Erie County All-Hazard Mitigation Plan

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May 2005

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1 Executive Summary

Introduction

The Erie County All-Hazard Mitigation Plan represents the county's approach to mitigating natural, technological, and human caused disasters which may result in federal disaster declarations within the county's borders. Section 322, Mitigation Planning of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, enacted by Section 104 of the Disaster Mitigation Act of 2000 (DMA) provides new emphasis on mitigation planning. Section 322 discusses the need for local governments to closely coordinate mitigation planning and implementation with state efforts as a condition of disaster assistance.

This plan is not intended to serve as a reference for immediate disaster response. This plan focuses on actions that can be implemented prior to disaster events in order to reduce potential loss of life and damage to property. It is also intended to assist the county in identifying and prioritizing mitigation opportunities immediately occurring after a major disaster.

The scope of this plan is to identify the hazards which have historically resulted in federally declared disasters and to develop policies, programs, and strategies to mitigate the effects of those disasters. Hazards that have the potential to cause significant impact, even though they have not previously resulted in disaster declarations, are also addressed. It should be noted that while Section 322 emphasizes natural disasters, the county continues to address potential hazards in three categories: natural, technological and human induced.

There is a separate appendix section which includes additional documents, reports and plans. For security reasons, human caused hazards are addressed briefly in the body of this plan. Further information will be found in a separate annex.

Purpose

This plan has been developed with the assistance of every municipality in Erie County (see below for listing), the BOCES system and the public to meet new federal legislation requirements. All jurisdictions in Erie County have participated in the completion of this plan and thus all jurisdictions are represented in this document. The two Indian tribes in Erie County are not directly participating but are covered by the municipality which they are a part of (Cattaraugus Indian reservation is covered under Brant and the Tonawanda Indian Reservation is

covered under Newstead). This legislation stipulates that each community in the United States have an All Hazard Mitigation Plan by November 2004.

Participating Municipalities

This plan will enable each municipality, including school districts, to be eligible for funding if a federal disaster is declared and funds are disseminated. The plan also allows for application of mitigation grants to lessen or prevent future damages.

This plan will be kept up to date on a periodic basis by a committee represented by municipal leaders, disaster coordinators, the public, civic organizations, and led by representatives of the Erie County Department of Emergency Services.

In future sections of this plan you will find references to many different plans. The All-Hazard Mitigation Plan incorporates the Seasonal Transportation Plan, the Comprehensive Floodplain Management Plan, the Emergency Alert System Plan, the Comprehensive Emergency Management Plan, its Annexes, and Addendums, and due to the shared international border, the Cross Border Contingency Plan. These documents will help in the implementation of this All Hazard Mitigation Plan and have been included in a separate referenced section.

2 Overview of Erie County

Geography
Erie County is approximately 1247 square miles, which includes 25 towns, 16 villages, and 3 cities. The county is bounded by Lake Erie and Canada to the west, Niagara County to the north, Genesee and Wyoming County to the east, and Cattaraugus and Chautauqua Counties to the south.

Weather
The climate of Erie County is temperate. The average summer temperature range is 60 - 78ºF punctuated by a few days of high humidity. The average winter temperature range is 20 to 35ºF. Winds in Western New York are moderate, punctuated by occasional gusts due to passing cold fronts or thunderstorms. The topography and location of the county does not contribute to frequent tornadoes.

Land Use
The land use pattern that has existed for decades has led to the expansion of suburban towns and a mixed pattern of stability, decline, and re-development in the City of Buffalo. The northern towns of Erie County have experienced the greatest growth and the eastern towns are beginning to experience development pressures while the southern towns are developing at a slower pace.

Population
The Census Bureau from 1990 lists Erie County population at 968,532 with various different ethnic groups represented. It is estimated that 35,532 people living in the county have a mobility limitation. This number excludes persons living in care facilities. This population is considered by emergency managers when formulating evacuation plans. The Census Bureau estimates that 111,485 persons in the county identify themselves as non-English speakers or as having trouble speaking English. This population is also considered by emergency responders.

Economy
In the early 1900's, Erie County was the largest grain port in the entire country. Erie County also had a large steel making industry which included large companies such as, Republic Steel, Bethlehem Steel, and Gibraltar Steel. After Bethlehem and Republic Steel closed, the area became financially depressed. Now Erie County is growing with a service oriented job market. Erie County is now a major New York industrial and commercial center. The following tables illustrate the major components of employment in the Buffalo-Niagara Falls Metropolitan Area.

Components of Erie County's Economy

Category	%
Manufacturing	15.20
Transportation	4.71
Trade	24.26
Finance, Insurance, Real Estate	5.57
Services	30.52
Government	15.44
Construction and Mining	4.30

Source: NYS Department of Labor – July 1998 Data

Emergency Management

There are 26 Public Service Answering Points (PSAP's) to which Police, Fire, Emergency Medical Services and other emergency personnel are received or dispatched. There are 94 volunteer and 3 paid fire departments in Erie County. The 3 paid departments are located in the 3 cities of Erie County; Buffalo, Tonawanda, and Lackawanna. The 94 volunteer fire departments are categorized by fire companies, fire departments, fire districts, or fire protection districts. Erie County also has 5 hazardous materials emergency response teams which respond to nearby counties in times of mutual aid.

