcraft DC-65) crashed into a wooded area off West Ridge Road in Parma, about 12:03 p.m., injuring the two people on board" (Democrat & Chronicle, 6.18.06). The NTSB determined that a weight overload may be the cause" (Democrat & Chronicle, 7.26.06).

- November 8, 2006. "The pilot of a seaplane escaped injury after his plane struck a dock and flipped over into Salmon Creek" (Democrat & Chronicle, 11.9.06).

- August 16, 2007. "At 11:25 a.m. shortly after takeoff from Irondequoit Bay, a single-engine seaplane crashed along Empire Boulevard in Penfield, killing its two occupants" (Democrat & Chronicle, 8.17.07).

- June 6, 2009. "A single-seat jet aircraft crashed along the main runway at the Rochester Airport . . . injuring the pilot and causing the runway to be closed for three hours. The aircraft, a 1947 Viper, is the oldest flying jet aircraft in the world. . . . It took off about 3:20 p.m. and was airborne for about 5 minutes when it experienced engine failure. The pilot tried to return but missed the runway by about 75 feet. The impact was at the far south end of the airport" (Democrat & Chronicle, 6.7.09). NOTE: This event was a crash after the FAA Tower declared an ALERT I event (based on the size of the airplane).

RE: Marine Transport. Boating incidents of some type, i.e. fire, collision, medical emergency, mechanical failure, water infiltration, are frequent events addressed by the County Sheriff, the U.S. Coast Guard, and the boating public.

Several years ago there was a crash on the east bank of the Genesee River near the U.S. Coast Guard Station, involving a private boat. There were serious injuries that required victim transport to the hospital.

RE: Railroads. According to the Federal Railroad Administration, there have been seven derailments in Monroe County since 2001: three occurred in 2004, one in 2003, and three in 2001 (Democrat & Chronicle, 11.7.07).

- September 7, 2001. An eastbound CSX freight train derailed on its overpass with Ames Street in the City of Rochester. No fatalities. No injuries. "The train had about 80 cars, including 67 empty rail cars and 14 cars with cargo. About two-thirds of the train's cars had passed the bridge before the derailment. Among them were some loaded with an acidic compound that were not disturbed" (Democrat & Chronicle, 9-8-01). The street was closed until the overpass was inspected to verify its structural integrity and to facilitate clean-up. Rail traffic ceased until the line was cleared and repaired.

- December 23, 2001. CSX derailment in Charlotte neighborhood within the City of Rochester. "CSX has publicly taken responsibility, blaming a worker who failed to properly set the train's brakes" (Democrat & Chronicle, 7-10-03).

Loss of Life. None

Personal Injuries. Some residents and emergency services providers

Property Damage: destroyed private home (partial settlement, $200,000)
destroyed privately owned boats and cards
damaged structures by fire, explosion
railroad track and cars

Business Loss: shut down a year-round Marina (Democrat & Chronicle, 7-26-03)
delayed Spring opening of seasonal businesses
disrupted product shipment by rail

Transportation System: severed highway pattern, and destroyed section of highway
required reconstruction and new pattern design
required rail reconstruction

Environmental Damage: soil and Genesee River received spill of diesel fuel, acetone, and methylene chloride; air emission from fire and smoke

Litigation: residents, businesses, City, CSX, Kodak

Claims: property damage, business loss, medical expenses, mental anguish

- January 16, 2007. Thirteen cars on a CSX train left the tracks in East Rochester, about 7:00 p.m. on a cold snowy Tuesday night. Several cars fell from an overpass on Lincoln Road. No one was injured. "About 150 RG&E customers were without power initially, and later an additional 450 when homes were de-energized for safety. The train speed was about 60 MPH when it left the tracks. Emergency services personnel went door to door to assure the safety of all nearby residents. There were no hazardous materials on board, only paper and retail products. CSX reported the cause as an internal rail crack that did not appear on previous electronic screenings and was not detected by visual inspection (Democrat & Chronicle, 1.17.07, 1.19.07, 2.23.07, 3.15.07).

- February 25, 2007. Two CSX boxcars derailed in Riga just west of Churchville at 12:16 p.m. near Gough Road. There were no injuries. CSX reported the derailment (Democrat & Chronicle, 2.26.07).

- June 22, 2009. Ten cars on a Rochester & Southern Railroad train derailed about 11:00 p.m. in the area of 1020 Chili Avenue in Rochester. No one was injured. The train was carrying rock salt (Democrat & Chronicle, 6.24.09).

Rail/auto incidents have resulted from motorists trying "to beat" the train at grade crossings, from motorists who have stalled at crossings, and from suicide attempts. A Gates Police car was struck trying to slow an oncoming train.

Rail/pedestrian deaths have been the result of people trespassing on the railroad's private property. People walk and/or cross the tracks as "shortcuts," to access specific locations – like the Pittsford teenagers who used a trestle to jump into the Erie Canal – and to commit suicide. These personal encounters are by auto and as pedestrians. For example, a pedestrian in East Rochester, on August 3, 2003, with a CSX freight train (Democrat & Chronicle, 8-4-03). And, a pedestrian in Brighton, on September 9, 2006, with a freight train (Democrat & Chronicle, 9.10.06, 9.12.06). An Amtrak train struck a car that was left on CSX tracks in Chili on July 24, 2007 (Democrat & Chronicle, 7.26.07). An Amtrak train struck a tractor trailer in Churchville on December 20, 2007 when part of the trailer was stuck in the snow and remained on the tracks (Democrat & Chronicle, 12.21.07).

RE: Highways

- March 31, 1995. A gasoline tanker left Route 390 southbound, just west of it's underpass with NYS Route 15A, in the Town of Brighton. The driver died of his injuries. Multiple emergency response services assisted, including an Airport Crash Truck for foam. Interstate Route 390 was closed in both directions, and then only southbound. Route 15A was closed until the structural integrity of the bridge could be assured. Several businesses and public facilities were advised to shelter-in-place until the fire could be suppressed – Monroe Community College and its Daycare facility, Monroe County Correctional Facility, Rochester Operations Center for County Department of Environmental Services, the County's Fleet Garage, the County Children's Detention Facility, and the County Community Hospital (a skilled nursing facility). Gasoline and run-off entered the storm water drainage system and then the Erie Canal which accepts drainage from Route 390 as it runs parallel to the Canal. As burning gasoline entered catch basins and flowed downstream in this system, explosions blew-off manhole covers along its conveyance to the Canal. Remedial activities for environmental clean-up and repairs to the highway took months (County Office of Emergency Management Response File).

- April 29, 2003. Tanker Fire at Lake Avenue and West Ridge Road in the City of Rochester. "On April 29, the tanker truck carrying more than 12,000 gallons of gasoline flipped onto its side on West Ridge Road just east of Lake Avenue. The spilled fuel sparked a blaze that killed one woman, injured 11 people and damaged 23 houses" (Democrat & Chronicle, 6-28-03).

  Loss of Life. One in the fire. One about five weeks later from a heart attack that may be related to the incident.

  Personal injuries. Eleven people.

  Property Damage: 23 houses
  automobiles, vehicles, and other personal property

  Transportation System: highways closed for emergency response
  highways closed and lanes reduced for recovery phase
  highway design and maintenance investigated

Environmental Damage: soil infiltration (from gasoline)
air emission from fire and smoke
natural landscape from fire and intense heat

Litigation: residents, trucking company, truck driver, City

Claims: property damage, faulty highway design and maintenance, wrongful death, personal expenses

Monroe County experiences Motor Vehicle Accidents (MVAs) on a daily basis. There have been MVAs involving school buses, e.g.:

- October 30, 1992. School Bus and City Fire Truck at North Plymouth Avenue and Platt Street. Thirty children, two adults on the bus, and four firefighters on the truck all sustained non-life threatening injuries (Merklinger letter to Riley, 10-30-92).

There have been MVAs involving motorists going the wrong way, e.g.

- October 26, 1981. Route 390; Driver fatality in head-on crash. Other car driver seriously injured, but survived.

- January, 1992. Route 390; Driver survived; was convicted of DWI and manslaughter. Other car driver was killed.

- November, 2000. Inner Loop in the City of Rochester. Three people involved, injured, treated and released.

- February, 2001. Route 390. Driver left highway and crashed. Driver injuries.

- August, 2001. Route 590. Driver treated and released after hitting an on-coming tractor-trailer truck. Truck driver not injured.

- July 13, 2003. Route 104. Three fatalities – driver and two people in the car she hit head-on (all incidents, Democrat & Chronicle, 7-15-03).

And, there have been local MVAs involving older people. The question of an aging population and driver licensing has been questioned across the nation since an 86-year old man sped through a crowded market in Santa Monica, California killing ten and injuring about fifty others (Gary Bogue, Letter-to the-Editor, Democrat & Chronicle, 8-9-03).

And, we have had some "unique" incidents. During the very early morning hours on October 20, 1994 a deer/truck "encounter" resulted in a break on the truck's hydraulic lines. This encounter was not realized by the driver and he continued onto his destination. By the time he traversed almost ten miles of local and interstate highways, he left a spill that created slippery surfaces for rush-hour traffic. These highways were closed as MVAs occurred, and they remained closed most of the day for clean-up and remediation (Bechle letter to White, 12-2-94).

Weather conditions impact travel on highways, and road conditions like black ice and blowing snow that restricts visibility can cause extreme "spot" conditions that can be perilous to motorists. For example, on February 10, 2008, twenty-five people were injured (including one fatality) when thirty-six vehicles collided on Route 390 when blowing snow created a whiteout condition that is blamed for the crash (Democrat & Chronicle, 2.11.08, 2.12.08, 2.13.08).

We have also had MVAs involving trucks hitting overpasses and/or becoming stuck. Some become wedged when the clearance is not adequate to accommodate the vehicle height given the angle of the road with the overpass. Others are too high for the clearance. And, still others had equipment in tow that was improperly secured resulting in excess height for clearance.

Transportation incidents can cascade from other events. Examples are:

- October, 1974 – Canal break closed local roads
- Blizzards of 1966, 1977 – roads impassable, trains stopped, gasoline and heating fuel shortages
- Blizzard of 1999 – hundreds of stranded motorists. Thruway exits with Rochester area were closed to accommodate our local conditions
- September 11, 2001 – U.S. airspace closed for several days
- Ice Storms of 1991, 2003 – roads closed by downed power lines and tree debris
- December 2001 Train Derailment – portion of River Street obliterated
- Floods of 1993, 1998 – roads closed, utilities out

Conversely, transportation incidents can cause cascade events. MVAs can cause power failures if poles, lines and/or transformers are involved. Many incidents involve hazardous materials that are in transit. And MVAs cause damage to public and private properties.

Probability of future occurrences and potential magnitude:

This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). Incidents involving personal vehicles will continue to occur on a daily basis. There is a high probability for future occurrences involving commercial vehicles. The potential magnitude of any event is dependent on the mode of transportation and the circumstances surrounding the incident.

Recognizing the potential of incidents given the various transport modes in our community, emergency plans include:

- *Monroe County Hazardous Materials Response Plan: January 2010 Revision*
- *Monroe County NYS Thruway Exit 46 Emergency Plan*
- *Monroe County Railroad Emergency Plan*
- *Greater Rochester International Airport Emergency Plan* (since June 15, 1965)
- *Monroe County Aircraft Emergency Disaster Plan: Off-Site of the Greater Rochester International Airport*
- *Monroe County Marine Emergency Plan*

And, other levels of government have plans:

- New York State Canal Corporation
- U.S. Coast Guard *Eastern Great Lakes Area Contingency Plan: Volume 3, Rochester/Oswego*
- SEMO *New York State Off-Site Air Disaster Plan*

The emergency plans set policy and procedures that are the focus of agency training and testing through drills and exercises. Some training and testing is mandated, e.g. the Airport's Plan, by the Federal Aviation Administration (FAA). By its own policy directive, a pipeline owner/operator hosts annual refresher training for emergency responders where the line crosses their jurisdictions.

This community is proactive. Government and the private-sector have, and continue to forge, partnerships that assist preventive measures, like emergency plans, and response activities. Examples include:

- The Regional Transportation Operations Center (RTOC) that opened in the summer of 2002. This Monroe County facility houses a NYS Police sub-station, Airport Operations, and County DOT Traffic Signals (for County, City of Rochester, and NYS).

- Traffic Signal Pre-Emption for City Fire Vehicles with the traffic signals, so the trucks can signal a red light at the signalized intersections with opposing traffic.

- Traffic signal operations that allow computerized interface at RTOC for instant recycling of the signal. This allows immediate access to signals on alternate routes to accommodate fluctuations in traffic volumes for posted detours and recommended alternate routes.

- Participation with the federal "Smart Highway" program to implement highway pavement detectors, highway variable message signs, traffic advisory radio frequencies, and highway cameras.

- Use of pre-construction meetings with all interested parties, public and private, to ensure understanding and coordination of resources, especially for emergency services.

- Extension of emergency communication services to state and federal agencies that maintain a local presence, like the NYS Department of Transportation, and the U.S. Coast Guard which has direct access to local emergency radio frequencies, local tone alert radios, and a Mobile Data Terminal (MDT) to receive a printed version of calls received at the County's 911 Center.

- County contract with NOAA/NWS to up-grade an existing NWS transmitter and purchase a second transmitter for a County site to enhance local reception for residents and marine interests. The County gifted equipment and provided transmitter sites in return for direct access to the National Weather Radio system if we are unable to contact the Buffalo Station and request activation for a local emergency broadcast.

Maps of hazard areas:

Pertinent maps include:

Map #2, Waterways

Monroe County has many natural and artificial waterways. Some are navigable, many are used for recreational purposes. Sources for the map we created include the U.S. Geological Survey, the National Wetlands Inventory, and the NYS Department of Environmental Conservation (NYSDEC). Features include: name of waterway, stream gage locations, NYSDEC stream classification, flood mitigation ponds, watersheds, and federal and state-regulated wetlands. Dams are not identified for security purposes, nor are the flood protection structures on the Erie Canal.

Map #7, Transportation Corridors

Monroe County's natural landscape is criss-crossed by multiple transportation corridors for rail, highway, marine, and air traffic. The active rail lines, inter-state, state and local highways, the navigable waterways, the outer boundary markers of the commercial airport, and several private landing strips are mapped.

Analysis of the impact on business, infrastructure & critical facilities:

included in previous sections

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

included in previous sections

Notes on data limitations: Time and record access

Appendix B-20

Hazard Specific Analysis: Extreme Temperatures

Definition:

"Extended periods of excessive cold or hot weather with a serious impact on human and/or animal populations particularly elderly and/or persons with respiratory ailments." [1]

Because "Wind Chill" has a direct impact on life-safety and further exacerbates cold temperature, we consider its implication on the threat of this hazard. "Wind Chill is not the actual temperature but rather how wind and cold feel on exposed skin. As the wind increases, heat is carried away from the body at an accelerated rate, driving down the body temperature. Animals are also affected by wind chill; however, cars, plants and other objects are not" (FEMA, "Winter Storms: The Deceptive Killers," p. 4). The National Weather Service issues these products:

- Wind Chill Watch…a blanket statement, when there is a possibility of dangerous wind chill values
- Wind Chill Advisory…when wind chills are forecast to be -15 degrees Fahrenheit or colder for at least 3 hours
- Wind Chill Warning…the most severe, when wind chill values are forecast to be -25 degrees or colder for at least 3 hours (Democrat & Chronicle, 12.22.08).

"…The National Weather Service monitors the Heat Index or the apparent temperature after combining the affects of heat and humidity. (They issue a) Heat Advisory when it is likely the heat index will range between 100 and 104 degrees for two or more hours. (They issue an) Excessive Heat Warning when it is likely the heat index will equal or exceed 105 degrees for two or more hours" (SEMO, "Emergency Management Times, Vol. 8, Issue 3). The Heat Index is available on NOAA's website.

Description:

Extreme Temperatures is identified as a Moderately Low hazard with a numerical rating of 196.[2] Extreme Temperatures are a regular event in our Winter and Summer seasons occurring between once a year and once every 7 years. We are likely to experience injury or death in small numbers, and we should expect little or no damage to private and public property. Public alerting with potential health hazards is generally facilitated by local media outlets as part of routine broadcasts and news items. A specific population comprising senior citizens, children and those with chronic illness are more susceptible to the effects of extreme temperatures.

Overview of specific hazard locations and the extent of the hazard:

The usual occurrence of this event is over a large region. There is some potential for cascading events, especially utility failure due to the large demand this condition places on HVAC systems, fire

1 HAZNY
2 Monroe County Hazard Analysis 11.9.09

as people burn fireplaces and stoves to supplement or replace central heating systems, hazardous conditions like burns and carbon monoxide poisoning that come with improper use of auxiliary HVAC devices and their exhaust, and air quality advisories that can accompany hot, humid weather. Extreme temperatures are also responsible for school closings and special event cancellations. There are no specific locations with this hazard. With proper communication through media outlets about the dangers of this hazard and what to do, people can minimize its adverse effects.

"From 1997 to 2006, excessive heat was the top weather-related killer causing more fatalities per year than lightning, tornadoes, and winter storms combined. Elderly persons, small children, chronic invalids, those on certain medications or drugs, and persons with weight and alcohol problems are particularly susceptible to heat reactions" (National Weather Service, Buffalo Office, "The Lake Breeze," 2007).

Previous occurrences of the hazard:

Please note that all temperature readings are recorded at the Greater Rochester International Airport, our weather data recording venue since May, 1929 (Democrat & Chronicle, 7.19.07). Extreme temperatures have not created an emergency event for the community, however there are incidents of record that significantly impact our routine activity:

COLD (Statistical/Meteorological Winter is December 1st to February 28th)

National Weather Service, Buffalo Office, data on Extreme Cold indicates:

ROCHESTER GTR INTL AP (KROC)
Consecutive Days
Minimum Temperature <= 0.0 degrees F
Years: 1926-2010

Rank	# Days	End Date
1	10	2/18/1979
2	5	1/22/1970
3	4	1/24/2005
4	4	1/21/1994
5	4	1/19/1982
6	4	1/13/1982
7	4	3/3/1980
8	4	2/8/1966
9	4	2/5/1955
10	4	2/10/1934

Judy Levan, NWS email 5.10.10

The lowest temperature on record is minus 22 on February 9, 1934. The second lowest is minus 19 on February 18, 1979. And, the third lowest is minus 17 on January 16, 1994. The coldest high temperature in Rochester is minus 4 recorded on January 17, 1982 (Democrat & Chronicle, 1.15.09).

The lowest unofficial temperatures are: minus 25 on February 7, 1855, and minus 21 on February 6, 1855 (WHAM Weather Book, www.13wham.com, 4.29.10). "The coldest month is February, 1934 (12.6 degrees)" (Democrat & Chronicle, 1.28.06). "The coldest two-week period of the winter usually includes the end of January and the beginning of February" (Democrat & Chronicle, 2.6.07). "Lake Ontario is quite deep and only freezes during prolonged periods of bitterly cold weather. It has frozen: February 7, 1855, February 9, 1934 and February 18, 1979" (WHAM Weather Book, www.13wham.com, 4.29.10).

February 9, 1934. Lake Ontario froze-over, and this date recorded a record low temperature of -22 degrees Fahrenheit (Democrat & Chronicle, 1.4.09).

January 21 – 27, 2005. Record low temperatures were set on the 21st (-10) and 22nd (-9), with below normal low's on the 23rd, 24th, 26th, 27th and 28th (Democrat & Chronicle, 1.27.05 and 1.14.09). There was an extended cold period from January 17th to February 2nd, with zero or below temperatures on eight of these overnights (Democrat & Chronicle, 1.14.09).

January 26 – 30, 2007. Cold temperatures on the 26th prompted school closings, were blamed for traffic accidents as it was too cold for road salt to be effective, and prompted Homeless shelters to extend hours of operation. Temperatures during this cold snap were in the single digits (Democrat & Chronicle, 1.27.07).

February 3 -7, 2007. This was the coldest February in fourteen years. January 28th began the longest stretch of below-freezing temperatures in more than 25 years. It lasted 22 days (Democrat & Chronicle, 3.11.07). This cold came from the same storm that affected a wide swath of the northern United Sates from the north Plains through the Great Lakes, with temperatures as low as minus 42 degrees. At least 4 cold-related deaths were recorded.

Across this period from February 3 – 7, temperatures ranged from lows of minus 3 to 10 degrees, with steady winds of 20+ MPH and gusts in the 40-MPH range. The National Weather Service, Buffalo Office issued a Wind Chill Advisory beginning on the 5th and ending at 1000 hours on the 6th. Major disruption to community routine generally occurs during weekdays (February 5 – 7):

- Many schools closed
- Spencerport School District buses became stranded when their diesel fuel jelled, clogging fuel filters. No injuries, just significant transportation delays.
- 700 AAA calls for service (double the norm) for dead batteries, stranded vehicles and other cold weather-related problems
- Requests from the Open Door Mission for donations of warm clothing for the Homeless
- Traffic problems that result from ineffective snow melting
- Amtrak passenger trains cancelled on the 4th, resumed with delays on the 6th (Democrat & Chronicle, 2.6.07).

2009. The January temperature averaged more than five degrees colder than normal: so far, 18/23 days recorded below freezing, breaking the previous 30-year record of 16.4/30 days in January. December, 2008 had 14/31 colder than normal, breaking the 30-year average record of 10/31 days (Democrat & Chronicle, 1.24.09).

HEAT (Statistical/Meteorological Summer is June, July and August)

National Weather Service, Buffalo Office, data on Extreme Heat indicates:

ROCHESTER GTR INTL AP (KROC)

Consecutive Days

Maximum Temperature >= 90.0 degrees F

Years: 1926-2010

Rank	# Days	End Date
1	9	9/5/1973
2	8	8/6/1955
3	8	8/16/1944
4	6	7/10/1988
5	6	7/20/1977
6	6	7/13/1936
7	5	7/9/1993
8	5	7/23/1978
9	5	8/3/1975
10	5	7/15/1952
11	5	6/16/1949
12	5	8/28/1948
13	5	8/1/1933
14	5	9/13/1931

Judy Levan, NWS email 5.10.10

"The highest temperature on record is 102 degrees on July 9 and 19, 1936. The warmest month ever was July 1952; the average temperature was 75.8 degrees" (Democrat & Chronicle, 1.28.06). "Historically, July 3 – 21 is the hottest period in Rochester" (Democrat & Chronicle, 6.30.07). National Weather Service records show four, official 100-degree days in the past 100 years: July 9 and 10, 1936 at 102 degrees, and June 21 and July 8, 1953 at 100 degrees; and three, unofficial 100-degree days occurring July 16, 1845 (102 degrees); July 17, 1856 (102 degrees); and, July 5, 1911 (101 degrees) (Democrat & Chronicle, 6.30.07 and WHAM Weather Book, www.13wham.com, 4.29.10).

The "Bermuda High" is responsible for our 90-degree weather. We receive an average of nine, 90-degree days each summer. The calendar's earliest recorded 90-degree day was April 23, 1885; and, the latest was October 5, 1951 at 91 degrees (Democrat & Chronicle, 6.10.09). Available data indicates 90-degree days:

Year	2002	2004	2005	2006	2007	2008	2009	2010
# of Days	20	0	13	8	17	7	1	

Data is from Democrat & Chronicle, 7.17.06, 7.17.08 and 7.6.10

1988. Rochester has 11 days of 90-degree-plus weather by July 20th, per Tom Niziol, chief meteorologist with the National Weather Service, Buffalo Office (Democrat & Chronicle, 7.20.05).

2002. Rochester had twenty days of 90-plus weather (Democrat & Chronicle, 7.17.08).

June 25 – 28, 2005. Sweltering weather plagued the region for a 5-day stretch. "This month could turn-out to be the warmest June in 32 years – and possibly 50 years, according to Steve Francis, a meteorologist with the National Weather Service in Buffalo" (Democrat & Chronicle, 6.28.05).

July 12 – 13, 2005. Several thousand area residents were without power for various periods of time. RG&E reported that the outages on the 12th, "were caused by equipment malfunctions, some of which could have been heat-related. Extended periods of extreme heat and humidity, combined with increased air conditioning loads, do tend to put a significant stress on (the) system" (Democrat & Chronicle, 7.14.05).

2005. "This is the warmest summer – a statistical summer is June, July and August – since 1973. And it was the fifth-warmest summer since records started being kept 177 years ago. Warmer summers occurred in 1854, 1949, 1955 and 1973. Rochester saw 13 days with temperatures in the 90's (the highest was 94 on August 4). The summer also set a record for power use five times. The peak came July 18, when 1,626 megawatts of power were used" (Democrat & Chronicle, 9.4.05). "This was the 12th-warmest August on record. The high on four days was above 90 degrees with the hottest day on the 4th at 94 degrees" (Democrat & Chronicle, 9.3.05). "…This season featured 13 days of 90-degree heat in Rochester. A normal summer has about 8 days of 90-degree heat. So far, each month has finished in the top 20 warmest months of all time in Rochester. This was the fifth-warmest June, the 20th-warmest July and the 10th-warmest August of all time" (Democrat & Chronicle, 9.7.05).

July 14 – 18, 2006. Temperatures began in the mid-to-high 80's with a corresponding heat index in the high 80's. The 16th is forecast at a low 90-degree temperature with a heat index of 100, and the 17th as a 94-degree day with a heat index of 105 (Democrat & Chronicle, 7.15.06), the 18th is forecast to remain near 90 degrees (Democrat & Chronicle, 7.16.06). Rochester General Hospital treated six patients with heat-related illnesses between the 15th and the 17th. RG&E customers set a one-day usage record of an estimated 1,630 megawatts (Democrat & Chronicle, 7.18.06). "July 2006 was the hottest July in Rochester since 1955…per the National Weather Service" (Democrat & Chronicle, 8.1.06).

August 1-2, 2006. Temperatures and their corresponding heat index were:

- August 1st…forecast 100 degrees, 115 heat index; actual, 94 degrees, 106 heat index
- August 2nd...forecast 98 degrees, 110 heat index; actual 105 heat index

The National Weather Service, Buffalo Office issued an "Excessive Heat Warning" beginning 8.1.06 at noon until 8.2.06 at 2000 hours. This is, "…Issued when high humidities are expected to combine with hot temperatures to make it feel like it is 105 degrees or greater" (NWS Urgent-Weather Message, 8.1.06, 0351 hours).

Power status as reported by RG&E:

- August 1st…outage for 1,500 customers; power consumption set new record at 1,744 megawatts
- August 2nd…outage for 1,500 customers (yesterday's had been restored, these are new for this date, investigation continues to determine specific cause/causes)

Activity influenced by this extreme temperature condition:

- County Health Department and Red Cross open and staff four "Cooling Centers"
- County Health Department opens and staffs a "Special Needs Cooling Center" for mobility impaired
- City opens "Cool Sweep" (fire hydrants) program and extends swimming pool hours
- Homeless Shelters adjust hours of operation for access during the daytime hours
- Cancellations include…school district Summer Schools, community special events, summer day camps, Buffalo Bills Summer Camp Training Schedule; Finger Lakes Race Track (afternoon horse races)
- Operations adjusted for…DPW projects and construction workers, fire fighters
- Sidewalk vendors altered and/or cancelled their lunch wagon services
- (on 8.2.06) Governor waived fees for NYS Parks and NYSDEC sites
- Hospitals reported about a dozen heat-related Emergency Room visits
- The Humane Society treated one dog suffering heatstroke
- The NY City Medical Examiner certified 40 heat-related deaths from this heat wave

(all information for this event from the Democrat & Chronicle, August 1, 2, 3, 6 and September 21, 2006)

July 31-August 3, 2007. "A 5-month-old infant died in Wyoming County when his mother left him in her car all day after forgetting to drop him off at day care" (Democrat & Chronicle, 8.4.07). Although this tragedy did not happen in our immediate area, local media outlets covered this story for days. Temperatures across theses days were 89, 91, 95 and 93 respectively (Democrat & Chronicle, 7.6.10).

July 5-8, 2010. "...Four days of 90-degree temperatures or higher" (Democrat & Chronicle, 7.12.10), prompted:

- City "Cool Sweep" program to open fire hydrants and extend swimming pool and beach hours
- Operations adjustments for…DPW projects and construction workers, fire fighters
- "Air Quality Advisory and/or Alert" on 7.4.10 and 7.5.10 (1000 – 2200 hours), 7.6.10 (1100 – 2200 hours)
- The Humane Society to issue reminders about pet safety in extreme heat conditions

above activities from the Democrat & Chronicle, 7.5.10, 7.6.10 and 7.8.10

- County Executive extended hours of operation for swimming at Ontario Beach Park (Monroe County News Release, 7.8.10)
- County Health Department reminder of heat-related health symptoms and safety tips for high temperatures (Monroe County News Release, 7.6.10)
- County Health Department planning for potential need to open a Special Needs Shelter at Monroe Community Hospital (e-mail exchange with OEM, 7.6.10 – 7.8.10)

- RG&E to partner with the Red Cross to distribute "250 electric fans at no charge to seniors over age 60 and to individuals or families receiving SSI or SSD assistance" (American Red Cross News Release, 7.8.10).

Probability of future occurrences and potential magnitude:

This hazard is considered a "Regular Event" by HAZNY definition meaning that it occurs between once a year and once every 7 years (inclusive) (SEMO, HAZNY 2004). There is a high probability of future occurrence. The magnitude of this event would be exacerbated if coupled with utility failure, or severe weather events that threaten in the Summer and Winter months, e.g. Blizzard, Snow Storm, Wind Storm, Severe Thunderstorm.

The National Weather Service, Buffalo Office can generally forecast extreme temperatures as much as one week. Local meteorologists are consistent and persistent across our media outlets with their message of extreme conditions and appropriate safety tips. Our extreme temperature duration can last in stretches of four or more days, but with return to normal seasonal conditions, the Recovery Phase for most is less than one day.

Data and demographics to consider in gauging the potential magnitude of high temperatures:

- "54% of households in the Rochester metro area have air conditioning versus 79% in the U.S.
- 56% of metro-area households with residents 65 or older have air conditioning versus 80% in the U.S.
- 38% of city households have air conditioning
- 71% of suburban Monroe County households have air conditioning" (Democrat & Chronicle, 8.2.06)
- The following table conveys population data for the age groups most vulnerable:

Census Data
Monroe County, New York

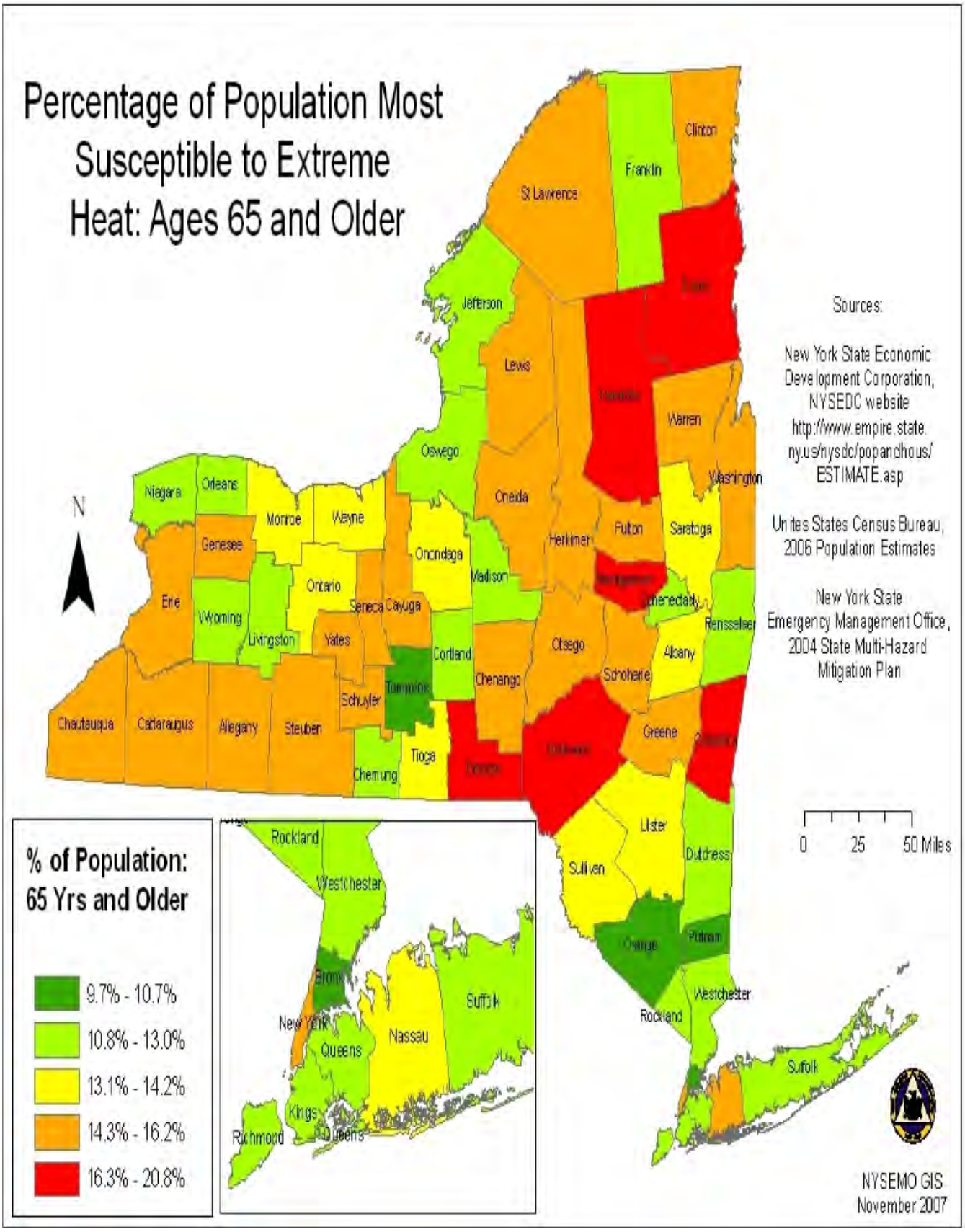
Municipality	Total Population	Population Under Age 5	Population 65 and Over	Individuals Below Poverty	Speak Language other than English at Home
Brighton town	35,588	1,892	6,813	2,080	5,682
Chili town	27,638	1,607	3,338	974	2,194
Clarkson town	6,072	423	723	288	285
East Rochester (town/village)	6,650	404	981	619	577
Gates town	29,275	1,617	5,086	1,617	3,775
Greece town	94,141	5,398	14,446	4,505	8,210
Hamlin town	9,355	651	607	565	476
Henrietta town	39,028	1,934	3,617	3,045	4,039
Irondequoit town	52,354	2,773	11,770	2,794	5,843
Mendon town	8,370	514	908	251	473
Honeoye Falls village	2,595	125	481	64	127
Ogden town	18,492	1,096	1,642	498	1,129
Spencerport village	3,559	189	461	55	189
Parma town	14,822	927	1,489	610	725
Hilton village	5,856	427	587	256	310
Penfield town	34,645	2,043	5,170	1,260	3,416
Perinton town	46,090	3,122	5,366	1,335	3,712
Fairport village	5,740	376	678	187	295
Pittsford town	27,219	1,585	4,326	727	2,355
Pittsford village	1,418	80	230	74	62
Riga town	5,437	325	521	208	194
Churchville village	1,887	103	208	78	49
Rochester city	219,773	17,227	21,977	54,713	36,083
Rush town	3,603	175	398	17	114
Sweden town	13,716	583	1,073	1,539	809
Brockport village	8,103	260	627	1,123	539
Webster town	37,926	2,370	4,935	1,484	3,302
Webster village	5,216	353	735	610	786
Wheatland town	5,149	311	593	182	239
Scottsville village	2,128	137	280	48	139
Monroe County, New York	735,343	46,977	95,779	79,311	83,632

Source: 2000 U.S. Census
Town totals include associated Village totals
Prepared by: Monroe County Department of Planning and Development. August, 2010

Maps of hazard areas:

Local map is not required due to widespread geographic potential.

The following maps are copied from the *2008 New York State Standard Multi-Hazard Mitigation Plan*, pages 3-259, 3-260 and 3-261 respectively. It is a graphic catalog of population susceptible to Extreme Heat across New York State. The sources are referenced on the individual map frames.


Percentage of Population Most Susceptible to Extreme Heat: Ages 65 and Older
Sources:
New York State Economic Development Corporation, NYSEDC website http://www.empire.state.ny.us/nysdc/popandhous/ESTIMATE.asp
United States Census Bureau, 2006 Population Estimates
New York State Emergency Management Office, 2004 State Multi-Hazard Mitigation Plan
N
0 25 50 Miles
% of Population: 65 Yrs and Older
9.7% - 10.7%
10.8% - 13.0%
13.1% - 14.2%
14.3% - 16.2%
16.3% - 20.8%
St Lawrence
Franklin
Clinton
Jefferson
Lewis
Warren
Washington
Oswego
Oneida
Herkimer
Fulton
Saratoga
Niagara
Orleans
Monroe
Wayne
Genesee
Onondaga
Madison
Ontario
Erie
Wyoming
Livingston
Seneca
Cayuga
Yates
Cortland
Otsego
Schoharie
Albany
Rensselaer
Tompkins
Chenango
Schuyler
Chautauqua
Cattaraugus
Allegany
Steuben
Tioga
Chemung
Greene
Ulster
Sullivan
Dutchess
Orange
Putnam
Westchester
Rockland
Suffolk
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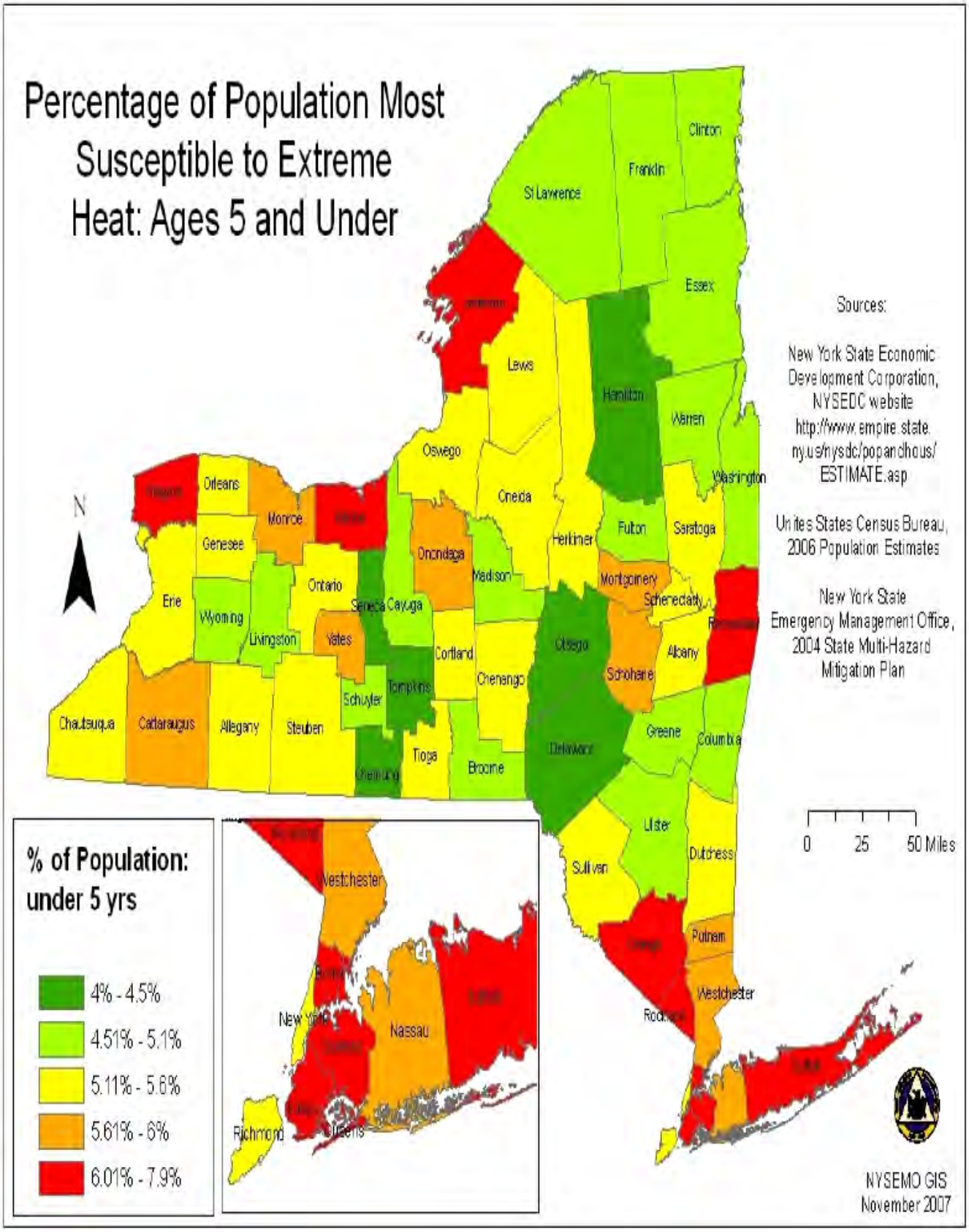
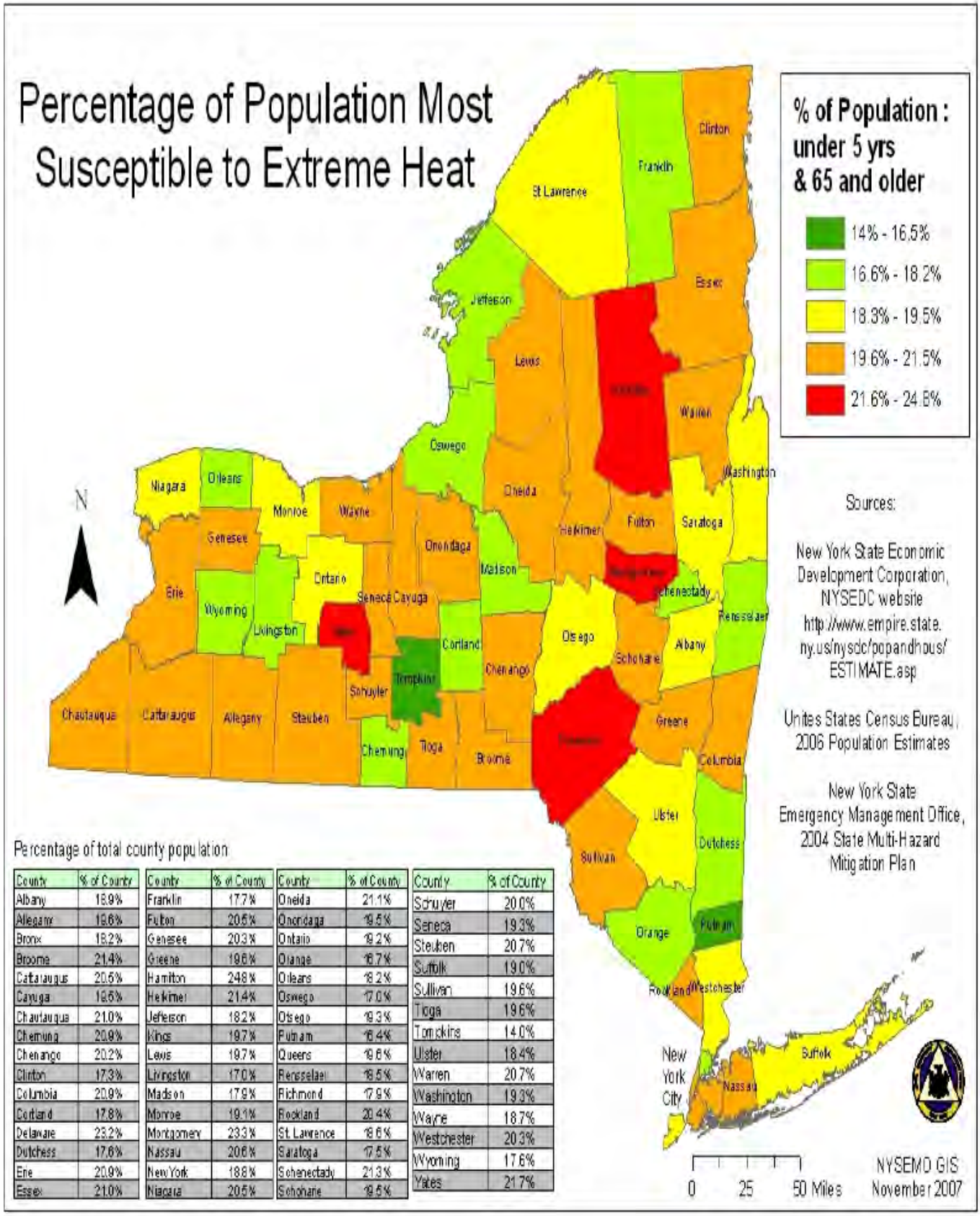
Nassau
Suffolk
Kings
Richmond
Queens
NYSEMO GIS
November 2007


Percentage of Population Most Susceptible to Extreme Heat: Ages 5 and Under
Clinton
Franklin
St Lawrence
Essex
Lewis
Hamilton
Warren
Oswego
Washington
Orleans
Oneida
Monroe
Genesee
Fulton
Saratoga
Onondaga
Herkimer
Madison
Ontario
Montgomery
Schenectady
Erie
Wyoming
Seneca
Cayuga
Livingston
Yates
Cortland
Otsego
Albany
Schoharie
Chenango
Tompkins
Schuyler
Chautauqua
Cattaraugus
Allegany
Steuben
Greene
Columbia
Tioga
Broome
Delaware
Ulster
Dutchess
Sullivan
Putnam
Westchester
Rockland
Nassau
Richmond
Queens
N
Sources:
New York State Economic Development Corporation, NYSEDC website http://www.empire.state.ny.us/nysdc/popandhous/ESTIMATE.asp
Unites States Census Bureau, 2006 Population Estimates
New York State Emergency Management Office, 2004 State Multi-Hazard Mitigation Plan
0 25 50 Miles
% of Population: under 5 yrs
4% - 4.5%
4.51% - 5.1%
5.11% - 5.6%
5.61% - 6%
6.01% - 7.9%
NYSEMO GIS
November 2007



Percentage of total county population

County	% of County	County	% of County	County	% of County	County	% of County
Albany	18.9%	Franklin	17.7%	Oneida	21.1%	Schuyler	20.0%
Allegany	19.6%	Fulton	20.5%	Onondaga	19.5%	Seneca	19.3%
Bronx	18.2%	Genesee	20.3%	Ontario	19.2%	Steuben	20.7%
Broome	21.4%	Greene	19.6%	Orange	16.7%	Suffolk	19.0%
Cattaraugus	20.5%	Hamilton	24.8%	Orleans	18.2%	Sullivan	19.6%
Cayuga	19.5%	Herkimer	21.4%	Oswego	17.0%	Tioga	19.6%
Chautauqua	21.0%	Jefferson	18.2%	Otsego	19.3%	Tompkins	14.0%
Chemung	20.9%	Kings	19.7%	Putnam	16.4%	Ulster	18.4%
Chenango	20.2%	Lewis	19.7%	Queens	19.6%	Warren	20.7%
Clinton	17.3%	Livingston	17.0%	Rensselaer	18.5%	Washington	19.3%
Columbia	20.9%	Madison	17.9%	Richmond	17.9%	Wayne	18.7%
Cortland	17.8%	Monroe	19.1%	Rockland	20.4%	Westchester	20.3%
Delaware	23.2%	Montgomery	23.3%	St. Lawrence	18.6%	Wyoming	17.6%
Dutchess	17.6%	Nassau	20.6%	Saratoga	17.5%	Yates	21.7%
Erie	20.9%	New York	18.8%	Schenectady	21.3%		
Essex	21.0%	Niagara	20.5%	Schoharie	19.5%		

Analysis of the impact on business, infrastructure & critical facilities:

Extreme Temperatures tax fuel supplies for heating and cooling. Extreme Temperatures also restrict community mobility in the out-of-doors, adversely impacting recreational activities, prompting school and workplace closings, and interrupting the daily routine with personal services in the retail sector.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

Health Concerns:

- "Summer heat can lead to the formation of ground-level ozone, …which can lead to respiratory problems" (Democrat & Chronicle, June 26, 2003, Glenn Johnson, Meteorologist).

- "Heat stroke is a severe medical emergency and can occur when the body temperature rises above 106 degrees" (Democrat & Chronicle, June 27, 2003, Glenn Johnson, Meteorologist).

- Frostbite and exposure can result if skin and extremities are not protected from extremely cold temperatures.

- Statistics on injuries related to cold water: 50% happen to people over 60 years old; more than 75% happen to males; about 20% occur in the home (FEMA, "Winter Storms: The Deceptive Killers," p. 4).

Casualties

- "Since 1996, at least 175 children (nation-wide) have died of heat stroke after being trapped inside a parked car" (Democrat & Chronicle, July 10, 2003).

- Heat stroke casualties in Monroe County include participants in special events, especially long-distance races. The elderly are also at high risk.

- Between July 11-27, 1995, there were 465 heat-related deaths in Chicago, IL (U.S. Department of Commerce/NOAA, "Natural Disaster Survey Report: July 1995 Heat Wave," p. 41).

- "In August 1993, it was estimated that more than 15,000 deaths were attributed to excessive heat in France" (Democrat & Chronicle, 7.16.06).

- "About 2,600 heat-related deaths were recorded in India five years ago (1998) . . ." (Democrat & Chronicle, 8-17-03).

- A heat wave in Europe has claimed, "3,000 deaths in France . . . and 62 in Italy . . ." (Democrat & Chronicle, 8-17-03).

- "The No. 1 weather related killer in the United States is heat. This death toll is greater than the 30-year mean annual total of deaths due to tornadoes, hurricanes, floods and lightning combined. According to NOAA, more than 1,500 people die each year from excessive heat. More than half of these deaths occurred in a home with little or no air conditioning" (Democrat & Chronicle, 6.21.09).

- Several years ago a local resident died from exposure to the cold when they were locked-out of the house.

The Office of Emergency Management has information on NOAA's National Weather Service Heat Index.

The Office of Emergency Management has a Wind Chill Conversion Chart that cross-references the Fahrenheit air temperature with the Wind Speed to provide an indication of what the temperature feels like on exposed skin.

Notes on data limitations: Time and record access.

Appendix B-21

Hazard Specific Analysis: Radiological (Transit)

Definition:

"Release, or threat of release, of radioactive material from a transportation vehicle including truck, rail, air and marine vehicle."[1]

Description:

An event of this type is unlikely to occur in Monroe County. The possibility results in the moderately low hazard rating of 188,[2] a Moderately Low hazard.

Overview of specific hazard locations and the extent of the hazard:

Specific hazard locations with transit should be confined to the County's transportation corridors. The extent of the hazard is not easily defined, but any event could cause significant problems within the community.

Previous occurrences of the hazard:

None identified.

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). There is always a probability of future occurrence for this hazard with the potential magnitude determined by the specific location and other factors involved with the event.

Maps of hazard areas:

Map #7, Transportation Corridors

Monroe County's natural landscape is criss-crossed by multiple transportation corridors for rail, highway, marine, and air traffic. The active rail lines, inter-state, state and local highways, the navigable waterways, the outer boundary markers of the commercial airport, and several private landing strips are mapped.

Analysis of the impact on business, infrastructure & critical facilities:

In addition to the impact of any other transportation incident, the presence of a radiation source

1 SEMO, HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

would require the increased cost of response and recovery associated with radiological exposure, i.e. Hazardous Materials emergency response and handling, radiological detection, monitoring, and decontamination, and proper remediation and disposal.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

No local experience to note.

Notes on data limitations: Time and record access.

Appendix B-22

Hazard Specific Analysis: Water Supply Contamination

Definition:

"The contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that result in restricted or diminished ability to use the water source."[1]

Description:

Monroe County receives water supply from Lake Ontario, two of the Finger Lakes (Canadice and Hemlock), municipal wells, and private wells. Contamination of these water bodies, would be an infrequent event affecting a small region. Cascade events are highly unlikely. Water Supply Contamination is a Medium Low hazard with a numerical rating of 187.[2]

Overview of specific hazard locations and the extent of the hazard:

Water Supply Contamination is unlikely to cause injury or death. We would expect little or no damage to private property and public facilities.

"Hemlock Lake was first used to supply the City with drinking water in 1876, and the smaller Canadice Lake was incorporated into the system in 1919. Numerous cottages and other structures existed along the lakes' shorelines in the 19th century, but the City began buying up property in 1895 and demolishing the buildings. On July 1, 2010, New York State purchased the bulk of the watershed from the City to preserve and protect the water quality. Lands that Rochester began acquiring 115 years ago to protect its drinking water supply are now officially known as Hemlock-Canadice State Forest" (Democrat & Chronicle, 7.2.10). "The City supplements its water supply with Lake Ontario water purchased from the Monroe County Water Authority" (City of Rochester, Department of Environmental Services Bureau of Water, 2006 Water Quality Report).

"The Monroe County Water Authority (MCWA) was created by the state Legislature in 1950 and began operations in 1959 when it acquired the assets of a private company that had provided water to parts of the city and inner suburbs. Today it provides water from Lake Ontario to more than 650,000 individuals in most of Monroe and parts of Genesee, Wayne, Ontario, Orleans and Livingston counties. It has a budget of $54 million and 230 employees.

"The City supply...goes to many city customers via reservoirs. The City also supplies customers in the southern suburbs and some communities near its two supply lakes. More than a dozen smaller water plants are run by other municipalities" (Democrat & Chronicle, 12.17.06; 2009 MCWA Annual Water Quality Report).

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis 11.9.09

Previous occurrences of the hazard:

Monroe County has not experienced water supply contamination that has disrupted the public drinking water supply for any critical duration. However, experience shows that previously acceptable practices associated with storm water drainage and agricultural, sanitary sewer overflows, and residential activity like lawn care and pest control have significant adverse affects on water quality and the general community "quality of life."

Significant public investment in sanitary sewer interceptors (like the Pure Waters District tunnel system that eliminates overflow discharges into the Genesee River), the Rochester Embayment project that identified point and non-point contamination sources and worked to eliminate/reduce them, and public education campaigns about water quality, water conservation and improper/illegal drainage connections all contribute to water quality improvements that protect ground and sub-ground water supplies (Charles Knauf, Monroe County Health Department, "Irondequoit Bay: from Cespool to Fishing Hole." Clearwaters Magazine, Spring 2010).

July 1986. The City of Rochester announced that their public water source, Hemlock Lake, was contaminated by insects that had washed into the lake. To accommodate requests for water at critical facilities, the Genesee Brewery and Anderson Coca Cola Bottling Corporation, both bottled water for distribution: Genesee – 200 cases, quart bottles; Anderson – 100 cases, 2-liter bottles (County OEM Response File: *1986 Water Emergency*).

August, 2004. "The taste and odor issues associated with a suspected algae outbreak at Hemlock Lake, have no effect on the water quality or the health of the water. An algae outbreak is not unusual at this time of year, but the annoying problem typically persists for only a couple of days, and this year it has lasted about a week and a half" (Democrat & Chronicle, 8.31.04).

April, 2008. "After a 5-month inquiry into the water supplies of 24 major metropolitan areas, the Associated Press discovered traces of 56 human and veterinary pharmaceutical drugs. What wasn't revealed, however, were strong systems in place to detect these drugs or clear guidelines from the EPA on how to protect the water supply. Monroe County will have a Sheriff Deputy, a Pharmacist and a poison control specialist on-hand for collections...and they are working to identify a long-term strategy for a program to protect the public water supply" (Democrat & Chronicle, 4.15.08).

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 Years (inclusive) (SEMO, HAZNY 2004). We should expect no warning on this hazard which may last two to three days. Recovery is expected to take three days to one week.

The fluctuation in alert status by the U.S. Department of Homeland Security since 9.11.01 has prompted additional physical security and surveillance measures at local reservoirs and water treatment plants. The City expects to spend about $21 million at its Rush, Cobbs Hill and Highland Park facilities to comply with federal regulations (Democrat & Chronicle, 7.15.08).

"The NYS Department of Health has evaluated the susceptibility of water supplies statewide to potential contamination under the Source Water Assessment Program. In general the Great Lakes sources... are not very susceptible because of the size and quality of the Great Lakes. Hemlock and Canadice Lakes, used by the City's Hemlock plant, are also not very susceptible because of their size and controlled watersheds. Because storm and waste water contamination are potential threats to any source water, the water provided to our customers undergoes rigorous treatment and testing prior to its delivery. Coagulation, filtration and disinfection are all part of the treatment process. Fluoride is also added to help prevent tooth decay. All treatment plants are in full compliance with all New York State and US EPA operational and monitoring requirements" (2009 MCWA Annual Water Quality Report).

"The City's ownership and control of a large amount of property surrounding the lakes (note: on 7.1.10, control transferred to New York State), coupled with its routine surveillance and testing programs, helps assure on-going protection of the water supply. Testing confirms that the lakes' quality remains high" (City of Rochester, Department of Environmental Services Bureau of Water, 2006 Water Quality Report).

And, for 100 years, the U.S. and Canada Boundary Waters Treaty has "...provided principles, and an International Joint Commission (IJC) to approve, reject or approve with conditions applications to build dams and other structures that would affect natural water levels or flows across the boundary. In light of the cholera and typhoid outbreaks of the time, the countries also made the far-sighted commitment not to pollute the waters to an extent that would cause injury to health or property in the other country" (IJC Annual Report, electronic announcement, 8.20.09).

Maps of hazard areas:

Map #3, Water Supply in Monroe County

Monroe County's public water supply comes from Lake Ontario, two of the Finger Lakes – Hemlock Lake, and Canadice Lake, and from private wells. The accompanying map identifies the public supplies, the supplier, and the areas served by public supply and private wells. Water treatment facilities and distribution systems are not identified for security purposes. Many of the rural areas are dependent on private wells. Several large industries have their own supply source and treatment facilities. Many fire departments have an alternate water source for fire fighting: the City of Rochester has a parallel supply for fire suppression within the downtown area called the "Holly System," and many suburban and rural departments have standpipes on natural waterways.

Analysis of the impact on business, infrastructure & critical facilities:

This event may:

- Restrict business activities.
- Cause illness or death.
- Disrupt daily community routine.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Specific information regarding past damage value estimates is not applicable.

Notes on data limitations: **None**

Appendix B-23

Hazard Specific Analysis: Drought

Definition:

"A prolonged period of limited precipitation affecting the supply and quality of water."[1]

Description:

Drought is identified as a Medium Low hazard at 165.[2] Drought does not cause the immediate damage that might occur from a windstorm or other natural hazard but can have long term impact if there is no relief for a sustained period of time. Drought is likely to affect a large region, and highly likely to cause cascade events with long-term consequences, e.g. crop failure leading to food product shortages, water supply problems for public supply and private wells, and it typically increases fire threat. Also, Drought is likely to be accompanied by extreme heat. Drought is an infrequent event in Monroe County, occurring between once every 8 years and once every 50 years (inclusive).

"According to the National Weather Service, a drought occurs when at least a month passes with less than 30% of normal precipitation. As a result, droughts can last months or even years. The method used to measure droughts is the Palmer Index. Positive numbers indicate normal or near normal soil conditions and negative numbers indicate below normal soil conditions. The worst drought in the United States occurred during the historic heat waves of the 1930's" (Democrat & Chronicle, 4.30.05).

"Meteorologists and hydrologists have their own precise definitions of drought. Meteorologists compare deficiencies in precipitation to normal levels when they speak of drought. Hydrologists consider stream flow and water levels in aquifers, lakes, and reservoirs along with precipitation. New York uses elements of both disciplines to determine when a drought is occurring.

"The State Drought Index compares five parameters to historic or 'normal' values to evaluate drought conditions: stream flows, precipitation, lake and reservoir storage levels, and groundwater levels. New York's Drought Management Task Force uses those factors as well as water use, duration of the dry period, and season to assess drought in different parts of the state.

"New York also uses the Palmer Drought Index, a measure of soil moisture computed by the National Weather Service. The two indices reveal different aspects of drought. The Palmer Index, with its emphasis on soil moisture, is useful in exploring agricultural impacts. The State Index helps asses the impact on human welfare and the regional economy" (NYSDEC website, "Drought Facts," 6-20-03).

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Precipitation data for Monroe County indicates 1887 as our driest year with 20.30 inches of precipitation (WHAM Weather Book, 4.29.10). Monthly precipitation:

Month	Average Precipitation (inches)	Extreme (inches : year)
January	2.34	0.15 : 1837
February	2.04	0.21 : 1841
March	2.58	0.47 : 1958
April	2.75	0.5 : 1837
May	2.82	0.24 : 2007
June	3.36	0.22 : 1963
July	2.93	0.25 : 1854
August	3.54	0.36 : 1879
September	3.45	0.28 : 1960
October	2.60	0.09 : 1924
November	2.84	0.33 : 1904
December	2.73	0.46 : 1835

Data from the WHAM Weather Book, 4.29.10

Overview of specific hazard locations and the extent of the hazard:

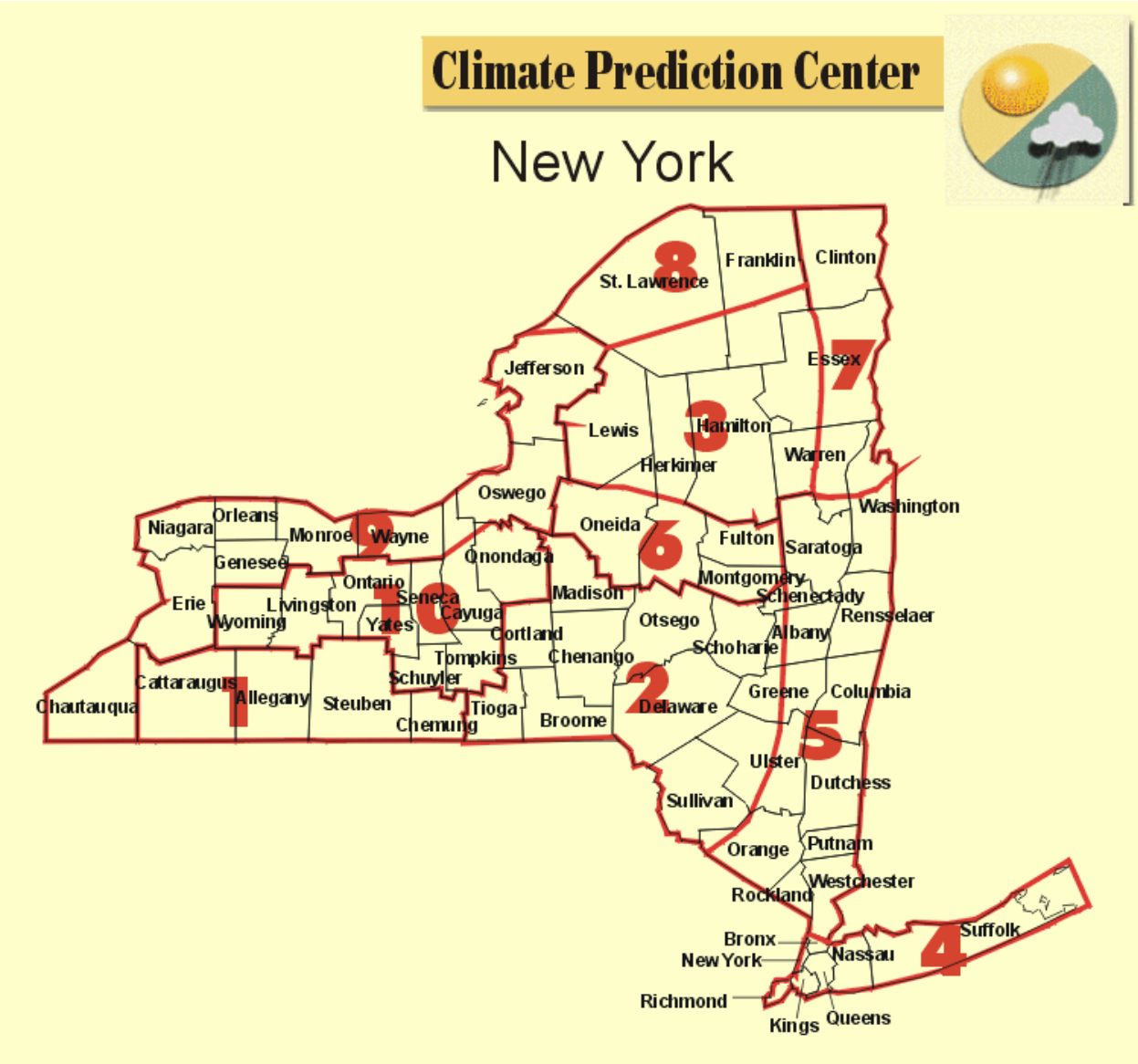
"Droughts can occur during any period of time in any region of New York State. Even though the State normally possesses an adequate water supply with sufficient annual precipitation to replenish the State's reservoirs, lakes, rivers and groundwater aquifers, certain areas have a history of being more susceptible to periods of drought.

"Drought periods progress through stages and drought intensity may vary considerably during the drought period. They are not sudden, extreme events like floods. The time of occurrence and duration can cause significant variations in drought impacts. For example, a drought which occurs in the fall and winter months has little direct impact on crop production. For public water supplies, drought is more serious during the reservoir refill and groundwater recharge periods in the spring" (SEMO, HAZNY, 2004).

Drought is unlikely to cause injury or death. It may cause moderate damage to private property, but our local experience reveals little or no damage to public facilities.

The National Weather Service, Buffalo Office up-dates drought conditions on their Hydrological Product titled, "Flood Potential Outlook – BUFESFBUF – FGUS71" (Judy Levan, NWS, e-mail, 5.3.10).

"New York is divided into nine drought management regions by the Climate Prediction Center (see map next page), based roughly on drainage basin (watershed) and county lines. DEC monitors precipitation, lake and reservoir levels, stream flow, and groundwater at least monthly in each region and more frequently during periods of drought. DEC uses this data to assess the condition of each region, which can range from 'normal' to 'drought disaster.'



"Developed and implemented by the New York Drought Management Task Force, the State Drought Plan focuses on research, monitoring and possible legislative actions to help prevent and mitigate impacts from droughts. The Task Force coordinates actions prior to declaration of drought emergency, at which time the Disaster Preparedness Commission takes over.

"The Drought Plan describes the actions to be taken during each drought stage by water purveyors, towns and villages, water authorities, and other agencies with water supply responsibilities.

- **Drought Watch** – The least severe of the stages, a drought watch is declared when a drought is developing. Public water suppliers begin to conserve water and urge customers to reduce water use.

- **Drought Warning** – Voluntary water conservation is intensified. Public water suppliers and industries update and implement local drought contingency plans. Local agencies make plans in case of emergency declaration.

- **Drought Emergency** – The Governor may declare emergency. The Disaster Preparedness Commission coordinates response. Mandatory local/county water restrictions may be imposed. Communities may need to tap alternative water sources to avoid depleting water supplies, protect public health and provide for essential uses.

- **Drought Disaster** – Disaster plans are implemented. Water use is further restricted. The Governor may declare disaster and request federal disaster assistance. Emergency legislation may be enacted. The state provides equipment and technical assistance to communities" (NYSDEC website, "Drought Facts," 6.18.10).

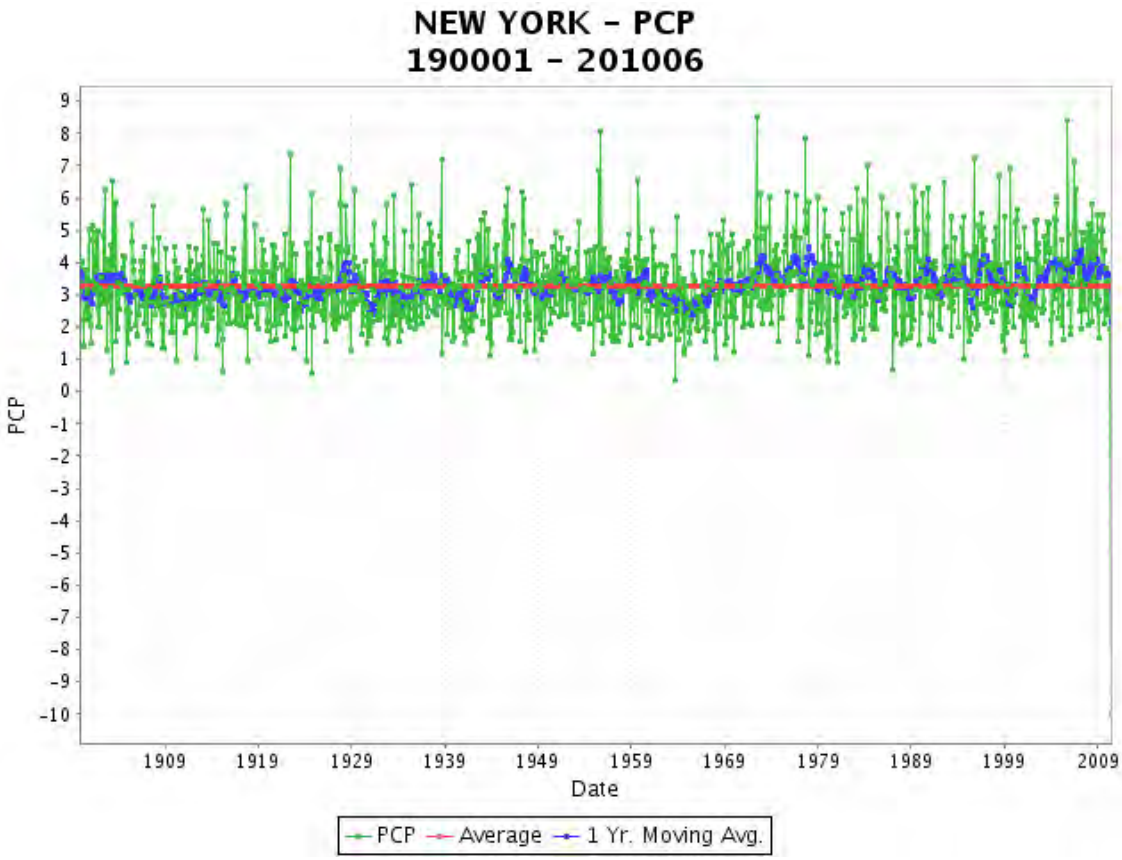
Previous occurrences of the hazard:

Monroe County is included in the "Great Lakes" Drought Management Region. Data on droughts in our area:

Source: HAZNY, 2004 with data from NOAA

Years	Severe Drought	Extreme Drought
1895	Oct, Nov	none
1899	Aug thru Oct	Nov, Dec
1900	Jan, May thru Aug, Nov, Dec	Sep, Oct
1901	Jan, Feb	none
1908	Nov	Dec
1909	Feb	Jan
1921	Jun thru Dec	none
1922	Jan	none
1930	Nov	Dec
1931	May thru Oct	Jan thru Apr, Nov, Dec
1934	May	Jun thru Dec
1935	May, Nov, Dec	Jan thru Apr
1936	Jan, Feb, Jul, Oct thru Dec	Aug, Sep
1939	Nov, Dec	none
1940	Jan	none
1941	May thru Aug, Oct	Sep, Nov, Dec
1942	None	Jan
1949	Nov	none
1955	Jul	none
1960	Nov	Dec
1961	Jan	none

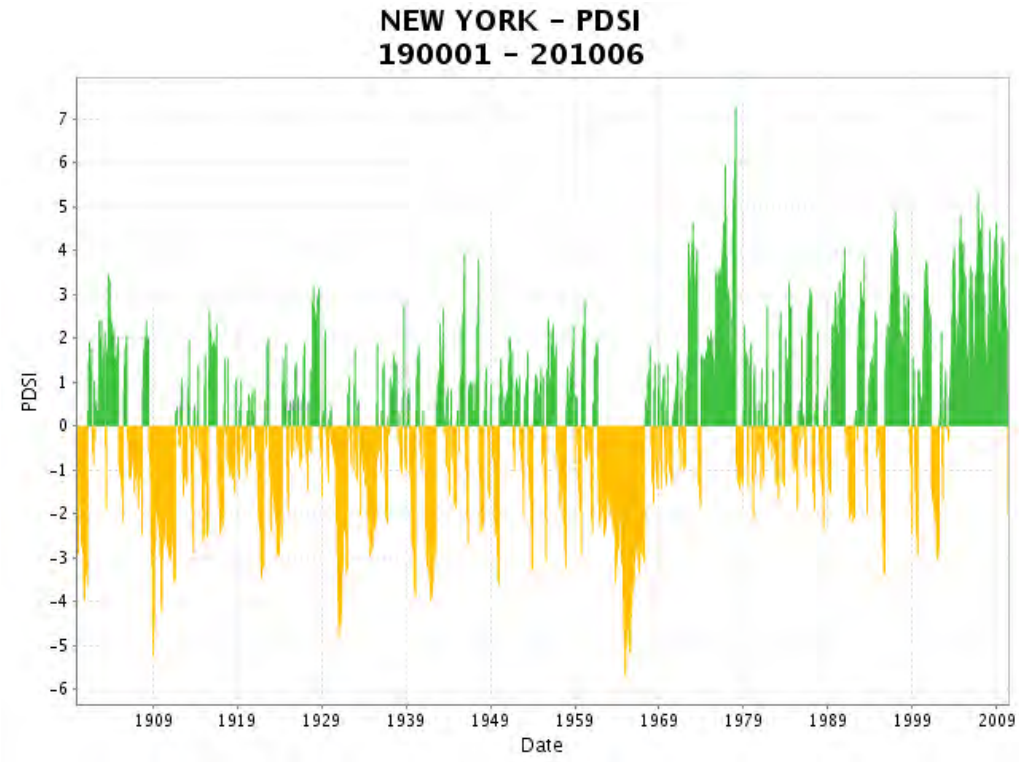
This chart is a graphic time series of annual precipitation for National Climatic Data Center, Division 9, which includes Monroe County:



Source: National Climatic Data Center, www7.ncdc.noaa.gov, 6.18.10

"The Palmer Drought Severity Index (PDSI) (known operationally as the Palmer Drought Index (PDI)) attempts to measure the duration and intensity of the long-term drought-inducing circulation patterns. Long-term drought is cumulative, so the intensity of drought during the current month is dependent on the current weather patterns plus the cumulative patterns of previous months. Since weather patterns can change almost literally overnight from a long-term drought pattern to a long-term wet pattern, the PDSI (PDI) can respond fairly rapidly" (Anne Waple, e-mail, 6-27-03).

This chart is a graphic time series of the Palmer Drought Severity Index from the National Climatic Data Center, Division 9, which includes Monroe County:

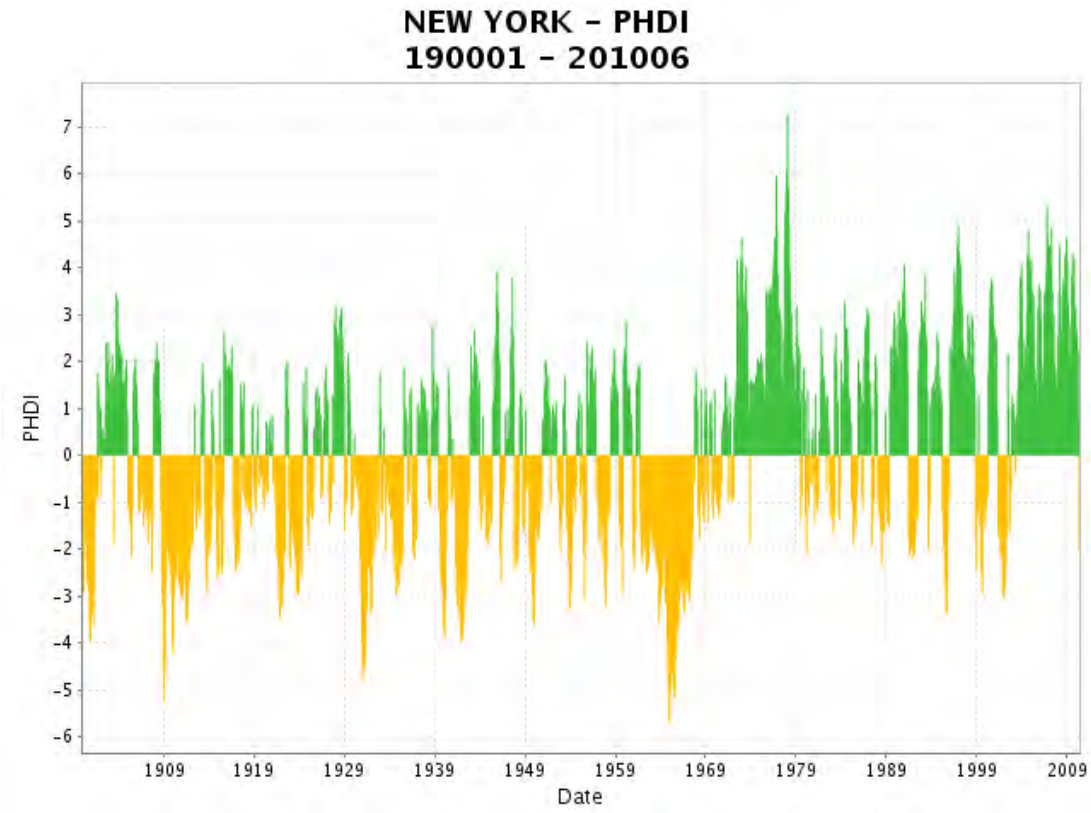


--------gold graphic is Dry Spell
--------green graphic is Wet Spell

Source: National Climatic Data Center, www7.ncdc.noaa.gov, 6.18.10

"The hydrological impacts of drought (e.g., reservoir levels, groundwater levels, etc.) take longer to develop and it takes longer to recover from them. The Palmer Hydrological Drought Index (PDHI), another long-term drought index, was developed to quantify these hydrological effects. The PHDI responds more slowly to changing conditions than the PDSI (PDI)" (Anne Waple, e-mail, 6-27-03).

This chart is a graphic time series of the Palmer Hydrological Drought Index from the National Climatic Data Center, Division 9, which includes Monroe County:



--------gold graphic is Dry Spell
--------green graphic is Wet Spell

Source: National Climatic Data Center, www7.ncdc.noaa.gov, 6.18.10

Information from the County Office of Emergency Management files:

- 1988. "In doing some research with the Monroe County Water Authority, we discovered that water restrictions were most recently imposed on the Rochester area in 1988. This was partially because of drought conditions...." (Democrat & Chronicle, 9.29.07).

- August 10, 1999. "U.S. Department of Agriculture Secretary Dan Glickman declared all of New Jersey and 34 counties in New York as agricultural disaster areas. The declaration makes farmers in these areas eligible for emergency, low-interest loans because of losses due to excessive heat and drought" (USDA "News Release No. 0329.99" August 10, 1999). The declared counties in New York included Monroe for what President Clinton described as a "severe drought."

- Summer, 2002 ..."Was very hot and dry. July, August and September that year all had well below normal rainfall, with temperatures averaging three to six degrees above normal" (Democrat & Chronicle, 5.30.07).

- July 18, 2003. "Typically we should have 17.41 inches (of precipitation) at this point in the year. Since late yesterday we are at only 15.13 inches, 2.28 below normal. This is no cause for concern, but without more consistent rainfall we will slowly move toward drought conditions" (Glenn Johnson, Meteorologist, Democrat & Chronicle, 7-18-03). Editorial Note: Precipitation prompting Flood Watches has since changed this condition!

- April, 2005..."The area went several weeks (April4 – 19) with only 0.04 inch of rain" (Democrat & Chronicle, 5.30.07).

- May, 2006. "According to the National Weather Service, this was the driest stretch in spring for Rochester since 1977 (23 consecutive dry days). The U.S. Drought Monitor reports some areas have reached a 'D0' drought level. This means an abnormally dry condition. A D0 drought is minimal, in terms of widespread impact" (Democrat & Chronicle, 5.12.06).

- May, 2007. "Since the last day of May featured no rain in Rochester, that made May 2007 the driest in recorded history. We received less than a quarter of an inch of rain (0.24 of an inch). We also reached 90 degrees or warmer on May 24 and 31" (Democrat & Chronicle, 6.2.07). "The month of May...showed a Palmer Index of -2.75, which indicates a severe drought for the month" (Democrat & Chronicle, 7.2.07).

- August – October, 2007. "According to the latest US Drought Monitor (Sept. 24, 2007) conditions remain at a 'D2' status or 'severe drought' across the lakeshore counties from Erie and Niagara east through Orleans, Genesee, Monroe and Wayne counties. These areas have received about 50% or less of normal rainfall for the entire five month growing season (May1 – Sept. 24). For example...Rochester's total of 8.05 inches was 51% of the normal 15.80 inches" (NWS "The Lake Breeze," Fall 2007, and NWS, Buffalo Office "Drought Statement," 9.24.07).

  "In the middle of July, the National Drought Monitor raised Rochester's drought status to abnormally dry. Abnormally dry is the first drought stage that is assigned to a given area that starts to show drought symptoms (typically agriculture). As of July 30, Rochester was placed into a moderate drought. The drought developed because rainfall since May has been nearly 5 inches below normal. Regular rainfall can quickly alleviate a moderate drought" (Democrat & Chronicle, 8.7.07).

  "The average temperature for August was 71.7 degrees, which is 2.8 degrees Fahrenheit above normal. This made August the warmest month of the summer. In fact, from June through August we experienced 14 days of 90 degrees or higher, and he average is just 8. It was the driest here in 56 years! The official rainfall total at the Airport was just 0.81 inch. This produced a deficit of 2.73 inches" (Democrat & Chronicle, 9.4.07).

  "During May, June, July and August only 5.66 inches of rain was recorded – a 7-inch deficit" (Democrat & Chronicle, 9.9.07).

  This event prompted "Water Conservation Measures," significant water hauling to aid a reservoir in Wyoming County, NY (Paul Wilson, SEMO e-mail, 10.9.07), and an early shut-down for the State's canal system (The Times Union, 10.9.07).

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). It is difficult to predict future occurrences, but the potential magnitude could be significant if the predominant source of the drought is a diminished water supply. Concerns include:

- Drought in other countries and regions of our own country affect our local food supply and trade markets. The NYS Canal System closed commercial traffic one week early in October, 2007 "...because a persistent shortage of rainfall along the Mohawk Valley and in western New York has reduced the amount of water available to maintain sufficient navigational depth in some sections" (The Times Union, 10.9.07).

- A more localized drought can impact local food and crop production to a point where we lose market share and diminish our capacity to compete in the broader market place. This kind of loss has a ripple effect on the local economy that supports crop production, transport, and processing.

- Drought areas are high fire threats as dry fuel becomes an issue.

- Our public water supply is lakes, and although we've endured times of low water levels, we have not seen a loss of supply. However, private wells serve the more rural areas of the County, and we have seen this supply diminish to the detriment of people and farm animals reliant on this source.

- Recreational activities can also be adversely impacted, in-turn affecting the local economy. Year round recreation and tourism from snow skiing to boating, and other water-based activities, rely on water. The NYS Canal System closed recreational traffic two weeks early in October, 2007 "...because a persistent shortage of rainfall along the Mohawk Valley and in western New York has reduced the amount of water available to maintain sufficient navigational depth in some sections" (The Times Union, 10.9.07).

We would likely have more than a week's warning time for drought. Experience shows that the hazard would likely last more than one week. With significant precipitation, recovery signs on the landscape may be present within 1-2 days; however, the damage to crops, replenishing a diminished water supply and other long-term affects suffered with a drought may take weeks, months, or a complete seasonal cycle for complete recovery.