Erie County has a very pro-active emergency management program that has won many awards and grants and is well known for the various different plans created to address any potential emergency. In 1986, the Erie County Legislature created the department of Emergency Services, which consists of Fire, Disaster Preparedness, and Emergency Medical Services. Each division has a Deputy Commissioner for its supervision which reports to the Commissioner. Throughout the county there are both private and volunteer ambulance squads which are involved with different fire departments.

3 Planning Process

Documentation of Planning Process
Two members of the Erie County Department of Emergency Services were initially involved in the PDMG application process. They were:

Dean A Messing – Deputy Commissioner of Emergency Services, Disaster Preparedness Division and Erie County's Mitigation Coordinator

James T. Glass – Emergency Services Coordinator

This team submitted the original grant application after learning that other counties and municipalities had submitted grant applications when the original requests were publicized. The original application was submitted after all available funds were allocated to other counties and municipalities. Funds became available to Erie County when left over and over allocated funds were released.

The team then spoke to NYSEMO representatives and made arrangements to have a pre-grant program overview conducted by Rad Anderson, Mary Ann Basile and Kerry Maloney from the mitigation branch.

The Planning Committee was formed as a result of meetings held with SEMO. The committee is comprised of the following members:

Mike Walters – Erie County Department of Emergency Services, Commissioner
Dean Messing – Erie County Department of Emergency Services, Civil Defense/Disaster Preparedness Deputy Commissioner
James Glass - Erie County Department of Emergency Services, Emergency Services Coordinator
Patrick Daley - Erie County Department of Emergency Services, Assistant Coordinator of Haz Mat Planning
Jennifer Mussell - Erie County Department of Emergency Services, Intern
Pati Aine Guzinski - Erie County Department of Emergency Services, Intern
Dale Morris – Erie County Department of Environment and Planning – GIS Supervisor
Michael Gangemi – Erie County Department of Environment and Planning - GIS Mapping Coordinator
Charles Alessi – Erie County Department of Sewage Management – Deputy Commissioner
Judy Levan – National Weather Service/Buffalo – Meteorologist

Spencer Schofield – Erie County Environment and Planning – Senior Planner
Mr. Timothy Balunis – United States Coast Guard – Port Security Consultant
Mr. Gary Shofstal – United States Army Corps of Engineers – Emergency Management Coordinator

The Planning Committee worked together with the Disaster Preparedness Advisory Board and the local municipalities Disaster Coordinators to complete the All Hazard Plan (see listing on pages 11 - 13) as discussed below. The Planning Committee was mostly involved with compiling the information received from municipalities and other contributors as well as reviewing drafts and the final submission of the All Hazard Plan. The larger Planning Group consisted of the Local Disaster Coordinators and The Disaster Preparedness Advisory Board as well as the public and other sources discussed below. There were many meetings held in order to get the initial plan submitted, the second draft submitted and to get this hopefully final draft submitted for acceptance by FEMA. Here is a schedule of the different meetings and review sessions which led up to the completion of this plan.


Meetings

Some of the other organizations that were involved with the planning process and the gathering and supplying of information are as follows:

New York State Emergency Management Office –
Region V Director and SEMO Mitigation Branch
Erie County Local Emergency Planning Committee
Western New York Contingency Planning Group
International Joint Committee on Emergency Planning
Niagara County Emergency Management
Niagara Regional Emergency Services (Niagara Region of Canada)
Verizon Telephone
Niagara Mohawk Power Grid
Niagara Frontier Transportation Authority
New York State Electric and Gas
Multidisciplinary Center for Earthquake Engineering Research (MCEER)

Some of the plans utilized, but not necessarily all listed below, which you will find in this document, are as follows:

Erie County Comprehensive Emergency Management Plan
Hazardous Materials Response Annex
Domestic Preparedness Addendum
Radiological Protection Addendum

Emergency Alert System
Evacuation Annex
Comprehensive Floodplain Management Plan
Debris Management Plan
Animal Care Annex
Cross Border Contingency Plan
Seasonal Transportation Plan
Severe Storm Emergency Plan – Village of Springville
Town of Amherst Flood Mitigation Plan Report
HARRP – 2000 (Hazard Awareness and Risk Reduction Program for the Millennium 2000) – Flood Damage Reduction Measures

Multi-Jurisdictional Planning Participation

Each disaster coordinator participated in one (or more than one) of several ways. Municipalities that had not yet conducted a HAZNY survey of their community were encouraged to do so. This process continues, with the goal of having all 44 municipalities conduct a HAZNY survey.

The coordinators who have not yet conducted a HAZNY survey were asked to compile a list of hazards in their communities. These lists were compiled using historical records, reviewing existing plans and reports, talking to experts in government, academia and the private sector. The various websites listed in library at the end of Understanding Your Risks, Identifying Hazards and Estimating Losses FEMA 386-2 (2001) were also utilized. All of the worksheets from this publication were reproduced for the disaster coordinators to utilize. An educational session explaining the county All Hazard Mitigation Plan and how to utilize the sheets was conducted.

Individual municipality plans were also reviewed while writing this plan. It is to be noted that the intent of the county All Hazard Mitigation Plan is not to pre-empt any individual community plan, but to enhance it. The individual municipality plans were general plans from each municipality regarding the history of the area, the commercial activities, information about local government and past hazards. These plans were used to provide the All Hazard Plan with the background information specific to each municipality. The individual plans were also used to list hazards pertinent to that municipality.

Local municipality disaster plans were also used which listed more specifically the hazards deemed important to each municipality. Past hazard occurrences were listed as well as damage amounts. The Erie County Comprehensive Emergency Management Plan (pg 69) was used extensively for identification of countywide hazards and mitigation strategies which will be discussed later.

As a result of this process several communities have developed or enhanced their communities' disaster response/mitigation committee. They are experiencing greater participation on various community levels.

Public participation was encouraged in a variety of ways. The public was openly invited to all local HAZNY meetings to discuss any concerns. Articles soliciting community input were placed in local newspapers and our office number was listed. Staff from the Erie County Department of Emergency Services attended community meetings to explain the concept of mitigation planning and the importance of public participation and public input was solicited. The Disaster Preparedness Advisory Board meetings were open to the public and there are also common citizens on the Board. At every meeting, the public was asked for input, but comments were not collected or reported. Even with all of these methods to involve the public very little information was actually received. At most of the individual municipality HAZNY's the public were represented and helped to answer the questions regarding the rankings of hazards.

The Seneca Nation was invited to participate in the development of this plan. A FEMA representative worked with Nation members to explain and begin the mitigation planning process. The Seneca Nation conducted their own HAZNY survey and attended the surveys of surrounding municipalities. We will continue to work with, involve and support the Seneca Nation in their mitigation efforts.

There are a number of alliances involving neighboring jurisdictions. There is the 8 County Health Department Coalition which works together in the Strategic National Stockpile and the Vaccination Program. There are also Hazardous Materials Team mutual aid agreements between Erie County and neighboring jurisdictions. There is also HAZWEST which involves 13 counties in Western New York that deals with HAZMAT response. There is the International Joint Committee on Emergency Planning which includes Erie County, Niagara County, and the Niagara Region of Canada. These alliances were considered in drafting the All Hazard Mitigation Plan for planning and mitigation purposes. A copy of this plan was given to Sean Bertleff Emergency Coordinator of the Niagara region of Canada and James Volkosh Emergency Coordinator of Niagara County so that their input could be added to the plan. At the time of this writing we have not received any information from either of them.

Mitigation strategies for the county's two biggest natural hazards, flood and severe winter storms, are included in the respective plans for these hazards which can be found in the Annex. Since mitigation planning is not static, the planning process will continue for all of these plans. Regular Disaster Coordinator meetings will address this process as necessary.

Local Disaster Coordinators

FIRSTNAME	LASTNAME	LOCATION
Mr. David	Bissonette	T. Clarence
Mr. Dan	Borchert	V. Akron
Mr. Robert	Bragg	T. Wales
Mr. Terry	Caber, Sr.	V. Farnham
Mr. James	Carlson	V. Angola
Mr. Dennis	Carson	T. Tonawanda
Ms. Arlene	Cooke	T. Alden
Mr. Nick	Crassi	V. Gowanda
Mr. Charles	Danzi	T. Evans
Mr. Richard	Dimpfl	V. Hamburg
Mr. William	Eagan	T. Boston
Mr. George	Gertz	T. Marilla
Mr. William	Hanrahan	T./V. Orchard Park
Mr. Mark	Hartley	T. Aurora/V. E. Aurora
Mr. Shaun	Hediger	T. Sardinia
Mr. Charles	Jasinski	V. Kenmore
Mr. Pat	Joyce	T. Holland
Ms. Sharon	Juda	C. Lackawanna
Mr. Michael	Kerl	T. West Seneca
Mr. Bill	Kramer	V. Blasdell
Mr. Scott	Kuhlmey	V. Lancaster
Mr. Earl	Loder	T. Cheektowaga/V. Sloan
Mr. Robert	MacPeek	T. Lancaster
Mr. Peter	McMahon	T. Grand Island
Chief Tom	Miller	C. Tonawanda
Ms. Jean	Moncreiff	V. Springville
Mr. Carl	Muehlbauer	T./V. North Collins
Mr. Michael	Retzlaff	V. Alden
Mr. Dennis	Robinson	T. Colden
Mr. Edward	Sauer	T. Elma
Mr. Tony	Masiello	C. Buffalo
Mr. James	Spute	T. Hamburg
Mr. Robert	Stickney	T. Eden
Mr. Gerald	Summe	T. Newstead
Mr. Donald	Tew	T. Collins
Mr. Michael	Walters	T. Brant
Mr. Mike	Willibey	T. Concord
Mr. Michael	Zogaria	V. Depew
Mr. James	Zymanek	T. Amherst/V. Wmsv.

The role of the local Disaster Coordinators was to identify hazards specific to each community. Other tasks assigned were to: assess vulnerability, identify assets, estimate potential losses, analyze development trends, create mitigation goals and define the strategies to achieve these goals.