Maps of hazard areas:

A Hazard map is not required due to the event's widespread nature. Related areas of interest that are mapped include:

Map #3, Water Supply in Monroe County

Monroe County's public water supply comes from Lake Ontario, two of the Finger Lakes – Hemlock Lake, and Canadice Lake, and from private wells. The accompanying map identifies the public

supplies, the supplier, and the areas served by public supply and private wells. Water treatment facilities and distribution systems are not identified for security purposes. Many of the rural areas are dependent on private wells. Several large industries have their own supply source and treatment facilities. Many fire departments have an alternate water source for fire fighting: the City of Rochester has a parallel supply for fire suppression within the downtown area called the "Holly System," and many suburban and rural departments have standpipes on natural waterways.

Map #14, Agricultural Districts

A Monroe County Agricultural District map features district boundaries. Infestation and/or Agricultural Blight would most likely occur in these areas.

Analysis of the impact on business, infrastructure & critical facilities:

There could be significant impact on business with loss of revenue to farmers, higher consumer costs and other adverse economic cascading. Diminished water supply could impact critical facilities, sanitation, patient care and prompt other Public Health concerns.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

"Shortages of potable water can cause serious threats to public health and sanitation. Direct impacts on private (residential, commercial and industrial) property can include land damage from lack of moisture and possible wildfires. Some businesses and industry may be affected by reduced revenues resulting from increasingly severe restrictions on nonessential water uses. Agriculture faces major losses when adequate soil moisture cannot be maintained and when sufficient water is not available for livestock. The historical record lacks instances of significant serious injury or death due to drought conditions" (HAZNY, 2004).

Notes on data limitations: Time and record access

Appendix B-24

Hazard Specific Analysis: Epidemic

Definition:

Disease: "A definite morbid process, often with a characteristic train of symptoms,"[1] i.e. "1. An interruption, cessation, or disorder of body function, system, or organ. 2. A morbid entity characterized usually by at least two of these criteria: recognized etiologic agent(s), identifiable group of signs an symptoms, or consistent anatomic alterations."[2]

Epidemic: "The occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal."[3]

Description:

Historically the world has seen significant fatalities as a result of disease outbreak. Medical research and breakthroughs as well as immunizations, quarantine implementation, public education, and alerting capabilities have resulted in reduction of outbreak potential in recent history. Locally, this hazard is considered Low hazard with a rating of 160.[4] However, the recent SARS epidemic is an example of how new diseases can impact any community and this hazard should not be dismissed because of lack of events. Animal diseases like Foot & Mouth Disease, and Mad Cow Disease can also present emergency scenarios and require disaster-magnitude response from community resources.

Overview of specific hazard locations and the extent of the hazard:

Monroe County has been affected by national disease outbreaks, and those that occur in our natural environment. Our community is highly mobile – international business travel, university/college populations, personal travel – and we have national and international venues that range from transportation facilities to special events. In addition to human carriers, animal vectors are present in our community. Agricultural herds and native animals inhabit our area. Agriculture here also includes crop production, and food processing for plant and animal products.

We are also on an international border with multiple venues for ingress and egress that can elude the regulatory process of inspection at formal border crossings.

Diseases in our area include, but are not limited to: Flu, Tuberculosis, E-Coli, West Nile Virus, Lyme Disease, Rabies, Lead Poisoning, HIV/AIDS, Sexually Transmitted Diseases (STD's), and Heart Disease.

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1 Dorland's Pocket Medical Dictionary (21st Ed.), p. 190
2 Stedman's Medical Dictionary (27th Ed.), p. 509
3 SEMO. HAZNY 2004
4 Monroe County Hazard Analysis, 11.9.09

Prevention and Planning practices include:

- clinics for vaccination – Flu, Rabies, Pneumonia
- disease surveillance by the Public Health Department in partnership with the Health Care Community
- the "Health Alert Network (HAN)" – a secure, web-based communication network for EMS and other emergency responders, and the Health Care Community
- the "Metropolitan Medical Response System (MMRS)" – a national program to ensure emergency plans, training and exercises, and equipment resides in major metropolitan areas of the country
- Monroe County Public Health Department operations strategy to contact, mobilize, and coordinate emergency response to a Health crisis
- Monroe County emergency plan, "Responding to the Threat of Foot & Mouth Disease"
- Rochester Regional Healthcare Association (RRHA), "RRHA Regional Hospital Mutual Aid Evacuation & Supply Plan"
- "Greater Rochester Mutual Aid Plan," for regional area Nursing Homes
- Monroe County's "National Pharmaceutical Stockpile Plan"
- a multi-county/private-sector Health Care forum to discuss topics of mutual interest
- Monroe-Livingston Regional EMS Council
- Monroe County EMS Advisory Board
- Emergency Operations Center (EOC) – dedicated workstations for County and State Departments of Public Health, County EMS Coordinator, and the City of Rochester contract ambulance

Previous occurrences of the hazard:

RE: Flu. The "Spanish" influenza epidemic of 1918 is thought to have originated in China, and killed as many as 50 million people worldwide (Democrat & Chronicle, 7-14-03). "It levied its greatest toll among those 20 to 45, rather than the very young and very old. …In the fall of 1918, after the virus mutated, (it) began sweeping the country in an even deadlier second wave" (Democrat & Chronicle, 7-14-03). The epidemic overwhelmed local hospitals and extraordinary precautions were taken – no kissing or shaking hands; disinfecting telephone mouthpiece; "coughing or sneezing in a public place without covering nose and mouth was declared an offense punishable in New York State by a $500 fine and/or a year in prison;" schools, theater and other public gathering places like bars were closed; "political campaigns were waged exclusively through advertisements rather than rallies and meetings; and, industries and retail stores staggered their closing times so the trolley cars would be less crowded. Part of the tragedy was that doctors had little or no idea what caused the disease or how to treat it" (Democrat & Chronicle, 7-14-03). "By the end of December, in just three months, this flu killed a staggering 675,000 Americans, about 1,100 in Rochester" (Democrat & Chronicle, 7-7-03). Family survivors today relate stories of children orphaned by their parents' death, businesses that were lost and closed as a result of the epidemic, and heroic deeds of family, friends, and neighbors who assisted those in need (Democrat & Chronicle, 7-4-03, 7-21-03).

More recent flu outbreaks are mostly anticipated on a cyclical basis, and the Public Health community prepares with education/awareness, vaccine clinics, and ramping-up within the health care arena for patient receipt and treatment. These outbreaks have taxed the local system, but have

not overwhelmed it. And, unlike the 1918 epidemic, these flu strains are particularly hard on the very young, very old and those with respiratory ailments.

RE: Tuberculosis. This prompted the opening of special treatment facilities. People were segregated from their families and sent to these facilities for treatment and recovery. The County operated a public facility for many years. When patient numbers dwindled, these buildings and their campus setting were converted to County government use. Patient cases are still identified today. Today, these single cases are treated within the existing health care system.

RE: Meningitis. Cases have been diagnosed in our community. Concern is heightened when patients reside in a residential facility, i.e. a college dormitory. University Health Care Centers are attentive to this and other highly contagious infections.

RE: West Nile Virus. In 2002, Monroe County saw the community's first case of this disease. The impact on the state prompted a Presidential Disaster Declaration on October 11, 2000 (identified as FEMA-3155-EM-NY), for all 62 New York counties. "Last year, there were 4,156 human cases of West Nile nationwide and 284 deaths; about 40,000 horses were infected. In New York State, 82 humans fell ill from the virus, including two in Monroe County, and there were five deaths" (Democrat & Chronicle, 6-27-03). This year's first case in the County was confirmed on July 18th. "Monroe is the seventh county in the state to find a West Nile-infected bird this year. Last year, 58 of New York's 62 counties reported 1,410 crows that died from the disease. In Monroe, 45 crows were found with the virus, along with two penguins from the Seneca Park Zoo. There are no reported human cases in New York yet this year. In Monroe County, two human cases were reported during 2002. There have been no Rochester-area deaths from the disease since the first U.S. outbreak was reported – in New York City – in 1999. The more infected crows, the higher the risk. West Nile severely sickens less than 1 percent of humans infected. Nineteen percent have mild, flu-like symptoms. About 80 percent show no symptoms" (Democrat & Chronicle, 7-19-03). "For a few, the infection left a legacy of weak limbs, tremors, serious muscle ticks and other motor trouble" (Democrat & Chronicle, 7-30-02). There is a confirmed case in Texas, that West Nile Virus was transmitted from a blood donor (ProMED-mail post, 7-17-03, listing [1]).

RE: Rabies. Rabies has been in New York State since its creep from Pennsylvania in the 1990's. Monroe County tracks bite cases, pays for patient treatment (cost of injections), and continues to keep awareness and safety tips in front of the public through media outlets and its own means. Since its presence was detected in the state, the County continues offering free pet vaccination clinics (Democrat & Chronicle, 7-17-03). Although raccoons are typically reported as the predominant animal carrier, County Public Health Director, Dr. Andrew Doniger just, " . . . Issued a warning that people should not handle bats, after 24 people in the County had to receive rabies-prevention shots" (Democrat & Chronicle, 8-9-03).

RE: E-Coli. Special Event venues and mass food preparation and handling have been in the local news. Also newsworthy, several individual food establishments were confirmed as sources of this problem. The Public Health Department investigates these cases, oversees remediation, and inspects all premises for compliance and abatement efforts.

Probability of future occurrences and potential magnitude:

This hazard is considered a "Rare Event" by HAZNY definition meaning that it occurs less than once

every 50 years (SEMO, HAZNY 2004). In addition to those diseases described above (as already having a local presence), the probability for future occurrence related to possible biological warfare and terrorist attack is possible, although unlikely. There is always the potential for new strains of bacteria as well as bacteria that becomes resistant to antibiotics making infection more difficult to treat. The potential magnitude is difficult to predict, but not hard to imagine in terms of severity.

One thing we can do to prevent disease is to ensure that adequate vaccine is available and that people are educated about its use. Hopefully the recent media swell about Smallpox Vaccine has reminded people about the tremendous Public Health benefits of vaccination. "Each year, 40,000 adults die from diseases for which a vaccine is available. Most adults don't realize they still need shots. For example, more than half of everyone in the U.S. over age 20 – and 70 percent of those over age 70 – have let their protection against tetanus lapse" (Debora Yost, Better Homes & Gardens, August 2003, p. 228). Vaccines readily available in our community include: Pneumococcal, Flu, Tetanus and Diphtheria, and Hepatitis B.

In addition to Rabies, Lyme Disease, and West Nile Virus, there are other diseases that can be contracted by humans from animal vectors. Of recent concern are Monkeypox, and Chronic Wasting Disease. The Trust for America's Health, a non-profit group that focuses on disease prevention in the United States, is concerned that most animal-borne diseases are tracked on an ad hoc basis, or at a state level without formal interstate coordination. "The groups looked at four diseases that have passed from animals to people – SARS, West Nile Virus, which infects birds and is carried to people by mosquitoes, Lyme disease, which is carried from deer to people by ticks, and monkeypox, found in West Africa but carried to U.S. pet prairie dogs by imported exotic pets including a Gambian rat. They also examined the response to chronic wasting disease, affecting deer and elk in western U.S. states but which has the potential to infect people as it is related to mad cow disease" (Maggie Fox, Health and Science Correspondent, Reuters News Service, 8-5-03).

RE: Chronic Diseases:

1. Cancer. There are many and varied forms of cancer that present in this community. Statistical evidence confirms them as chronic and anticipated. For example: "Cancer of the prostate, . . . was diagnosed in 189,000 Americans last year and killed 30,200 according to the American Cancer Society. It is the most common cancer in men after skin cancer. Almost 12,000 cases a year are diagnosed in New York and more than 2,200 men die of it annually in the Empire State, according to the State Health Department" (Democrat & Chronicle, 8-9-03).

2. Heart Disease. Public perception once held that this was predominantly a male ailment. Local media outlets announced new data and physician reports in the late 1990s – 2000, explained that this disease does not discriminate by sex, and that in fact it is claiming an equal number of female victims. This information has helped physicians and the public be more attentive to both genders.

RE: Sexually Transmitted Diseases (STDs):

1. STDs. The County Public Health Department operates a clinic for STD screening and treatment. Variations of this disease are present. The clinic also provides information on prevention.

2. AIDS. Originally defined as an STD, AIDS has been transmitted to unborn children, through blood donations, and via "dirty needles." There are cases of deliberate infection (a parolee was locally convicted of this crime), and there are people who unknowingly carry and spread HIV, the virus that causes AIDS (Democrat & Chronicle, 7-21-03). "About 2,200 people in the Rochester area are infected with AIDS, 75 percent of whom live within the City of Rochester, according to the Finger Lakes Health Systems Agency. Yet only about a third are receiving care" (Democrat & Chronicle, 7-21-03). "New data from the Centers for Disease Control and Prevention show that the number of U.S. AIDS cases rose in 2002, ending a 10-year decline. In Rochester, the statistics bear that out. In 1999 there were 873 individuals living with AIDS; in 2001 there were 1,066. Though small in number, one of the fastest growing groups to contract HIV is older, post-menopausal women; 55 percent of Monroe County's Community Health Network's new patients are African-American or Latino" (Democrat & Chronicle, 8-11-03).

RE: Lead Poisoning. "An average of 1,200 children in Monroe County are exposed to lead poisoning each year, according to the Rochester Lead Free Coalition. Some studies have placed Rochester among the 10 U.S. cities with the worst lead problems" (Democrat & Chronicle, 8-9-03). A U.S. Center for Diseases report is expected in October " . . . that pulls together all the known research on blood-lead safety levels" (Democrat & Chronicle, 8-9-03).

RE: Emerging Infectious Diseases. "Current emerging infectious disease threats are bringing a heightened sense of awareness of smallpox, severe acute respiratory syndrome (SARS), monkeypox, norovirus, HIV and West Nile disease. CDC officials report the public's health will be impacted in the years to come by emerging infectious diseases like SARS that could reappear in the fall much like other respiratory illnesses such as influenza and may be spread by people who don't realize that they are carriers of the virus. The new normal is emerging infectious diseases, and emerging infectious diseases that are almost instantaneously a global concern because of the speed with which people, animals and products move around the world. Diarrheal diseases remain among the most common afflictions of mankind. In the U.S., it remains a common problem with more than 70 million episodes, 500,000 hospitalizations and some 5,000 deaths occurring each year. Noroviruses now appear to be the most common cause of outbreaks of gastroenteritis in Americans of all ages and the most common cause of diarrheal hospitalizations of adults. In 2002, West Nile virus produced the largest outbreak of arborviral meningo-encephalitis ever reported in North America, with 4,156 cases. Given an apparent to inapparent infection ratio of 1 to 150 persons, it can be estimated that more than 500,000 persons were infected with the virus last year. Along with the unprecedented outbreak of human illness, almost 15,000 equine cases were reported. It is impossible to predict the future public health impact of West Nile virus. However, the annual re-emergence of cases in all areas where the virus has been identified along with the large number of avian and mosquito hosts, suggests a need to be prepared for future outbreaks of similar magnitude to the one experienced in 2002" (National Foundation for Infectious Diseases, Press Conference, July 16, 2003).

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Map #13, Waste Water System in Monroe County

The Monroe County Public Health Department, and the Department of Environmental Services have a program to bait and destroy rodents.

The USGS West Nile Virus map is available at http://westnilemaps.usgs.gov

Although these diseases may not be mapped (for issues of privacy, and/or other regulations), the Monroe County Public Health Department maintains datasets for:

- Lead – addresses of reported medical cases, and medical case histories
- HIV
- Rabies - variety of information related to the investigation and management of 1,100 – 1,300 annual reported cases of animal contacts
- Sexually Transmitted Diseases (STD's)
- Tuberculosis
- Heart Disease – fatality data is kept for race, sex, age, and residence (Utter, Cheryl, and Ammerman, Eric. Monroe County Public Health Department. Telephone interviews, July 29, 2003).

There is also state-wide information available on the cost of care for chronic diseases (Utter, Cheryl. Monroe County Public Health Department. Telephone interview, July 29, 2003).

Analysis of the impact on business, infrastructure & critical facilities:

RE: Business. International travel for business and tourism is adversely impacted by disease. Local travel out of our community was curtailed because of SARS risk, and people traveling into our area have arrived finding themselves subject to "preventative treatments" ranging from questions about their travel and country of origin, to more intense surveillance. The University Health Care providers have already discussed their strategies with returning student populations (University Health Care Provider's Meeting, June 23, 2003).

Area businesses partner with the County on Public Health and Public Safety activities. Most notable is Wegman's: Pharmacists are part of the emergency activation for receipt and deployment of the National Pharmaceutical Stockpile; and, the Pharmacies in Newark, Penfield and Webster stores continue to distribute Potassium Iodide (KI) tablets to residents within the 10-mile Emergency Planning Zone of Ginna Station. And several businesses are partners with venues for annual flu vaccination clinics.

Animal and food imports are regulated by U.S. government agencies. " . . . Forty percent of Canada's annual $1.1 billion beef products normally exported to the U.S., and . . . another $1.1 billion in live cattle exports, were halted in May when one case of bovine spongiform encephalopathy (BSE) was found. The U.S. is the market for about 70 percent of Canada's cattle exports. The ban on meat products will be lifted by the end of the month, but the ban on live cattle will remain" (Democrat & Chronicle, 8-9-03).

RE: Infrastructure. Monroe County's Rodent Baiting Program has been discussed and mapped. This expense, although deemed critical, was subject to budget cuts several years ago. The costs of this all County-funded program is scrutinized and subject to change. Another mitigative program targeted at an infrastructure introduction is the West Nile Virus larvacide program. This was an

unanticipated expense at budget time, so the cost to the County and local municipal Departments of Public Works staffs for training, supplies/equipment, and application was not budgeted. This situation was not unique to Monroe County – it was statewide, and ultimately drove the Governor's request for Presidential Disaster assistance. West Nile Virus reimbursement was $4.75M statewide, and $69,790 to Monroe County (SEMO Region V e-mail, 8-16-01).

RE: Critical Facilities. The local health care infrastructure is stressed by disease occurrence whether it is cyclical and anticipated, or sudden and predominant. Even with anticipating actions, flu outbreaks can tax pre-hospital care (ambulance service), private physicians, and hospitals.

Monroe County's Ontario Beach Park on Lake Ontario, is normally open to swimmers from Memorial Day to Labor Day with life-guard patrols. The County Health Department monitors water quality at the beach each day to ensure swimmer safety. "Cloudy water conditions, an abundance of algae or high bacteria in the water can result in the closing of the beach. Frequent beach closings due to bacteria, rainfall, water clarity and algae have been a (persistent) problem. The beach has been closed more than 20 days each season since 1995, and more than 30 days in five of those years" (Democrat & Chronicle, 6-22-03). This season the beach was open for the first time on June 22nd (Democrat & Chronicle, 6-23-03).

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

identified in other sections

Notes on data limitations: Time and records access

Appendix B-25

Hazard Specific Analysis: Earthquake

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, and ground failure (collapse)."[1]

Description:

Due to the presence of natural fault lines within New York State, and the resulting potential for greater magnitude earthquakes due to these geographical features, Earthquake must be considered within the Monroe County Hazard Plan."[2] Although Earthquake is identified as a Low hazard at 159,[3] and a rare event with occurrence less than once every 50 years, the possibility and potential should not be minimized. By its nature, an Earthquake affects a large region, and is highly likely to cause cascade events, e.g. landslide, fire, utility failure, transportation incidents, structural collapse, dam failure.

Overview of specific hazard locations and the extent of the hazard:

"An earthquake can occur anywhere in New York State. The most seismically active regions in the state lie in the Adirondacks and near the Canadian border along the St. Lawrence River (the Northern New York-Western Quebec Seismic Zone – Democrat & Chronicle, 4-22-02), followed by the New York City and Buffalo/Niagara/Attica regions" (HAZNY). "Between 20 and 30 faults traverse the Rochester area, but they seldom move. The Clarendon-Linden fault is one of the most significant in Western New York, running north-south from the Pennsylvania border through Allegany, Wyoming, Genesee and Orleans counties to Ontario, Canada" (Democrat & Chronicle, 9-26-98). "The possibility of a Richter magnitude 6 or greater earthquake exists. Large 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).

"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.

1 SEMO. HAZNY 2004
2 National Weather Service, Storm Data Report, May 28, 2003
3 Monroe County Hazard Analysis, 11.9.09

"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 on 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. Monroe County's value is 0.15g.

"There are two other popular earthquake measuring methods, the Richter Scale and the Modified Mercalli Scale. The Modified Mercalli Scale shows the intensity of the resulting damage that an earthquake causes. The Peak Ground Acceleration approach depicts the ground motion that the earthquake produces. The Richter Scale measures the magnitude of the earthquake which is the actual energy released by an earthquake. Richter measures magnitude only at the epicenter of the earthquake, thus there is only one measurement for a particular seismic event. Both Mercalli and Ground Acceleration can be measured at varying distances from the epicenter and these measurements will differ depending on the distance" (HAZNY, 1999).

The extent of the Earthquake's hazard would be determined by the population and the numbers of structures affected and by the incident's design characteristics and its integrity. These areas have been determined to be most susceptible:

- Structures, especially residences of less sustainable construction (i.e. mobile homes).
- Dams, levees, and other structures that restrict water flow. With respect to the US Army Corps of Engineers, Mt. Morris Dam:

  > *The Clarendon-Linden Fault is approximately 15 miles west of the Mt. Morris Dam. This Fault is actually a series of steeply dipping reverse and normal faults which can be traced from north of the New York-Pennsylvania border, to beneath Lake Ontario. Total relative vertical displacement in Paleozoic rocks across the fault system is approximately 300 feet. Western New York in the vicinity of Mt. Morris Dam has experienced a moderate level of local seismic activity. Past and present seismicity of the region, is not restricted to this fault system alone* (US Army Corps of Engineers, "Genesee River Flood Emergency Exercise," February 5-6, 1992).

- Trees, utility poles, and lines.
- Roads, bridges, and elevated structures.

The County Office of Emergency Management has access to seismographs and records at the University of Rochester, Ginna Station, and the Mt. Morris Dam:

- The Uof R seismograph sensor is buried beneath the basement in Hutchison Hall (Democrat & Chronicle, 6.24.10).
- Ginna Station has a seismic register that detects 0.01 magnitude and greater (Democrat & Chronicle, 6.24.10 and telephone interview with Tony Hedges, Ginna Employee, 6.24.10).
- Mt. Morris Dam has 3 seismic registers inside the dam that are sensitive to 2.0 magnitude and greater (telephone interview with Jim Butler, 6.24.10).

Previous occurrences of the hazard:

Monroe County has not been the epicenter of an earthquake in the recent past; however, the County has experienced tremors resulting from minor to moderate earthquakes elsewhere in New York State, and Canada:

- 1732. "Scott Giorgis, an assistant professor of geology at SUNY Geneseo, said that scientists believe that an earthquake of about 5.0 magnitude caused significant damage in the Montreal area" (Democrat & Chronicle, 6.24.10).

- October 23, 1857. Darian, in Genesee County. This quake was measured as a "VI" on the Modified Mercalli Scale: "Felt by all; many frightened and run outdoors. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight" (HAZNY, 1999).

- August 12, 1929. Attica, in Wyoming County. This quake measured 5.2 on the Richter Scale, and "VII" on the Modified Mercalli Scale: "Everybody runs outdoors. Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticeable when driving car" (HAZNY,1999).

- 1935. "An earthquake along the Northern New York-Western Quebec Seismic Zone, was a 6.1 magnitude" (Democrat & Chronicle, 6.24.10).

- 1944..."New York's largest earthquake occurred. Its epicenter was near Massena, St. Lawrence County. That quake, magnitude 5.8 on the Richter scale, was felt from Canada to Maryland and from Indiana to Maine. It did $2 million in damage in Massena and Cornwall, Canada" (Democrat & Chronicle, 11.3.05).

- January 1, 1966. Attica, in Wyoming County. This quake measured 4.7 on the Richter Scale, and "VI" on the Modified Mercalli Scale (see 10-23-1857 event for definition). "...Damaged the smokestack at the Attica Correctional Facility in Wyoming County" (Democrat & Chronicle, 11.3.05).

- June 13, 1967. Attica, in Wyoming County. This quake measured 4.4 on the Richter Scale and "VI" on the Modified Mercalli Scale (see 10-23-1857 event for definition).

- October 7, 1983. A quake in the Adirondacks, Blue Mountain Lake area, measured 5.2 on the Richter Scale (Democrat & Chronicle, 9-26-98, 6.24.10). People here remember it by description as a "III" on the Modified Mercalli Scale: "Felt quite noticeably indoors, especially on upper floors of buildings, but many people do not recognize it as an earthquake. Standing automobiles may rock slightly. Vibration like passing of truck. Duration estimated" (HAZNY). This quake prompted RG&E to declare an "Unusual Event" Classification at Ginna Station (Peter Polfleit letter, 8-11-03). "At the time, this was the third-largest earthquake ever recorded in the state" (Democrat & Chronicle, 6.24.10).

- November 25, 1988. Epicenter was 95 miles west of Quebec City, in Canada. Measure was 6.0 on the Richter Scale (County Office of Emergency Management file).

- October, 1990. Epicenter was 120 miles northwest of Montreal, Canada. It measured 4.7 on the Richter Scale (Democrat & Chronicle, 9-26-98).

- June, 1991. "Irondequoit and Greece residents felt the effects of a 3.9 magnitude earthquake centered in Schoharie County, 40 miles west of Albany" (Democrat & Chronicle, 6.24.10).

- September 25, 1998. Epicenter was 15 miles north of Sharon, PA. According to USGS in Golden, CO it measured 5.2 on the Richter Scale. According to readings from the seismograph at the Mt. Morris Dam, and information obtained by the U.S. Army Corps of Engineers, the longitudinal direction ground acceleration was .015g, with an intensity between 4 and 5. This intensity translates as: felt inside by many, outside by a few; no broken dishes (Gene Lenhardt, U.S. Army Corps of Engineers, telephone interview, 1-6-99). The County 911 Center reported damage at two residences, one with ceiling damage and one with front porch damage (County Office of Emergency Management Response File).

- January 1, 2000. Epicenter was North Bay, Ontario, Canada. It measured 4.5 on the Richter Scale. Tremors felt in Rochester area (Democrat & Chronicle, 4-2-02).

- April 20, 2002. Epicenter was 15 miles southwest of Plattsburgh in the Town of Black Brook, Clinton County, with a measure of 5.1 on the Richter Scale. The shaking lasted about 30 seconds, and there were two aftershocks reported. More than 300 people called Monroe County's 911 Center within thirty minutes of the quake. No reported injuries or damage in the County (Democrat & Chronicle, 4-21-02). The State EOC was activated (SEMO, "Emergency Management Times," Spring 2002, p. 1).

- October 31, 2005. "The U.S. Geological Survey confirmed...an earthquake in Wayne County...two, in fact. The first of the 'micro-earthquakes' – and the one people felt about 1900 hours – had a magnitude of 2.6. The second was weaker. They rattled the area over the course of about three hours. The first struck 31 seconds before 1900 hours in the Town of Ontario. The second struck at 2138 hours under Lake Ontario, 15 miles northwest of Sodus. The second quake had a magnitude of 1.5, according to the USGS. These were small. In fact, most humans were not able to feel the second, experts say. A

magnitude of 2 is the smallest usually felt by people. Data from the USGS show that the first quake originated 1.7 miles underground. The second was too small to determine a depth. A possible cause for the quakes could be the effects of the glaciers that receded and created the Great Lakes more than 14,000 years ago. Won-Young Kim, a senior research scientist with the Lamont-Doherty Earth Observatory at Columbia University said the ground is still adjusting from the ice ages, and that action might account for seismic activity. There were no problems at Ginna Station, a close-by nuclear power plant in Wayne County." (Democrat & Chronicle, 11.3.05). "The quakes were so minor they didn't even register on the plant's seismic equipment, officials said recently" (Democrat & Chronicle, 12.24.05).

- March 8, 2008. At 0648:44 hours, location 43.03N 78.57W, at a depth of 6 kilometers. The USGS pinpoints the epicenter 10 miles NNE of Lancaster, NY with a 2.7 magnitude. The USGS website reported 25 reports, mostly in the Buffalo, NY/Erie County area (NWS, Judy Levan, e-mail, 3.19.08).

- June 5, 2009. "A minor earthquake in Attica, Wyoming County, apparently didn't cause any damage. USGS confirmed that the village experienced a magnitude 2.9 quake at 1107 hours. The epicenter was 3 miles SSE of Attica and 5 miles south of Alexander, Genesee County" (Democrat & Chronicle, 6.6.09).

- June 23, 2010, 1341 hours. The USGS reported a 5.0 magnitude earthquake along the Northern New York-Western Quebec Seismic Zone, at a depth of 11.9 miles (16 kilometers). The epicenter was Val-des-Bois, Quebec a town about 38 miles north of Ottawa, Ontario Canada. Local tremors were felt for 10 -20 seconds, with "smaller waves that lasted for more than 10 minutes," according to the Uof R seismograph. Our 911 Center received more than 150 calls within an hour of the quake. There were no reports of structural damage or personal injuries. There were no reports of damage to Critical Infrastructure...Monroe County Water Authority, City of Rochester Water, RG&E, Ginna Station, Frontier Communications, County Public Safety Communications, 14/17 regional hospitals reported no damage to a survey. Several high rise business buildings evacuated as a precautionary measure and proceeded with damage assessments. The news media immediately responded with information to the public and carried interviews with local officials to advise people about the nature of the earthquake and to assure them that its local impact was negligible. County Officials shared information with local governments, emergency service jurisdictions and public safety agency partners. People from Wisconsin to the East Coast reported feeling the tremors (OEM File, NWS "Earthquake Report, 6.23.10, Democrat & Chronicle, 6.24.10).

Probability of future occurrences and potential magnitude:

This hazard is considered a "Rare Event" by HAZNY definition meaning that it occurs less than once every 50 years (inclusive) (SEMO, HAZNY 2004).

"While New York State is located in a moderately hazards earthquake zone (according to the USGS), a FEMA 2006 study ranks New York State as having the fourth highest risk behind California, Oregon and Washington primarily because of extensive older unreinforced masonry

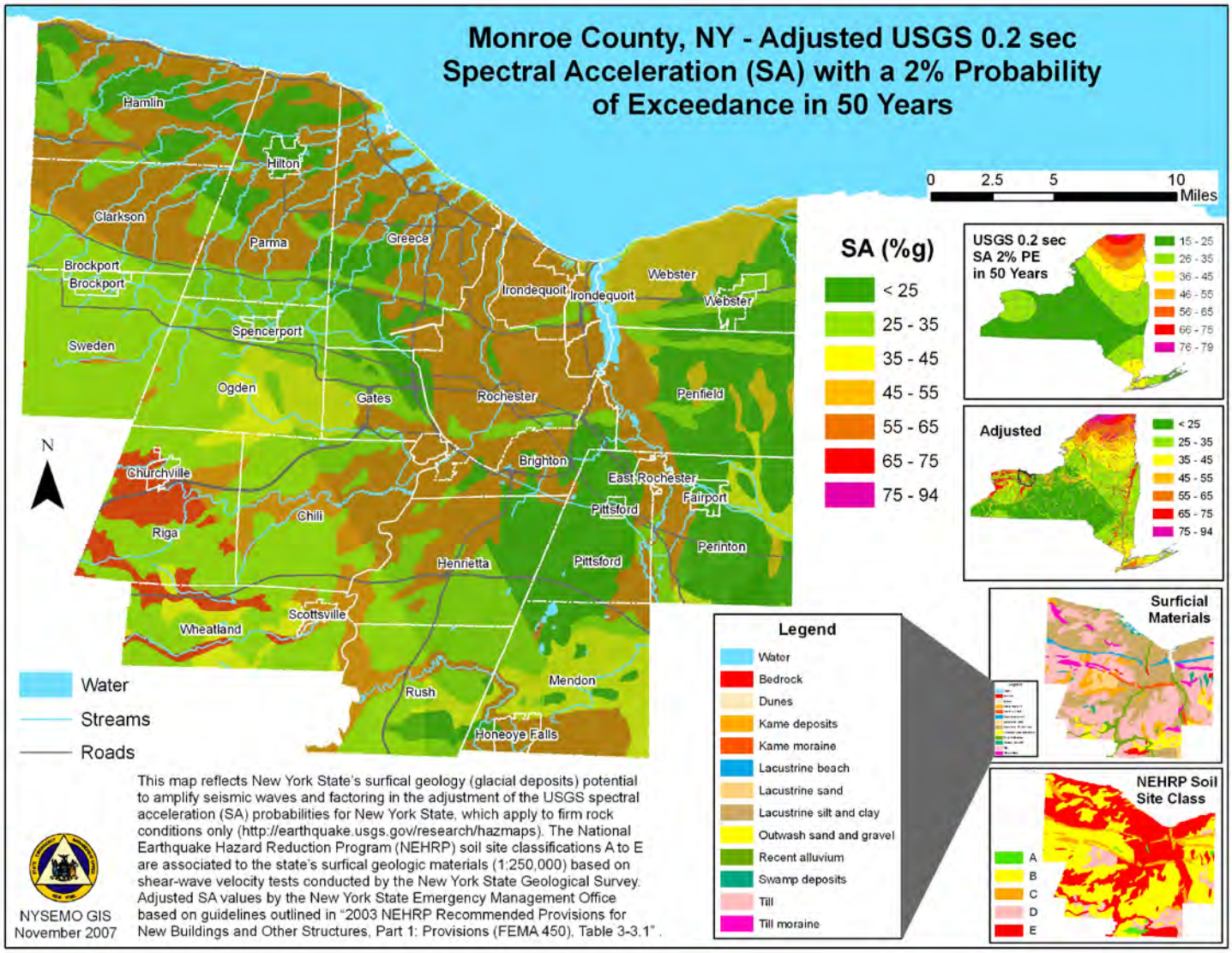
structures that are particularly vulnerable to earthquakes" (SEMO "Emergency Management Times," Volume 10, Issue 6, 6.25.10).

The probability of future occurrences is likely, but predominantly from occurrences outside Monroe County. The magnitude of an event will be determined by its duration, intensity, location, and the structures affected. We would likely have no warning. The duration of the hazard would be less than one day, and the majority of community recovery would likely be less than one day.

William Kelly, State Geologist with NYS Geological Survey, and Daniel O'Brien, SEMO Earthquake Program Manager, prepared a "Special Report: Berne Earthquakes Highlight Prediction Uncertainty," to discuss earthquake activity in the Town of Berne (Albany County), which experienced "an unusual concentration and frequency of minor earthquakes." They define, "...Minor earthquakes with magnitudes less than 3.0 as a common occurrence. They occur in New York State, on average, about once a week. Recorded by seismic stations, they often go unfelt or only by citizens in the immediate vicinity of the epicenter.

"The importance for emergency managers to be prepared for a damaging earthquake...is highlighted by the general unpreparedness of the public. Case in point: a February 2010 New York State Insurance Department news release claims that earthquake insurance 'accounted for only $15 million of the total $3.9 billion in premiums written by property and casualty homeowner insures in New York State in 2007.' Standard homeowner policies do not cover damage due to earthquakes. To this end, a preliminary loss estimate was performed by SEMO using FEMA's HAZUS-HM for a scenario magnitude 6.0 earthquake with a 10 kilometer depth in the Town of Berne. (Moderate earthquakes are less frequent, but damaging events including: low probability of building collapse for typical structures but significant damage to poorly maintained masonry walls, chimneys, foundations, plaster, as well as compounding problems such as gas and water line leaks and falling objects. Damages can easily be into the tens of thousands of dollars for typical residential structures.) Initial results of this analysis include a projection that 8% of the residential structures in Albany County would suffer at least moderate damage – typically large plaster cracks at door and window corners, large foundation cracks, and toppling of tall masonry chimneys. Approximately 1,200 residences would be extensively damaged and over 250 completely destroyed. Casualty estimates are for 25 fatalities, depending on the time of day, and approximately 500 needing basic first aid. The direct economic loss to buildings throughout the region could exceed $2.6 billion" ("Emergency Management Times," Volume 10, Issue 3, March 2010).

Maps of hazard areas:

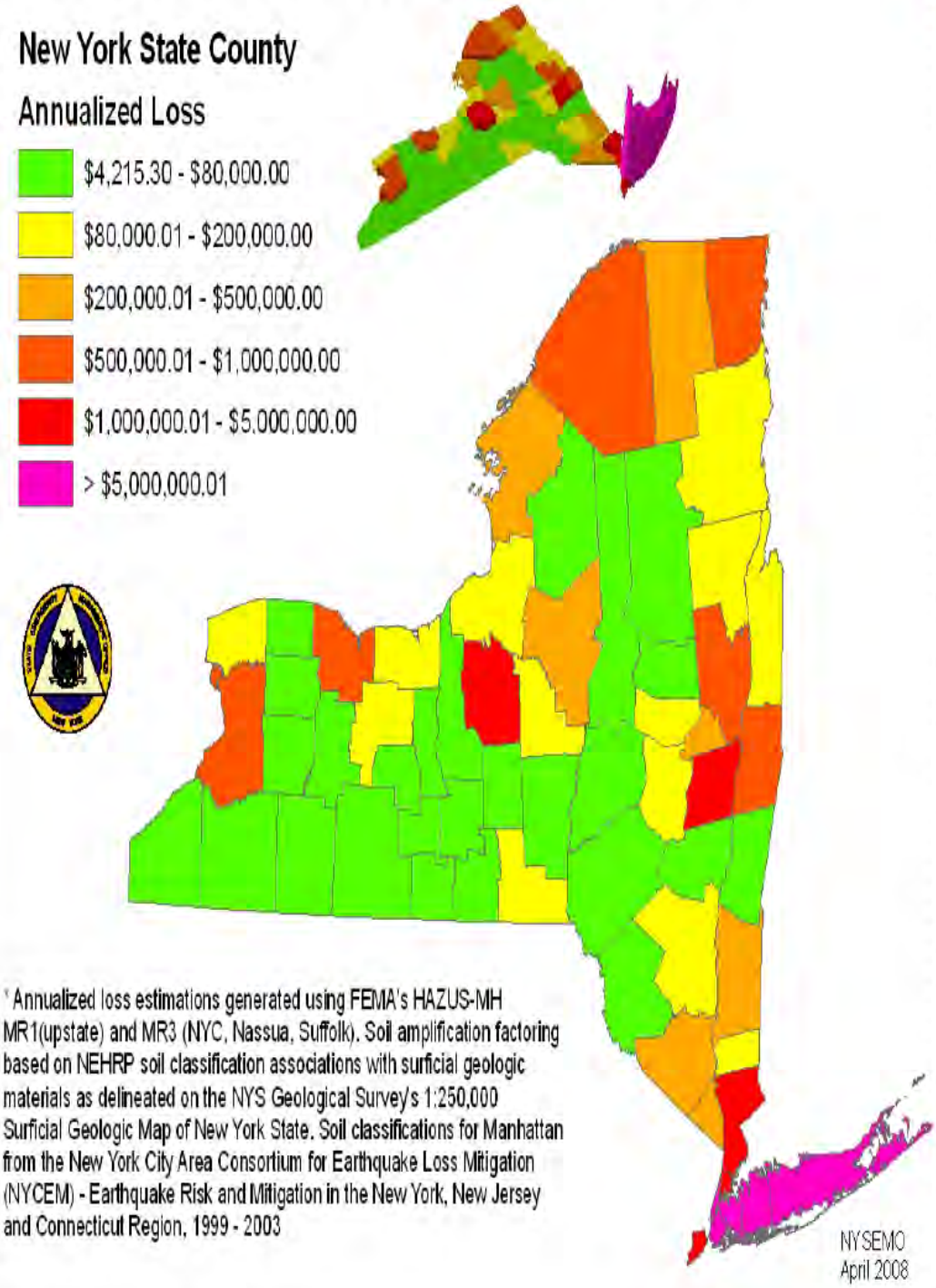


Map #11, Geological Faults

U.S. Geological Service maps faults and other features that contribute to our vulnerability from an Earthquake. The map identifies the layers of aquifers, bedrock geology and surface geology. Seismographs are located in our area at the University of Rochester, Ginna Station, and the Mt. Morris Dam.