Disaster Preparedness Advisory Board

DPAB		
FIRSTNAME	**LASTNAME**	**AGENCY**
Mr. Thomas	Aurelio	Erie Co. Legislature
Mr. Timothy	Balunis	DOHS USCG
Fr. Joseph	Bayne	The Franciscan Center
Dr. Anthony	Billittier	EC Health Dept.
Ms. Lynda	Burey	Env. Health & Safety
Mr. Jim	Connors	Erie Co. Water Authority
Mr. Mark	Cotter	VA WNY Health Care System
Mr. Patrick	Daley	ECODP
Sgt. Michael	Debrow	New York State Police
Mr. Keith	Dillingham	Fire Advisory Board
Mr. Stephen	Free	Latter Day Saints
Mr. James	Gambino	Americorps/Red Cross
Chief Edward	Gehen	T. West Seneca PD
Mr. James	Glass	EC Emergency Services
Cdr. Paul M.	Gugg	USCG MSO
Mr. Don	Harder	Verizon
Mr. Louis B.	Henry	MJW Corporation
Div. Chief Jack	Hess	Buffalo Fire Dept.
Mr. Rick	Hetrick	Salvation Army
Mr. Neal	Hodgson	Erie Co. ME
Mr. Timothy	Hopkins	NYSDOT
Mr. Ronald	Jacobs	Citizen Member
Mr. Michael	Kerl	West Seneca Dis.Coord.
Ms. Joan	Kesner	NYS Senator Stachowski
Mr. Paul	Kloc	E/N Funeral Directors
Det. James	Koch	Hamburg PD/ALERT
Mr. Gene	Kremzier	ARES/RACES
Captain James	LaMacchia	Buffalo Fire Department
Ms. Maria	Lehman	EC DPW
Ms. Judith	Levan	Ntl. Weather Service
Mr. Earl	Loder	Cheektowaga ODP
Ms. Christa	Lombardo	Buffalo Fire Dept.
Mr. Ernest	Matthews	EC FC Mutual Aid Org.
Mr. James	McSweeny	National Fuel Gas
Col. Gregory L.	Mioducki	NYS Military
Mr. Michael	Muscarella	City of Buffalo
Ms. Lucy	Mysiak	ES Consultant
Mr. Leon	Nadler	E.C. Health Dept.
Mr. William	Pike	WNY Health Care Assoc.
Mr. William	Ransom III	NYS Electric & Gas
Mr. Terry	Reinke	NFTA
Mr. Randall	Rider	EC FD Officers Assoc.
Mr. Brett	Rider	EC Vol. Firemen's Assoc.
Mr. Larry	Rubin	EC DEP
Mr. Miguel	Santos	Niagara Mohawk
Mr. Roy M.	Scheifla	Retired – Niagara Mohawk
Mr. John	Sharkey	VA WNY Health Care
Mr. Jeffrey	Shaw	M&T Trust Company

DPAB		
FIRSTNAME	**LASTNAME**	**AGENCY**
Mr. Gary	Shoffstall	Army Corps of Eng.
Chief Bob	Stasto	Buffalo Fire Department
Mr. Kenneth	Swain	NYSDOT
Mr. Ken	Turner	American Red Cross
Mr. Peter	Tutuska	EC Social Services
Mr. Michael	Walters	ECDES
Mr. George N.	White	NYS Thruway Authority
Mr. James	Zymanek	Amherst Dis. Coord.

The primary role of The Disaster Preparedness Advisory group is to provide input based upon their individual areas of expertise. This group includes representatives from various community organizations including, but not limited to, business, religious, academic, not-for-profit, government and private citizens.

Monthly meetings were conducted with the Disaster Preparedness Advisory Board, the Local Disaster Coordinators and the Planning Committee to discuss the All Hazard Plan. These meetings brought together the larger Planning Group for this plan. At these meetings information was discussed from each municipality as well as on the county level to understand information that was pertinent to involving in the All Hazard Plan. We also had many guest speakers at our meetings which we involved in the planning process such as, Buffalo Computer Graphics, University of Buffalo, BOCES, and other representatives listed above involved with the DPAB. The broader planning team consisted of a very broad range of knowledge, expertise, and interests. The Planning Committee only compiled, organized and reviewed the All Hazard Plan.

In review, each municipality was required to provide hazard information regarding their area as well as any mitigation strategies currently in use or strategies that are soon to be implemented. Monetary loss information was also collected for hazards to help each municipality understand what the largest problems were. This information was collected with the help of many others in each municipality as previously mentioned. Multi-jurisdictional planning was largely accomplished through monthly meetings with the Disaster Coordinators of each municipality. During the course of these meetings, the information uncovered within each municipality was discussed. Neighboring municipalities discussed mutual aid efforts and other mitigation strategies. Ideas were exchanged regarding the All-Hazard Plan's development such as the format and what information from each municipality should be provided.

Multi-Jurisdictional Plan Adoption

In 2003, all 44 municipalities formally adopted a resolution accepting the Erie County All Hazard Mitigation Plan for completion in November 2004.

The changes and revisions to the Erie County All Hazard Mitigation Plan will continue to be presented at each meeting of the Disaster Coordinators and Disaster Advisory Boards.

Due to the lengthy process of obtaining resolutions from each municipality and the short time frame for plan development, the current resolutions will stand. Municipalities have stated that when the final draft is approved, resolutions will be re-submitted for final, formal approval.

4 Risk Assessment

Identifying Hazards: HAZNY and Erie County

The latest HAZNY survey for Erie County was conducted in 2003. The results of this survey identified the following hazards in descending order:

Hazard	Rating
Terrorism	338
Hazmat (In Transit)	302
Hazmat (Fixed Site)	293
Explosion	262
Transportation Accident	262
Winter Storm (Severe)	254
Fire	248
Ice Storm	243
Severe Storm	238
Epidemic	236
Oil Spill	230
Tornado	224
Civil Unrest	206
Radiological (Fixed Site)	203
Structural Collapse	200
Flood	191
Ice Jam	189
Earthquake	188
Utility Failure	186
Air Contamination	182
Water Supply Contamination	178
Radiological (In Transit)	175
Mine Collapse	168
Tsunami/Wave Action	168
Extreme Temperatures	166
Wildfire	166
Drought	158
Fuel Shortage	144
Food Shortage	143
Infestation	128
Dam Failure	122

HAZNY is an automated, interactive spreadsheet that asks specific questions on potential hazards in a community and records and evaluates the responses to these questions. HAZNY also includes historical and expert data on selected hazards.

The participants in the Erie County HAZNY workshop were from various organizations representing a wide variety of county, federal and municipal government, private business, public utilities, academic institutions, private and public health care and non-government organizations (sign-in sheet available upon request).

There are several factors utilized by the HAZNY program in determining hazard vulnerability.

The first factor is scope. This factor looks at two aspects of scope: (1) What area or areas in each jurisdiction could be impacted by the hazard and (2) what are the chances of the hazard triggering another hazard causing a cascade effect?

When assessing impact, participants are asked to assume a credible worst case hazard event. The choices are: a single location, several individual locations, throughout a small region or throughout a large region.

When assessing cascade effects, participants were again asked to assume a credible worst case hazard event. The choices are: no, highly unlikely, yes, some potential and yes, highly likely.

The second factor was frequency. In this program frequency is a prediction of how often a hazard will occur in the future. In this instance, the program is not looking for the frequency of the credible worst case event, but occurrences that require activation of the jurisdiction's emergency response forces beyond normal day-to-day operations, including mutual aid plans.

The frequency choices are: a rare event (less than once every 50 years), an infrequent event (between once every 8 years and once every 50 years, inclusive), a regular event (occurs between once a year and once every 7 years, inclusive) and a frequent event (occurs more than once a year).

History is a good indicator of future events and was reviewed when making selections. We also reviewed past hazard reports, media reports and articles and specialized reports such as a completion of severe weather events authorized by the National Weather Service. Town historians and senior citizens also provided input.

The next factor is impact. As with the other factors, it is based on a credible worst case event. The analysis looks individually at people, private property and public facilities (infrastructure).

Impact on people is concerned with the hazard's ability to seriously injure or kill people. A serious injury is defined as an injury that requires the victim to received immediate medical attention to preserve life and/or limb.

The categories allow each jurisdiction to define "large numbers" as appropriate to their response capacity. The categories are as follows:

- Serious injury or death is likely, but not in large numbers
- Serious injury or death is likely in large numbers (local EMS is "maxed out")
- Serious injury or death is likely in extremely large numbers (substantial outside assistance is required)

Impact on private property looks at physical or economic damage to private property including structures, homes, businesses, belongings and income. The choices include little or no damage, moderate damage and severe damages. The damage incurred from a disaster is quantified on a "macro level".

Damage to the community infrastructure is concerned specifically with structural damage, including key government buildings, roads, bridges, sewer and water and power lines. The choices include little or no structural damage, moderate structural damage and severe structural damage. Once again, the damage incurred is quantified on a "macro level".

Factor four is onset. This factor is an inquiry into warning time. It poses the question: "How much time is there between the initial recognition of an approaching hazard and when the hazard begins to impact the community?" For the time of onset analysis, a credible worst case scenario is the basis. The choices are: no warning, several hours warning, several hours warning, one day warning, up to one week warning.

Factor five is duration. Two questions are addressed in this section: (1) how long does the hazard remain active and (2) how long do emergency operations continue? Again, both answers are based on a credible worst case scenario.

Hazard duration measures only the actual time the hazard is active. The choices are: less than one day, one day, two to three days, four days to a week and more than one week.

Long term impacts are measured in incident stabilization time. This is measured by determining how long emergency operations for the jurisdiction continue once the hazard is inactive. The hazard is considered stabilized when the emergency

operations return to normal. Long term clean up efforts and environmental remediation do not count as part of the incident stabilization time. Disaster coordinators were encouraged to include clean up and remediation when planning for potential future events.

Included in this report is the 2003 HAZNY Report for Erie County.


Erie County HAZNY

The Disaster Advisory Board reviewed the results of the risk assessment at a meeting held on March 26, 2003 to begin discussion of mitigation strategies.

Each disaster coordinator was asked to schedule a HAZNY survey for their municipality. At this date, 40 of the 44 surveys have been completed. To save space in this plan, they are not included, but are available upon request. The only municipalities that still need to complete their HAZNY survey are the Town of Boston, Town of Colden, Village of Depew, and Town of Wales.