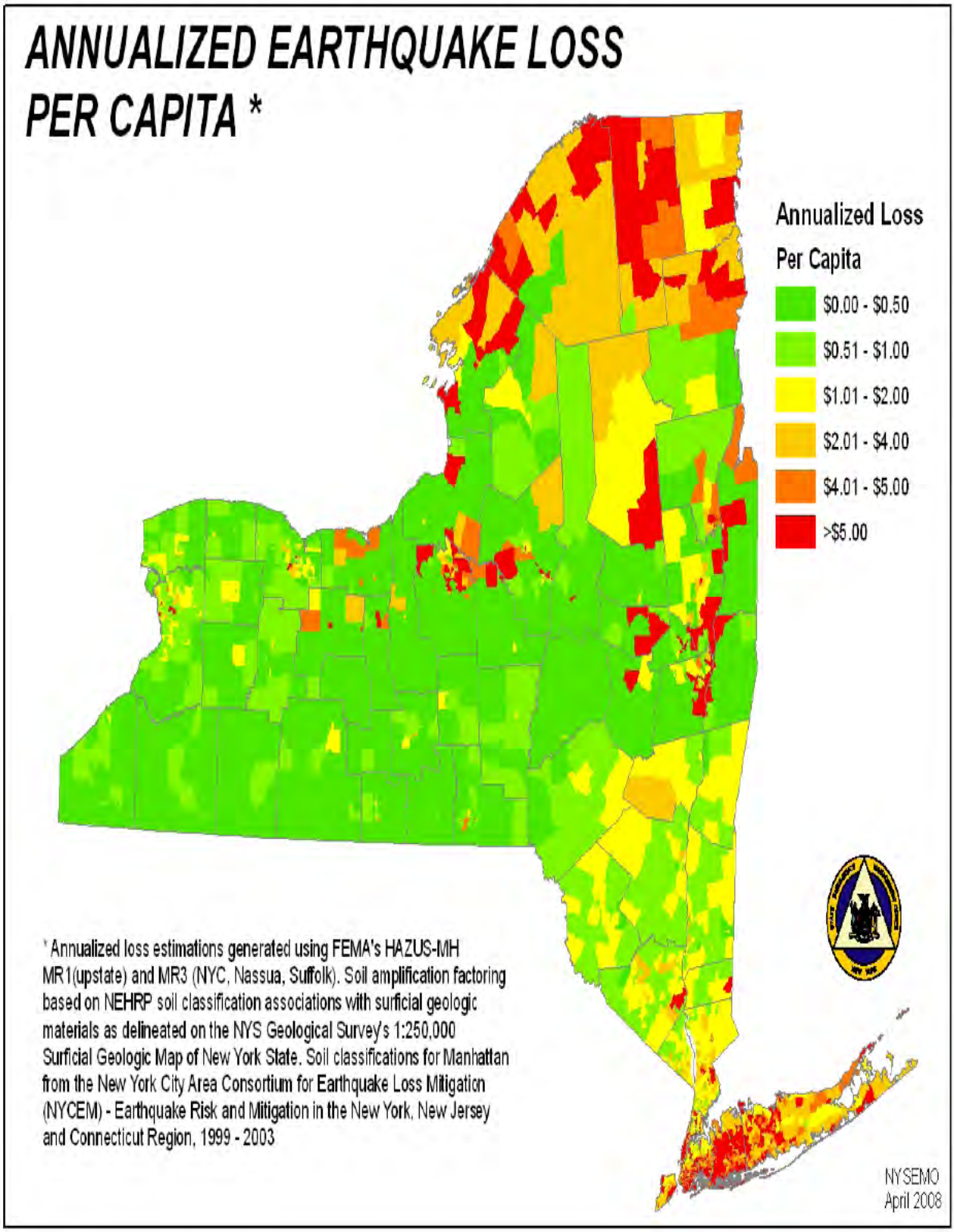
The following maps are copied from the *2008 New York State Standard Multi-Hazard Mitigation Plan*, pages 3-352, 3-353 and 3-354 respectively. It is a graphic catalog of "Annualized Earthquake Loss" across New York State. The sources are referenced on the individual map frames.

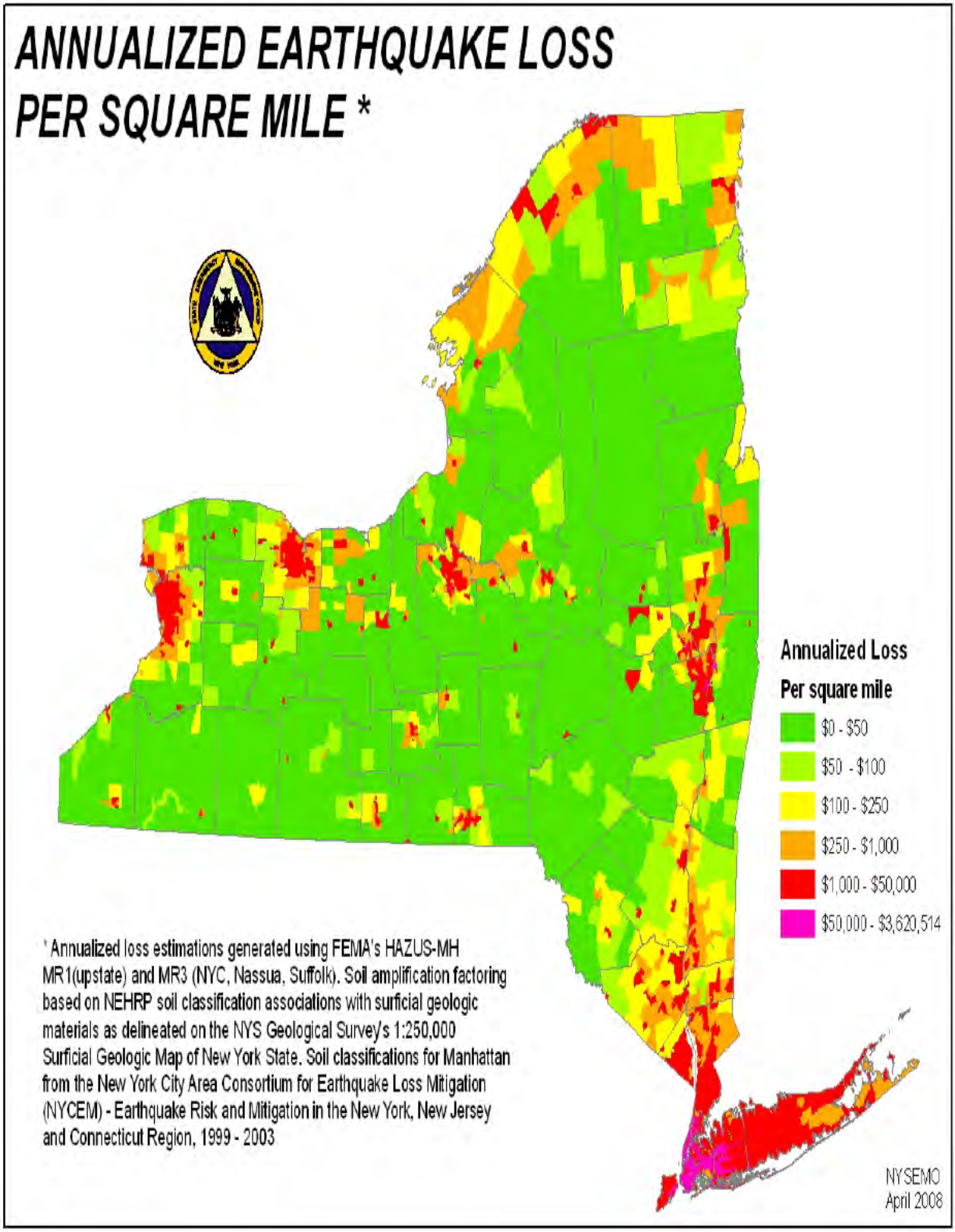
ANNUALIZED EARTHQUAKE LOSS *



* Annualized loss estimations generated using FEMA's HAZUS-MH MR1(upstate) and MR3 (NYC, Nassua, Suffolk). Soil amplification factoring based on NEHRP soil classification associations with surficial geologic materials as delineated on the NYS Geological Survey's 1:250,000 Surficial Geologic Map of New York State. Soil classifications for Manhattan from the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) - Earthquake Risk and Mitigation in the New York, New Jersey and Connecticut Region, 1999 - 2003

COUNTY	ANNUALIZED LOSS
Albany	$1,375,352
Allegany	$22,374
Bronx	$2,529,228
Broome	$130,155
Cattaraugus	$39,356
Cayuga	$24,353
Chautauqua	$59,858
Chemung	$48,508
Chenango	$33,935
Clinton	$606,224
Columbia	$62,441
Cortland	$30,374
Delaware	$38,022
Dutchess	$296,089
Erie	$872,128
Essex	$122,238
Franklin	$339,417
Fulton	$40,507
Genesee	$50,753
Greene	$53,255
Hamilton	$14,316
Herkimer	$72,720
Jefferson	$382,453
Kings	$10,422,919
Lewis	$24,853
Livingston	$39,228
Madison	$159,977
Monroe	$573,257
Montgomery	$134,058
Nassau	$8,420,076
New York	$12,208,219
Niagara	$170,573
Oneida	$327,226
Onondaga	$1,248,851
Ontario	$158,019
Orange	$427,984
Orleans	$28,856
Oswego	$134,570
Otsego	$17,429
Putnam	$118,373
Queens	$8,755,028
Rensselaer	$818,101
Richmond	$1,406,849
Rockland	$401,306
Saratoga	$667,095
Schenectady	$414,914
Schoharie	$80,146
Schuyler	$7,452
Seneca	$39,556
St Lawrence	$869,129
Steuben	$45,836
Suffolk	$5,911,137
Sullivan	$72,851
Tioga	$19,836
Tompkins	$56,275
Ulster	$178,400
Warren	$199,447
Washington	$198,500
Wayne	$123,051
Westchester	$1,498,558
Wyoming	$26,076
Yates	$4,215
STATE TOTAL	$61,638,517


ANNUALIZED EARTHQUAKE LOSS
PER CAPITA *
Annualized Loss
Per Capita
$0.00 - $0.50
$0.51 - $1.00
$1.01 - $2.00
$2.01 - $4.00
$4.01 - $5.00
>$5.00
* Annualized loss estimations generated using FEMA's HAZUS-MH MR1(upstate) and MR3 (NYC, Nassua, Suffolk). Soil amplification factoring based on NEHRP soil classification associations with surficial geologic materials as delineated on the NYS Geological Survey's 1:250,000 Surficial Geologic Map of New York State. Soil classifications for Manhattan from the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) - Earthquake Risk and Mitigation in the New York, New Jersey and Connecticut Region, 1999 - 2003
NYSEMO
April 2008


ANNUALIZED EARTHQUAKE LOSS
PER SQUARE MILE *
Annualized Loss
Per square mile
$0 - $50
$50 - $100
$100 - $250
$250 - $1,000
$1,000 - $50,000
$50,000 - $3,620,514
* Annualized loss estimations generated using FEMA's HAZUS-MH MR1(upstate) and MR3 (NYC, Nassua, Suffolk). Soil amplification factoring based on NEHRP soil classification associations with surficial geologic materials as delineated on the NYS Geological Survey's 1:250,000 Surficial Geologic Map of New York State. Soil classifications for Manhattan from the New York City Area Consortium for Earthquake Loss Mitigation (NYCEM) - Earthquake Risk and Mitigation in the New York, New Jersey and Connecticut Region, 1999 - 2003
NYSEMO
April 2008

Analysis of the impact on business, infrastructure & critical facilities:

No warning is expected before an earthquake strikes. This event may cause:

- Serious injury or death ". . . Is unlikely for .16g quakes or less; is likely but not in large numbers for .17g to .27 g quakes; is likely in large numbers for .28g to .59g quakes; and, is likely in extremely large numbers for .6g or greater quakes" (HAZNY, 1999).

- Damage to private property: "Little or no damage for .16g or less; moderate damage for 0.17g to 0.27g; and, severe damage for .28g and greater" (HAZNY, 1999).

- Damage to roads and public facilities: "Little or no structural damage for .16g or less; moderate structural damage for 0.17g to .27g; and, severe structural damage for .28g and greater" (HAZNY, 1999).

- Cascade events such as utility failure, flooding, explosions, and fire: "An event of .45g or greater would likely trigger secondary hazards including fires, power outages, water supply failures, dam failures, and hazardous chemical releases. An event of between .17g and .44g has some potential for such cascade. For an event of .16g or less such cascade would be highly unlikely" (HAZNY, 1999).

- Emergency response may be complicated due to obstructions, damage to emergency vehicles, disruption of communications systems. The duration of an earthquake is expected to be "less than one day for .27g or less; one day for .28g to .44g due to the trigger of other hazards; two to three days for .45g to .59g due to the trigger of other hazards; and four days to one week for .60g or greater due to the trigger of other hazards and significant aftershocks" (HAZNY, 1999). Recovery from an earthquake can be expected to take "less than one day for 0.05g or less; one to two days for 0.06 to 0.16g; three days to one week for 0.17g to 0.27g; one week to two weeks for 0.28g to 0.44g; and more than two weeks for 0.45g or greater" (HAZNY, 1999). This event could require Technical Rescue specialty components including: Structural Collapse, Trench Rescue, Water Rescue Rope Rescue and Confined Space Rescue.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc:

Specific information is shared throughout this section. Given the magnitude of local experience, we would expect injuries and/or fatalities to be in small numbers.

Notes on data limitations: Time and record access

Appendix B-26

Hazard Specific Analysis: Fuel Shortage

Definition:

"A situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments is interrupted." [1]

Description:

An energy crisis can be caused by a natural weather event resulting in disruption of delivery and service as well as overtaxing energy sources due to increased sustained use. This hazard is not considered severe and is rated 158,[2] a Low hazard.

Overview of specific hazard locations and the extent of the hazard:

Specific locations and extent would be determined by event factors, but may be widespread.

Previous occurrences of the hazard:

"When Lyndon Johnson was president in the 1960s, comics used to joke that he was such a penny pincher that he'd walk around the White House at night turning off light switches. And that was before the energy crisis of the 1970s. More Americans like Johnson are needed for the sake of this nation's future as energy users. We use too much. The day after the blackout, more Rochester-area residents than usual seemed sensitive to pleas to conserve. Some downtown offices turned off lighting deemed nonessential. In homes throughout the region, many appliances remained unplugged, though power had been regained. This kind of mindset, once common during the energy-crunched '70s, needs to take hold again" (Democrat & Chronicle, 8-17-03).

There was a petroleum products Energy Crisis in the late 1970's – early 1980's that spiked prices, created long lines at "the pump," and fueled energy conservation campaigns. Consumers and the industries that manufacture petroleum-burning products were advised to limit consumption and to produce products that are more fuel-efficient. During this timeframe, Emergency Management offices were advised to appoint someone on staff as the "Energy Coordinator" to serve as liaison with the NYS Emergency Management Office (SEMO) in matters with the U.S. Department of Energy and their state counterpart.

Monroe County's "Energy Coordinator" was requested to assess the local threat associated with a statewide propane shortage (December 21-22, 1989) and to coordinate any local response activities through SEMO.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). The probability of future occurrence is low.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

The potential exists for severe impact on business because of an inability to conduct business as normal resulting in loss of revenue.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

unavailable

Notes on data limitations: Time and record access.

Appendix B-27

Hazard Specific Analysis: Blight

Definition:

"Disease of agricultural crops or non-agricultural plants resulting in withering, lack of growth, and death of its parts without rotting."[1] A second definition is offered for economic blight as defined by federal poverty data. This condition is labeled, "Urban Blight."

Description:

Agricultural Blight is rare in Monroe County. It is considered a Low hazard with a rating of 152.[2]

Overview of specific hazard locations and the extent of the hazard:

Specific hazard locations for Agricultural Blight are difficult to predict, but likely to include agricultural areas of the County. The extent of hazard would be determined by the disease and other factors involved with location and specific plants.

Previous occurrences of the hazard:

No agricultural events identified in recent past

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). Agricultural Blight is always a probability, with the potential magnitude determined by the specific location and other factors involved with the "event."

Maps of hazard areas:

Map #10, Woodlots

The NYS Department of Environmental Conservation "Woodlots" within Monroe County are mapped and identified here because they are vulnerable to Windstorms. They are also at risk during Ice Storms, however the predominance is high winds, so we chose to catalog the Woodlot map with this hazard.

This map is useful in assisting responders in estimating the volume of debris from storms, the associated clean-up time, and the cost of clearance and disposal. When this map is overlaid with the Waterways Map (Map #2), it is a useful tool in calculating stream debris and its associated clearance costs.

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Map #14, Agricultural Districts

A Monroe County Agricultural District map features district boundaries. Infestation and/or Agricultural Blight would most likely occur in these areas.

Map #15, Urban Areas

Data from the 2000 Census includes population, income, ethnicity, and employment statistics. This information is helpful in identifying those areas of the County that may be vulnerable to Urban Blight.

Analysis of the impact on business, infrastructure & critical facilities:

Not available for agriculture.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

Not available for agriculture.

Notes on data limitations: Time and records access.

Appendix B-28

Hazard Specific Analysis: Food Shortage

Definition:

"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."[1]

Description:

An event of this type is unlikely to occur in Monroe County. This hazard has a Low hazard rating of 152.[2] A rare event might be the result of extreme weather conditions that contribute to the depletion of foodstuffs because people stockpile specific items that strips the local inventory.

Overview of specific hazard locations and the extent of the hazard:

Retail and/or wholesale food stores are affected. Local experience is from extreme weather conditions that cascade into short-term absences of staples from the grocery shelves. Like other areas of the country, we also bear the consequences of higher prices when supplies cannot meet demand.

Previous occurrences of the hazard:

- Blizzard '99. Milk, batteries, bread and other food staples were not replenished as the NYS Thruway was closed for several days impeding the delivery of local inventory.

- Price Spikes. These occur as product demand exceeds supply. Typical "mark-ups" are on coffee, produce, and meats.

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). The potential magnitude would be determined by the specific location and other factors involved with the event.

Maps of hazard areas:

Map is not required due to widespread geographic potential.

Analysis of the impact on business, infrastructure & critical facilities:

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Businesses pass-along the mark-ups, especially wholesale houses to retailers and retailers to customers. Restaurants are more likely to absorb a short-term price spike.

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

Other than price increases in the groceries, we have not suffered adverse impact.

Notes on data limitations: Time and record access.

Appendix B-29

Hazard Specific Analysis: Infestation

Definition:

"Excessive population of insects, rodents or other animals requiring control measures due to their potential to carry diseases, destroy crops, or harm the environment."[1]

Description:

Infestation of any kind can cause significant health problems in addition to overall inconvenience and localized damage dependent on the situation. Agricultural guidelines and restrictions as well as health codes in restaurants, sanitation requirements and measures all help to control this hazard making this a Low priority hazard with a rating of 152.[2]

Overview of specific hazard locations and the extent of the hazard:

Specific hazard locations and extent of hazard are not easily defined because of the wide range of possibilities, but it must be realized that any infestation can cause significant problems within any locale.

Previous occurrences of the hazard:

- "Web worms" have been a problem in the recent past causing severe damage to trees in and around Monroe County. If left unchecked this particular insect could completely destroy large areas of trees over time.

- Dutch Elm Disease destroyed a multi-state region of elms in the 1950's – 1960's.

- "Emerald Ash Borers, an invasive insect from Asia, were first found in North America in 2002 and have been blamed for killing tens of millions of ash trees as they spread through 15 states and two Canadian provinces. The tiny green beetles were first seen in New York last year, and devastation among the state's 900 million green, white, blue and black ash trees is deemed inevitable. Heedless transport of firewood or other ash products is blamed for the three borer infestations found so far in New York, including Monroe County. The extent of this infestation is still being assessed (Democrat & Chronicle, 9.6.10).

Probability of future occurrences and potential magnitude:

This hazard is considered an "Infrequent Event" by HAZNY definition meaning that it occurs between once every 8 years and once every 50 years (inclusive) (SEMO, HAZNY 2004). The potential magnitude would be determined by the specific target of infestation and other factors involved with the "event".

1 SEMO. HAZNY 2004
2 Monroe County Hazard Analysis, 11.9.09

Maps of hazard areas:

Map of this hazard is not required due to widespread geographic potential. However, three related maps are attached:

Map #10, Woodlots

This map offers a perspective on the magnitude of forested acreage in Monroe County and the potential for deforestation precipitated by an Infestation of the Emerald Ash Borer.

Map #13, Waste Water System in Monroe County

The Monroe County Public Health Department, and the Department of Environmental Services have a program to bait and destroy rodents.

Map #14, Agricultural Districts

A Monroe County Agricultural District map features district boundaries. Infestation and/or Agricultural Blight would most likely occur in these areas.

Analysis of the impact on business, infrastructure & critical facilities:

"Animal or plant pests or diseases threaten the agricultural production of the United States. There is an increasing frequency of new pest and disease incursions. Infestations can have a national impact, as well as affect State and local governments, industry, and producers" (Federal Register, Volume 68, Number 130, p. 40541).

Specific information concerning estimated value ($) of potential loss, damage to structures, casualties, etc.

No specific data found

Notes on data limitations: Time and records access.

APPENDIX C

Hazard-Specific Action Plans

Appendix C-1

HAZARD B-1, Ice Storm

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for an Ice Storm:

A. **Prevention.**

Measure: (describe measure)	**#1. Implement an "Annual, Tree/Stream Maintenance Program"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budget, private-sector funds, categorical grant, Mitigation Grant**				
Lead Agency	**local municipal officials and/or private-sector (as recommended in 4-24-01 transmittal of NYSDEC/Army Corps of Engineers, "Routine Stream Maintenance" brochure by County OEM)**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Relocate vulnerable utilities. This may pertain to existing and/or new infrastructure.**			
Priority Rank (pick one and delete others)	High, **Medium** or Low			
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**municipal utility funds, private-sector funds, categorical grants, Mitigation Grants**			
Lead Agency	**municipal officials and/or private-sector**			
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	**within 5 years**	continuous

Measure: (describe measure)	**#2 - A. <u>Fairport Electric Project</u>. Relocate vulnerable utilities**				
Priority Rank (pick one and delete others)	**High**				
Cost Estimate (pick one and delete others)					**over $20,000**

Source of Funds	**HMG (DR-1857 and DR-1869) Application for Manor Hill/Winding Brook to relocate to underground existing overhead electric over 8900LF serving 100 families; cost $1.1 million (local funds and Mitigation Grant)**			
Lead Agency	**municipal officials and/or private-sector**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous

Measure: (describe measure)	**#2 - B. <u>Fairport Electric Project</u>. Relocate vulnerable utilities**				
Priority Rank (pick one and delete others)	**High**				
Cost Estimate (pick one and delete others)					**over $20,000**
Source of Funds	**HMG (DR-1857 and DR-1869) Application for Whitney Farms East to relocate to underground existing overhead electric over 10,900LF serving 132 families; cost $1.4 million (local funds and Mitigation Grant)**				
Lead Agency	**municipal officials and/or private-sector**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

Measure: (describe measure)	**#3. Develop DPW/DOT Plans for debris clearance, removal, and disposal**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**Within 1-3 years**	within 5 years	**Continuous where program already exists**	

Measure: (describe measure)	**#4. Lobby state and federal officials to require permanent installation of emergency generators on-site at health care facilities and elderly housing facilities. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants, and private sector**				
Lead Agency	**municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

B. **Property Protection.**

Measure: (describe measure)	**#1. Encourage installation of backup power supply. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Develop pre-scripted, Public Safety messages for media outlets**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget**				
Lead Agency	**County Public Information Officer**				

Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous

Measure: (describe measure)	**#2. Develop alternate communications plan**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget, categorical grant, Mitigation Grant**				
Lead Agency	**local municipal officials, OEM**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

Measure: (describe measure)	**#3. Provide automated utility restoration schedule to the public**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**municipal utility and/or private-sector utility, Mitigation Grant, categorical grant**				
Lead Agency	**municipal utility and/or private-sector utility**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

Measure: (describe measure)	**#4. Provide more public outreach during an emergency**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget, Mitigation Grant, private-sector funds**				
Lead Agency	**Public Information Officers with government and private utilities**				

Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous

Measure: (describe measure)	**#5. Expand utility Customer Service capacity**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**municipal utility funds, private-sector utility funds, categorical grants, Mitigation Grants**				
Lead Agency	**municipal and/or private utilities**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

Measure: (describe measure)	**#6. Expand information available on websites**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funding, categorical grants, Mitigation Grants**				
Lead Agency	**Web Masters**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. <u>Churchville Project</u>. Replace trees (forestation) in Village of Churchville that were destroyed by various storm events.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	Over $20,000
Source of Funds	**Municipal funds, Federal Tree Program**				

Lead Agency	**Village**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Develop a strategy to reduce the time it takes to clear streets (Rights-of-Way) of debris**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal operating budgets, Mitigation Grants**				
Lead Agency	**Highway Superintendents**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#2. Regularly review restoration priorities**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#3. Enhance utility "Town Liaison" Program**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000

Source of Funds	**private-sector funds, Mitigation Grants, local municipal operating budget**			
Lead Agency	**local municipal officials**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**

Measure: (describe measure)	**#4. Identify and implement a plan for appropriate modes of public transportation**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**County Office For the Aging**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#5. Develop list of signalized intersections to assess traffic control measures if signals are dark for more than 24 hours & lobby for funding (if necessary)**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County and NYSDOT budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials, NYSDOT**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

F. **Structural Projects.**

Measure: (describe measure)	**#1. Install permanent backup power supply at public facilities. This may pertain to existing and/or new infrastructure.**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

Measure: (describe measure)	**#2. Procure additional communication capacity**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Public Safety Communications Division**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

Appendix C-2

HAZARD B-2, Flood

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Flood:

A. **Prevention.**

Measure: (describe measure)	**#1. Implement an annual, "Waterway/Drainage Maintenance" Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials, County Storm Water Coalition**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#2. <u>County Project</u>. Prioritize and clean County Highway culverts (approximately 2,200) to ensure maximum flow capacity and minimize surcharge flooding.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000 per culvert**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County DOT annual operating budget, Mitigation Grants**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#3. <u>County Project</u>. Rejuvenate and continue leadership and partnering with other south shore counties on the "Lake Ontario South Shore County Collaborative on Lake Level."**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget**				
Lead Agency	**County Administration**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#4. <u>County Project</u>. Use U.S. Army Corps of Engineers (HEC-RAS) inundation model, enhance it with LIDAR-derived digital elevation data and place the predicted floodplain animation to a web-based application for use by officials and during emergencies at the County EOC.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$100,000+**
Source of Funds	**County operating budget**				
Lead Agency	**County DES**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#5. <u>Local Project</u>. Implement an annual de-silting program in the Town of Henrietta, to increase the storage capacity for storm water detention and retention ponds. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Over $20,000**
Source of Funds	**local municipal capital budget, Mitigation Grants**				

Lead Agency	**Town Public Works Department**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**

Measure: (describe measure)	**#6. <u>Local Project</u>. Town of Greece drainage study on Fleming and Veness creeks between Latta Road, Windsor Blvd., Denise Road and Dewey Ave. (<u>Democrat & Chronicle</u>, 1.3.10).**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Unknown**
Source of Funds	**local municipal budget**				
Lead Agency	**Town Engineer**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#7. <u>County Project</u>. Up-date the Stormwater Management Model for the Irondequoit Creek Watershed.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**U.S. Geological Survey, Mitigation grants**				
Lead Agency	**Irondequoit Watershed Collaborative**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	**within 5 years**	continuous	

B. **Property Protection.**

Measure: (describe measure)	**#1. Encourage affected property owners to purchase Flood Insurance. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants**				

Lead Agency	**local municipal officials (assistance available through brochures: "Monroe County Flood Loss Reduction Measures;" "Addressing Your Community's Flood Problems: A Guide for Elected Officials," both transmitted by OEM.**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**

Measure: (describe measure)	**#2. Participate in the federal Community Rating System. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants, categorical grants**				
Lead Agency	**local municipal officials; County OEM (as appropriate)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#3. <u>County Project</u>. Continue partnership with the U.S. Army Corps of Engineers to implement their Advanced Measures Program as appropriate.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**federal, state and local operating budgets**				
Lead Agency	**partnership with County OEM**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**as needed**	

Measure: (describe measure)	**#4. <u>Local Project</u>. Town of Gates "Multi-Lot Letter of Map Amendment" for more than 100 homes that were mislabeled as residing in flood zones on FEMA maps (<u>Democrat & Chronicle</u>, 1.22.10).**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$20,000**
Source of Funds	**Local budget**				
Lead Agency	**Town of Gates (with Costich Engineering)**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	as needed	

Measure: (describe measure)	**#5. <u>Local Projects with the U.S. Army Corps of Engineers</u>, "Risk Management Program." Levy inspection, safety analysis and maintenance requirements (SEMO Region V meeting, 7.29.08).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**More than $20,000**
Source of Funds	**Federal, Local budget**				
Lead Agency	**Corps of Engineers, local government**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	as needed	

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Provide information about the Erie Canal and its spillway locations**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**state funds, local municipal annual operating budget, Mitigation Grant**				
Lead Agency	**local officials**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#2. Ensure dam owners have information on state regulations. This may pertain to existing and/or new infrastructure.**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget, state funds**				
Lead Agency	**County OEM with NYSDEC**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#3. <u>Riga Project</u>. Provide maps of flood plain area to residents who could be affected by a dam failure. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Town Budget, mitigation grant**				
Lead Agency	**Town of Riga**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

Measure: (describe measure)	**<u>County Project</u>. Implement Irondequoit Creek Restoration Plan to control erosion and sedimentation in Powder Mills and Ellison Parks.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $750,000**
Source of Funds	**US Army Corps of Engineers, NYSDEC**				
Lead Agency	**US Army Corps of Engineers, County Parks Dept. (local contact)**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

E. **Emergency Services.**

Measure: (describe measure)	**#1. Provide Special Operations and Tactical Rescue training including water rescue training**

Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local jurisdiction annual operating budget, County Fire Bureau**				
Lead Agency	**local jurisdiction officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#2. <u>County Project</u>. Continue to stockpile sandbags for flood emergencies.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget, Mitigation Grant**				
Lead Agency	**County OEM**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#3. <u>County Project</u>. Continue to provide public access to emergency services.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**Mitigation Grants, local operating budget, private-sector funds**				
Lead Agency	**County Public Safety Dept.**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#4. <u>Churchville Project</u>. Enhance Fire Department Personnel Emergency Notification**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**Mitigation Grants, annual operating budget, private-sector funds**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#5. <u>Churchville Project.</u> Provide water rescue training and equipment e.g. Wet Suits and associated equipment.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**Department Annual Operating Budget**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Measure: (describe measure)	**#1. <u>Local Project</u>. Implement mitigation measures for Irondequoit Creek, as identified by the U.S. Army Corps of Engineer's 2003 proposal, and as agreed by local parties. (reference – <u>Democrat & Chronicle</u>, 3-2-03). This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over **$7 M**
Source of Funds	**U.S. Army Corps of Engineers – 65%; state, County, local – 35%**				
Lead Agency	**U.S. Army Corps of Engineers**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

Measure: (describe measure)	**#2. <u>Local Project</u>. Implement municipal mitigation measures identified by USGS modeling, proposed by the Storm Water Coalition and agreed by local parties. This may pertain to existing and/or new infrastructure.**

Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Over $20,000**
Source of Funds	**Municipal operating and Capital budgets, Mitigation Grants, other grant sources**				
Lead Agency	**Storm Water Coalition, local Officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

Measure: (describe measure)	**#3. <u>County Project</u>. Replace 5 bridges: Twin Bridge over Oatka Creek; Moscow Road over Yanty Creek; Klem Road over Mill Creek Tributary; Kirk Road over Round Pond Creek; and, Long Pond Road over Round Pond Creek - where center piers, drop beams, or inadequate flow capacity causes road flooding, upstream flooding or debris catches.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$800,000 – $1 M each bridge**
Source of Funds	**Federal TIP funding**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**based on funding**	

Measure: (describe measure)	**#4. <u>County Project</u>. Automate the swing bridge at the mouth of Irondequoit Bay with Lake Ontario, to decrease the annual opening and closing cycle time, and any shifting required by an emergency.**				
Priority Rank (pick one and delete others)	High, Medium or **Low**				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$10-15M**
Source of Funds	**Mitigation Grant, federal and/or state grants**				
Lead Agency	**County DOT, NYS & adjacent towns**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Based on funding**	

Measure: (describe measure)	**#5. <u>Local Project</u>. Design and build a regional detention facility upstream of the Rolling Meadows and Tallwoods Subdivision in the Town of Parma. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $500,000**
Source of Funds	**Federal and State Funding and Mitigation grants**				
Lead Agency	**Town of Parma**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

Measure: (describe measure)	**#6. <u>Local Project</u>. <u>Town of Parma</u> bridge replacement on Hill Road (Town ROW), over Salmon Creek to raise the bridge approaches from the floodplain, to increase the freeboard elevation, to decrease backwater, and to meet 50-year storm construction standards. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$1.2M**
Source of Funds	**80% federal (TIP), 15% NYS (Marschiselli Grant), 5% local**				
Lead Agency	**Town of Parma**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#7. <u>Local Project</u>. <u>Town of Henrietta</u> replace road culverts to improve flow and reduce flooding potential on Parkmeadow Drive, Tomahawk Trail and Colleen Way. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$525,000**
Source of Funds	**Town Budget**				
Lead Agency	**Town of Henrietta**				

Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous

Appendix C-3

HAZARD B-3, Severe Storm

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for a Severe Storm.

Appendix C-4

HAZARD B-4, Hazardous Materials (Transportation)

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for Hazardous Materials (Transportation).

Appendix C-5

HAZARD B-5, Winter Storm Severe

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Winter Storm Severe:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. NYS Project. Provide annual NYS Dept. of Transportation (NYSDOT) "Snow and Ice Control" Program for local Highway Superintendents and Emergency Service providers.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**NYSDOT; County Highway Superintendents Association; Mitigation Grants**				
Lead Agency	**NYSDOT**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

F. **Structural Projects.**

Appendix C-6

HAZARD B-6, Fire

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Fire:

A. **Prevention.**

Measure: (describe measure)	**#1. Provide investigation and counseling for incidents involving "fire play" through Juvenile Fire Intervention Programs.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local annual operating budget; categorical grants; Mitigation Grants**				
Lead Agency	**County Fire Bureau; City of Rochester Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

B. **Property Protection.**

Measure: (describe measure)	**#1. Encourage residential use of smoke detectors through public education, and "give away" programs. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**fire jurisdiction budgets; private-sector partners; Mitigation Grants**				
Lead Agency	**local fire jurisdictions**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. <u>Local Project</u>. Henrietta Fire District develops and schedules an annual campaign for Fire Prevention using its mobile Fire Safety Trailer and a portable interactive kiosk at schools, community functions, and public facilities.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**Henrietta Fire District annual operating budget, Mitigation Grant**				
Lead Agency	**Henrietta Fire District**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#2. <u>Local Project</u>. Churchville Volunteer Fire Department develops and schedules an annual campaign for Fire Prevention at schools, community functions, and public facilities using its interactive displays.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**Churchville Volunteer Fire Department annual operating budget, Mitigation Grant**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. <u>Local Project</u>. The Henrietta Fire District is developing a Special Operations Unit for Confined Space Rescue, Low and High-Angle Rescue, Water Rescue, and Trench Rescue.**

Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Henrietta Fire District annual operating budget; FEMA Fire Service Grant, Mitigation Grant**				
Lead Agency	**Henrietta Fire District**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	Continuous	

Measure: (describe measure)	**#2. <u>Local Project</u>. Continue to provide Emergency Medical Services to the community. The Churchville Volunteer Fire Department is the first responder agency to all medical emergencies in our community.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Churchville Volunteer Fire Department annual operating budget, Mitigation Grant**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Measure: (describe measure)	**#1. <u>Local Project</u>. Plan, design and develop enhanced, local facilities for on-site specialized emergency training.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Churchville Volunteer Fire Department annual operating budget, Mitigation Grant, Federal, State, Local funds**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

Appendix C-7

HAZARD B-7, Terrorism

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Terrorism:

A. **Prevention.**

Measure: (describe measure)	**#1. Provide intelligence to local authorities about legal surveillance and threat assessment activities.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**federal and state Homeland Security Grants**				
Lead Agency	**locally based federal and state agencies through Local Task Force**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#2. Review emergency plans for public facilities to ensure that appropriate measures are considered and referenced**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**jurisdiction's annual operating budget, categorical grants, federal and state Homeland Security Grants**				
Lead Agency	**each regulated jurisdiction**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#3. <u>Schools Project</u>. Comply with *Project Save* regulations for plan review and revision cycles.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**School District, Mitigation Grants**				
Lead Agency	**School Districts**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

B. **Property Protection.**

Measure: (describe measure)	**#1. Implement a strategy to "target harden" critical and public facilities. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**federal and state Homeland Security Grants; local operating and capital improvement budgets**				
Lead Agency	**local municipalities and constituted government Authorities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Promote community vigilance through accurate and timely media reports, and public education campaigns.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**

Source of Funds	**federal and state Homeland Security Grants, local municipal annual operating budget, categorical grants**			
Lead Agency	**Monroe County Public Safety Dept.**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Obtain personal protective, detection and monitoring, and communications response equipment for Emergency Services providers.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Federal Homeland Security Grant (through NYS WMD Task Force), categorical grants, private-sector funds (especially Health Care)**				
Lead Agency	**Monroe County WMD Task Force (point-of-contact is County Office of Emergency Management)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Measure: (describe measure)	**#2. Provide training to Emergency Services providers on personal protective equipment (PPE) and WMD response.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Federal Homeland Security Grant (through NYS WMD Task Force), categorical grants, private-sector funds (especially Health Care)**				
Lead Agency	**Monroe County WMD Task Force (point-of-contact is County Office of Emergency Management)**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**

F. **Structural Projects.**

Appendix C-8

HAZARD B-8, Utility Failure

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Utility Failure:

A. **Prevention.**

Measure: (describe measure)	**#1. National Public/Private-Sector Partnership Project. Utilize technology to up-grade the national electric grid transmission system. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**private and public; federal incentives**				
Lead Agency	**North America Electric Reliability Council (non-profit, market interface manager)**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

B. **Property Protection.**

Measure: (describe measure)	**#1. Local Utilities Project. Preserve capacity to generate local power and enhance the ability to segregate local supply from the national power grid during major failures, e.g. August 14, 2003. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**private-sector; federal incentives**				
Lead Agency	**Utilities**				

Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. <u>Local Projects</u>. Provide power back-up supply for municipal fueling stations. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local annual operating budgets, Mitigation Grants**				
Lead Agency	**Municipalities**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

F. **Structural Projects.**

Measure: (describe measure)	**#1. <u>County Project</u>. Provide redundant power supply to Pure Waters' Buttonwood Pumping Station and the Northwest Quadrant Waste Water Treatment Plant. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Pure Waters District; Mitigation Grants**				
Lead Agency	**Pure Waters District**				
Timetable (pick one and delete others)	**complete**	within 1-3 years	within 5 years	Continuous	

Appendix C-9

HAZARD B-9, Explosion

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for an Explosion:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. NYS Project. Provide notice of licensing issuance for explosive permits and materials storage to local jurisdictions.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**state funds**				
Lead Agency	**NYS Department of Labor**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-10

HAZARD B-10, Structural Collapse

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Structural Collapse:

A. **Prevention.**

Measure: (describe measure)	**#1. Local Project. Enact Local Laws that require property owners to demolish and remove unsafe structures from their property(ies). This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local annual operating budgets; Mitigation Grants**				
Lead Agency	**local Legislative Body**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-11

HAZARD B-11, Civil Disturbance

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Civil Disturbance:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Obtain personal protective, detection and monitoring, and communications response equipment for Emergency Services providers.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Federal Homeland Security Grant (through NYS WMD Task Force), categorical grants, private-sector funds (especially Health Care)**				
Lead Agency	**Monroe County WMD Task Force (point-of-contact is County Office of Emergency Management)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

F. **Structural Projects.**

Appendix C-12

HAZARD B-12 Dam Failure

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Dam Failure.

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Churchville Project. Provide maps of flood plain area to residents who could be affected by a dam failure. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Local funds, mitigation grant**				
Lead Agency	**Municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Riga Project. Provide maps of flood plain area to residents who could be affected by a dam failure. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Town Budget, mitigation grant**				
Lead Agency	**Town of Riga**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. Structural Projects.

Appendix C-13

HAZARD B-13, Landslide

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Landslide:

A. **Prevention.**

Measure: (describe measure)	**#1. Local Project. Enact Local Laws: to restrict development on steep slopes; to require property owners and/or mine operators to rehabilitate open mines at closing. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal operating budgets, Mitigation Grants**				
Lead Agency	**local municipalities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Local Project. Promote understanding and use of (telephone number) 811, "Call Before You Dig."**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**municipal operating budgets, private funds, utilities**				
Lead Agency	**elected officials, utilities, Underground Coordinating Committee**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-14

HAZARD B-14, Tornado

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for a Tornado.

Appendix C-15

HAZARD B-15, Hazardous Materials (at Fixed Facilities)

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Hazardous Materials (at Fixed Facilities):

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. County Project. Meet and exceed federal and NY State Emergency Response Commission requirements for Local Emergency Planning Committees**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County operating budget, private-sector funds, categorical grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. County Project. Provide County Public Health Department Environmental Section Staff for investigation and response on Hazardous Materials cases.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**

Source of Funds	**County department operating budget, categorical grant, private-sector funding, Mitigation Grants, federal and state funding**			
Lead Agency	**County Public Health Department**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

Measure: (describe measure)	**#2. <u>County Project</u>. Removal of coal tar from the Genesee River Gorge (from sewer tunnel construction in the mid-1980's).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$3.6 M**
Source of Funds	**80% County Pure Waters**				
Lead Agency	**County Pure Waters**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	continuous	

Measure: (describe measure)	**#3. <u>County Project</u>. Utilize Great Lakes Trust Fund to implement preventive and protective strategies as part of the Rochester Embayment Project.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**U.S. Great Lakes Trust Fund**				
Lead Agency	**County Health Department, et. al.**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

E. **Emergency Services.**

Measure: (describe measure)	**#1. <u>County Project</u>. Provide state-of-the-art training for volunteers and County Staff who participate in delivering Emergency Services to Hazardous Materials incidents.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County department operating budgets, categorical grants, private-sector funding, Mitigation Grants**				
Lead Agency	**Monroe County Fire Bureau**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. <u>County Project</u>. Annual review and maintenance on the LEPC and County *Hazardous Materials Response Plan*.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget, private-sector funds, categorical grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Appendix C-16

HAZARD B-16, Radiological (Fixed)

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for Radiological (Fixed).

NOTE: FEMA regulations mandate community emergency response plans, personnel training requirements, and testing and evaluation on the emergency response plan. Monroe County complies with all mandates. Our most recent evaluation, a Plan Exercise on March 4, 2003 resulted in another "Excellent" Rating.

Monroe County Office of Emergency Management complies with all FEMA standards in its planning, training, and exercise programs.

Appendix C-17

HAZARD B-17, Ice Jam

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for an Ice Jam.