These communities have conducted Hazard Analyses to identify what their highest risks are. This was accomplished with the assistance of their residents, community leaders, utility representatives, and a representative of other key areas that would be of assistance with conducting the Hazard Analysis. Each Community scheduled the Hazard Analysis, made arrangements for the meeting and the facility to conduct the analysis, and provided refreshments to those in attendance. The tool that was used is the New York State Emergency Management Office's (SEMO) Hazard Analysis Program. The Erie County Department Emergency Services assisted conducting the meeting by providing staff and the SEMO HAZNY program. Listed here are the results of the Hazard Analyses, listing the top 10 hazards for each of the forty-four communities as well as mitigation measures and severity.


Top Ten Hazards by Municipality

Also listed here is an in depth explanation of the Top Ten Hazards chart.


Interpretation of Top Ten

The planning committee consisted of community disaster coordinators, representatives from the public, utilities, the National Weather Service, NYS transportation and government and many other representatives of a wide range of Erie County's population. Also included in the total committee were the Disaster Preparedness Advisory Board, the Erie County Disaster Coordinators Association

and the community participants during the Hazard Analysis process. A list of the Disaster Preparedness Advisory Board and the Erie County Disaster Coordinator's Association is also provided to validate that there was a wide representation from all aspects to provide the proper and wide range of opinions and concepts that are needed to put a proper All-Hazard Mitigation Plan together. Many meetings were held of the total committee which consisted of separate meetings of the Disaster Preparedness Advisory Board and the Erie County Disaster Coordinator's Association, as well as combined meeting of the two groups. Also, there were the local Hazard Analyses that were conducted in all 44 communities. Some of these meetings regarding the Hazard Analysis were conducted together. Some examples were the following: **Town of Hamburg, Villages of Blasdell and Hamburg** – reason the Town has both Villages within its border, in which there share some services together. **Town of Brant and the Village of Farnham** – The town contains the Village of Farnham. **Town and Village of Lancaster** – same reason as above. **Town and Village of North Collins** – same as above. **Town of Newstead and Village of Akron –** same as above. **Town of Aurora and Village of East Aurora –** same as above – **Town and Village of Orchard Park –** same as above.

There are some differences in HAZNY ratings across municipalities and when they are compared to the county as a whole. This is largely because the HAZNY rating system is subjective. It is based on the participants' judgment of the severity of a hazard. The questions are ranked and a decision is based on the majority vote. Differences may also arise because some municipalities are more prepared for some hazards than others and therefore the local first responders are better qualified or skilled for that hazard. The HAZNY rating system weighs frequency along with the severity of the incident. This means that a municipality that has a hazard more frequently, it is probably better prepared for it so the impact will be less. This would bring down the overall rating of the hazard. When considering past hazard events for each municipality the disaster coordinators referred to the listing of all New York State Disaster Declarations listed below.

NY DECLARATIONS
1954-2004

Flooding in our region is not a high hazard in Erie County because there are not many structures on floodplains and it is a somewhat controlled hazard. The flood areas are well known and there is not much new development on these areas. Also a significant cause of flooding in our county is ice jams. Ice jams can typically be easily controlled and broken up so flooding is not always a problem.

The Erie County HAZNY will be used to create the format for the next section of the All Hazard Mitigation Plan and to develop mitigation strategies. Each municipality will be encouraged to develop mitigation strategies to address the hazards unique to each community based on their own HAZNY's.

Profiling Hazards - The hazards are listed by hazard type (natural, technological, and human-caused), within those categories they are listed by Erie County HAZNY ranking. Each hazard includes a probability of occurrence ranging from high to low. The ranking of hazards is defined as:

High: Occurs more than once a year
Moderately High: Occurs every 1 – 4 years
Moderate: Occurs every 5 – 9 years
Moderately low: Occurs every 10 – 25 years
Low: Occurs more than 25 years

Natural Hazards

Winter Storm (Severe) (256) **(Including Ice Storm** (243)**)**
The geographic location of the City of Buffalo on the eastern shores of Lake Erie makes it a prime target for lake effect snowstorms. The probability of this hazard occurring is moderately high.

In the last decade as a result of winter events, Erie County has been the recipient of four federal emergency winter storm declarations plus one New York State declaration which did not receive a federal declaration.

According to the last 120 years of snowfall data, four of the top five ranking 24-hour snowfalls have occurred in the last seven years.

One-fifth of all hazards receiving federal declarations throughout New York State between 1995 and 2001 have been for winter storms in Erie County. In addition to lake effect storms, winter storms can take on other meteorological forms such as blizzards, ice storms and synoptic winter storms. Winter emergencies need not involve heavy snow. For example, the Blizzard of 1977 crippled Western New York with bitter cold temperatures and high winds bringing existing snow into the county off Lake Erie, yet deposited very little new snow.

The seriousness of winter storms goes beyond stalled transportation, business interruptions and school closures. The most serious consequence of winter storms is the potential for loss of life. Despite the relatively low number of fatalities and injuries from winter storms in Western New York, the potential for damage to human health is significant.

According to National Weather Service statistics, there have been three major ice storms in the years 1993-2002 (latest statistic compilation for Erie County). They occurred in 1/1993, 1/1994 and in 1/2002. Included here is a chart of greatest 24-hour snowfalls from 1890 – 2002 as well as a chart of recent major winter storms from 1993 - 2002.


Winter Storms

The most frequent hazards caused by ice storms are roadway accidents, damage due to falling trees/branches and utility failures.