Appendix C-18

HAZARD B-18, Air Contamination

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Air Contamination:

A. **Prevention.**

Measure: (describe measure)	**#1. County Project. Share "Ozone Alert" messages with Public Health Officials and emergency responders through communication protocol from the County's 911 Center.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget, Mitigation Grant**				
Lead Agency	**County 911/ECD**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. State Project. Publicize the availability of the toll-free Ozone Hotline for New York residents.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**state funds**				
Lead Agency	**NYS Health Department/NYS Department of Environmental Conservation**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-19

HAZARD B-19, Transportation Incident

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for a Transportation Incident:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Local Project. Provide traffic reports through the local broadcasters**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget**				
Lead Agency	**911 Center (Media telephone line)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. Local Project. Provide construction information and project status on sites that impact traffic**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**unknown**
Source of Funds	**Gannett Publishers**				
Lead Agency	**Democrat & Chronicle newspaper**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. <u>Local Project</u>. The Town of Henrietta's Highway "Snow & Ice Control" Program is testing treated road salt for benefits associated with its application to enhance the capacity of normal road salt.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Town Highway "Snow & Ice Control" Budget, categorical grants**				
Lead Agency	**Town Public Works Dept.**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Measure: (describe measure)	**#2. <u>County Project</u>. Provide OREIS software through annual subscription for the 911 Center, OEM, and the County HAZMAT Truck**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Hazardous Materials Emergency Preparedness (HMEP) Grant**				
Lead Agency	**Local Emergency Planning Committee**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#3. <u>County Project</u>. Provide emergency responder training on Dupont's rail "Care Car."**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**private-agency partners**				
Lead Agency	**the Local Emergency Planning Committee**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

F. **Structural Projects.**

Measure: (describe measure)	**#1. <u>County Project</u>. Improve motorist safety on the highway, at intersections, and/or bridges.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County Capital Budget, categorical grants, Mitigation Grants**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Appendix C-20

HAZARD B-20, Extreme Temperatures

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Extreme Temperatures:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Partner with government agencies, the media and the private sector to heighten awareness of safety concerns related to extreme temperatures.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**categorical grants, private-sector funds, Mitigation Grant**				
Lead Agency	**County DOH, PIO, OEM**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Utilize Public Alerting & Notification mechanisms and the media to heighten awareness when extreme temperatures threaten life-safety.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				

Lead Agency	**County OEM, 911/ECD**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

F. **Structural Projects.**

Appendix C-21

HAZARD B-21, Radiological (Transit)

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for Radiological (Transit).

Appendix C-22

HAZARD B-22, Water Supply Contamination

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Water Supply Contamination:

A. **Prevention.**

Measure: (describe measure)	**#1. Provide redundant back-up power supply for public supply treatment facilities and system pump stations. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**user fees; Mitigation Grants**				
Lead Agency	**Public Water Suppliers**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Publish "Annual Water Quality Reports"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**Monroe County Water Authority**				
Lead Agency	**Monroe County Water Authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Measure: (describe measure)	**#1. Provide technical assistance to the Monroe County Water Authority, and the City of Rochester Water Bureau as they enhance physical security at their facilities and distribution systems. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County annual operating budget, Mitigation Grants**				
Lead Agency	**through County Public Safety agencies**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Appendix C-23

HAZARD B-23, Drought

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for Drought.

Appendix C-24

HAZARD B-24, Epidemic

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for an Epidemic:

A. **Prevention.**

Measure: (describe measure)	**#1. National Project. Develop a web-based, early warning system that gauges the risk for West Nile Virus (Democrat & Chronicle, 6-27-03).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$60,000**
Source of Funds	**National Oceanic Atmospheric Administration**				
Lead Agency	**Cornell University with supplemental researches**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	continuous	

Measure: (describe measure)	**#2. Local Project. Provide HIV screening and public education (Democrat & Chronicle, 7-21-03).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$2.5M**
Source of Funds	**U.S. Department of Health & Human Services Grant; private funds**				
Lead Agency	**Unity Health System; AIDS Rochester Inc.**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. <u>County Project</u>. Provide Monroe County 24-hour information line, and website for Public Health.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County annual operating budget, categorical grants, Mitigation Grants**				
Lead Agency	**County Public Health Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Measure: (describe measure)	**#2. <u>State Project</u>. Provide information to the public through the state's Public Health website.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**unknown**
Source of Funds	**New York State**				
Lead Agency	**NYS Department of Health**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. <u>Congressional Project</u>. "Great Lakes Environmental Restoration Act" (bill proposal) to "clean up toxic hot spots, combat invasive species, restore and conserve wetlands and increase public education on Great Lakes issues" (<u>Democrat & Chronicle</u>, 7-16-03). This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**unknown**				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$4 Billion**
Source of Funds	**federal**				
Lead Agency	**unknown**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	continuous	

Measure: (describe measure)	**#2. <u>County Project</u>. Continue efforts with the U.S. Army Corps of Engineers to identify and implement remedial actions to abate Ontario Beach closings. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**federal, state, and local**				
Lead Agency	**U.S. Army Corps of Engineers**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-25

HAZARD B-25, Earthquake

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for an Earthquake:

A. **Prevention.**

B. **Property Protection.**

Measure: (describe measure)	**#1. NYS Project. The Insurance Office should educate underwriters and mandate that they offer Earthquake coverage as an option when writing policies in New York State. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**state funds, Mitigation Grant**				
Lead Agency	**State Insurance Office**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-26

HAZARD B-26, Fuel Shortage

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Energy Crisis:

A. **Prevention.**

Measure: (describe measure)	**#1. Continue monitoring all available information outlets for status of generated supply versus demand, to determine predicted/projected shortfalls. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget, categorical grants, Mitigation Grants, private-sector funds**				
Lead Agency	**Monroe County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. Continue partnerships with the local Congressional Delegation and the private-sector/academic community for further research and development of alternative energy sources, such as the University of Rochester's OMEGA laser (Democrat & Cronicle, July 16, 2003).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**private-sector funds, categorical grants, Mitigation Grants, local municipal annual operating budgets**				
Lead Agency	**County Administration**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

E. **Emergency Services.**

F. **Structural Projects.**

Appendix C-27

HAZARD B-27, Blight

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for Blight.

Appendix C-28

HAZARD B-28, Food Shortage

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. There are no specific additions to the Mitigation Measures identified as Figure 1. in Section D of the Plan for a Food Shortage.

Appendix C-29

HAZARD B-29, Infestation

MITIGATION MEASURES (organized by the six categories identified in the Plan). At Planning Committee Meetings on November 9, 2009, December 11, 2009, January 29, 2010, April 9, 2010 and June 11, 2010, members were queried and solicited to provide Mitigation Projects for their local jurisdiction. In addition to the specific Mitigation Projects noted below, each jurisdiction will participate in projects related to the County-wide Mitigation Measures identified as Figure 1. in Section D of the Plan. The following measures and projects are identified specifically for Infestation:

A. **Prevention.**

Measure: (describe measure)	**#1. County Project. Provide rodent-baiting in the sanitary sewer system to prevent the spread of diseases and rodent infestation. This may pertain to existing and/or new infrastructure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**County operating budget**				
Lead Agency	**Pure Waters Department with County Health Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Federal Project. " . . . Describe criteria . . . used to determine the appropriate levels of responsibility between the Federal Government and cooperators . . . in an emergency in which an animal or plant pest or disease threatens the agricultural production of the U.S." (Federal Register, Volume 68, Number 130, p. 40541).**
Priority Rank (pick one and delete others)	High, **Medium** or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**federal funds**				
Lead Agency	**USDA, Animal and Plant Health Inspection Service**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

F. **Structural Projects.**

APPENDIX D

Local Mitigation Measures

Figure 2. NOTE: The Mitigation Action for each Measure in Figure 1. is cited for reference.

A. **Prevention.**

Measure: (describe measure)	**#1. Enforce Building Code**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal Code Enforcement Officers**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

- Town of Irondequoit...rated for their building codes and their record of effective code enforcement by the Insurance Services Office - in the top 10% of municipalities in the state in the residential classification; and, in the top 1% in the state, and the top 2% nationally, in the commercial classification (Democrat & Chronicle, 7.18.05).
- City of Rochester...NYS Supreme Court ruled that the city's administrative warrant law is constitutional with respect to building inspection "for compliance with health and safety codes such as fire hazards and lead paint" (Democrat & Chronicle, 2.6.10).
- Village of Pittsford…was rated for their building codes and their record of effective code enforcement by the Insurance Services Office. The Village received a favorable report as reported in the ISO report (Town of Pittsford file).

Measure: (describe measure)	**#2. Comply with applicable federal and state regulations**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal officials and employees**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

Projects/Activities to credit since 2005 include:

1. NY State.

- On December 31, 2005 the NYS "Home Inspector Licensing Act" became effective. The objective of this legislation is to bring better, more consistent quality to the home inspection service (Democrat & Chronicle, 1.21.06).
- On January 1, 2005 NYS began issuing fines related to the first mandatory safety belt law (Democrat & Chronicle, 9.4.05).
- On June 16, 2008, "The NYS Senate unanimously approved a bill that would authorize six Monroe County towns to lower their townwide speed limits from 30 mph to 25...and set more appropriate speed limits...to help save lives, make the streets safer and decrease noise and vibration and improve the quality of life in neighborhoods" (Democrat & Chronicle, 6.17.08).
- On July 23, 2008, the Governor "signed legislation that will provide more incentives to clean-up polluted sites, cap tax credits for redevelopment to limit the state's liability and increase fiscal accountability for the tax breaks." The City of Rochester estimates there are between 1,000 and 3,000 commercial and industrial properties whose value is affected by environmental impairment. City Mayor Duffy argued in favor of the premise of this legislation (Democrat & Chronicle, 7.24.08).
- Companion animals are federally protected tenants under The Fair Housing Act, which "prohibits landlords from either excluding people with service or therapeutic animals or charging a pet deposit when a medical professional attests to the animal's utility" (Democrat & Chronicle, 2.17.07).
- "New York and five other Great Lakes states recently won a court ruling allowing them to prevent large vessels and other oceangoing freight ships from discharging pollutant-containing ballast water without a permit" (Democrat & Chronicle, 7.30.08).
- "Coal-burning power plants in New York State will have to cut mercury emissions by 90% by 2015 under a plan approved December 18, 2006 by the NYSDEC" (Democrat & Chronicle, 12.19.06). RG&E's Russell Station, in the Town of Greece, is one of 12 coal-burning plants which supply about 10% of the state's power (Democrat & Chronicle, 12.19.06, 9.5.07). "RG&E has reached a settlement with the state to shut-down Russell Station and replace it with a cleaner electricity generating plant" (Democrat & Chronicle, 2.21.08).
- March 27, 2005 New York State's "Booster Seat" Law became effective, requiring 4 to 6-year old children to be properly restrained in a safety seat belt in the back seat of a car. The seat must meet federal safety standards." Local law enforcement agencies and the NYS Police will enforce this new law and assist compliance by offering programs to help parents with proper installation (Democrat & Chronicle, 3.26.05, 2.12.05, 3.30.06, 1.25.07).
- New York State's 2003 graduated driving license law grants additional privileges over time as teens meet training and age benchmarks. The best success for compliance will come through education and parental enforcement, but law enforcement fully engages when age is a factor in a motorist stop (Democrat & Chronicle, 8.5.07).

2. Federal.

- Companion animals are federally protected tenants under The Fair Housing Act, which "prohibits landlords from either excluding people with service or therapeutic animals or charging a pet deposit when a medical professional attests to the animal's utility" (Democrat & Chronicle, 2.17.07).
- "Rochester Community Environmental Project"...EPA Region II's title for their year-long grant initiative to improve the environment and step-up inspection and enforcement activity (Democrat & Chronicle, 6.2105). Since the Spring of 2004, "EPA inspected 166 facilities to assist their compliance with environmental regulations that govern air emission permits, handling procedures for solid and hazardous waste and asbestos removal, the lawful sale and application of pesticides, and the accurate and timely reporting of toxic waste disposal and chemical inventories." Based on their findings, (in 2004) EPA assisted local compliance efforts with grants and program activities including: (1) $1 million EPA Revolving Loan Fund to the City of Rochester for brownfield clean-up; and, (2) $70,000 EPA grant to the Rochester School District for removal of 700 gallons of custodial chemicals (Democrat & Chronicle, 4.19.05).
- "Kodak complies with limits set within its (NYSDEC and EPA) permits and, in many cases, achieves voluntary reductions well beyond the requirements. Kodak has also set aggressive, voluntary goals for reducing emissions and waste, as well as conserving energy and natural resources – and yearly reports on its progress" (Democrat & Chronicle, 12.19.05).

Measure: (describe measure)	**#3. County Planning Department review of local municipal subdivision and zoning proposals under General Municipal Law, Sections 2391., 239m, and 239n.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget**				
Lead Agency	**County Planning Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

The County Planning Department reports the number of reviews:

	2005	2006	2007	2008	2009
# Towns & Villages	683	581	647	547	434

# City of Rochester	3	7	12	10	9
TOTAL	686	588	659	557	443

Data reported by Tom Goodwin, County Planning Department, 5.27.10

Measure: (describe measure)	**#4. Annual Review of the County's *Comprehensive Emergency Plan***				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget, state Local Emergency Management Preparedness Grant (LEMPG), state All-Hazards Comprehensive Emergency Management Planning Program**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Professional conferences and programs to engage the community in planning initiatives that are critical to the maintenance and viability of the County's Plan, include:

   - "The international organization, Association of Contingency Planners has added a new chapter (43 others), the Eastern Great Lakes Chapter representing business continuity professionals in Rochester.... The chapter offers programs for professional development and network opportunities" in all of New York State (Democrat & Chronicle, 3.19.07).
   - The Genesee Valley Equine Clinic seminar to convey animal disaster planning and effective resource organization (Genesee Valley PennySaver, 1.23.05).

2. June 10, 2008 completed County review of the *Comprehensive Emergency Management Plan*, its functional annexes and its hazard-specific plans for NIMS compliance.

3. At their April, 2005 meeting, the Monroe County Legislature adopted NIMS as a standard for incident management. In September, County Executive, Maggie Brooks assigned community-wide NIMS program activity and compliance assistance to OEM.

4. In compliance with federal regulation and NIMS compliance, the County Executive has authorized an *Animal Emergency Response Plan* and *Responding to Pandemic Influenza* as components of the *Comprehensive Emergency Management Plan*.

5. Since HSPD-5 established NIMS as a standard for compliance, Monroe County has maintained and reported compliance through NIMCAST and/or NIMSCAST.

6. Village of Hilton…developed a "Special Events Plan" in October, 2009 that includes an Evacuation Section for severe weather. The Village, the Hilton Central School District and the Hilton Fire Department incorporated the Plan with the 2009 Apple Fest. The Plan will expand to include the Town of Parma (Mike Lissow, Village of Hilton Planning Committee Representative, 6.11.10 Meeting).

Measure: (describe measure)	**#5. Regular review of Local Laws**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local municipal legislative body**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

- Town of Brighton. "The Brighton Town Board voted recently to reduce the speed limit (on 3 local streets) from 30mph to 25. To go below the State-mandated 30 mph minimum speed limit, towns have to hold public hearings, pass resolutions and raise a multitude of expensive new signs. Last year, six towns wrote letters to state officials asking for a revision of state law" (Democrat & Chronicle, 5.4.09).
- "At least five area towns are updating their municipal master plans or starting the process." These plans establish guidelines for development, influence zoning laws and project a vision for future land use in the municipal jurisdiction (Democrat & Chronicle, 6.25.06).
- Town of Hamlin...is the first in Monroe County to consider a local law to regulate wind power rules (Democrat & Chronicle, 1.16.07, 4.9.08).
- Town of Pittsford…"The Pittsford Town Board voted recently to reduce the speed limit (on several streets) from 30 mph to 25 mph for safety purposes" (Town file, Local law No. 6 of 2009).
- Town of Pittsford. . . The Town of Pittsford by Resolution on October 6, 2009 adopted the 2009 Comprehensive Plan (Town Council Minutes, 10.6.09).

B. **Property Protection.**

Measure: (describe measure)	**#1. Identify "special hazard" areas**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants**				
Lead Agency	**local municipalities (agency identified locally)**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Projects/Activities to credit since 2005 include:

1. Wetlands.

- "As mitigation, County officials will create 12.4 acres of wetlands in Black Creek Park. The $1.2 million price tag comes from Airport revenue and grants through the Airport's capital improvement budget. The phased project includes a wetland trail, playing fields and parking spaces for the Park. The additional wetlands will help flood retention, which has been a problem at Black Creek" (Democrat & Chronicle, 10.19.05).
- "In New York State, wetlands smaller than 12.4 acres have little legal protection unless they are connected to navigable water. A bill to create protection (for these wetlands) is pending in Albany. Local environmentalists identify these areas in Monroe County that could be considered if the bill becomes law: (1) near Willow Point townhouses on Irondequoit Bay in Webster; (2) off Blossom Road in Ellison Park in Penfield; (3) off Crittenden Road near the MCC campus in Brighton; and, (4) along the Lehigh Trail in Rush" (Democrat & Chronicle, 1.27.06).

2. Contaminated Sites.

- The County Health Department, NYSDEC, EPA, and local government identify, inventory and seek remediation measures for soil contamination, ground water monitoring and property redevelopment as sites can be restored for public use, economic development and be returned for productive use across the community. An inventory of these sites and their current status is available through a request for information with County OEM. (Monroe County complies with Freedom of Information Laws.)
- The NYS Thruway Authority has set aside $4.5 million for environmental work to remediate investigation and clean-up at travel-plaza gas stations where spills and leaks occur. One of the 24 sites is the Scottsville Service Plaza, which is noted with 2 incidents: September 2003 with soil contamination; and, April 2004 with groundwater contamination" (Democrat & Chronicle, 7.7.08).

3. Stream Stabilization.

- County Project. Severe erosion problems persist in 12 areas (totaling 2,500 linear feet) identified along the banks of Irondequoit Creek in Ellison and Powder Mills parks threatening park use and the viability of the stream as a sport fishery. The County proposes to utilize $250,000 in state funds (from $12 million lake-pollution settlement made in 2006 with Hooker/Occidental ...Love Canal). And, the Army Corps of Engineers has offered $450,000 (Democrat & Chronicle, 8.23.09, Monroe County News Release, 8.10.09, Monroe County Parks Department interview, 5.24.10).

Measure: (describe measure)	**#2. Maintain public infrastructure**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**appropriate municipal authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

"...Federal spending for infrastructure collapsed – from a high of 1.17% of gross domestic product in 1980 to less than half of that today. ...Although infrastructure might not be trendy, it's as important as ever" (Guest Essayist, Democrat & Chronicle, 8.31.07).

Projects/Activities to credit since 2005 include:

1. Utilities.

- RG&E is "aware of the dynamic energy landscape and is prepared to do what it takes to continue to provide safe, reliable service. Examples of activities that reflect $1 billion in planned investment include: investing millions in two hydroelectric generating facilities on the Genesee River…and, deploying 'smart' electric and natural gas meters" (Guest Essayist, Democrat & Chronicle, 6.12.07).

  Tree trimming and removal is standard practice by utilities with overhead distribution systems. Electric, telephone, and TV cable lines run overhead across much of the community's built landscape. Annual and seasonal maintenance programs are part of utility annual operating budgets. Right-of-way clearing is also a component of utility construction projects (utility billing inserts, Democrat & Chronicle, 7.29.07).

- Monroe County Water Authority (MCWA)...proposes "A $128 million water treatment plant in Webster...to meet increasing demand and provide redundancy in supply and treatment. Connectivity would be available across the MCWA network through most of Monroe County and parts of five surrounding counties" (Democrat & Chronicle, 7.10.06). "Eastman Kodak will sell its industrial plant to the MCWA for $9.5 million. Kodak said the company's main motivation for selling the 80-year-old plant is to assure Eastman Business Park tenants that they will have a long-term, reliable water supply. This acquisition expands the MCWA intake capacity and reduces security risk" (Democrat & Chronicle, 12.11.09).

- Ginna (Nuclear Generation). As part of "...an accelerating trend to satisfy the nation's appetite for electricity, the Nuclear Regulatory Commission (NRC)...approved plans to boost output at Ginna to 610 megawatts, an increase of 17%. It is the first increase in the plant's output since the late 1970's" (Democrat & Chronicle, 7.17.06).

2. Transportation. "In the wake of the August 1, 2007 Minneapolis bridge collapse, NYS has inspected 46 bridges with a similar design, including two in the Rochester area: the Irondequoit Bay Bridge and the Bausch Memorial Bridge (Smith Street bridge over the Genesee River in the City of Rochester). State inspections in 2005 determined that 38% of the bridges in NYS need work due to structural obsolescence of functional obsolescence, as compared to 27% nationally" (Democrat & Chronicle, 10.9.07).

   State, County and local highway rights-of-way are demonstrating the use of "comprehensive traffic calming" methodologies, including these examples:

   - Town of Mendon, NYS Routes 65 and 251, "Round About"
   - Town of Irondequoit, Interstate Route 590, "Round About" at several intersections
   - Village of Pittsford, NYS Routes 31, 96, crosswalk markers, curbs stripped medians, parking lanes and parking regulations (Democrat & Chronicle, 3.2.07).
   - Town requests to NYSDOT to lower speed limits in local neighborhoods
   - Village of Honeoye Falls, "Speed Watch" – a campaign using signage and public education
   - Village of Pittsford Board of Trustees adopted "The Village of Pittsford Pedestrian Safety – Traffic Calming Plan." (Village Board of Trustees, Meeting Minutes, 12.13.05).

3. Continuity of Service. Maintaining the viability of our critical infrastructure is a high priority. We accomplish this through viable budgets that address daily operations and capital expenditures for supply, facilities and distribution. We solicit public officials at every level of government to enact and enforce laws and regulations that protect and restore critical infrastructure that allows the quality of life we expect. We promote responsible behavior by employers, employees and the public who provide service, deliver service and use the service. Examples of "continuity" are evident. Many are referenced in multiple sections of the Plan, and others are accepted as part of our daily routine: using seat belts, speed limits, "Dig Safely NY – Call 811," OSHA/NY-PESH, safe public water supply, and electricity and natural gas "on demand."

   Town of Henrietta. In 2005, the Town instituted an annual Sanitary Sewer Inspection and Repair Program. Annual Budget appropriation of approximately $3000,000 provides televised

inspection for about 16 miles of sewer main, and repair for problems discovered the previous year (Town file).

4. System Security. Security for public infrastructure is critical for continuity of service. "Target Hardening" and surveillance are employed as mitigation measures to maintain our critical infrastructure. The community receives a suite of funding mechanisms under the Homeland Security Grant Program, including UASI, BZPP, SHSP, LETPP, MMRS, CCP, IECGP, PSIC and other topic-specific grant programs. These funds provide protection, prevention, response and recovery activities across the National Priorities and in concert with the NYS Strategy and our community's Strategy for Monroe County and our MSA Region (OEM grant files).

Measure: (describe measure)	**#3. Solicit intermunicipal and interagency cooperation**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local government, private-sector**				
Lead Agency	**local municipal officials and employees**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Projects/Activities to credit since 2005 include intermunicipal and interagency cooperation across:

1. Transportation. The concept of "overlay districts" may assist planning and design that "helps preserve the capacity of the road without widening the road." This approach along transportation corridors considers standards for road configuration, parking, building, lighting, signage and landscaping. The concept is under consideration for NYS Route 250 in the Towns of Webster, Penfield and Perinton, and the Villages of Webster and Fairport (Democrat & Chronicle, 6.30.08).

2. Watersheds. Active watershed coalitions include the Black Creek Watershed Coalition and the Oatka Creek Watershed Committee. Membership includes town, village, city and county officials across the watershed who consider water quality, pollution sources, land-use practices, construction and building projects and other activities that affect mutual concern for managing the watershed as a community resource (Democrat & Chronicle, 3.2.05, "Genesee/Finger Lakes Regional Review, Summer 2008).

3. Irondequoit Bay Master Plan. The "Irondequoit Bay Harbor Management Plan, a long-in-the-works plan to manage Irondequoit Bay and maintain a balance among commercial, recreational and environmental concerns, will address topics ranging from water skiing and

ice fishing to dredging and docks. The Towns of Irondequoit, Webster and Penfield are involved, together with Monroe County. This Plan is among the first of local intermunicipal plans to oversee a body of water. A NYS grant provided $60,000 to for the intermunicipal Plan (Democrat & Chronicle, 6.16.08, 12.5.06).

4. Schools. School safety concerns engage school and municipal officials, parents, teachers, emergency services, the community and state and federal officials. Technology, advances, grant programs and public education and awareness campaigns promote safety, zero tolerance policy toward school violence, physical security and surveillance measures, and staff planning and training. Schools across the community are involved in this activity.

5. Emergency Management. The County engages public and private sector agencies across the community in prevention, protection, response and recovery activities for local programs, federal and state grants and regulatory compliance. County OEM facilitates intermunicipal and interagency agreements for all-hazards and those associated with hazard-specific requirements (OEM policies and files).

6 Fire Protection. The Northeast Penfield Fire District, the East Webster Fire Protection District, and the Village of Webster Fire Department consolidated to create the "Northeast Fire District." (Democrat & Chronicle, 1.24.05).

7. Village of Pittsford, Town of Pittsford and the Pittsford Central School District formed a Leadership Team to collaborate on matters of mutual concern. This agreement was formally adopted and renewed December 2005, December 2008 and October 2009 (Town file).

8. Village of Pittsford, Town of Pittsford, Pittsford Fire District and Pittsford Ambulance formed a "Collaborative GIS Plan" to: create savings, eliminate duplication and increase communication. The funding source is the Village annual operating budget at approximately $8,800 (Village Board of Trustees, Meeting Minutes, 9.9.05).

Measure: (describe measure)	**#4. Promote purchase of appropriate hazard insurance policies.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local government, Mitigation Grants**				
Lead Agency	**local governments (assistance available from NYS Insurance Dept., e.g. brochures)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. The Greater Rochester Association of Realtors, advised homeowners that "a lender will generally require insurance to protect their investment, and highlighted disaster coverage for these hazards: flood, earthquake, landslide, weight of snow or ice, and wind or hurricane (Democrat & Chronicle, 12.3.05).

2. Throughout a series of articles related to business planning and business continuity, Joyce M. Rosenberg, Associated Press, stresses realistic planning strategy, insurance that addresses vulnerability and insurance coverage commensurate with risk (Democrat & Chronicle, 4.10.06, 4.17.06, 9.11.06, 4.30.07, 5.21.07, 9.1.08).

3. Flood Insurance. Flood Insurance gained local significance with implementation of FEMA's new digitized FIRM maps in Monroe County. Many homeowners, who were previously outside flood boundaries, were forced to purchase flood insurance by their lenders. This activity is referenced in other sections of this Plan.

4. "The Webster Museum and Historical Society will receive $5,999 for development of an emergency preparedness plan and purchase of recovery supplies. The grant is from the National Endowment for the Humanities" (Democrat & Chronicle, 12.31.05).

Measure: (describe measure)	**#5. Property acquisition**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local government, Mitigation Grants**				
Lead Agency	**local municipal legislative body**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. City of Rochester. "An aggressive plan to demolish vacant and decrepit properties blighting city neighborhoods has met and exceeded goals. The City has cleared 355 properties and stayed within its $5.8 million budget (Democrat & Chronicle, 12.5.06, 9.1.07).

2. Open Space. Preserving "Open Space" continues to be a topic on municipal agendas. Money to acquire open land for preservation, recreation, and scenic vistas comes from tax payer referendum at the local level, private foundation acquisition, state grants and private citizens. Consideration is specifically noted for the Towns of Penfield, Greece, Pittsford, Mendon, Rush, Webster, Henrietta, Perinton, Brighton, Parma and Irondequoit (Democrat & Chronicle, 2.8.05, 2.24.05, 5.2.06, 8.9.06, 12.31.06).

C. **Public Education and Awareness.**

Measure: (describe measure)	**#1. Expand emergency Public Alerting means**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. County Projects. Monroe County has implemented public alerting and notification means that take advantage of technological advances, grant funds and other programs including:

- "HyperReach," a reverse 911 product that accepts registration of personal cell phones and other devices (Democrat & Chronicle, 2.1.10). This system provides information via text for deaf persons.
- "NY-ALERT," a web-based portal through which State agencies, local government, emergency service agencies and SUNY can provide emergency information to a defined audience (www.nyalert.gov). MCC and SUNY Brockport employ NY-ALERT for their campus system.
- NOAA's National Weather Radio system and receivers have served as a primary means of receiving National Weather Service products for many years. Technology advances provide a digital platform and the delivery of spot forecasting making these devices more user-friendly. Weather Radios have been placed in schools, libraries, community centers, nursing homes, hospitals, large assembly halls, and local theatres with federal grants through MMRS and by direct distribution from DHS (Democrat & Chronicle, 9.25.06, 12.20.09, The Sentinel, 11.2.06, NWS e-mail, 5.7.07).
- *Project Prepare!* This is the brand identity of the County's Public Disaster Education program. One of the program's components is advocating the use of NOAA's Weather Radio system for all-hazards (OEM files).
- "'Keep Seniors Safe Initiative' collects used cell phones and re-programs them to dial 911. Anyone 60 or older and living alone with an annual income of less than $9,570 is eligible to get the phone free of charge" (Monroe County News Release, 10.17.05, Democrat & Chronicle, 10.19.05).
- In 2009, with the County Paging System upgrade to digital technology, a "Hospital Group" was added to extend the new 2-way communication capability to Emergency Departments (Public Safety Communications/Radio Center, file).

2. NYSDOT. Area Interstates are populated with variable message signs and radio frequencies to provide emergency information to motorists. NYSDOT is also providing information via telephone number 511 (OEM files).

3. Town of Pittsford funded a $93,938 Capital Improvement Project to institute a reverse, calling capacity to residents (Town file).

Measure: (describe measure)	**#2. Provide Education and training for municipal officials**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

Training opportunities are sponsored by local government, academic institutions, professional organizations and nonprofit community partners. They include conferences, seminars, academic courses, certificate programs, continuing education curriculum, professional development and forums focused on specific topics. Accredited faculty, subject matter experts and licensed professionals deliver on behalf of multiple sponsors including: the Genesee/Finger Lakes Regional Planning Council, the NYS Conference of Mayors and Other Municipal Officials, the Association of Towns, the Association of Counties, multiple NYS Departments and agency affiliates, local universities and colleges, American Red Cross and others. Myriad topics influence municipal policy and operations that daily deliver local government services in the community (OEM files).

Monroe County Department of Planning and Development. As part of its annual Local Land Use Training Conference for municipal officials, the Department includes "Mitigation" as part of the curriculum. Examples include:

- 11.1.07, "Emergency Preparedness and Disaster Mitigation. Topics: *The Monroe County Pre-Disaster Mitigation Plan*; incorporating pre-disaster mitigation planning into comprehensive planning and zoning; opportunities to fund project implementation; and, case studies"
- 10.1.08, "Floodplain Management for Local Communities. Topics: floodplain management strategies and comprehensive planning; managing development in floodplains; using flood studies; administering the National Flood Insurance Program

(NFIP); case studies; elevation certificates; unnumbered A zones; the Community Rating System; and, *The Monroe County Pre-Disaster Mitigation Plan*"

- 9.30.09, "Floodplain Management & Hazard Mitigation for Local Communities. Topics: floodplain management strategies and comprehensive planning; managing development in floodplains; using flood studies; administering the National Flood Insurance Program (NFIP); case studies; elevation certificates; unnumbered A zones; the Community Rating System; and, *The Monroe County Pre-Disaster Mitigation Plan*" (Department file).

Measure: (describe measure)	**#3. Review Utility Service & restoration plans.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**Utility**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

Through County OEM and local emergency service jurisdictions, the community influences utility service emergency plans and recovery/restoration operations. Attendance at regularly scheduled utility meetings, events and exercises is evident. Sponsoring utilities include: RG&E, Frontier, National Fuel, NationalGrid, The Pipeline Group, Time Warner and others (OEM file).

Measure: (describe measure)	**#4. Identify and utilize a "Speakers Bureau"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials and employees**				

Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

Projects/Activities to credit since 2005 include:

Local governments, emergency service jurisdictions, utilities, nonprofit organizations and other partners with this Plan engage in "Speaker Bureau" activities on a regular basis. Through facility open houses, police academies, school-based initiatives, seasonal campaigns, formal scheduling, guest presentations, regular programming, guest essays, regular news columns in the local media, local cable TV access channels, and now via social networking there are countless pathways to deliver information intra-agency, inter-agency and with the public (OEM files, Democrat & Chronicle, utility bill inserts, brochures, websites).

Measure: (describe measure)	**#5. Participate in annual "Weather Awareness Campaigns"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants, National Weather Service budget, state funds**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

OEM facilitates County, local government, Red Cross, schools, and other Emergency Management partners in the National Weather Service, Buffalo Office annual "Hazardous Weather Awareness Week, and Winter Weather Preparedness Week" campaigns. Community participation through Official Proclamations, County-led News Conferences, local media Meteorologists, NOAA Weather Radio tests, and various publications, all draw attention to seasonal changes, weather hazards and safety tips, and general expectations with forecast product review. Towns, Villages, the City and weather experts advise people how to learn about severe weather, what precaution to take and how to obtain more information (Democrat & Chronicle news articles and the "Weather Review" column, "The Lake Breeze" publication of the National Weather Service, Buffalo Office, OEM file).

Measure: (describe measure)	**#6. County Project. Continue accreditation as a NOAA/NWS, *StormReady* community**

Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Projects/Activities to credit since 2005 include:

Monroe County was accredited as a StormReady community by the National Weather Service, Buffalo Office, effective March 2, 2001, and reaccredited thereafter in 2003, 2006 and 2009 - 2012 (OEM file). The Buffalo Bills are the first NFL team to receive the StormReady designation. "This was done in an effort to protect spectators of events at Ralph Wilson Stadium" (Democrat & Chronicle, 1.11.09). The Bills Spring Training Camp is hosted by St. John Fisher College in Monroe County.

Measure: (describe measure)	**#7. All-Hazard Public Education and Awareness** is a community effort by local government, business, non-profits, service organizations, scouting, faith-based organizations...everyone and at every organizational level.				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**operating budgets**				
Lead Agency	**County Office of Emergency Management and community partners**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

Multiple means of outreach are employed to engage the public, employers, employees, families, First Responders, community organizations, and schools to deliver the message of readiness, through emergency planning and preparedness. News articles, organization literature and social networks, media campaigns, presentations, training sessions and seminars, and formal training programs like CERT are continuously available in the community. Those delivering the message take every opportunity to repeat the message and expound the value of planning and having a "go kit" for personal and family use that includes pets. Activities to promote the message are part of National Preparedness month, week/day, the National Baseball Readiness program (at local Frontier Field), utility bill inserts and retail store advertising.

Specific activities focus on local demographics, e.g. partnering with the American Red Cross Chapter to up-date the preparedness brochure, "For Seniors, By Seniors," and "Disaster Preparedness and the Deaf Community." Three local vendors offer CERT in this community: the Rochester Fire Department, MCC's Homeland Security Management Institute, and the Ridge Road Fire District. They share Instructors, make-up sessions, and they have standardized equipment and supplies to make CERT Teams seamless on an operational level for field deployment in the community. CERT sponsors in the community also come through faith-based organizations, local government, academic campuses, and work place teams. The County's CERT Program is delivered to everyone in the community regardless of physical ability. Working with NTID and the Center for Disability Rights, the deaf, blind, people in wheelchairs and those with companion service animals are program graduates. We presented Rachel Jackey, the National CERT Program Director, FEMA CERT Program Director a CERT Student Manual and a Graduation Certificate in Braille together with a set of open-captioned videos that are used in instruction.

Budgets for this activity include the value of volunteer time to thousands of dollars secured through competitive grants, Congressional Member Projects and special-purpose revenue. (Information on these activities is available at OEM.)

Town of Pittsford established "E-News," a weekly e-news letter for Town residents, funded by the Annual Budget and designed to enhance communication ("The Pittsford Messenger," Autumn 2005).

D. **Natural Resource Protection.**

Measure: (describe measure)	**#1. Ensure proper disposal of Hazardous Waste**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, private-sector funding, user fees, Mitigation Grants**				
Lead Agency	**various government authorities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. September 13, 2008. Monroe County "Community Recycling and Document Shredding Day" to keep computers, printers, copiers, scanners, cellular phones, pagers, etc. outside of

the general waste stream (Monroe County New Release, 9.3.08).

2. Monroe County "Household Hazardous Waste Collection" with towns and villages is a continuous program for residents so they may dispose hazardous chemicals in a safe manner and extend the useful life of the County landfill (Monroe County news releases, 2008, 2009).

3. Monroe County Awarded for its "Pharmaceutical Waste Collection Program: by NYSDEC at the 6th Annual NYS Environmental Excellence Awards ceremony for the program's innovation, sustainability and creative partnerships; and, by EPA with a 2009 U.S. EPA Environmental Quality Award for the County's commitment to protecting and enhancing environmental quality" (Monroe County News Release, 12.7.09).

4. The Town of Pittsford, Village of Pittsford, and the Town of Perinton annually participate with Monroe County in Household Hazardous Waster Collection ("The Pittsford Messenger," February 2010).

5. The Village of Pittsford, provides information to educate residents about Storm Water drainage and the importance of keeping streams and the Erie Canal clean ("The Pittsford Village Voice, Spring/Summer 2009).

Measure: (describe measure)	**#2. Enforce government permit processes**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, state/federal operating funds**				
Lead Agency	**local municipal authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Monroe County. "Contaminant source reduction work has been performed in the County's Sewer Collection System. Updated wastewater treatment permits now include pretreatment and pollution minimization requirements, to enhance discharged water quality. One section in the western metropolitan area of Rochester was identified as having wastewaters high in PCB concentrations. Follow-up action for the Delphi automobile parts manufacturing facility was identified and groundwater remediation was implemented, resulting in treated wastewater free of PCBs being discharged to the local sewer system. In addition, the County Health Department has implemented several pollution prevention projects to address mercury discharges from hospital and dental clinic wastewaters, a common source of low levels of mercury reaching the

environment. A guidance manual was developed and voluntary actions have resulted in mercury phase out, collection, and prevention efforts at many dental and hospital facilities" (Lake Ontario Lakewide Management Update '06, received at OEM 11.16.06).

2. Great Lakes Clean-up programs. Local, state and federal efforts continue to focus on pollution remediation, point-source pollution reduction, and protective actions to improve water quality and access to Lake Ontario for recreational and economic development. To this end, projects and activities include:

- The Rochester Embayment...a federally designated "area of concern since 1985" with a watershed blueprint for restoring water quality in each of 14 problem areas (Democrat & Chronicle, 2.16.06, 7.26.06).
- A federal bipartisan Great Lakes Task Force;
- The National Wildlife Federation, a coalition of more than 100 groups, created by President George W. Bush; and,
- Funding estimates for Great Lakes restoration projects are expected to cost $20 billion over the next 15 years (Democrat & Chronicle, 3.17.06).
- The Great Lakes Basin Compact, a NYS Assembly-approved, regional plan to protect the Lakes, restricts how and when water is diverted form the lakes, stating that water removed must be used within the watershed (Democrat & Chronicle, 6.28.06).
- The NY Ocean and Great Lakes Ecosystem Conservation Council, a new state body "will coordinate broad management and protection of the state's coastline through several state agencies that will complete a ecosystem management plan by November 2008" (Democrat & Chronicle, 6.28.06).
- "NYSDEC Commissioner congratulated the Monroe County Stormwater Coalition and awarded the group $553,674 to continue its efforts to reduce runoff pollution and develop ways for its partners to comply with federal stormwater management guidelines" (Democrat & Chronicle, 8.16.06).
- Grant awards by the federal Lake Ontario Coastal Initiative, "to help the restoration, conservation and sustainable use of Lake Ontario's coastal region: Town of Parma, $24,000 to help build sewers on a portion of Dunbar Road; Town of Greece, $12,500 to help develop a database with historical environmental information to assist planning and future projects; City of Rochester, $20,000 to study stormwater drainage that may affect Durand-Eastman Beach; Town of Irondequoit, $20,000 to study how to prevent erosion of slopes along Irondequoit Bay; and Village of Webster, $58,550 to improve the quality of water discharged into Lake Ontario" (Democrat & Chronicle, 10.12.06).
- Federal legislation proposal, "The Great Lakes Collaboration Implementation Act," to improve the health of the Great Lakes through efforts to fight the spread of aquatic invasive species, restore fish and wildlife habitat, and help prevent sewage contamination" (Democrat & Chronicle, 8.16.07).
- Harbor dredging and pier repair to preserve local commercial activities, provide harbor access for Great Lakes cruise ships and restore safety for pedestrians (Democrat & Chronicle, 4.29.08).
- Public meetings to explain the federally-funded "Great Lakes Restoration Initiative," a "multi-year initiative to address some of the most persistent concerns on the lakes," and to solicit public input on competitive grants to assist the plan development (Democrat & Chronicle, 7.29.09).

Measure: (describe measure)	**#3. Provide comprehensive inspection services**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**local authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. December 21, 2005. Monroe County Department of Health reported its update on environmental health. Since the first report card in 1998-99, "County leaders were able to define problems and offer information about accomplishments," e.g. strict standards and facility improvements have improved the quality of drinking water, general water quality is still a problem with area beaches, and air pollution from transportation vehicles still persists along with lead exposure problems (Democrat & Chronicle, 12.22.05).

Measure: (describe measure)	**#4. Administer a Floodplain Management Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Monroe County. The Planning Department's "Land Use Decision-Making Training Program" for municipal officials continuously includes Floodplain Management in the curriculum.

2. Town of Greece. Creation and distribution of "Mapping the Risk: Flood Map Modernization," brochure for town residents and property owners, August, 2008.