Utility failure due to ice storms have prompted local and state utility companies to draft more efficient response and mitigation plans.

A comprehensive view of severe winter evens and mitigation suggestions are addressed in "Confronting Severe Winter Storms, Preparedness and Response in Buffalo and Erie County" published by the University of Buffalo's Department of Urban and Regional Planning Graduate Workshop, 2003.

Many of the mitigation suggestions have already been adopted. The Department of Emergency Services will continue to work with individual municipalities throughout the County to develop mitigation measures needed for the particular challenges each community may face.

Below is the Seasonal Transportation Plan for Buffalo and Erie County. This plan has identified major transportation routes to minimize traffic problems. This also establishes an employee early release system for major employers in the area.


Seasonal
Transportation Plan

Erie County is considered moderately vulnerable to Winter Storms and Ice Storms. Winter storms in Erie County have a high probability of occurrence and potential for damage to human health. There can be very little warning for winter storms. According to the Erie County HAZNY, the impact of a winter storm would cause; serious injury or death is likely, but not in large numbers, moderate damage to private property, and moderate structural damage to public facilities.

Severe Storm (238)
This hazard category includes hail storms, wind storms and severe thunder storms.

According to data from the National Weather Service for the years 1993-2002, there have been:

- 75 thunder storm winds that have produced damage or measure at or greater than 50 knots and hail three quarters of a inch or larger
- 28 occurrences of high winds (synoptic)

- 7 injuries due to lightning
- Property damage due to lightning has been estimated at $54,000 over the past 10 years

Yearly Property Damage
(Estimates-Figures Include entire WNY Area)

2002	2001	2002	1999	1998
$221K	$380K	$93K	$137K	$541K
1997	1996	1995	1994	1993
$803K	$185K	$162K	$43K	$31K

Based on past history and weather data, there is a moderately high probability that future severe storms will occur throughout Erie County. No particular region of the County is any more or less vulnerable than another. Overall, Erie County is moderately vulnerable to severe storms. There may be no warning with a severe storm. The impact of a severe storm could cause; serious injury or death is likely, but not in large numbers, moderate damage to private property and little or no structural damage to public facilities.

To mitigate property damage, building codes shall be followed in all communities.

Disaster coordinators and the Department of Emergency Services along with the local media can work together to educate the public in severe weather safety. These programs can be designed and implemented very easily through the use of public safety announcements, literature placement in County buildings, public buildings and at the County Fair.

Epidemic (236)
An epidemic is defined as the occurrence outbreak of a disease to an unusual number of individuals or proportion of the population, human or animal.

Erie County is susceptible to epidemics as is any area in this global age. The Erie County Health Department records show no significant epidemics in the past 10 years. The overall probability of an epidemic in Erie County is moderate. The probability of an epidemic in Erie County of West Nile Virus and Lyme Disease are a concern for the Department of Health. Yearly pockets of influenza occur within the county. Senior citizens, school children, young children and the immuno-compromised population are at risk. The Erie County Health Department has plans to deal with these events. They are available upon request.

Sharing an international border, the county is at some risk for SARS. The Erie County Health Department and the Department of Emergency Services along with

their Canadian counterparts are in the process of drafting a response/mitigation plan.

Responses to and mitigation efforts for an epidemic due to a bio-terrorist event are outlined in the Erie County Health Department and County Terrorism Response Plans which are not included in this plan for security reasons. They are available upon request.

In the event of rabies or other zoonotic based epidemics, the response and mitigation planning is the responsibility of the Health Department along with the Department of Environmental Conservation. These plans are available upon request from the respective departments.

Erie County is moderately vulnerable to an epidemic. According to the Erie County HAZNY, the impact of an epidemic could cause; serious injury or death is likely, but not in large numbers, little or no damage to private property, and little or no structural damage to public facilities.

Tornado (224)
Tornado is not ranked a high hazard for Erie County as per the HAZNY survey. They are included in this report because several disaster coordinators felt the average citizen in Western New York was poorly informed and/or prepared for this hazard. Only three tornados have required significant emergency response.

Erie County Tornados

Date	Dead	Injured	F-Scale
4/25/57	0	0	F1
7/7/61	0	0	F2
6/9/66	0	0	F0
8/19/70	0	3	F3
8/23/71	0	0	F2
5/2/72	0	0	F2
6/30/76	0	0	F1
7/30/87	0	0	F2
4/9/91	0	0	F1
5/1/91	0	0	F0
7/12/92	0	0	F1
8/31/93	0	0	F1
9/23/93	0	0	F0
6/24/94	0	0	F0
8/28/94	0	0	F0
9/24/97	0	0	F0
4/28/2002	0	0	F0

Fujita Scale

F0	Gale Tornado	40-72 MPH
F1	Moderate Tornado	73-112 MPH
F2	Significant Tornado	113-157 MPH
F3	Severe Tornado	158-206 MPH
F4	Devastating Tornado	207-260 MPH
F5	Incredible Tornado	261-318 MPH
F6	Inconceivable Tornado	319-379 MPH

*Data from the National Weather Service: The Tornado Project

The tornados that have occurred have caused no deaths. Due to the topography of the county, all areas are equally susceptible for an occurrence.