3. Town of Gates, Webster, Irondequoit, and the City. "FEMA by and large has done a good job updating these maps in this region. But clearly there are problems that the agency ought not be too proud or stubborn to correct" (Editorial, Democrat & Chronicle, 1.29.09). Filing a Multi-Lot Letter of Map Amendment (LOMA) with FEMA as, "dozens of homes in different areas of Gates...placed on a flood zone map by FEMA in August of 2008...were incorrect and FEMA agreed to remove the homes once they have proof of the error. U.S. Senator Charles Schumer, came to Gates last December and promised to make FEMA redraw the map" (Democrat & Chronicle, 12.21.09).

Measure: (describe measure)	**#5. Maintain "Urban Forests"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants, private-sector funds**				
Lead Agency	**local municipal officials and/or private utilities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Towns of Webster, Chili, Village of Honeoye Falls. Leaves collected by municipal forces are composted and offered back to residents as fertilizer (Democrat & Chronicle, 11.20.05).

2. Town of Greece. "For the 11th consecutive year, the Town has been named a 'Tree City USA' by the National Arbor Day Foundation, a nonprofit organization dedicated to environmental stewardship. The Town also received the 'Growth Award,' for progress in tree planting and maintenance, special tree planting projects and recycling" (Democrat & Chronicle, 3.29.08).

3. Monroe County. The second annual Monroe County Reforestation Program, a major local reforestation effort, is partly funded from bottle sales of the County's 'Refill, Not Landfill' campaign. This year's campaign, "will plant 5,000White Spruce, Austrian Pine, Red Pine, Sweet Birch, Paper Birch, Sugar Maple, and Black Walnut trees in a portion of Greece Canal Park. NYSDEC donated the trees, and clients from the County's Work Experience Program will plant the trees" (Monroe County News Release, 5.5.09).

4. "A restitution hearing is scheduled January 22, 2009 to determine how much an Irondequoit man will have to pay for bulldozing a trail in Durand-Eastman Park. He pleaded guilty to a violation of Monroe County Parks Law that prohibits damage to any part of a park. Parks Director, Larry Staub estimated costs to remediate the damage to the park's natural landscape at just over $10,000" (Democrat & Chronicle, 12.19.09).

5. Town of Pittsford. The Town of Pittsford's Highway Department annually recycles yard debris in the form of leaf mulch and wood mulch and provides it free of charge to Pittsford Residents ("The Pittsford Messenger," Spring/Summer 2006).

6. Town of Pittsford. In the summer of 2008, the Town formed the Pittsford "Keeping It Green Committee," tasked with helping to make the Town more environmentally friendly ("The Pittsford Messenger," July 2008). The Town of Pittsford received an Energy Grant in the amount of $29,746 from NYSERDA #1679, awarded 8.13.09 (Town file).

7. Town of Pittsford. The Town of Pittsford was awarded a grant from NYSERDA in the amount of $76,072 for load reduction to address the current lighting in Town Facilities (Town file).

8. Village of Pittsford. The Village of Pittsford implemented procedures to "Go Green." The Village of Pittsford of recycles paper when every possible. Contracted with a new cleaning company that utilizes green products and is undertaking a multi year initiative to restore the Villages' Tree Canopy ("The Village Voice," Spring/Summer 2008).

Measure: (describe measure)	**#6. Encourage Consumer Conservation. Activities referenced below.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	**$1,001 – 4,999**	**$5,000 – 9,999**	**$10,000 – 19,999**	**over $20,000**
Source of Funds	**municipal budgets, NY-SERDA, state Environmental Protection Fund, EPA, non-profit organizations, private-sector funds**				
Lead Agency	**local municipal officials and/or private-sector partners, Academia**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

1. City of Rochester School District. "...The first district in the state to win the EPA's Energy Star Award with its conservation efforts and improvements in lighting, HVAC and water conservation. NY-SERDA gave the district more than $1 million which included an educational component for students" (Democrat & Chronicle, 4.15.05).

2. NYSDOT Annual Snow Control Seminar. NYSDOT Region IV conducts an annual seminar with Highway Officials to educate on snow control, and de-icing specifications.

3. Village of Scottsville. "Each winter, Cub Scouts, Pack 140, distribute the village's recycling and refuse calendars that educate residents about the benefits associated with recycling" (Democrat & Chronicle, 3.5.07). Monroe County DES also produces an annual recycling calendar.

4. Town of Chili, Villages of Honeoye Falls, Pittsford, Scottsville, Webster..."Received grants to purchase recycling equipment through the state Environmental Protection Fund" (Democrat & Chronicle, 12.28.07).

5. "Earth Day" recycling efforts for pharmaceuticals and electronics is coordinated by the County and the City through an EPA Grant to Rochester's Center for Environmental Information (Democrat & Chronicle, 4.15.08).

6. Homerama 2008, in the Town of Perinton, showcased 'go green' technology as part of a NY-SERDA project "to test the effectiveness of 'green' homes. The state authority now has a model home to monitor energy efficiency and to show developers. This is the first of about 20 homes the state expects to be constructed" (Democrat & Chronicle, 6.19.08).

7. Monroe County. The 3rd Annual County Energy Expo for "residents to interact with energy specialists and learn about products and services that conserve energy. This is the latest in a series of County initiatives to conserve energy, protect the environment and save money. Others are: renewable energy plant at Mill Seat Landfill; an alternative fuels fueling station; the replacement of all standard light bulbs at County traffic signals with LED bulbs; a partnership with Rochester Midland Corp. to use green cleaning products in all County facilities; and, an announcement that wind turbines and photovoltaic panels will be installed on the roof at the Airport" (Monroe County News Release, 12.5.09).

8. RG&E. Utility suggestions and reminders about energy safety and efficiency for heating and lighting (RG&E News Release, 1.14.10).

9. Town and Village of Webster. Each are awarded $25,000 from NY-SERDA to study the feasibility of using wind turbines to provide power at municipal facilities (Democrat & Chronicle, 2.21.06).

10. RIT's Center for Integrated Manufacturing was awarded $550,000 "to establish a pilot program in pollution prevention. They will work with companies to reduce and/or eliminate the production of airborne and solid waste, and the use of hazardous materials" (Democrat & Chronicle, 4.10.07). $2 million award to fund a 5-year research project to develop a computer model that will map the impact of various fueling options" (Democrat & Chronicle, 9.24.06).

11. Town of Irondequoit. As part of their Smarter Cities Campaign, the Natural Resources Defense Council recognized the Irondequoit Environment and Sustainability Advisory Council, established in October, 2007, to promote a cleaner, greener and healthier town. (Monroe County Legislature "Certificate of Recognition," 9.8.09).

12. Town of Brighton...is among others to form Citizen Advisory councils about "going green" (Democrat & Chronicle, 4.8.07).

13. RGRTA and school district fleets...will be switching to a new, less polluting diesel fuel formulation in the fall of 2006 (Democrat & Chronicle, 8.12.06). The Greece Central School District received an EPA grant to assist its installation on 162 school buses (Democrat & Chronicle, 2.22.06).

14. Monroe County and Monroe Community College...were awarded "LEED Gold Certification" for the PAC Center at MCC in recognition of its many sustainable design features and its innovation in wastewater handling. President Anne Kress reiterated that sustainability is an institutional priority at MCC" (Monroe County News Release, 1.20.10).

15. The Town of Pittsford…in partnership with Maven Technologies and MOS Recycling, sponsored a computer and electronics recycling event ("The Pittsford Messenger," October 2009).

E. **Emergency Services.**

Measure: (describe measure)	**#1. Continue County systems and services through the Public Safety Communications Division**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**County annual operating budget and Capital Improvement Program, categorical grants, Mitigation Grants**				
Lead Agency	**County government**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. County Project. "Our 911 Center is one of five sites nationwide that started serving as test sites for the U.S. Department of Transportation's Next Generation 9-1-1 initiative. The goal is to design the system that could replace the decades-old technology governing how the nation's 6,000-plus 911 call centers operate today. Testing includes: taking 911 calls via text message or via VOIP like Skype and Vonage; receiving traffic data from telematic services like OnStar; determining site location of an incoming wireless call; and, reviewing uniformity among 911 centers to provide redundant service capacity" (Democrat & Chronicle, 7.9.08).

2. County Project. "A $12 million County initiative including towers, portable radios, mobile radios and other infrastructure to convert the County-wide police radio system to digital operations" (Democrat & Chronicle, 7.13.07).

3. County Project. County Public Safety is partnered with Harris RF Communications, "the Rochester-based manufacturer of military radios on its venture to enter the growing civilian public safety market" (Democrat & Chronicle, 10.9.08, OEM file).

4. County Project. The County applied for competitive federal Homeland Security grants (PSIC, IECGP) to comply with federal interoperable regulations across the emergency management spectrum of hardware and software, planning, frequency allocations, user training and exercises, to test tactical deployment and use of the systems (OEM files, *Monroe County Interoperable Communications Plan*, 911/ECD procedures, Public Safety Communications/Radio Center files).

5. County Project. Design, testing and implementation of a digital, 2-way communication paging system for the County's Paging System and its users (OEM files, *Monroe County Interoperable Communications Plan*, 911/ECD procedures, Public Safety Communications/Radio Center files).

Measure: (describe measure)	**#2. Maintain inventory of community resources**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants**				
Lead Agency	**911/ECD**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Gates Fire District. "A $36,000 State Archives grant helped purchase four GPS devices that assist in routing responders, provide building schematics, GIS and aerial photos, locate water mains and provide specific information about the location before arriving at the scene (Democrat & Chronicle, 10.24.06).

2. City of Rochester. Pictometry International Corp. in Henrietta and ShotSpotter Inc. a California company signed an agreement to use Pictometry's imaging technology in its gunshot location system. The Rochester Police Department uses the ShotSpotter system and Pictometry through 911. The two companies plan to roll-out the combined service here" (Democrat & Chronicle, 6.20.07).

3. County Project. Monroe County is partnering with RIT on aerial imaging and the use of real-time images to assist Emergency Management planning, response and recovery activities. RIT participates in planning activities and tests their progress in prototype fashion with County exercises and special events (OEM files).

4. Emergency Service jurisdictions and municipal departments achieve accreditation and maintain accreditation with professional and national standards. Notations are made for Brockport Police Department, the County 911 Center, the Sheriff's Office, and the Rochester Police Department (Democrat & Chronicle, 1.15.05, OEM files).

5. Emergency Service jurisdictions deploy specially trained responders as: SWAT, Bomb Squad, SCUBA, K-9, Mounted Units, Motorcycle Patrols, Bicycle Patrols, HAZMAT Teams, Tox-Medics, Decontamination Teams, "Emotionally Disturbed Persons Response Team; and, combinations of these teams as needed through Task Forces; and, in multiple groups as Strike Teams (news articles, OEM files, Sheriff Files, Fire Bureau files).

6. The structural organization of emergency services draws public attention as tax supported budgets are stretched and scrutinized. Routine staffing in career fire departments, volunteer recruitment and retention, fire station location, equipment inventories, mutual aid agreements, task force focus on specific activity, the number and nature of special teams, regionalization of resources, civilian roles with professional staff assignments, resource typing and professional credentialing are topics of discussion and debate (news articles, OEM files, meeting minutes).

7. State and federal public safety/Homeland Security agencies have locally-based operations in the community. These agencies are engaged with local emergency response jurisdictions for prevention, protection, response and recovery on our geography. These agencies are considered across the spectrum of County services and resources available to any local agency (OEM files, meeting minutes, news articles).

8. County Project. OEM is the County Executive's point-of-contact for program delivery and regulatory compliance with NIMS, the National Incident Management System (OEM file). Monroe County continues to sponsor ICS training for NIMS compliance across the community. The chart below defines the number of people to be trained at each ICS level and logs the numbers who have been trained to date (6.1.10).

	IS-700	IS-800	IS-100	IS-200	IS-300	IS-400
# to train	5,260	309	5,094	2,732	266	106
# trained	5076	232	5,141	2,482	198	30

OEM Training File, 6.1.10

9. County Project. OEM is the County recipient of the suite of Homeland Security Grant Program funding delivered through Emergency Management. Since 2002, OEM has engaged a local Task Force of Emergency Service jurisdictions and disciplines to recommend expenditures associated with these grants. Since designation as a Tier II UASI, the County and the City of Rochester have formed a UAWG to assist the administration and compliance of this program (OEM program and grant files).

Measure: (describe measure)	**#3. Establish an active Recruitment and Retention (of providers) Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, private-sector funding, categorical grants, Mitigation Grants**				
Lead Agency	**local jurisdiction authority**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. Greece Police Department. "The Special Police Unit of the Greece Police Department has an active campaign to recruit and retain volunteers (Democrat & Chronicle, 9.10.07, 6.28.08).

2. County Project. The Office of Emergency Management offers an annual training program for local Special Police Units. Tuition is covered by OEM and the program is delivered through MCC's Public Safety Training Center (OEM file).

3. City of Rochester, Rochester City School District. The "College to Careers Transitions Initiative," offers high school students an accelerated career path while increasing the number of black and Hispanic police officers in Rochester. It also gives officers an opportunity to teach different classes so we can prepare our young people to go into college. The program helps city schools retain students by granting between 10 and 15 credits toward a degree in Criminal Justice at MCC upon graduation from a city high school (Democrat & Chronicle, date unknown).

4. City of Rochester Police Department. "Physical agility workshops provide additional training and testing opportunities for recruits who are required to pass physical fitness tests as part of their acceptance in the Police Academy program (Democrat & Chronicle, 1.14.07).

5. Citizen Police Academies. The Webster Police Department hosts the "Webster Student Police Academy Camp," and a Citizens Police Academy for adults. The Greece Police Department offers annual Citizen Police Academy sessions since 1966. And, the Sheriff host Police Academies for Senior, the Clergy and local municipalities (Democrat & Chronicle, 7.12.07, 9.4.07, 3.17.08, 9.2.08, OEM file).

6. Fire Academy Fire Station Open Houses. The Gates Fire District offers a Junior Fire Academy for sixth, seventh, and eighth graders. The City of Rochester hosts Open House at its station locations. Ridge Culver Fire District's Open Hose usually coinsides with National Fire Prevention Week, as do most open houses hosted by departments across the community (Democrat & Chronicle, 7.17.09, 10.7.07, 10.2.07, Fire Bureau file).

7. Amateur Radio. Amateur Radio organizations active within Monroe County host special events for the public and their respective members to advocate their hobby and demonstrate their Public Safety service role during emergencies and in concert with emergency service providers. The organizations work Special Events to facilitate communications, sponsor training and license testing, organize regional conferences, mentor amateur radio enthusiasts, and staff the station at the County EOC as requested on a 24 x 7 basis (Democrat & Chronicle, 6.29.08, OEM file).

Measure: (describe measure)	**#4. Stockpile emergency supplies**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets, categorical grants, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. County Project. The Office of Emergency Management maintains an inventory of sandbags for emergency use and distribution to local municipalities (OEM Inventory).

Measure: (describe measure)	**#5. Solicit "Mutual Aid" agreements**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal authorities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. County Project. The Office of Emergency Management maintains agreements with the American Red Cross, local transporters, and the private sector for emergency purposes (OEM Letters of Agreement file).

2. County Project. "Nine counties in the Finger Lakes region have reached a reportedly unprecedented agreement that authorizes public health workers to travel across county boundaries to assist in a public health emergency. The mutual aid agreement is similar to those in effect for fire and emergency medical workers. Monroe, Livingston, Wayne, Ontario, Yates, Seneca, Steuben, Schuyler and Chemung counties are included" (Democrat & Chronicle, 3.8.06).

3. County Project. 911/ECD was the lead agency among professional 911 Communication Centers to draft and advocate for a state-wide "Telecommunications Emergency Response" (TERT) Plan that sets standards and procedures to mutual aid 911 personnel (911 Project file).

4. County Project. OEM participates in the Western District Emergency Management Assistance Team, a NIMS Type 3 IMT serving the 10-county geography in Western New York State. OEM serves as a Team Leader for administrative, financial, training and exercise scheduling, record keeping and deployment assignment activities (OEM file, Western District meeting minutes).

Measure: (describe measure)	**#6. Engage emergency service jurisdictions in local municipal government processes**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. City of Rochester. "'Operation Impact' is funded with millions of dollars from the local agencies that participate, together with state funding in a consolidated partnership that allows the partner agencies to identify trends and attack crime as it emerges. Police Chief Moore

attributes Operation Impact with the City's 38.5% decrease in murders and a 7% drop in shooting victims..." (Democrat & Chronicle, 7.8.08).

2. City of Rochester. The city uses a system of surveillance cameras with images transmitted to a central location for monitoring and operations. "...This public safety initiative has an ultimate goal of revitalizing Rochester, stated Mayor Duffy. The cornerstone of any good neighborhood is helping people feel safe, stated NY Senator Joe Robach. NYS provided funding for part of this project" (Democrat & Chronicle, 11.2.06).

3. County Project. Monroe County's website allows users, "Up-to-the-minute traffic reports, using information from the 911 Center and the NYSDOT Traffic Operations Center, information about sex offenders with an interactive map that accesses public records at the County Clerk's Office and the District Attorney" (Democrat & Chronicle, 5.25.06).

4. Greece Police, Brighton Police Departments. Both departments participate in community events with "National Night Out Against Crime" (Democrat & Chronicle, 7.29.07, 8.1.07).

5. Town of Pittsford, Village of Pittsford, Pittsford School District, Pittsford Emergency Service Jurisdictions…established an Emergency Services Committee, to discuss pertinent issues and Emergency Preparedness. The Committee meets quarterly (Town file).

Measure: (describe measure)	**#7. County Project. Continue recruitment and training for local residents in partnerships with NOAA/NWS for their SKYWARN Program**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**County operating budget, federal and state budgets, Mitigation Grants**				
Lead Agency	**County Office of Emergency Management**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

Projects/Activities to credit since 2005 include:

1. The National Weather Service, Buffalo Office, OEM, Amateur Radio organizations, and local officials continue to recruit and train community volunteers in data gathering and weather reporting programs, e.g. SkyWarn, and CoCoRaHS (National Weather Service, Buffalo Office program announcements, OEM file).

F. **Structural Projects.**

Measure: (describe measure)	**#1. Disaster "proof" public facilities**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

Projects/Activities to credit since 2005 include:

1. County Project in the Town of Penfield. Road and drainage rehabilitation to replace a culvert under Plank Road and to enlarge a retention pond "as part of an overall effort to improve stormwater management for the entire drainage basin" (Democrat & Chronicle, 7.22.08).

Measure: (describe measure)	**#2. Secure and provide redundant critical systems and facilities**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

Projects/Activities to credit since 2005 include:

1. City of Rochester. City Fire Department was awarded $120,000 (plus the local match of $30,000) from the Fire Act Grant to purchase backup generators for fire stations (Democrat & Chronicle, 3.5.07).

2. Fire Station construction

Department Name	Cost (in millions)	Size (square feet)	Description of construction
RidgeRoad	3.2	7,000	Additional station
Webster – Stat. 1	5.2	23,000	Replacement
Stat. 2	1.6	9,000	Renovation and addition
Spencerport	4.2	32,4000	Station 1 rebuild after fire
Hilton	6.15	24,000	New, relocation
Bushnell's Basin	4.4	28,000	New, relocation
Churchville	3.7	18,000	New, relocation
West Webster	2.4	7,000	Replacement

(Democrat & Chronicle, 12.24.06 and Fire Department Interviews, 6.1.10)

3. Port of Rochester. $10 million from the federal Water Resources Development Act for ecosystem restoration, navigation, flood-damage reduction and recreation components for the port's Waterfront Revitalization Project. $1.6 million from the federal 2008 Energy and Water Appropriations Bill for the Army Corps of Engineers to dredge the channel at the port and for pier repairs. Federal representatives remarked that "Maintaining this infrastructure is critical" (Democrat & Chronicle, 7.29.07).

4. Monroe County Water Authority. $500,000 Congressional Member Project for water reliability improvements (Democrat & Chronicle, 9.1.07).

5. Monroe County Crime Lab...is under construction to replace the current 40-year old facility. "Because of the lack of new equipment and space, the crime lab struggles to serve the needs of the eight counties it serves and can have a backlog of cases." Funding is secured from federal and state grants, and the County's capital budget (Democrat & Chronicle, 2.7.07, County Public Safety Department reports).

6. Sheriff's Office. Each of the Sheriff's three sub-stations has or will have a generator by the end of 2010: A-Zone, $18,000 by landlord; B-Zone, $20,000 by landlord; and C-Zone, $34,000 by landlord (Sheriff'

7. Town of Pittsford obtained a Local Government Records Management Improvement Fund Grant in the amount of $59,110 to utilize microfilm and scan architectural plans, subdivision plans, municipal site plans, municipal facility plans and municipal maps, the State Education Department Project number 0580-09-0185. The Town also secured off site storage for permanent records (Town file).

Measure: (describe measure)	**#3. "Target Harden" facilities**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

Projects/Activities to credit since 2005 include:

1. Rochester/Monroe County UASI. Administration of this federal grant includes a Critical Infrastructure/Key Resources Committee within the UAWG. One of their focus areas is Target Hardening." Facility audits are catalogued on the federal ACAMS inventory (OEM File).

Measure: (describe measure)	**#4. Expand fiber telecommunications networks**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, private-sector funding, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials (may be in conjunction with private-sector vendors)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	continuous	

Appendix D-1

HAZARD B-1, Ice Storm

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Measure: (describe measure)	**#1. Implement an "Annual, Tree/Stream Maintenance Program"**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budget, private-sector funds, categorical grant, Mitigation Grant**				
Lead Agency	**local municipal officials and/or private-sector (as recommended in 4-24-01 transmittal of NYSDEC/Army Corps of Engineers, "Routine Stream Maintenance" brochure by County OEM)**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

1. Village of Fairport. The Village implemented a tree maintenance program including: adopting a Local Law defining specifications for optimal tree health, safety and maintenance; performing a tree and condition inventory; performing an annual condition and hazard survey; and, budgeting for and performing annual hazard remediation program for pruning and removal. The initial cost was funded by NYSDEC grants and local funds. Current annual cost is about $15,000 (Village file transmitted via e-mail, 4.19.10).

2. Village of Pittsford. Obtained an Urban and Community Forestry Grant, $9000. 85 New Street Trees were planted in the Spring of 2007 and 34 in the Fall of 2007 ("The Pittsford Village Voice," Spring/Summer 2007 and Fall/Winter 2007). The Village of Pittsford has developed a program where trees are trimmed and dead, diseased or potentially hazardous trees are removed ("The Pittsford Village Voice," Fall/Winter 2008).

Measure: (describe measure)	**#2. Relocate vulnerable utilities**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$579,316**
Source of Funds	**municipal utility funds ($144,844); PDM Grants ($434,473)**				
Lead Agency	**Village of Fairport Electric**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

1. Village of Fairport. Relocation of Fairport Electric system includes:

   - A continuing effort to convert overhead electric facilities which suffer repeat and costly damage, to underground service
   - The first project was completed in 2005. Total production to date is over $1 million in completed projects, over $4.5 million in FEMA/SEMO grant funding committed with an additional $2.5 million pending award. When these projects are complete, over 1,000 homes will be protected with underground service.
   - Continuation depends on FEMA funding. The annual $1 million includes a $200,000 local match in funding (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#3. Develop DPW/DOT Plans for debris clearance, removal, and disposal**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**Within 1-3 years**	within 5 years	continuous	

1. Village of Fairport. The Village has implemented a DPW debris, clearance, removal and disposal plan. Their 2010 project cost $1,000 (Village file transmitted via e-mail, 4.19.10).

2. The Town of Pittsford. The Town of Pittsford utilizes a debris, clearance, removal and disposal plan, dividing the Town into quadrants. Information is provided to the Town residents via a mailing and the Town of Pittsford website. The Town of Pittsford utilizes GIS services to track removal of debris (Town file).

3. The Village of Pittsford. The Village of Pittsford utilizes a debris, clearance, removal and disposal plan. Information is provided to the Village residents via a mailing ("The Village of Pittsford Voice," Spring/Summer 2009 and Village of Pittsford website).

4. The Village of Churchville. In 2005, the Village implemented a plan for debris clearance, removal and disposal. They consider this a high priority, and fund this continuous program within their annual DPW Operations Budget (Stacy Stanton, Village of Churchville e-mail, 6.29.10).

5. Town of Riga. The Town Highway Department has a Debris Clearance Plan that is in continuous operation through the Town's annual Highway Operations Budget (Stacy Stanton, Village of Churchville e-mail, 6.29.10).

B. **Property Protection.**

Measure: (describe measure)	**#1. Encourage installation of backup power supply**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budget**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

1. Village of Fairport. The Village installed a backup generator at its DPW garage to ensure power at this critical facility. And, Fairport Electric amended their regulations to ease generator installation for residential customers (Village file transmitted via e-mail, 4.19.10).

2. Town of Clarkson. In January-March, 2005, at Town expense ($13,150), natural gas generators were installed at: Town Hall and the Justice Court to accommodate public shelters; and, the Highway Garage for continuity of operations (Town file).

C. **Public Education & Awareness.**

Measure: (describe measure)	**#2. Develop alternate communications plan: HyperReach**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budget**				
Lead Agency	**Monroe County 911/ECD**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

1. Village of Fairport. The Village has diversified its communication options through expanding cellular phone use, integration with e-mail, installation of redundant telephone facilities to several Village and Fairport Electric facilities. The incremental cost is $2,000 local annual cost (Village file transmitted via e-mail, 4.19.10).

2. The Town of Pittsford. The Town has diversified its communication options through upgrading cellular phone use, integration with e-mail, installation of redundant land line telephones (Town file).

Measure: (describe measure)	**#3. Provide automated utility restoration schedule to the public**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**municipal utility and/or private-sector utility, Mitigation Grant, categorical grant**				
Lead Agency	**municipal utility and/or private-sector utility**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	**within 5 years**	Continuous	

1. Village of Fairport. Fairport Electric has substantially improved its ability to predict and communicate restoration schedules with the installation of a Supervisory Control and Data Acquisition System (SCADA). The system cost $250,000 and was paid with local funds (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#4. Provide more public outreach during an emergency**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000

Source of Funds	**local municipal annual operating budget**			
Lead Agency	**Public Information Officers**			
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**

1. Village of Fairport. Fairport Electric has substantially improved its ability to predict and communicate restoration schedules with the installation of a Supervisory Control and Data Acquisition System (SCADA). The system cost $250,000 and was paid with local funds (Village file transmitted via e-mail, 4.19.10).

2. Town of Pittsford. In 2006, the Town of Pittsford obtained a phone system allowing reverse calling to residents. It was a Capital Improvement funded by the Annual Budget at a cost of $93,938 (Town file).

Measure: (describe measure)	**#5. Expand utility Customer Service capacity**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**municipal utility funds, private-sector utility funds, categorical grants, Mitigation Grants**				
Lead Agency	**municipal and/or private utilities**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

1. Village of Fairport. Fairport Electric has substantially improved its ability to predict and communicate restoration schedules with the installation of a Supervisory Control and Data Acquisition System (SCADA). The system cost $250,000 and was paid with local funds (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#6. Expand information available on websites: Monroe County 911 Emergency Information**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets**				
Lead Agency	**Web Masters**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

1. Village of Fairport. Fairport Electric has substantially improved its ability to predict and communicate restoration schedules with the installation of a Supervisory Control and Data Acquisition System (SCADA). The system cost $250,000 and was paid with local funds (Village file transmitted via e-mail, 4.19.10).

2. The Town of Pittsford. The Town of Pittsford has expanded its website to allow better communication and information sharing between the Town and its residents. The upgrades allow residents to register for programs, pay taxes, reserve a meeting room and enter service requests ("The Pittsford Messenger," July 2009).

D. **Natural Resource Protection.**

Measure: (describe measure)	**#2. Churchville Project. In 2005, the Village replaced trees (forestation) that were destroyed by various storm events.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	Over $20,000
Source of Funds	**Municipal funds, Federal Tree Program**				
Lead Agency	**Village of Churchville**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

E. **Emergency Services.**

Measure: (describe measure)	**#1. Develop a strategy to reduce the time it takes to clear streets (Rights-of-Way) of debris**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal operating budgets, Mitigation Grants**				
Lead Agency	**Highway Superintendents**				
Timetable (pick one and delete others)	**within 1 year**	within 1-3 years	within 5 years	Continuous	

1. Village of Fairport. The Village first plans to minimize debris through an aggressive Tree Maintenance Program. Their plan then establishes protocol for clearance, identifies pre-determined storage sites for wood and snow and otherwise optimizes removal activity.

The planning project has little to no incremental cost (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#2. Regularly review restoration priorities**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

1. Village of Fairport...regularly reviews Fairport Electric restoration priorities (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#3. Enhance utility "Town Liaison" Program**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**private-sector funds, Mitigation Grants, local municipal operating budget**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Continuous**	

1. Village of Fairport Electric utilizes a liaison program (Village file transmitted via e-mail, 4.19.10).

2. The Town/Village of Pittsford. The Town and Village of Pittsford utilizes a liaison program with RG&E (Town file).

Measure: (describe measure)	**#4. <u>Local Project</u>. The Churchville Fire Department purchased a back up generator for persons on life support systems.**				
Priority Rank (pick one and delete others)	**High,** Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**annual operating budget**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	continuous	

F. Structural Projects

Measure: (describe measure)	**#1. Install permanent backup power supply at public facilities**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, private-sector funds, Mitigation Grants**				
Lead Agency	**local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

1. <u>Village of Fairport</u>. The Village installed a backup generator at its DPW garage to ensure power at this critical facility (Village file transmitted via e-mail, 4.19.10).

2. <u>The Town of Pittsford</u>. $18,180. Upgraded electrical system at the Town of Pittsford Highway Department/Operations Center to accommodate a generator. Funded by the annual operating budget (Town file).

3. <u>Town of Pittsford</u>. $25,000. Added generator back up power to East Pittsford Manor Pump Station. Funded by annual operating budget (Town file).

4. <u>Town of Pittsford</u>. $25,000. Made necessary upgrade improvements including a back up generator to the Candlewood Pump Station. Funded by annual operating budget (Town file).

5. The Village of Pittsford has installed a battery back up system for Village Computer System for the stability of the municipality ability to function and for the protection of records (Town of Pittsford file).

6. Churchville Fire Department installed a permanent backup generator at their new (2009) Fire Station (Stacey Stanton, Village of Churchville, e-mail, 6.29.10).

Measure: (describe measure)	**#2. Procure additional communication capacity**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local municipal annual operating budgets and capital improvement budgets, categorical grants, Mitigation Grants**				
Lead Agency	**County Public Safety Communications Division**				
Timetable (pick one and delete others)	within 1 year	**within 1-3 years**	within 5 years	Continuous	

1. Village of Fairport. The Village has diversified its communication options through expanding cellular phone use, integration with e-mail, and installation of redundant telephone facilities to several Village and Fairport Electric facilities. The incremental cost is $2,000 local annual cost (Village file transmitted via e-mail, 4.19.10).

2. Village of Pittsford. The Village of Pittsford produces "The Pittsford Village Voice," a local publication to provide information updates to residents and important information regarding emergency Services and Emergency Preparedness ("The Pittsford Village Voice," Spring/Summer 2008).

Appendix D-2

HAZARD B-2, Flood

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Measure: (describe measure)	**#5** (from 2005 Plan)**. County Project. Property buy-out and removal of private structure from a repeat flood area adjacent to the County's Ellison Park.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$36,404 local share**
Source of Funds	**FEMA, County Budget, Disaster Recovery Initiative**				
Lead Agency	**Monroe County Real Estate Division**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**complete**	

"The *Identification and Analysis of the Riparian Corridor in the Black & Oatka Creek Watersheds* report has recently been published by Genesee/Finger Lakes Region Planning Council in association with LU Engineers. The report is part of the ongoing Controlling Sediment in the Black & Oatka Creek Watershed project, funded partially by the Great Lakes Commission. The report provides analysis, restoration recommendations, concept designs and preliminary cost estimates for the most accessible severely eroded streambanks based on streambank inventories completed in 2004 by Wyoming, Genesee and Monroe County Soil and Water Conservation Districts. The concept is to restore the streambank segments that are most responsible for excessive stream sediment" ("Genesee/Finger Lakes Regional Review," Volume 2, Number 2, Summer 2005).

1. Town of Pittsford continues a maintenance program, cleaning-out numerous Storm Water Maintenance Facilities to restore the functionality of the system's ponds to prevent flooding (Town file).

2. Town of Pittsford continues a maintenance program to provide stabilization of numerous creek banks to prevent erosion and potential flooding (Town file).

3. Town of Pittsford Annual Budget funded a $1,500 project to add telemetry to monitor the Park Road Pump Station (Town file).

4. Village of Pittsford's Storm Water maintenance program includes weekly inspections of the canal siphons to ensure appropriate drainage and prevent flooding. In 2007, the Village installed new catch basins and drop inlets to address drainage problems at South Main Street and Locust Street ("Pittsford Village Voice," Fall/Winter 2007).

5. Village of Pittsford funds, together with $225,000 from the Canal Greenway Grant Program, funded installation of a stormwater drainage system at Schoen Place ("Pittsford Village Voice," Spring/Summer 2007 and Fall/Winter 2008).

6. Village of Pittsford Annual Budget funded $21,440 to provide emergency repairs to stabilize the retaining wall of the dock on the Erie Canal along Schoen Place (The Brighton Pittsford Post, 4.9.10).

B. **Property Protection.**

Measure: (describe measure)	**#1. Encourage affected property owners to purchase Flood Insurance**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, Mitigation Grants**				
Lead Agency	**local municipal officials (assistance available through brochures: "Monroe County Flood Loss Reduction Measures;" "Addressing Your Community's Flood Problems: A Guide for Elected Officials," both transmitted by OEM.**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**continuous**	

1. Village of Fairport. The Village participated with FEMA and adopted a 2008 Local Law (Chapter 254, Flood Damage Protection) which is a prerequisite for residents to purchase flood insurance. The local cost was staff time (Village file transmitted via e-mail, 4.19.10).

Measure: (describe measure)	**#4** (from 2005 Plan)**. Local Project. Design and build a regional detention facility in the Mapledale Subdivision located in the Town of Henrietta.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$75,451**
Source of Funds	**Town Budget, Disaster Recovery Initiative**				

Lead Agency	**Town of Henrietta Engineering Dept.**			
Timetable (pick one and delete others)	**Complete**	Within 1-3 years	within 5 years	continuous

Measure: (describe measure)	**<u>Local Project</u>.** Town of Henrietta drainage study targeted areas of Allens Creek and Red Creek drainage basins to suggest improvements to reduce frequent residential flooding.				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$27,500**
Source of Funds	**Town Budget**				
Lead Agency	**Town of Henrietta**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**Complete (2009)**	

RE: FEMA FIS for Monroe County

In correspondence dated September 28, 2007, FEMA notified Chief Elected Officials that a preliminary Flood Insurance Study (FIS) report and accompanying Flood Insurance Rate Map (FIRM) had been completed for Monroe County. This FEMA action digitized the flood maps. In some instances hydraulic and hydrologic analyses were prepared. "All non-restudied detailed streams have been redelineated and...refined using approximate hydraulic and hydrologic analyses and updated digital topographic data provided by the NYS Department of Environmental Conservation" (FEMA, 9.28.07).

In correspondence dated October 2, 2007 (received at OEM on October 23, 2007), FEMA advised County Executive Brooks that, "A Preliminary Flood Insurance Study (FIS) and accompanying Flood Insurance Rate Map (FIRM) have been prepared for your community as part of the Monroe County Digital Flood Insurance Rate Map (DFIRM) flood-mapping project," and that, "...Four final coordination meetings for Monroe County communities are scheduled (noted as October 29th, 30th and 31st)" (FEMA, 10.2.07).

In correspondence dated November 9, 2007 (received at OEM on November 14, 2007), FEMA notified Chief Elected Officials that the community coordination meetings (noted above) "...Were held to present the preliminary Flood Insurance Study (FIS) report and Flood Insurance Rate Map (FIRM). Comments regarding the preliminary FIS report and FIRM received prior to, during the meeting, or subsequent to the meeting will be addressed during the 90-day appeal period.... Once the Base Flood Elevations are finalized as part of the process, they, "...Will become the basis for floodplain management ordinances that your community must adopt to remain qualified for participation in the National Flood Insurance Program (NFIP)" (FEMA, 11.9.07).

In correspondence dated May 28, 2008 (received at OEM on June 4, 2008), FEMA notified Chief Elected Officials that, "FIS and FIRM is complete and will become effective on August 28, 2008, and that they (FEMA) are required to approve the legally enforceable floodplain management measures your community adopts in accordance with 44 Code of Federal Regulations Section 60.3(b)" (FEMA, 5.28.08).

Measure: (describe measure)	**County Project. Distribute sandbags to Lakeshore towns and the City for deployment to residents to assist their flood fight with the threat of rising water and wave run-up.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	continuous
Source of Funds	**Monroe County (OEM budget), Local Government**				
Lead Agency	**Monroe County (OEM)**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	Complete – May, 2007	

C. **Public Education & Awareness.**

Public Education & Awareness campaigns and outreach activities include:

- News items about reducing flood risks (Democrat & Chronicle, 3.24.07)
- Flood Insurance awareness (USA Weekend, 9.7.07)
- National Weather Service, Flood Awareness Week: March 2006, 2007, 2008, 2009, 2010
- FEMA Floodsmart.gov Website ("The Security Leak: ASIS Chapter News," October 2006)
- Flood clean-up tips and safety (Democrat & Chronicle, 7.15.06)
- Business continuity planning (Democrat & Chronicle, 6.5.06)

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Provide Special Operations and Tactical Rescue training including water rescue training**
Priority Rank (pick one and delete others)	**High**, Medium or Low

Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**local jurisdiction annual operating budget, County Fire Bureau**				
Lead Agency	**local jurisdiction officials**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**continuous**	

1. Village of Fairport. The Fairport Fire Department budget emphasizes water rescue training and appropriates funding for training and equipment (Village file transmitted via e-mail, 4.19.10).

2. Churchville Fire Department budget emphasizes water rescue training and appropriates funding for training and equipment (Stacy Stanton, Village of Churchville, e-mail, 6.29.10).

F. **Structural Projects.**

Measure: (describe measure)	**#1** (from 2005 Plan)**. County Project. Replace 2 bridges: Stottle Road over Black Creek; and, Basket Road over Four Mile Creek - where center piers, drop beams, or inadequate flow capacity caused road flooding, upstream flooding or debris catches.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$800,000 – $1 M each bridge**
Source of Funds	**Federal TIP funding**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**both complete: Stottle in 2009 & Basket in 2006**	
Measure: (describe measure)	**#2** (from 2005 Plan)**. County Project. Automate the swing bridge at the mouth of Irondequoit Bay with Lake Ontario, to decrease the annual opening and closing cycle time, and any shifting required by an emergency.** County DOT implemented measures to reduce the manual cycle time to swing the bridge from 4 to 3 hours.				
Priority Rank (pick one and delete others)	**High**, Medium or Low NOTE: The County work was a HIGH priority. County DOT continues to identify additional measures.				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	Over $20,000
Source of Funds	**County DOT Annual Operating Budget**				
Lead Agency	**County DOT**				

Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**continuous**

Measure: (describe measure)	**<u>Local Project</u>. Town of Greece drainage improvements near Wood-Run on the town's western side (<u>Democrat & Chronicle</u>, 1.3.10).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$360,000**
Source of Funds	**Town Budget**				
Lead Agency	**Town of Greece**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**Complete**	

Measure: (describe measure)	**<u>Local Project</u>. Pittsford School District floodplain analysis to support construction of a bridge over Allens Creek (<u>Democrat & Chronicle</u>, 1.3.10).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$4,500**	$5,000 – 9,999	$10,000 – 19,999	continuous
Source of Funds	**School District**				
Lead Agency	**Pittsford School District (Town of Pittsford permit required for construction)**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**Complete**	

Appendix D-3

HAZARD B-3, Severe Storm

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

Measure: (describe measure)	**#1** (from 2005 Plan). **County Project. Remove trees and debris from East Creek in the Towns of Parma and Hamlin, which was deposited in the 1998 Labor Day Windstorm, to mitigate flooding concerns.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$188,628**
Source of Funds	**County operating budget, Disaster Recovery Initiative**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	**Complete**	Within 1-3 years	within 5 years	continuous	

Measure: (describe measure)	**#2** (from 2005 Plan). **County Project. Remove trees and debris from Yanty Creek in the Town of Hamlin that was deposited in the 1998 Labor Day Windstorm, to mitigate flooding concerns.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$150,903**
Source of Funds	**County operating budget, Disaster Recovery Initiative**				
Lead Agency	**County DOT**				
Timetable (pick one and delete others)	**Complete**	Within 1-3 years	within 5 years	continuous	

C. **Public Education & Awareness.**

Public Education & Awareness campaigns and outreach activities include:

- National Weather Service "Hazard Weather Awareness Week" campaigns: 2005, 2006, 2007, 2008, 2009, 2010 with OEM and local government participation through news conferences, Official Proclamations and National Weather Radio exercises (OEM files)
- National Weather Service "Lightening Safety Awareness Week" campaigns (Democrat & Chronicle, 6.20.06)
- SEMO "Severe Weather Safety: Thunderstorm" campaign ("Emergency Management Times," Vol.1, Issue 3, March 2010)
- OEM Twitter and Facebook Account safety tips and links for additional information
- OEM safety information with plans, activity recommendations, and other website links on the County website
- *Project Prepare!* Advisory Board and outreach

D. **Natural Resource Protection.**

Measure: (describe measure)	(from 2005 Plan) **County Project**. **Replace trees (forestation) in County Parks that were destroyed by the 1998 Labor Day Windstorm.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**$150,903**
Source of Funds	**County Trust Fund for Parks, Disaster Recovery Initiative**				
Lead Agency	**County Parks Dept.**				
Timetable (pick one and delete others)	**Complete**	Within 1-3 years	within 5 years	continuous	

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-4

HAZARD B-4, Hazardous Materials (Transportation)

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-5

HAZARD B-5, Winter Storm Severe

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Municipal Highway Staff install snow fence on the west side, and parallel with, north-south roads where there is recurring experience with blowing and drifting snow. This creates the drifting affect on open land and reduces the opportunity for routine drifting on the traveled roadway (Democrat & Chronicle, 11.14.06). Highway crews at local and state levels continue to perform snow control measures 24 x 7 to keep the highway system viable and safe for emergency service delivery, commerce and the traveling public. "All of us should be giving them a wave of thanks instead of a muttering of annoyance" (Editorial, Democrat & Chronicle, 1.23.05).

B. **Property Protection.**

C. **Public Education & Awareness.**

Public Education & Awareness campaign and outreach activities include:

- National Weather Service "Winter Weather Awareness Week" campaigns: 2006, 2007, 2008, 2009 with news releases, new conferences, Official Proclamations (OEM files)
- Preparation and planning activities (Democrat & Chronicle, 12.5.04, 2.23.06)
- Personal safety tips for weather and recreation activity (Democrat & Chronicle, 2.6.07)
- Definition of weather-related advisories (Democrat & Chronicle, 2.10.08)
- Town of Henrietta annually publishes its Snow Control and Removal Policy in the Genesee Valley Pennysaver and The Rush-Henrietta Post to educate residents (Town file)

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. <u>NYS Project</u>. Provide annual NYS Dept. of Transportation (NYSDOT) "Snow and Ice Control" Program for local Highway Superintendents and Emergency Service providers.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**NYSDOT; County Highway Superintendents Association**				
Lead Agency	**NYSDOT**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Appendix D-6

HAZARD B-6, Fire

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

1. City of Rochester. Fire Chief, Floyd Madison authored two "Guest Essays" in the Democrat & Chronicle, 1.28.05 and 1.4.06, encouraging parents to keep their children safe from fire hazards, and informing the public that they have a vital role in preventing fire and injuries as a result of fire. A component of the Department's "Risk Watch Program" – fire safety and injury-prevention education for families in emergency shelters - received national recognition from the International Association of Fire Chiefs and the U.S. Safety and Engineering Corps (Democrat & Chronicle, 8.18.06).

2. Fire Service. Most fire departments in the community host "Open House" events for the public. Activities usually include equipment demonstration, fire safety, personal and family emergency planning, emergency kits, Smoke Detector and CO Detector education and other topics related to fire prevention and safety (Democrat & Chronicle, 10.4.06, 11.18.06, "Third Battalion EMS Weekly Update," 10.7.07).

3. The Greater Rochester Association of Realtors encourages and promotes public education and awareness for household hazards. They write newspaper columns and provide information at public forums and Special Events related to the home construction industry (Democrat & Chronicle, 12.1.07).

Measure: (describe measure)	**#1. Local Project. Churchville Volunteer Fire Department develops and schedules an annual Fire Prevention Campaign at schools, community functions, and public facilities using its interactive display.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	**$5,000 – 9,999**	$10,000 – 19,999	over $20,000
Source of Funds	**Churchville Volunteer Fire Department annual operating budget, Mitigation Grant**				
Lead Agency	**Churchville Volunteer Fire Department**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

1. City of Rochester. "Every available firefighter in the City was summoned to a late-night blaze on June 20, 2003 at the (former Delco) vacant complex. Multiple explosions sent fireballs 50 to 60 feet into the air. City Council authorized $170,000 to complete an investigation of site hazards (reimbursable up to 90% by a state grant). City Council is expected to authorize an additional $850,000 bond to remove asbestos and begin demolition on the site and clean it up for possible redevelopment" (Democrat & Chronicle, 7.13.06).

Appendix D-7

HAZARD B-7, Terrorism

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

1. "The U.S.CDC designated Monroe County as "Model Community for its emergency care and public health partnerships tested through exercises" (Democrat & Chronicle, 9.23.06).

2. MCC's Homeland Security Management Institute continues to bridge-the-gap for non-traditional emergency responders. They obtain relevant courses for local delivery to school officials, industry, critical infrastructure owners/operators like utilties and other community resources, on topics that assist them with our collective, universal responsibility to prevent, protect, respond and recover from emergencies (Democrat & Chronicle, 9.25.06, multiple news articles, OEM file).

F. **Structural Projects.**

Measure: (describe measure)	**#1. Churchville Project. In 2005, the Village installed fencing, alarms and video surveillance at the Electric Substation to enhance physical security at the facility.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Over $20,000**
Source of Funds	**Municipal funds, Mitigation Grant**				
Lead Agency	**Local municipal officials**				
Timetable (pick one and delete others)	within 1 year	**Within 1-3 years**	within 5 years	continuous	

Appendix D-8

HAZARD B-8, Utility Failure

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

RG&E...News Release to advise customers about adequate electric supplies, conservation measures, safety tips, and information sources when supply is restricted and/or unavailable (RG&E News Release, 5.20.08).

Measure: (describe measure)	**#1. Churchville Project. The Village continues to provide information to residents on methods of power conservation.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	Over $20,000
Source of Funds	**Municipal funds, Mitigation Grant**				
Lead Agency	**Local municipal officials**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

RE: Electric:

RG&E. "The state Public Service Commission has approved plans to upgrade some substations and other electric transmission facilities. The first segment will involve work in Rochester, Brighton, Chili, Henrietta and Greece" (Democrat & Chronicle, 3.17.06).

RE: Water:

City of Rochester. "The City of Rochester Water Bureau spent nearly $5 million last year (2009) to upgrade its water distribution system, some portions which date to 1876. The Bureau repaired 255 leaks, including 191 that inspectors detected before they gushed into full-blown main breaks" (Democrat & Chronicle, 6.28.10).

Monroe County Water Authority. "The Authority typically spends about $5 million repairing more than 500 leaks each year" (Democrat & Chronicle, 6.28.10).

RE: Sanitary Sewer:

Town of Irondequoit. "The Town has diverted some sewer lines to ease problem areas. Irondequoit spends about $3.7 million maintaining sewers that were installed as early as 1930. In 2008, officials plan to replace two of 26 pump stations that are 40-50 years old and leaking" (Democrat & Chronicle, 1.28.07, 8.29.07).

Town of Greece. "The Clean Water State Revolving fund, a state and federal program that provides low interest loans for water infrastructure projects, has been used to build new sanitary sewer systems in areas where septic systems were failing or were in danger of failing. The town has an annual sewer rehabilitation program that includes flushing and televising sewers to check conditions and find trouble spots for repair" (Democrat & Chronicle, 1.28.07).

Town of Brighton. "Smoke testing about 90,000 feet of sanitary sewers revealed cracks in pipes that leach water and contribute to backups and floods. Where they find areas for repair and waterproofing, Brighton has paid for the rehabilitation. The town expects to spend years finding and fixing defects" (Democrat & Chronicle, 1.28.07).

East Rochester..."Has torn-out much of its aging sanitary sewer system and replaced it where necessary. Local funding has supported most of this work, but a $192,400 federal grant helped replace Main Street sewers in 2006. The next target replacement area is East Maple Street" (Democrat & Chronicle, 1.28.07).

Measure: (describe measure)	**#2. Churchville Project. The Village has updated the generators on its Village wastewater pump stations.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Over $20,000**
Source of Funds	**Municipal funds, Mitigation Grant**				
Lead Agency	**Local municipal officials**				
Timetable (pick one and delete others)	within 1 year	Within 1-3 years	within 5 years	**Completed**	

Appendix D-9

HAZARD B-9, Explosion

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-10

HAZARD B-10, Structural Collapse

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-11

HAZARD B-11, Civil Disturbance

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

1. U.S. Senator Charles Schumer, "Introduced legislation to give states and local governments more than $1 billion over the next 5 years for federal, state and local police to fund gang prevention and enforcement efforts and prevent school violence. Rochester City Mayor Duffy stated that gangs are recruiting in middle schools across the country and we are not immune" (Democrat & Chronicle, 2.1.07).

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-12

HAZARD B-12, Dam Failure

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Churchville & Riga Project. Provide Flood Plain maps to residents who could be affected by a dam failure.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Municipal Budgets, mitigation grant**				
Lead Agency	**Municipal Officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-13

HAZARD B-13, Landslide

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

Measure: (describe measure)	**Local Project. Town of Irondequoit: grant award to create a Conservation and Management Plan for steep slopes along Irondequoit Bay (Democrat & Chronicle, 9.26.06, 10.12.06).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001-$4,999	$5,000 – 9,999	$10,000 – 19,999	**$20,000**
Source of Funds	**Lake Ontario Coastal Initiative**				
Lead Agency	**Town of Irondequoit**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Complete**	

C. **Public Education & Awareness.**

Measure: (describe measure)	**#1. Local Project. Promote understanding and use of (telephone number) 811, "Call Before You Dig."**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**municipal operating budgets, private funds, utilities**				
Lead Agency	**elected officials, utilities, Underground Coordinating Committee**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Provide Trench/Technical Rescue training**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	**$10,000 – 19,999**	over $20,000
Source of Funds	**local jurisdiction annual operating budget, County Fire Bureau**				
Lead Agency	**local jurisdiction officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Appendix D-14

HAZARD B-14, Tornado

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Pittsford Central School District. In compliance with mandates to adopt policy for Severe Weather planning, the District adopted a "Severe Weather: Tornado Plan" on September 7, 2009. The Plan outlines specific training and procedures for response to severe weather and tornadoes (Town of Pittsford file).

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-15

HAZARD B-15, Hazardous Materials (at Fixed Facilities)

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-16

HAZARD B-16, Radiological (at Fixed Facilities)

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-17

HAZARD B-17, Ice Jam

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-18

HAZARD B-18, Air Contamination

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Measure: (describe measure)	**Local Project. The Lead Agency (below) "is accepting applications for $1,000 - $15,000 grants to reduce exposure to air pollution created by cars or other modes of transportation, or help educate people about the problem" (Democrat & Chronicle, 8.4.06).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	Continuous
Source of Funds	**EPA "Community Action for a Renewed Environment" program**				
Lead Agency	**Rochester-based Center for Environmental Information**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**September 1, 2006**	

B. **Property Protection.**

C. **Public Education & Awareness.**

1. "EPA's Community Action for a Renewed Environment (CARE) awarded $303,000 to the Center for Environmental Information to coordinated the work of more than 60 local leaders, activists and business for the grant's major goals to educate residents about the health risks of air pollution and lead paint" (Democrat & Chronicle, 2.3.06).

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-19

HAZARD B-19, Transportation Incident

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

1. "In the wake of an interstate highway bridge collapse in Minneapolis, U.S. Senator Charles Schumer will introduce legislation to double a proposed transportation bill appropriation from $5 billion to $10 billion to devote more funding to the urgent maintenance of the nation's aging bridges" (Democrat & Chronicle, 8.6.07).

2. County Project. "County DOT partnered with the University of Rochester to install a new traffic signal...to ensure the safety of students who cross between the River Campus and Strong Memorial Hospital. A quality solution was developed with assistance from numerous employees at the University. Both parties equally share the cost of this safety project" (Monroe County News Release, 7.1.08).

3. "About $700,000 in federal funding will pay for cameras for Monroe County's computerized traffic control system. The cameras will be installed at high-traffic intersections and send pictures to the Traffic Operations Center where workers may adjust traffic signal lights to aid the flow of traffic, and/or post instructions on message boards for motorists" (Democrat & Chronicle, 1.14.06).

B. **Property Protection.**

1. "Work to repair hairline cracks in the Irondequoit Bay Bridge is scheduled for summer 2009 and could cost $3 million to complete. The cracks – in concrete pedestals atop the bridge piers – were discovered late last summer during inspections done statewide in the wake of the Minneapolis bridge collapse that killed 13 people" (Democrat & Chronicle, 2.20.08).

C. **Public Education & Awareness.**

1. Local elected officials, NYS agencies, and law enforcement officials routinely advise and encourage safe driving through formal education campaigns and on a regular basis through news articles, highway message boards, Public Service announcements, and through partnerships with school programs and community organizations (Monroe County News Release, 11.20.09, NYSDOT News Release, 5.30.08).

D. **Natural Resource Protection.**

E. **Emergency Services.**

1. Sheriff's Project. "The Sheriff's Traffic Enforcement Unit has 17 Deputies and 4 Patrol cars assigned to areas where residents have raised concerns about unsafe drivers, where accident patterns show there's a problem and to look for stolen vehicles. Traffic enforcement leads to other crime solving and is a deterrent through a greater presence in neighborhoods" (Democrat & Chronicle, 3.6.05).

Measure: (describe measure)	**#4. Local Project. The Town of Riga's Highway "Snow & Ice Control" Program is testing treated road salt for benefits associated with its application to enhance the capacity of normal road salt.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**over $20,000**
Source of Funds	**Town Highway "Snow & Ice Control" Budget, categorical grants**				
Lead Agency	**Town Public Works Dept.**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Complete**	

F. **Structural Projects.**

1. "Federal funding of more than $36 million is destined for local highway improvements and reconstruction, Interstate improvements, Erie Canal aqueduct improvement, The County's Intelligent Transportation System, redevelopment and revitalization projects, and the Western Erie Canal Heritage Corridor in our area" (Democrat & Chronicle, 3.8.05).

2. The Genesee Transportation Council's 2000 Study recommending an extension of Route 531, is under review, and "NYSDOT officials will begin data collection and preliminary engineering and environmental studies for an alignment design" (Democrat & Chronicle, 3.9.05).

3. "About $700,000 in federal funding will pay for cameras for reconstruction of Lincoln Road between Route 31F in Perinton and Commercial Street in East Rochester. Monroe County will contribute about 6% of the total $2 million project cost which is expected to improve accessibility of the East Rochester downtown business district for further investment and development" (Democrat & Chronicle, 1.14.06).

4. County Project. The $17 million dollar Airport tunnels are two of the largest tunnels in the Rochester region. The purpose: to create a 1,000-foot-long Engineered Material Arresting System, a safety zone at the end of the runway with a bed of soft concrete to slow an airplane that overruns the runway. Federal money was secured early (to meet 2015 standards) because of the runway's proximity to I-390" (Democrat & Chronicle, 1.8.07).

5. Town of Penfield and Monroe County DOT "...completed improvements to the Old Penfield Road Bridge that allow for a future flood control project to be complete in the flood-prone area of Irondequoit Creek. The $1.5 million project was paid mostly with federal funds" (Democrat & Chronicle, 6.22.05).

6. County Project. The Col. Patrick O'Rorke Memorial Bridge, "Serves as a vital transportation link across the Genesee River and CSX Railroad, and a focal point for the surrounding waterfront community and a gateway to the Port of Rochester" ("New York Local Bridges, 2006 Calendar, presented by the Steering Committee for the 12th Statewide Conference on Local Bridges).

Appendix D-20

HAZARD B-20, Extreme Temperatures

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

Measure: (describe measure)	**City Project. "Cool Sweep" program…designed to provide relief from the heat (85-degrees) by extending pool, beach, recreation centers and Library hours, and sending fire apparatus to spray water in neighborhoods, Monday – Saturdays, 1100 to 1500 hours (Democrat & Chronicle, 6.28.08, 7.2.10, 7.14.10).**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Actual cost unknown**
Source of Funds	**City Budget**				
Lead Agency	**City of Rochester**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**May – Sept. when weather conditions meet program criteria**	

Measure: (describe measure)	**#1. Partnering agencies monitor extreme temperature conditions to assess appropriate protective measures for at-risk populations.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Municipal budgets, private-sector funds, categorical funds**				
Lead Agency	**Red Cross, municipal officials, utility partners**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

B. **Property Protection.**

C. **Public Education & Awareness.**

1. Reminders to the public about the danger of extreme temperatures together with safety tips, planning guidance, alerting and notification mechanisms, and monitoring sites for forecasts

and current conditions are provided by municipal officials, utilities, the media, state agencies and Public Safety partners. The collective message is life-safety measures, personal protective measures, how to obtain more detail about specific needs and reminders about signs and symptoms of emergency conditions (OEM.files; Democrat & Chronicle, 6.28.06; NationalGrid news release, 7.21.08; RG&E news release, 7.17.08; SEMO news bulletin to Emergency Managers, 5.9.08).

2. The National Weather Service, Buffalo Office provides "Public Information Statements" as part of their Public Education Program. They highlight specific hazards as weekly campaigns or specific days to headline a threat. OEM maintains a file on local participation with these campaigns as they focus on extreme temperatures, e.g. "Winter Weather Awareness Week," "Heat Awareness Day" (NWS "Public Information Statement," 5.18.08; Democrat & Chronicle, 6.19.08).

Measure: (describe measure)	**#1. Partner with government agencies, the media and the private sector to heighten awareness of safety concerns related to extreme temperatures.**				
Priority Rank (pick one and delete others)	High, **Medium** or Low				
Cost Estimate (pick one and delete others)	**under $1,000**	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**Municipal budgets, categorical grants, private-sector funds**				
Lead Agency	**County DOH, PIO, OEM, Red Cross, utilities**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

D. **Natural Resource Protection.**

E. **Emergency Services.**

Measure: (describe measure)	**#1. Utilize Public Alerting & Notification mechanisms and the media to heighten awareness when extreme temperatures threaten life-safety.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	**$1,001 – 4,999**	$5,000 – 9,999	$10,000 – 19,999	over $20,000
Source of Funds	**local municipal annual operating budgets, categorical grants**				
Lead Agency	**County OEM, 911/ECD**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**continuous**	

F. **Structural Projects.**

Appendix D-21

HAZARD B-21, Radiological (In Transit)

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-22

HAZARD B-22, Water Supply Contamination

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

1. "In lieu of strong guidelines from U.S. EPA, local government and environmental groups are taking a proactive approach to protecting the water supply" (Democrat & Chronicle, 4.15.08). Monroe County "Pharmaceutical Waste Collection" program "gives residents the opportunity to safely dispose of any unused, unwanted or expired medications. These events demonstrate that the County and its partners are working together in a secure and environmentally-friendly manner as we keep potentially harmful pharmaceuticals out of our landfills and water supply" (Monroe County News Release, 10.23.09). Monroe County Department of Environmental Services (DES) began this program in April, 2008. Partners in the program include: local municipalities, Wegmans Supermarkets, Waste Management, and the Sheriff's Office (Monroe County News Release, 3.8.10, 4.20.10). In 2009, the County hosted 14 collections, serving 3,000 residents and collecting nearly 6,500 pounds of hazardous, non-hazardous and controlled substances (Monroe County News Release, 12.7.09).

2. Monroe County Water Authority (MCWA). MCWA publishes an annual Water Quality Report, that, "...Details the quality of its drinking water and describes the source of the water, its treatment and test results" (MCWA Annual Report(s) 2005, 2006, 2007, 2008, 2009, 2010).

B. **Property Protection.**

1. "The Nature Conservancy is buying nearly 1,000 acres near Hemlock and Canadice lakes in hopes of stemming development and preserving the purity of the City's water supply. The Conservancy has agreements to purchase five parcels totaling about 947 acres for just over $1 million" (Democrat & Chronicle, 7.22.06).

2. On July 1, 2010, New York State completed a transaction with the City of Rochester to purchase about 6,700 acres of land in the Hemlock-Canadice Watershed, the City's water supply, "...To keep the land free of development as a means of protecting water quality, and...to ensure that these unique lands are preserved and available to the public forever. The $13.7 million for the watershed purchase came from an environmental protection fund set aside for land acquisition...." (Democrat & Chronicle, 7.2.10).

C. **Public Education & Awareness.**

1. Monroe County Water Authority issues "Annual Water Quality Reports."

2. City of Rochester issues Water Quality Reports through the City Espartment of Environmental Services Bureau of Water.

D. **Natural Resource Protection.**

1. "The Genesee River watershed is one of five areas identified as 'highly degraded and of high ecological importance' in EPA's five-year plan for rescuing the Great Lakes. More than $2.2 billion is planned for federal agencies, state and local governments to repair a century of damage to the lakes, which hold 20% of the world's fresh water supply" (Democrat & Chronicle, 2.22.10).

2. "The International Joint Commission (IJC) released a major binational assessment of the threats to groundwater in the Great Lakes basin. In 13 appendices, the report assesses a range of specific threats to groundwater from de-icing compounds to confined animal feeding operations" (IJC electronic announcement, 6.16.10).

E. **Emergency Services.**

F. **Structural Projects.**

Measure: (describe measure)	**#2. Churchville Project. Provide fencing, alarms and video surveillance at the water tower to enhance physical security at our facility and distribution system.**				
Priority Rank (pick one and delete others)	**High**, Medium or Low				
Cost Estimate (pick one and delete others)	under $1,000	$1,001 – 4,999	$5,000 – 9,999	$10,000 – 19,999	**Over $20,000**
Source of Funds	**Municipal funds, Mitigation Grant**				
Lead Agency	**Local municipal officials**				
Timetable (pick one and delete others)	within 1 year	within 1-3 years	within 5 years	**Complete**	

Appendix D-23

HAZARD B-23, Drought

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-24

HAZARD B-24, Epidemic

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

1. Agriculture. "Cornell University received $50 million to build a new animal diagnostic center at the College of Veterinary Medicine. The new $80 million facility will provide research and testing services to protect New York's animal agriculture" (Democrat & Chronicle, 8.15.06).

2. Lead Poisoning. "More than 1,500 city rental houses and apartments have undergone lead hazard tests since City Council adopted code amendments adding lead-based paint hazards to city inspections" (Democrat & Chronicle, 9.5.06).

   "The Coalition to Prevent Lead Poisoning, including the County Health Department, the City of Rochester, the University of Rochester and the Finger Lakes Health Systems Agency, received an EPA '2009 Environmental Justice Achievement Award' to recognize improvements in the community's health and its sense of justice. Almost 1,000 fewer children are lead-poisoned than there were eight years ago" (Democrat & Chronicle, 12.19.09).

3. Rabies. The County Health Department partners with local governments to offer rabies vaccination clinics (Democrat & Chronicle, 5.5.06).

4. "The new Center for Community Health creates a community health center that will provide staff and other resources to Rochester-area health initiatives. UR is budgeting $2.6 million for the Center's first year, with $1.8 million expected from research and community program grants" (Democrat & Chronicle, 3.24.06).

5. H1N1. "New York is spending about $23 million to stockpile antiviral medications in case of a pandemic flu outbreak" (Democrat & Chronicle, 7.8.06). The County received shipments from the state stockpile (OEM file).

   Monroe County offered H1N1 Vaccination Clinics from November 2009 – February 2010 (OEM file).

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-25

HAZARD B-25, Earthquake

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-26

HAZARD B-26, Fuel Shortage

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-27

HAZARD B-27, Blight

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-28

HAZARD B-28, Food Shortage

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

"Monroe Community College established a new Agriculture and Life Sciences Institute...to help local agriculture stay profitable while continuing environmentally sound farming practices. Local farming support a network of food processing, retail and associated industries in our area" and assures that we can sustain local farm-to-table food pathways. "The agriculture community has been looking for a more comprehensive, responsive and streamlined way to interact with government agencies and the local community" (Democrat & Chronicle, 12.19.06, 12.26.06, 1.16.07).

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

Appendix D-29

HAZARD B-29, Infestation

MITIGATION MEASURES (organized by the six categories identified in the Plan). These local projects were implemented since FEMA authorized the Monroe County Pre-Disaster Mitigation Plan, February 24, 2005:

A. **Prevention.**

B. **Property Protection.**

C. **Public Education & Awareness.**

D. **Natural Resource Protection.**

E. **Emergency Services.**

F. **Structural Projects.**

APPENDIX E

Planning Committee Roster

Pre-Disaster Mitigation Plan Development
Planning Committee Roster
6.11.10

Villages	Point-of-Contact
Brockport, M. Connie Castaneda, Mayor	Larry Vaughan
Churchville, Nancy Steedman, Mayor	Nancy Steedman, Sue Davis, Dave Adams, Mark Majewski
East Rochester, Jason Koon	Fred Ricci
Fairport, Frederick May, Mayor	Ken Moore
Hilton, Joe Lee, Mayor	Mike McHenry
Honeoye Falls, Richard Milne, Mayor	Jerry Lonthair
Pittsford, Robert C. Corby, Mayor	Kelly Cline
Scottsville, Paul Gee, Mayor	Elaine Driscoll
Spencerport, Joyce Lobene, Mayor	Fritz Gunther
Webster, Peter Elder, Mayor	Jake Swingly

Towns	
Brighton, Sandra Frankel, Supervisor	Tim Keef
Chili, David Dunning, Supervisor	David Lindsay
Clarkson, Paul M. Kimball, Supervisor	Ursula Liotta, Sharon Mattison
Gates, Mark W. Assini, Supervisor	Mark Assini
Greece, John T. Auberger, Supervisor	Brian Uhrmacher
Hamlin, Peter P. Terry, Supervisor	Lee Nettnin
Henrietta, Michael Yudelson, Supervisor	Chuck Marshall
Irondequoit, Mary Joyce D'Aurizio, Supervisor	Greg Merrick
Mendon, John D. Moffitt, Supervisor	Jim Merzke
Ogden, Gay H. Lenhard, Supervisor	Chris Mears
Parma, Peter N. McCann, Supervisor	Jack Barton
Penfield, Tony LaFountain, Supervisor	Steve Grandusky
Perinton, James Smith, Supervisor	Greg Seigfred
Pittsford, William A. Carpenter, Supervisor	Kelly Cline
Riga, Robert E. Ottley, Supervisor	Debbie Campanella, Kim Pape, Shelly Stein, Tom Klafehn
Rush, William R. Udicious, Supervisor	Rick Tracy
Sweden, John H. Milner, Supervisor	Pat Connors
Webster, Ronald Nesbitt, Supervisor	Gary Kleist
Wheatland, Linda Dobson, Supervisor	Linda Dobson

City of Rochester	
Mayor Robert Duffy	ED/C Sam Mitrano

Monroe County

Sheriff Patrick O'Flynn	Jennifer Curley
Monroe County DOT	Terry Rice & Tim Frelier
Monroe County Pure Waters	Bill Putt
Monroe County Environmental Services: GIS	Scott McCarty
Monroe County Parks Department	Dave Rinaldo
Monroe County Information Services	Justin Moore
Monroe County Public Safety Communications	Rich Verdouw
911/ECD	John Cassin
County Hazard Mitigation Coordinator	Tom Goodwin
Monroe County EMS	Tim Czapranski
Monroe County Fire Bureau	Sam DeRosa
Monroe County Office for the Aging	Kelly Reed
Monroe County OEM	Muffy Meisenzahl

Other Agencies

Monroe County Airport Authority	Todd Bane
Monroe County Water Authority	Bruce Green
Rochester Gas & Electric	Bob Bergin, Dick Marion
MCC Ag & Life Sciences	Bob King
American Red Cross	Leighton Jones
RGRTA	Mark Aesch & Bruce Philpott
BOCES	Thomas Burke
Churchville Fire Department	Scott Lancaster
Churchville-Chili Central School District	Steve Hamil, Dave Connors

APPENDIX F

Geographic Information Systems (GIS) Maps

APPENDIX G

FEMA NFIP Property Data

FULLNAME	2000EST	% Pop Change	Population 1990	Population 2000	Pop Estimate July 1, 2005	Pop Change 2000 - 2005	CRS_CLR	Repetitive Loss #s	Repetitive Loss Paid	# of Policies	TOT_COVER
BRIGHTON, TOWN OF	35,588	-2.72	34,455	35,588	34,620	-968	0	1	$6,240	125	$21,037,200
BROCKPORT, VILLAGE OF	7,959	0.39	8,749	8,103	7,990	31	0	0	$0	3	$540,900
BROCKPORT, VILLAGE OF	144	0.00	0	0	144	0	0	0	$0	3	$540,900
CHILI, TOWN OF	27,638	3.17	25,178	27,638	28,513	875	0	0	$0	207	$20,188,100
CHURCHVILLE, VILLAGE OF	1,887	0.74	1,731	1,887	1,901	14	0	0	$0	9	$1,086,900
CLARKSON, TOWN OF	6,072	4.89	4,517	6,072	6,369	297	0	0	$0	14	$1,823,700
EAST ROCHESTER, VILLAGE OF	6,650	-4.27	6,932	6,650	6,366	-284	0	0	$0	0	$0
FAIRPORT, VILLAGE OF	5,740	-2.86	5,943	5,740	5,576	-164	0	0	$0	8	$1,211,200
GATES, TOWN OF	29,275	-2.04	28,583	29,275	28,677	-598	0	1	$4,162	307	$36,679,900
GREECE, TOWN OF	94,140	-0.17	90,106	94,141	93,981	-159	9	1	$9,781	353	$51,122,700
HAMLIN, TOWN OF	9,355	-2.16	9,203	9,355	9,153	-202	0	2	$26,298	115	$15,534,800
HENRIETTA, TOWN OF	39,028	6.62	36,376	39,028	41,612	2,584	0	0	$0	233	$38,266,800
HILTON, VILLAGE OF	5,876	1.38	5,216	5,856	5,957	81	0	0	$0	32	$5,728,000
HONEOYE FALLS, VILLAGE OF	2,595	-0.92	2,340	2,595	2,571	-24	0	0	$0	11	$1,961,300
IRONDEQUOIT, TOWN OF	52,354	-2.45	52,377	52,354	51,072	-1,282	0	0	$0	211	$13,427,000
MENDON, TOWN OF	8,370	4.34	6,845	8,370	8,733	363	0	0	$0	20	$2,974,900
OGDEN, TOWN OF	18,495	3.67	16,912	18,492	19,173	678	0	0	$0	22	$3,502,500
PARMA, TOWN OF	14,822	3.68	13,873	14,822	15,367	545	0	1	$23,172	137	$18,323,200
PENFIELD, TOWN OF	34,645	2.63	30,219	34,645	35,557	912	0	6	$314,815	88	$12,357,500
PERINTON, TOWN OF	46,090	0.06	43,015	46,090	46,119	29	0	3	$68,726	48	$9,567,000
PITTSFORD, TOWN OF	27,219	3.78	24,497	27,219	28,249	1,030	0	3	$103,127	73	$17,576,600
PITTSFORD, VILLAGE OF	1,418	-4.65	1,488	1,418	1,352	-66	0	0	$0	2	$390,000
RIGA, TOWN OF	5,434	0.15	5,114	5,437	5,442	8	0	0	$0	10	$1,131,000
ROCHESTER, CITY OF	219,774	-3.95	231,636	219,773	211,091	-8,683	0	1	$22,142	82	$12,963,400
RUSH, TOWN OF	3,603	-3.05	3,217	3,603	3,493	-110	0	0	$0	3	$412,000
SCOTTSVILLE, VILLAGE OF	2,128	-2.68	1,912	2,128	2,071	-57	0	0	$0	12	$1,248,800
SPENCERPORT, VILLAGE OF	3,559	-1.12	3,606	3,559	3,519	-40	0	1	$101,375	15	$2,126,500
SWEDEN, TOWN OF	13,716	0.21	14,181	13,716	13,745	29	0	0	$0	4	$875,000
WEBSTER, TOWN OF	37,926	8.13	31,639	37,926	41,010	3,084	0	1	$8,230	54	$10,552,600
WEBSTER, VILLAGE OF	5,216	-2.43	5,464	5,216	5,089	-127	0	0	$0	2	$600,000
WHEATLAND, TOWN OF	5,149	-2.43	5,093	5,149	5,024	-125	0	2	$200,120	11	$1,682,800
MONROE COUNTY		0.00	750,417	771,845	769,536	-2,329	9	23	888,188	2,214	305,433,200

FULLNAME	Total Premiums	Total Claims Since 1978	Paid Claims Since 1978	V_ZONE	A_ZONE	Insurance in Force
BRIGHTON, TOWN OF	$89,063	22	$39,058	0	80	$21,037,200
BROCKPORT, VILLAGE OF	$997	1	$1,238	0	0	$0
BROCKPORT, VILLAGE OF	$997	1	$1,238	0	0	$0
CHILI, TOWN OF	$123,920	47	$108,724	0	183	$0
CHURCHVILLE, VILLAGE OF	$3,270	1	$0	0	2	$1,086,900
CLARKSON, TOWN OF	$6,423	7	$9,711	0	7	$1,823,700
EAST ROCHESTER, VILLAGE OF	$0	0	$0	0	0	$0
FAIRPORT, VILLAGE OF	$6,653	1	$500	0	5	$1,211,200
GATES, TOWN OF	$184,260	32	$21,056	0	236	$36,679,900
GREECE, TOWN OF	$222,672	96	$151,253	0	303	$51,122,700
HAMLIN, TOWN OF	$75,448	32	$100,160	0	93	$15,534,800
HENRIETTA, TOWN OF	$188,373	38	$99,398	0	176	$38,266,800
HILTON, VILLAGE OF	$22,437	16	$435,823	0	26	$5,728,000
HONEOYE FALLS, VILLAGE OF	$7,868	5	$17,355	0	7	$1,961,300
IRONDEQUOIT, TOWN OF	$40,223	29	$19,825	0	187	$13,427,000
MENDON, TOWN OF	$12,628	3	$2,381	0	11	$2,974,900
OGDEN, TOWN OF	$13,832	7	$143,578	0	10	$3,502,500
PARMA, TOWN OF	$88,421	15	$46,158	0	113	$18,323,200
PENFIELD, TOWN OF	$68,731	37	$415,085	0	67	$12,357,500
PERINTON, TOWN OF	$35,265	21	$148,408	0	26	$9,567,000
PITTSFORD, TOWN OF	$42,828	30	$112,882	0	25	$17,576,600
PITTSFORD, VILLAGE OF	$1,399	0	$0	0	0	$390,000
RIGA, TOWN OF	$3,898	5	$1,476	0	5	$1,131,000
ROCHESTER, CITY OF	$57,360	40	$82,974	0	45	$12,963,400
RUSH, TOWN OF	$1,167	3	$1,850	0	1	$412,000
SCOTTSVILLE, VILLAGE OF	$4,749	6	$2,920	0	4	$1,248,800
SPENCERPORT, VILLAGE OF	$17,257	15	$161,551	0	11	$2,126,500
SWEDEN, TOWN OF	$1,153	3	$1,515	0	0	$875,000
WEBSTER, TOWN OF	$31,660	32	$73,254	0	20	$10,552,600
WEBSTER, VILLAGE OF	$1,622	0	$0	0	1	$600,000
WHEATLAND, TOWN OF	$5,095	17	$138,657	0	5	$1,682,800
MONROE COUNTY	1,359,669	562	2,338,028	0	1,649	284,163,300

APPENDIX H

FEMA Mitigation Grant Awards

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Mitigation Grant Funding

Monroe County, its ten villages, nineteen towns, and the City of Rochester are eligible to receive federal Mitigation Grant funding by virtue of the *Monroe County Pre-Disaster Mitigation Plan*, that was approved by FEMA on February 24, 2005.

There are several federal Mitigation Grant programs available. FEMA's FFY2009 "Unified Hazard Mitigation Assistance (HMA) Program," consolidates the deadlines and many procedures for four, previously distinct grant programs outlined below including: the Pre-Disaster Mitigation Program, the Flood Mitigation Assistance Program, the Repetitive Flood Claims Program, and the Severe Repetitive Loss Program. The State Emergency Management Office (SEMO) continues to assist the County and local municipalities with the application and administrative process for all federal mitigation grants.

Local use of Mitigation funds across several grant programs is summarized below:

1. **Flood Mitigation Assistance Program (FMA)**. This is an annual FEMA grant allocated to states. FMA Mitigation Projects must protect properties insured under the National Flood Insurance Program (NFIP). Only communities with FEMA approved Flood Mitigation Plans are eligible to compete for FMA project funding. (Monroe County's FEMA-approved *Pre-Disaster Mitigation Plan* secures community eligibility.) Funding is available on a shared basis: federal funding provides 75% of the total project cost, with the remaining 25% coming from a non-federal source. At least half of the non-federal amount must be in cash. New York State generally receives less than one million dollars. The funding source is a "surcharge" on Flood Insurance Policy Premiums.

Year	Applicant	Total Project Cost	Award	Local Match	TOT. Award
FMA 2007	HIL	$ 728,880	$ 546,660	$ 182,220	
		(final fed. payment =	541,437.35)		
					$ 541,437.35

2. **Hazard Mitigation Grant Program (HMGP)**. This FEMA grant is authorized by the Stafford Act, Section 404, and awarded to a state following a Presidential Disaster Declaration in that state. NOTE: Eligibility for funding is not restricted to the declared disaster area within that state. Funding is calculated at 7% of the total post-disaster Public Assistance and Individual Assistance provided by FEMA. To be eligible for funding, an applicant must have a FEMA-approved *Pre-Disaster Mitigation Plan*.

Disaster	Applicant	Project Award	Total for Disaster
974-DR-NY, Winter Storm	HFL, #898-0013	$ 14,795	$ 14,795
1196-DR-NY, 1998 Flooding	HFL	44,000	
	PEN	600,000	
	County	210,000	
	MEN, #4042	82,720	
			937,624
1467-DR-NY, April '03 Ice Storm	HFL, #0009	76,426	76,426
1486-DR-NY, Severe Storms, et.al. **	HFL, #0005	345,366	345,366
**** Monroe County was not declared**			
1564/1565 DR-NY Hurricane Francis	FRP, #0007	72,426	72,426
1665-DR-NY 10/06 Buffalo Snow	FRP, #0031	183,878	183,878
**** Monroe County was not declared**			
1692-DR-NY Severe Storms, et.al.	FRP, #0005	78,280	
****Monroe County was not declared**	FRP, #0006	233,566	
	FRP #0007	460,350	
			772,196
1710-DR-NY Severe Storms & Flood	FRP #0003	735,281	
****Monroe County was not declared**	FRP #0004	365,335 (49.45% only)	
			1,100,616
1724-DR-NY Severe Storms, Flooding & Tornado	WBT #0005 #0032	108,598	108,598
****Monroe County was not declared**			
			$ **3,611,925**

3. **Pre-Disaster Mitigation Program (PDM-C)**. This FEMA grant was introduced in 2003, and is an annual allocation for both planning and project awards. To be eligible for project grants, an applicant must have a FEMA-approved *Pre-Disaster Mitigation Plan*. These are competitive awards intended to fund cost-effective hazard mitigation activities that compliment comprehensive mitigation programs, reduce the loss of life, injuries and damage, and destruction of property by primarily addressing natural hazards. There is a 25% match requirement, i.e. the award is no more than 75% of the total project cost.

Year	Applicant	Total Project Cost	Award	**Local Match**	**TOT. Award**
PDM-C 05	FRP (PDMC-PJ-02-NY-2005-019)	$ 178,274.50	133,705.87	44,568.63	
	WBV (PDMC-PJ-02-NY-2005-015)	378,165.50	223,199.50	154,966.00	
PDM-C 07	FRP (PDMC-PJ-02-NY-2007-005	401,041.91	300,767.24	100,274.66	
					$ 657,672.61

4. Other sources of funding for mitigation activities include:

"**Hazard Mitigation, Section 406**(e)" of the Stafford Act is provided within the post-disaster Public Assistance Program. It funds only the restoration of the damaged elements of a facility. "Section 406 mitigation measures are considered part of the total eligible cost of repair, restoration, reconstruction, or replacement of a facility. They are limited to measures of permanent work, and an applicant may not apply these funds to alternate projects or improved projects if a new replacement facility is involved" (Public Assistance Policy Digest, FEMA 321, October 2001, p. 61).

Repetitive Flood Claims (RFC) Program funds reduce or eliminate the long-term risk of flood damage to structures insured under the National Flood Insurance Program (NFIP) that have had one or more claim payments for flood damages, and are located within a State or community that can not meet the cost share or management capacity requirements of the Flood Mitigation Assistance (FMA) Program. The long-term goal of RFC is to reduce or eliminate claims under NFIP through mitigation activities that are in the best interest of the NFIP. Eligible projects include: acquiring insured properties that have one or more claim payments for flood damage and demolishing or relocating structures; elevating structures; dry flood proofing of non-residential structures; and, minor localized flood control projects. All RFC grants are eligible for up to a 100% Federal share. Property acquisition projects require that in addition to purchase, the structure(s) must be demolished, with conversion of the property to deed-restricted open space use.

Special/Targeted Funds are made available through federal agencies to address specific needs.

For example, in December 1999, 28 New York counties were notified of their eligibility to receive U.S. Department of Housing and Urban Development (HUD) funds appropriated following disasters that occurred in 1998. This "Disaster Recovery Initiative" was administered by the NYS Housing Trust Fund Corporation, and assisted recovery needs related to housing, business recovery, mitigation, public works, and public facilities. Monroe County's allocation was used on projects for flood control, acquisition/demolition, tree replacement, and debris removal. Project locations and their local government sponsors were:

Project Location	Local Gov't. Sponsor	Project Award	Total Award
Brighton	County – Real Estate	$ 36,404	$ 36,404
Chili	County - DES	108,650	
	Chili	105,632	214,282
Hamlin	County – DOT	95,751.05	
Hamlin/Parma	County – DOT	272,000	367,751.05
Henrietta	Henrietta	75,451	75,451
Honeoye Falls	Mendon	$ 84,035	
	Honeoye Falls	37,726	121,761
Penfield	Penfield	66,245	
		9,528.40	75,773.40
City of Rochester	County – Parks	150,880.55	150,880.55
			$1,042,303.00

Severe Repetitive Loss (SRL) Program eligible properties are pre-qualified ("pre-validated") by FEMA based on their review of National Flood Insurance Program (NFIP) claims. Not all counties or municipalities will have SRL-eligible properties for each grant cycle, but the eligible list is revised as new claims information is reviewed and validated. "SRL properties are defined as residential properties that are covered under an NFIP policy and have at least:

a. four NFIP claim payments (including building and contents) over $5,000 each whose total exceeds $20,000, or
b. two separate claims payments (building payments only) whose total exceeds the market value of the building.

"At least two of the claims must have occurred within any ten-year period and must have been made more than 10 days apart." For the 2008 program, there are 235 FEMA-designated SRL properties across New York State. None of the properties are in Monroe County.

SEMO 2008 Flood Mitigation Grant Program was announced March 26, 2008 by Director John Gibb. The funding source is New York State's 5% set-aside from the federal Hazard Mitigation Grant Program (HMGP). SEMO designated that $650,000 of the set-aside be used by local governments "for mitigation projects with strong educational and training components dealing with watershed management and flood issues. Applications will be evaluated for their effectiveness at educating the public about mitigation programs and opportunities, training local officials and volunteers about measures and techniques proven to reduce the loss of lives and properties from disasters, and enhancing previous and current mitigation projects and activities."

5.30.10

APPENDIX I

Sample Resolution for Municipal Legislative Adoption

Introduced by _____

CITY/TOWN/VILLAGE OF _____
RESOLUTION NO. _____ OF 2010

ADOPTION OF MONROE COUNTY PRE-DISASTER MITIGATION PLAN

WHEREAS, the federal Disaster Mitigation Act of 2000 ("the Act") requires that all local governments have an approved disaster mitigation plan in place in order to be eligible for federal Hazard Mitigation Grant Program (HMGP) project funding.

WHEREAS, the Act requires that Pre-Disaster Mitigation Plans be revised on a 5-year cycle.

WHEREAS, the current Plan was authorized on February 24, 2005.

WHEREAS, representatives of the County, the City of Rochester, the Towns of Brighton, Chili, Clarkson, Gates, Greece, Hamlin, Henrietta, Irondequoit, Mendon, Ogden, Parma, Penfield, Perinton, Pittsford, Riga, Rush, Sweden, Webster and Wheatland, and the Villages of Brockport, Churchville, East Rochester, Fairport, Hilton, Honeoye Falls, Pittsford, Scottsville, Spencerport and Webster, have actively participated in the design and the writing of the Monroe County Pre-Disaster Mitigation Plan ("the Plan").

WHEREAS, the federal regulations implementing the Disaster Mitigation Act of 2000, (44 CFR §201.6(c)(5)) require that the Plan be formally adopted by each jurisdiction requesting approval of the Plan.

NOW, THEREFORE, BE IT RESOLVED BY THE CITY COUNCIL/TOWN BOARD/VILLAGE BOARD OF THE CITY/TOWN/VILLAGE OF _____, as follows:

Section 1. The City Council/Town Board/Village Board hereby approves and adopts the Monroe County Pre-Disaster Mitigation Plan.

Section 2. The Monroe County Executive, or her designee, is hereby authorized and directed to submit the Monroe County Pre-Disaster Mitigation Plan to the New York State Office of Emergency Management for review.

Section 3. This resolution shall take effect in accordance with Section C2-7 of the Monroe County Charter.

ADOPTION: Date: _____ Vote: _____

MAYOR/SUPERVISOR _____

CITY/TOWN/VILLAGE OF _____ CLERK:_____

SEAL:

Municipal Adoption of the 2010 Plan

municipality	Date of Legislative Adoption
Monroe County	
City of Rochester	
Town of Brighton	
Town of Chili	
Town of Clarkson	
Town of Gates	
Town of Greece	
Town of Hamlin	
Town of Henrietta	
Town of Irondequoit	
Town of Mendon	
Town of Ogden	
Town of Parma	
Town of Penfield	
Town of Perinton	
Town of Pittsford	
Town of Riga	
Town of Rush	
Town of Sweden	
Town of Webster	
Town of Wheatland	
Village of Brockport	
Village of Churchville	
Village of East Rochester	
Village of Fairport	
Village of Hilton	
Village of Honeoye Falls	
Village of Pittsford	
Village of Scottsville	
Village of Spencerport	
Village of Webster	

APPENDIX J

Planning Committee Meeting Minutes

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Monroe County Pre-Disaster Mitigation Planning Committee
Meeting Minutes
November 9, 2009

Attending: Richard Tracy, Town of Rush; Greg Merrick, Town of Irondequoit; Jack Barton, Town of Parma; Gary Kleist, Town of Webster; Bill Putt, County DES; Greg Seigfred, Town of Perinton; Kelly Cline, Town of Pittsford; Chuck Marshall, Town of Henrietta; Mayor Michael Souers, Village of Scottsville; Jerry Lonthair, Village of Honeoye Falls; Major Steve Koster, Jennifer Curley, Sheriff's Office; Justin Moore, County IS; Scott McCarty, Kristina Klees, County GIS; Tom Tilebein, Mike McHenry, Village of Hilton; Lee Nettnin, Town of Hamlin; Tom Goodwin, Tangyan Li, County Planning; Tim Frelier, County DOT; Elaine Tette, Town of Gates Council Member; David Zorn, Tim Sullivan, Genesee-Finger Lakes Planning Council; Don McKeown, RIT; Bill Southwell, Village of Webster; Mayor Nancy Steedman, Village of Churchville; Pat Connors, Town of Sweden Council Member; David Lindsay, Town of Chili; Rich Verdouw, County Public Safety Communications; Fred Rion, Ken Beck, Muffy Meisenzahl, County OEM

Introductions. Everyone introduced themselves and their respective jurisdiction. Tom Goodwin, County Planning Department, is the County's Mitigation Coordinator and our point-of-contact with this Committee for Mitigation Grants. Dave Zorn and Tim Sullivan are with the Genesee-Finger Lakes Regional Planning Council, and they will assist OEM with the planning process and documentation associated with this County Plan. Don McKeown, RIT, is the County point-of-contact with several RIT-Monroe County initiatives.

Housekeeping Items:

1. Committee Roster. The Roster was revised to reflect members authorized by their Chief Elected Official, or agency administrator. A revised Roster is attached for reference. OEM will contact jurisdictions that are absent.

2. Meeting Packet. We reviewed documents in the packet. They are attached (electronically) with the Minutes:

   - Meeting Agenda
   - Committee Roster, as revised
   - Monroe County HAZNY Ranking Proposal, as revised
   - Hazard Definitions

- "Other" HAZNY Definitions
- *Monroe County Pre-Disaster Mitigation Plan, 2.24.05*, through page 30
- 2005 Plan, Appendix B-1, "Hazard-Specific Analysis: Ice Storm"
- 2005 Plan, Appendix C-1, "Hazard-Specific Action Plans: Ice Storm"
- Timeline of Activities
- Mitigation Grant Funding, (4-page summary of grants with notes of local awards)
- HAZNY CD Software (was distributed to those who wanted it)

Planning Process:

The current Plan was authorized by FEMA on February 24, 2005. Pre-Disaster Mitigation Plans have a 5-year life cycle.

1. County Plan. The County intends to follow the same process we used to formulate and adopt the current plan – that is a "Multi-Jurisdiction" planning process that engages all political sub-divisions, and several government authorities and private-sector agencies who partner with us in delivering public safety services.

2. Local Plans. The current Plan has an Appendix with twelve (12) "Municipal Annexes" for those local governments that chose to develop a companion document to the County Plan. These municipal plans were written by planning committees that included local emergency services, school districts, municipal officials and employees, and others at local discretion. Five town governments partnered with the respective villages that overlay their geography. This opportunity is available with the 2010 Plan Revision if the local municipalities want to pursue it. OEM will forward electronic copies of the plans they have to Committee representatives under separate cover.

3. Hazard Analysis. The current Plan identifies twenty-nine (29) hazards and ranks them in priority order from #1 through #29 based on their adverse impact across the County's geography. This ranking was derived from the "Monroe County Hazard Analysis Report by SEMO, January 1999." HAZNY Software has been modified and is currently the 2004 edition. This is the software OEM, County Planning Department, and Genesee-Finger Lakes Planning Council representatives used to generate the attached 2010 Hazard Analysis Proposal. The Proposal is presented on a chart that documents the twenty-nine hazards, their rank in 2005, their 2010 rank proposal, their hazard titles in 2010 / 2005, and their 2010 ranking score and corresponding category of vulnerability. The Proposal is based on our collective experience, "ground truth" associated with the presence of these hazards on our landscape, and the hazard definitions and "other definitions" associated with the HAZNY guidance.

   Motion to adopt the 2010 "Monroe County HAZNY Ranking Proposal," as amended with Hazard Title corrections, is authorized by unanimous consensus of the Committee members present.

4. Mitigation Activities. Committee members were referred to page 12 of the current Plan. We reviewed the six (6) Goals and Objectives outlined in the Mitigation Strategy. Motion to retain the Goals and Objectives stated in the 2005 Plan as pertinent for continuance with the

County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

Committee members were referred to pages 12 – 13 of the current Plan. We reviewed the six (6) Mitigation Measures and their respective definitions as outlined in the Mitigation Strategy. Motion to retain the Mitigation Measures stated in the 2005 Plan as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

Committee members then reviewed the Action Plans identified in the 2005 Plan that correspond with each of the Mitigation Measures:

- **Prevention**…Motion to retain the five Prevention Measures stated in the 2005 Plan, with revisions, as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

  NOTE: The six Mitigation Measures described here, with revisions, are attached in a separate document.

- **Property Protection**…Motion to retain the five Property Protection Measures stated in the 2005 Plan as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

- **Public Education and Awareness**…Motion to retain the six Public Education and Awareness Measures stated in the 2005 Plan, with revisions, as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

- **Natural Resource Protection**…Motion to retain the five Natural Resource Protection Measures stated in the 2005 Plan, with revisions, as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

- **Emergency Services**…Motion to retain the seven Emergency Services Measures stated in the 2005 Plan, with revisions, as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

- **Structural Projects**…Motion to retain the four Structural Projects Measures stated in the 2005 Plan, with revisions, as pertinent for continuance with the County's 2010 Plan, is authorized by unanimous consensus of the Committee members present.

The Mitigation Measures outlined in this section of the Plan are applicable to all twenty-nine hazards. There may be additional, more specific Measures that are appropriate for an individual hazard. If the Committee defines more specific Measures, they will be noted in Appendix "C," as a "Hazard-Specific Action Plan" for that individual hazard. Committee members should review

Appendix C-1 for Ice Storm as an example of Mitigation Measures for a specific hazard, and prepare to recommend this level of activity as appropriate for the 2010 Plan.

Plan Development:

1. County Template. The 2005 Plan is a viable template for the 2010 Revision. It conforms with FEMA planning guidance and it provides document and archiving consistency with OEM records for the presence of these hazards and their impact on our community.

   Committee activity will concentrate on the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. FEMA guidance focuses us on Mitigation planning for Natural Hazards. These are the hazards that OEM will target in their outreach to the Committee.

   The 2010 Plan will include County GIS datasets and demographic information consistent with US Census data.

2. Timeline of Activities. The timeline was reviewed. This proposal outlines the steps and the procedural flow of activities to finalize the 2010 Plan Revision, its submission to NYS for review, to FEMA for authorization, and its adoption by all member legislative bodies.

   This timeline accommodates FEMA's requirement for Plan revision and ensures that we are compliant with the FEMA process when their Mitigation Grant Program is announced in the Fall of 2010. Please note that County Mitigation Coordinator, Tom Goodwin, uses our Planning Committee Roster as the basis for an e-mail list to share information about FEMA's grant program and their application process.

3. Resources. The County will document all resources and reference sources used to develop the 2010 Plan. Local plans should also document each source of information.

Other Items. The attached four-page "Mitigation Grant Funding" document discusses FEMA Mitigation grants and how they are used/have been used in our community. Most of these grants require the applicant to have a FEMA-approved Pre-Disaster Mitigation Plan. The County's 2005 Plan is the document that grants local eligibility for these grant programs. The 2010 Plan will ensure that the County and the local jurisdictions continue to be eligible for these grants and others that require Pre-Disaster Plans as a pre-requisite for eligibility.

Next Steps:

1. Assignments:

   - OEM will draft Appendix "B's" and "C's" for the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. As they are available, they will be forwarded under separate cover to Committee members.

- Committee members should decide if they are going to engage a local planning committee to revise existing local companion plans from 2005, and/or draft a 2010 companion Municipal Annex to the County's Plan.

- If Committee members have specific Hazard Mitigation Measures for the County Plan, please submit them to OEM for inclusion.

2. Next Meeting. Our next meeting is scheduled:

Friday, December 11, 2009
9:00 – 11:00 a.m.
EOC, Suite 200
Public Safety Training Center, 1190 Scottsville Road

Thank you for participating!

Respectfully submitted,

Muffy Meisenzahl

Encl. Meeting Agenda
Committee Roster, as revised
Monroe County HAZNY Ranking Proposal, as revised
Hazard Definitions
"Other" HAZNY Definitions
Monroe County Pre-Disaster Mitigation Plan, 2.24.05, through page 30
2005 Plan, Appendix B-1, "Hazard-Specific Analysis: Ice Storm"
2005 Plan, Appendix C-1, "Hazard-Specific Action Plans: Ice Storm"
Timeline of Activities
Mitigation Grant Funding, (4-page summary of grants with notes of local awards)
Mitigation Measures for 2010 Plan (as agreed and revised from the 2005 Plan)

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Monroe County Pre-Disaster Mitigation Planning Committee
Meeting Minutes
December 11, 2009

Attending: Richard Tracy, Town of Rush; Greg Merrick, Town of Irondequoit; Gary Kleist, Town of Webster; Greg Seigfred, Town of Perinton; Kelly Cline, Town of Pittsford; Chuck Marshall, Town of Henrietta; Mayor Michael Souers, Village of Scottsville; Jerry Lonthair, Village of Honeoye Falls; Major Steve Koster, Sheriff's Office; Justin Moore, County IS; Debbie Campanella, Town of Riga Council Member; Tom Burke, Monroe 2 BOCES; Ken Moore, Village of Fairport; Fritz Gunther, Village of Spencerport; Scott McCarty, Kristina Klees, County GIS; Lee Nettnin, Town of Hamlin; Tom Goodwin, County Planning; Elaine Tette, Town of Gates Council Member; Mayor Nancy Steedman, Village of Churchville; Pat Connors, Town of Sweden Council Member; David Lindsay, Town of Chili; Fred Rion, Muffy Meisenzahl, County OEM

Introductions. Everyone introduced themselves and their respective jurisdiction. Tom Goodwin, County Planning Department, is the County's Mitigation Coordinator and our point-of-contact with this Committee for Mitigation Grants. We are not yet certain if the Genesee-Finger Lakes Regional Planning Council will assist OEM with this County Plan.

Housekeeping Items:

1. Meeting Minutes from the November 9, 2009 meeting were distributed via e-mail on November 30th.

2. Committee Roster. The Roster was revised to reflect members authorized by their Chief Elected Official, or agency administrator. A revised Roster is attached for reference. OEM will contact jurisdictions that are absent.

3. Meeting Packet. We reviewed documents in the packet. They are attached (electronically) with the Minutes:

   - Meeting Agenda
   - "Monroe County Hazards" (as revised at 11.9.09 meeting)
   - "Monroe County HAZNY Ranking Proposals" (with yellow highlights)
   - Appendix C's (from the 2005 Plan), associated with hazards highlighted in yellow
   - Hazard Definitions (those appropriate for today's discussion)

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Planning Process:

The current Plan was authorized by FEMA on February 24, 2005. Pre-Disaster Mitigation Plans have a 5-year life cycle.

1. County Plan. The County intends to follow the same process we used to formulate and adopt the current plan – that is a "Multi-Jurisdiction" planning process that engages all political sub-divisions, and several government authorities and private-sector agencies who partner with us in delivering public safety services.

2. Local Plans. The current Plan has an Appendix with twelve (12) "Municipal Annexes" for those local governments that chose to develop a companion document to the County Plan. These municipal plans were written by planning committees that included local emergency services, school districts, municipal officials and employees, and others at local discretion. Five town governments partnered with the respective villages that overlay their geography. This opportunity is available with the 2010 Plan Revision if the local municipalities want to pursue it. On December 8th, OEM forwarded an electronic copy of the 2005 local plan to Committee members who currently represent these municipalities.

   Members present reported that 2010 local plans will be submitted with the County Plan for:

   - Town of Gates
   - Village of Honeoye Falls
   - Town of Perinton & Village of Fairport
   - Town of Riga & Village of Churchville
   - Town of Sweden & Village of Brockport
   - Town of Wheatland & Village of Scottsville

   Please advise OEM about your municipality's intention of writing a local Plan.

3. Hazard Analysis. We reviewed the "Monroe County Hazards," listing authorized by the Committee at our November 9th meeting.

4. Mitigation Activities. At our November 9th meeting, we reviewed the six (6) Mitigation Measures and their respective definitions as outlined in the Mitigation Strategy. We validated the general Action Plan for continuance with the County's 2010 Plan, and recognized that these actions are pertinent for all twenty-nine hazards.

   There may be additional, more specific Measures that are appropriate for an individual hazard. Committee members reviewed these more specific Measures for Natural Hazards that are highlighted in yellow on the "Monroe County HAZNY Ranking Proposals" chart. Motions were adopted to revise the following Appendix C's for inclusion in the 2010 Plan:

   - C-1, Ice Storm
   - C-2, Flood

- C-3, Severe Storm
- C-5, Winter Storm Severe
- C-13, Landslide
- C-14, Tornado
- C-17, Ice Jam
- C-20, Extreme Temperatures

Plan Development:

1. County Template. The 2005 Plan is a viable template for the 2010 Revision. It conforms with FEMA planning guidance and it provides document and archiving consistency with OEM records for the presence of these hazards and their impact on our community. OEM continues to draft Plan Appendices B and C for Committee member review.

   Committee activity will concentrate on the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. FEMA guidance focuses us on Mitigation planning for Natural Hazards. These are the hazards that OEM will target in their outreach to the Committee.

   The 2010 Plan will include County GIS datasets and demographic information consistent with US Census data.

   The 2010 Plan will also include Local Mitigation Measures to credit mitigation activity since the 2005 Plan was written. This information will be included in the 2010 Plan as "Appendix D," and the activity will be credited to specific hazards and/or our general Action Plan whichever is most appropriate. OEM will create this Appendix and begin to document the activity (see attached Appendix D, as the first example of this material). Committee members should begin to document local community mitigation activities that can be included either in their 2010 Local Plan or the County's 2010 Plan. Please submit this information to OEM.

2. Timeline of Activities. The timeline was reviewed. (A revised document is attached.) This proposal outlines the steps and the procedural flow of activities to finalize the 2010 Plan Revision, its submission to NYS for review, to FEMA for authorization, and its adoption by all member legislative bodies.

   This timeline accommodates FEMA's requirement for Plan revision and ensures that we are compliant with the FEMA process when their Mitigation Grant Program is announced in the Fall of 2010. Please note that County Mitigation Coordinator, Tom Goodwin, uses our Planning Committee Roster as the basis for an e-mail list to share information about FEMA's grant program and their application process.

3. References. The County will document all resources and reference sources used to develop the 2010 Plan. Local plans should also document each source of information.

Other Items. The attached four-page "Mitigation Grant Funding" document discusses FEMA Mitigation grants and how they are used/have been used in our community. Most of these grants

require the applicant to have a FEMA-approved Pre-Disaster Mitigation Plan. The County's 2005 Plan is the document that grants local eligibility for these grant programs. The 2010 Plan will ensure that the County and the local jurisdictions continue to be eligible for these grants and others that require Pre-Disaster Plans as a pre-requisite for eligibility.

Next Steps:

1. Assignments:

- OEM will draft Appendix "B's" and "C's" for the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. As they are available, they will be forwarded under separate cover to Committee members.

- Committee members should decide if they are going to engage a local planning committee to revise existing local companion plans from 2005, and/or draft a 2010 companion Municipal Annex to the County's Plan.

- If Committee members have specific Hazard Mitigation Measures for the County Plan, please submit them to OEM for inclusion.

- If Committee members have Mitigation Actions to credit and document local activity, please submit them to OEM for inclusion.

2. Next Meeting. Our next meeting is scheduled:

Friday, January 29, 2010
9:00 – 11:00 a.m.
EOC, Suite 200
Public Safety Training Center, 1190 Scottsville Road

Thank you for participating!

Respectfully submitted,

Muffy Meisenzahl

Encl. Meeting Agenda
"Monroe County Hazards" (as revised at 11.9.09 meeting)
"Monroe County HAZNY Ranking Proposals" (with yellow highlights)
Appendix C's (from the 2005 Plan), associated with hazards highlighted in yellow
Hazard Definitions (those appropriate for today's discussion)
Committee Roster, as revised
Timeline of Activities, as revised

Mitigation Grant Funding (4-page summary of grants with notes of local awards), revised Mitigation Measures for 2010 Plan (as agreed and revised from the 2005 Plan):

- C-1, Ice Storm
- C-2, Flood
- C-3, Severe Storm
- C-5, Winter Storm Severe
- C-13, Landslide
- C-14, Tornado
- C-17, Ice Jam
- C-20, Extreme Temperatures

Appendix D, Local Mitigation Measures (as agreed to credit activity since the 2005 Plan):

- D-2, Flood
- D-3, Severe Storm

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Monroe County Pre-Disaster Mitigation Planning Committee
Meeting Minutes
January 29, 2010

Attending: Greg Merrick, Town of Irondequoit; Greg Seigfred, Town of Perinton; Kelly Cline, Town of Pittsford; Ken Moore, Village of Fairport; Fritz Gunther, Village of Spencerport; Scott McCarty, County GIS; Lee Nettnin, Town of Hamlin; Mayor Nancy Steedman, Village of Churchville; Pat Connors, Town of Sweden Council Member; Mike McHenry, Village of Hilton; Kathryn Firkins, Town of Greece; Jack Barton, Town of Parma; Fred Rion, Mark Leszczynski, Muffy Meisenzahl, County OEM

Introductions. Everyone introduced themselves and their respective jurisdiction. We are not yet certain if the Genesee-Finger Lakes Regional Planning Council will assist OEM with this County Plan.

Housekeeping Items:

1. Meeting Minutes from the December 11, 2009 meeting were distributed via e-mail on January 4th.

2. Committee Roster. The Roster was revised to reflect members authorized by their Chief Elected Official, or agency administrator. A revised Roster is attached for reference. OEM will contact jurisdictions that are absent.

3. Meeting Packet. We reviewed documents in the packet. They are attached (electronically) with the Minutes:

   - Meeting Agenda
   - "Monroe County HAZNY Ranking Proposals" (with yellow highlights)
   - Appendix C-3
   - Appendix D-3
   - the Hazard-Specific Action Plan template (to document mitigation projects)
   - Mitigation Measures for the 2010 Plan (general projects for the 6, topic areas)

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Planning Process:

The current Plan was authorized by FEMA on February 24, 2005. Pre-Disaster Mitigation Plans have a 5-year life cycle.

1. County Plan. The County intends to follow the same process we used to formulate and adopt the current plan – that is a "Multi-Jurisdiction" planning process that engages all political sub-divisions, and several government authorities and private-sector agencies who partner with us in delivering public safety services.

2. Local Plans. The current Plan has an Appendix with twelve (12) "Municipal Annexes" for those local governments that chose to develop a companion document to the County Plan. These municipal plans were written by planning committees that included local emergency services, school districts, municipal officials and employees, and others at local discretion. Five town governments partnered with the respective villages that overlay their geography. This opportunity is available with the 2010 Plan Revision if the local municipalities want to pursue it. On December 8th, OEM forwarded an electronic copy of the 2005 local plan to Committee members who currently represent these municipalities.

   Members present reported that 2010 local plans will be submitted with the County Plan for:

   - Town of Gates
   - Village of Honeoye Falls
   - Town of Perinton & Village of Fairport
   - Town of Riga & Village of Churchville
   - Town of Sweden & Village of Brockport
   - Town of Wheatland & Village of Scottsville
   - Town of Ogden & Village of Spencerport
   - Town of Parma & Village of Hilton

   The towns of Hamlin and Pittsford & Village of Pittsford will not submit local plans to the County's 2010 Plan.

   We are still waiting to hear from the towns of Brighton, Clarkson, and Mendon about their intention to write a local Plan.

3. Hazard Analysis. We reviewed the "Monroe County Hazards," listing authorized by the Committee at our November 9, 2009 meeting, and reiterated that FEMA wants us to focus on natural hazards for our 2010 Plan revision. These hazards are highlighted in yellow on the attached "Monroe County HAZNY Ranking Proposals."

4. Mitigation Activities. At our November 9, 2009 meeting, we reviewed the six (6) Mitigation Measures and their respective definitions as outlined in the Mitigation Strategy. We validated the attached general Action Plan for continuance with the County's 2010 Plan, and recognized that these actions are pertinent for all twenty-nine hazards.

There may be additional, more specific Measures that are appropriate for an individual hazard, and these are conveyed by Hazard title in Appendix C.

Plan Development:

1. County Template. The 2005 Plan is a viable template for the 2010 Revision. It conforms with FEMA planning guidance and it provides document and archiving consistency with OEM records for the presence of these hazards and their impact on our community. OEM continues to draft Plan Appendices B and C for Committee member review.

   Committee activity will concentrate on the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. FEMA guidance focuses us on Mitigation planning for Natural Hazards. These are the hazards that OEM will target in their outreach to the Committee.

   The 2010 Plan will include County GIS datasets and demographic information consistent with US Census data.

   The 2010 Plan will also include Local Mitigation Measures to credit mitigation activity since the 2005 Plan was written. This information will be included in the 2010 Plan as "Appendix D," and the activity will be credited to specific hazards and/or our general Action Plan whichever is most appropriate. OEM will create this Appendix and begin to document the activity. The attached Appendix D-3 is the first example of this material. Committee members should begin to document local community mitigation activities that can be included either in their 2010 Local Plan or the County's 2010 Plan. Please submit this information to OEM.

   For about an hour, Committee members present sorted references that document mitigation activities since the 2005 Plan was adopted. This activity credits mitigation projects that cross-reference the six general mitigation topics in our Plan. OEM will continue to refine these projects for credit in Appendix D. Many thanks to the Committee for their assistance…it is valuable for our collective effort!

   NOTE: (1). The attachment titled, "Mitigation Measures for the 2010 Plan" was used as a reference point to sort the pile of mitigation activities so they can be credited appropriately. (2). The attachment titled, "Hazard-Specific Action Plan" can be copied and pasted so the chart can assist you in documenting project activity for credit. This chart is used to both define projects in Appendix C, and to document projects for credit in Appendix D.

2. Timeline of Activities. A revised document is attached. This timeline accommodates FEMA's requirement for Plan revision and ensures that we are compliant with the FEMA process when their Mitigation Grant Program is announced in the Fall of 2010. Please note that County Mitigation Coordinator, Tom Goodwin, uses our Planning Committee Roster as the basis for an e-mail list to share information about FEMA's grant program and their application process.

3. References. The County will document all resources and reference sources used to develop the 2010 Plan. Local plans should also document each source of information.

Next Steps:

1. Assignments:

- OEM will draft Appendix "B's," "C's" and "D's" for the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. As they are available, they will be forwarded under separate cover to Committee members.

- Committee members who have not yet declared their intentions about a local planning effort, should decide and advise OEM.

- If Committee members have specific Hazard Mitigation Measures for the County Plan, please submit them to OEM for inclusion.

- If Committee members have Mitigation Actions to credit and document local activity, please submit them to OEM for inclusion.

2. Next Meeting. Our next meetings are scheduled:

Friday's, **March 5th** and **April 9th**, 2010
9:00 – 11:00 a.m.
EOC, Suite 200
Public Safety Training Center, 1190 Scottsville Road

Thank you for participating!

Respectfully submitted,

Muffy Meisenzahl

Encl. Meeting Agenda
"Monroe County HAZNY Ranking Proposals" (with yellow highlights)
Appendix C-3
Appendix D-3
the Hazard-Specific Action Plan template (to document mitigation projects)
Mitigation Measures for 2010 Plan
Committee Roster, as revised
Timeline of Activities, as revised

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Monroe County Pre-Disaster Mitigation Planning Committee
Meeting Minutes
April 9, 2010

Attending: Chuck Marshall, Town of Henrietta; Greg Seigfred, Town of Perinton; Kelly Cline, Town of Pittsford; Ken Moore, Village of Fairport; Richard Tracy, Town of Rush; Scott McCarty and Kristina Klees, County GIS; Lee Nettnin, Town of Hamlin; Mayor Nancy Steedman, Village of Churchville; Pat Connors, Town of Sweden Council Member; Mike McHenry and Mike Lissow, Village of Hilton; Gary Kleist, Town of Webster; Jack Barton, Town of Parma; Tim Keef, Town of Brighton; Jim Merzke, Town of Mendon; Steve Koster, Sheriff's Office; Tom Goodwin, County Planning Department; Justin Moore, County IS; Fred Rion, Muffy Meisenzahl, County OEM

Introductions. Everyone introduced themselves and their respective jurisdiction.

Housekeeping Items:

1. Meeting Minutes from the January 29, 2010 meeting were distributed via e-mail on February 2nd.

2. Committee Roster. The Roster was revised to reflect members authorized by their Chief Elected Official, or agency administrator (see attached). OEM will contact jurisdictions that are absent. The Towns of Clarkson and Gates lack representation.

3. Local Plans. The current Plan has an Appendix with twelve (12) "Municipal Annexes" for those local governments that chose to develop a companion document to the County Plan. These municipal plans were written by planning committees that included local emergency services, school districts, municipal officials and employees, and others at local discretion. Five town governments partnered with the respective villages that overlay their geography. This opportunity is available with the 2010 Plan Revision if the local municipalities want to pursue it. On December 8, 2009 OEM forwarded an electronic copy of the 2005 local plan to Committee members who currently represent these municipalities.

   Members reporting that local plans will be submitted with the 2010 County Plan are:

   - Town of Gates
   - Village of Honeoye Falls
   - Town of Perinton & Village of Fairport

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- Town of Riga & Village of Churchville
- Town of Sweden & Village of Brockport
- Town of Wheatland & Village of Scottsville
- Town of Ogden & Village of Spencerport
- Town of Parma & Village of Hilton

We are still waiting to hear from the Town of Clarkson about their intention to write a local Plan.

4. Meeting Packet. We reviewed documents in the packet. They are attached (electronically) with the Minutes:

    - Meeting Agenda
    - Appendix C-1, C-2, C-3, C-5, C-13, C-14, C-17, C-20
    - Appendix D-1, D-2, D-3, D-5, D-13, D-14, D-17, D-20

Planning Process:

The current Plan was authorized by FEMA on February 24, 2005. Pre-Disaster Mitigation Plans have a 5-year life cycle. The County intends to follow the same process we used to formulate and adopt the current plan – that is a "Multi-Jurisdiction" planning process that engages all political sub-divisions, and several government authorities and private-sector agencies who partner with us in delivering public safety services.

1. Hazard Analysis. We reviewed the "Monroe County Hazards," listing authorized by the Committee on November 9, 2009, and reiterated that we will follow FEMA's guidance and focus our 2010 Plan revision on the natural hazards highlighted in yellow on the attached "Monroe County HAZNY Ranking Proposals".

2. Mitigation Activities:

    Projects to Do. At our November 9, 2009 meeting, we reviewed the six (6) Mitigation Measures, their respective definitions, and validated our general Action Plan for the County's 2010 Plan. This section of the Plan and its measures/projects are pertinent for all twenty-nine hazards. A separate "Appendix C," contains additional measures/projects that are appropriate for specific hazards.

    Projects to Credit. At our January 29, 2010 meeting we identified measures/projects that have been accomplished since the 2005 Plan was adopted, and we agreed to take credit for this activity in our 2010 Plan. Those measures that refer to our general Action Plan will be accounted in the main body of the 2010 Plan; and, measures credited to specific hazards will be accounted in a new Appendix D, cross-referenced to each hazard using the numbering system we established in Appendix B and C.

Plan Development:

1. Appendix C. We reviewed and reached consensus on measures/projects that are appropriate for these Appendix C's: C-1, C-2, C-3, C-5, C-13, C-14, C-17 and C-20. Municipalities that are not writing local plans, should submit local projects to OEM for inclusion with the County Plan. If additional measures/projects are incorporated with these Appendix C's, a revised Appendix will be forwarded.

2. Appendix D. We reviewed and reached consensus on measures/projects that are appropriate for these Appendix D's: D-1, D-2, D-3, D-5, D-13, D-14, D-17 and D-20. Municipalities that are not writing local plans, should submit local projects to OEM for inclusion with the County Plan. If additional measures/projects are incorporated with these Appendix D's, a revised Appendix will be forwarded.

3. Appendix B. OEM will draft Appendix B's for the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. As they are available, they will be forwarded under separate cover to Committee members. If members have descriptive information on any hazard that should be included, please provide it to OEM as soon as possible.

4. Mapping. The 2010 Plan will include County GIS datasets and demographic information consistent with US Census data. If local plans require mapping, please contact County GIS (Scott McCarty and/or Kristina Klees).

5. Timeline of Activities. A revised document is attached. This timeline accommodates FEMA's requirement for Plan revision and ensures that we are compliant with the FEMA process when their Mitigation Grant Program is announced in the Fall of 2010. Please note that County Mitigation Coordinator, Tom Goodwin, uses our Planning Committee Roster as the basis for an e-mail list to share information about FEMA's grant program and their application process.

Next Steps:

1. Assignments:

    - OEM will draft Appendix B's, for the Natural Hazards highlighted in yellow on the HAZNY Ranking Proposal. As they are available, they will be forwarded under separate cover to Committee members.

    - OEM will revise Appendix C's and D's as we identify additional measures/projects, and forward them under separate cover to Committee members.

    - Committee members who have not yet declared their intentions about a local planning effort, should decide and advise OEM.

    - If Committee members have specific Hazard Mitigation Measures for the County Plan, please submit them to OEM for inclusion.

- If Committee members have Mitigation Actions to credit and document local activity, please submit them to OEM for inclusion.

2. Next Meeting. Our next meeting is scheduled:

Friday, June 11, 2010
9:00 – 11:00 a.m.
EOC, Suite 200
Public Safety Training Center, 1190 Scottsville Road

Thank you for participating!

Respectfully submitted,

Muffy

Muffy Meisenzahl

Encl. Meeting Agenda
"Monroe County HAZNY Ranking Proposals" (with yellow highlights)
Appendix C's (as listed in the Minutes)
Appendix D's (as listed in the Minutes)
Committee Roster, as revised
Timeline of Activities, as revised

Office of **Emergency Management**
Monroe County, New York

Maggie Brooks
County Executive

Mary Louise Meisenzahl, MPA, CEM®
Administrator

Monroe County Pre-Disaster Mitigation Planning Committee
Meeting Minutes
June 11, 2010

Attending: Gregory Merrick, Town of Irondequoit; Frank Allkofer, Town of Gates; Kathryn Firkins, John Henderson, Town of Greece; Fritz Gunther, Village of Spencerport; Jake Swingly, Bill Southwell, Village of Webster; Dick Marion, RG&E; David Lindsay, Town of Chili; Gerald Lonthair, Village of Honeoye Falls; Supervisor Bob Ottley, Debbie Campanella, Town of Riga; Michael Dobbertin, Rochester Fire Department; Ursula Liotta, Town of Clarkson; Michael Sayers, Monroe County Public Health; Chuck Marshall, Town of Henrietta; Kelly Cline, Town of Pittsford; Ken Moore, Village of Fairport; Richard Tracy, Town of Rush; Scott McCarty, County GIS; Lee Nettnin, Town of Hamlin; Mayor Nancy Steedman, Stacy Stanton, Village of Churchville; Pat Connors, Town of Sweden Council Member; Mike McHenry and Mike Lissow, Village of Hilton; Gary Kleist, Town of Webster; Jack Barton, Town of Parma; Jim Merzke, John Moffitt, Town of Mendon; Steve Koster, Sheriff's Office; Tom Goodwin, County Planning Department; Justin Moore, County IS; Fred Rion, Muffy Meisenzahl, County OEM

Introductions. Everyone introduced themselves and their respective jurisdiction.

Housekeeping Items:

1. Meeting Minutes from the April 9, 2010 meeting were distributed via e-mail the same day.

2. Committee Roster. The Roster was revised to reflect members authorized by their Chief Elected Official, or agency administrator (see attached). Please note that County Mitigation Coordinator, Tom Goodwin, uses our Planning Committee Roster as the basis for an e-mail list to share information about FEMA's grant program and their application process.

Planning Process:

The current Plan was authorized by FEMA on February 24, 2005. Pre-Disaster Mitigation Plans have a 5-year life cycle. Our 2010 "Multi-Jurisdiction" planning process engages all political sub-divisions, and several government authorities and private-sector agencies who partner with us in delivering public safety services.

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1. Hazard Analysis. We reviewed the "Monroe County Hazards," listing authorized by the Committee on November 9, 2009, and reiterated that we followed FEMA's guidance and focused our 2010 Plan revision on the natural hazards highlighted in yellow on the attached "Monroe County HAZNY Ranking Proposals."

2. Mitigation Activities:

   RE: Projects to Do. At our November 9, 2009 meeting, we reviewed the six (6) Mitigation Measures, their respective definitions, and validated our general Action Plan for the County's 2010 Plan. This section of the Plan and its measures/projects on Figure 1. are pertinent for all twenty-nine hazards. A separate "Appendix C," contains additional measures/projects that are appropriate for specific hazards.

   RE: Projects to Credit. At our January 29, 2010 meeting we identified measures/projects that have been accomplished since the 2005 Plan was adopted, and we agreed to take credit for this activity in our 2010 Plan. Those measures that refer to our general Action Plan will be accounted as Figure 2. in a new Appendix D. Measures credited to specific hazards will be accounted in Appendix D, cross-referenced to each hazard using the numbering system we established in Appendix B and C.

Plan Development:

1. The main, narrative text of the Plan catalogues public outreach and in-put on the document. Members should continue to identify occasions when they discussed the Plan. The 2010 Plan also contains two additional Appendices: Appendix H, "FEMA NFIP Property Data" and Appendix I, "FEMA Mitigation Grant Awards" – an OEM document that catalogues the suite of FEMA Mitigation Grants and local awards of these grants. Appendix A, and Appendix H are attached to the Minutes for reference.

2. Appendix B. We reviewed Appendix B for the eight (8) natural hazards ranked as High, Medium High and Medium Low. This information was provided to Committee members via e-mail on June 1, 2010. There were no additions for Appendices B-1, B-2, B-3, B-5, B-13, B-14, B-17, or B-20.

   As time permits, OEM will continue to up-date the other twenty-one (21) hazards identified for the 2010 Plan and provide them to Committee members for their review and comment. Whatever is ready when FEMA advises that we can proceed with local legislative adoption will be included in the document.

3. Appendix C. We reviewed Figure 1. for its measures/projects that are pertinent for all twenty-nine hazards. We also reviewed Appendix C for the eight (8) natural hazards ranked as High, Medium High and Medium Low. This information was provided to Committee members via e-mail on June 1, 2010. There were some additions for Appendices C-1, C-2, C-3, C-5, C-13, C-14, C-17, or C-20, and these will be noted in the 2010 Plan DRAFT #1 that will be submitted to New York SEMO.

As time permits, OEM will continue to up-date the other twenty-one (21) hazards identified for the 2010 Plan and provide them to Committee members for their review and comment. Whatever is ready when FEMA advises that we can proceed with local legislative adoption will be included in the document.

4. Appendix D. We reviewed Figure 2. credits for measures/projects that are pertinent for all twenty-nine hazards. We reviewed Appendix D for the eight (8) natural hazards ranked as High, Medium High and Medium Low. This information was provided to Committee members via e-mail on June 2, 2010. There were some additions for Figure 2. and Appendices D-1, D-2, D-3, D-5, D-13, D-14, D-17, or D-20. These will be noted in the 2010 Plan DRAFT #1 that will be submitted to New York SEMO.

   As OEM reviewed its files for project credits since the 2005 Plan, many projects related to other hazards were discovered and credited to their respective section in the 2010 Plan. As time permits, OEM will continue to up-date the other twenty-one (21) hazards identified for the 2010 Plan and provide them to Committee members for their review and comment. Whatever is ready when FEMA advises that we can proceed with local legislative adoption will be included in the document.

5. Local Plans. The only local plan submitted with DRAFT #1 of the 2010 County Plan is the Town of Riga & Village of Churchville.

6. Executive Summary. An "Executive Summary" of the 2010 Plan was drafted for Committee review and discussion. This document was used in 2005 as a briefing paper for use in presentations and to post as a summary caption of the Plan. It is currently posted on the County website within the Emergency Plan section of the OEM pages on the website. OEM will remove the 2005 version and replace it with a document that reflects our collective effort on a 2010 Plan. OEM will advise Committee members when it is posted and forward a copy so it may be used in out-reach to solicit public input on the DRAFT 2010 Plan.

7. Mapping. County GIS completed mapping datasets that correlate with the 2010 DRAFT Plan. A CD of the maps will be submitted to New York SEMO as part of the 2010 DRAFT Plan.

2010 Plan Status

Committee members present unanimously adopted a motion to accept all documentation that has been reviewed and agreed as our *2010 Pre-Disaster Mitigation Plan: DRAFT #1* and submit it to New York SEMO as soon as possible for their review and comment.

Next Steps:

1. Timeline of Activities. A timeline is attached. On June 8, 2010, OEM requested SEMO Mitigation Chief, Rick Lord to verify FEMA's requirement for Plan revision to ensure we have Plan approval in a timeframe that preserves local eligibility with FEMA's Mitigation Grant Program.

2. Next Actions. OEM will provide e-mail up-dates on progress with submission to SEMO and other activity related to our 2010 planning process. OEM will continue to draft other hazard sections in the Plan and provide draft sections for Committee member review and comment. If we need to have a formal meeting, an announcement will be shared.

Thank you for participating!

Respectfully submitted,

Muffy

Muffy Meisenzahl

Encl. Committee Roster, as revised
Appendix A
Appendix H
Timeline of Activities