NOAA tornado strike data was used to model the probability of future tornados in Erie County. The future probability is moderate.

Since 1999, tornadoes have touched down in East Concord, Evans, Angola, Grand Island, Tonawanda and Clarence. Specific economic dollar losses were only available for East Concord ($35K) and Evans ($15K).

Current mitigation measures include each community enforcing New York State Building Codes. Throughout the year, tornado survival information is provided to the public. Several disaster coordinators have suggested the need for more public education. The Department of Emergency Services will work with Disaster Coordinators in this effort.

These maps show tornado risks across the United States.


Tornado

Erie County is moderately vulnerable to tornados. They can cause structural damage even though they may not cause death. They also happen with no warning. According to the Erie County HAZNY, the impact of a tornado could cause; serious injury or death is unlikely, moderate damage to private property, and moderate structural damage to public facilities.

Flood (191)
Data from the National Weather Service states that between 1993 and 2002, 49 floods/flash floods occurred. Rough estimates place flood damage in the county at approximately $3,717 for the period of 1993-2002. Flooding in Erie County occurs as a result of three environmental factors, spring thaw, excess rain, and ice jams. The probability of a future occurrence is moderately high.

Spring thaw occurs when the temperature quickly increases to above freezing. This causes a quick melt of ice and snow which may cause a sharp increase in

water levels. This does not happen drastically every year but some years may occur more than once. It is typically a low to moderate problem because it is not a serious problem when it occurs and it does not happen often.

Excess rain occurs when there is a large amount of rain that falls in a relatively short period of time and is too much for the creeks to handle. This aspect of flooding happens less than both spring thaw and ice jams. In some cases excess rain exacerbates spring thaw in this region. This is also considered a low hazard because Erie County is not highly vulnerable to losses from flooding.

Ice jams are another cause of flooding and is discussed next in this listing.

Flooding in Erie County occurs along Cazenovia Creek and Buffalo Creek from Elma to West Seneca and in Cazenovia Park in South Buffalo. Other creeks that experience random flooding are Cayuga, Tonawanda, and 18 Mile creeks. Cayuga Creek floods from where it branches off from Little Buffalo Creek in Lancaster to sporadic areas throughout Alden. Flooding occurs along the upstream portion of Tonawanda Creek in the Town of Amherst as described in the Amherst Flood Mitigation Plan Report. Eighteenmile Creek floods along the southern part of Hamburg.

Erie County is not highly vulnerable to losses from flooding. The areas in which flooding occur are not well developed. Some areas of frequent flooding are parks which do not sustain a high loss from flooding except cleanup of debris. Serious flooding does not occur in our area often. Also in more developed areas where flooding occurs damage is typically to roads and not residential structures. Areas in Erie County which experience flooding have high streambanks and therefore do not overflow often enough to cause heavy damages.

The Comprehensive Floodplain Management Plan (attached below) explains the National Flood Insurance Program (NFIP) and the community rating system (CRS).

"The communities apply for a CRS classification and are given credit points that reflect the impact of their activities on reducing flood losses, insurance ratings and promoting the awareness of flood insurance.
Comprehensive flood planning addresses the County's problem of dealing with floods effectively and promptly and thereby attains points under the CRS for preparing, adopting, implementing, evaluating and updating the plan.

Every community in Erie County faces a different flood problem. Some communities sometime face life-threatening flash floods, while others may be subject to slow-moving flood waters from overflowing creeks or shallow flooding from local drainage problems. Similarly, each community has different resources and interests to bring to bear on its flood problems. Since there are many local, state, and federal agencies that can help, there is no one solution for fixing a flood problem."

Also listed in the Floodplain Management Plan is a listing of the most recent large floods in the area.

Comprehensive Floodplain Manageme

In 1968, Congress created the National Flood Insurance Program (NFIP) in response to the rising cost of taxpayer funded disaster relief for flood victims and the increasing amount of damage caused by floods. The Mitigation Division, a component of the Federal Emergency Management Agency (FEMA) manages the NFIP, and oversees the floodplain management and mapping components of the Program.

Nearly 20,000 communities across the United States and its territories participate in the NFIP by adopting and enforcing floodplain management ordinances to reduce future flood damage. In exchange, the NFIP makes federally backed flood insurance available to homeowners, renters, and business owners in these communities. The attached document lists NFIP data for Erie County. Listed in the document below is the number of policies, total coverage, claims, etc for Erie County.

NFIP

The primary objective of the Repetitive Loss Properties strategy is to eliminate or reduce the damage to property and the disruption to life caused by repeated flooding. The enclosed chart includes all Repetitive Loss Properties (RL) for Erie County. It lists the number of RL buildings and other structures/land, the number of RL that are insured as well as monetary loss.

Repetitive Loss

These two charts can help individual municipalities assess money loss due to repetitive loss or perhaps just monetary loss from flooding in general. Individual municipalities should carefully review these charts before beginning any mitigation activities.

The purpose of the Amherst Flood Mitigation Plan (attached below) is to "recommend, encourage, and support the implementation of activities aimed at lessening the severity of flooding and flood damages."

Amherst Flood Mitigation Plan.doc

Here is a listing of National Flood Insurance Program (NFIP) data as well as National Repetitive Flood Loss Properties (NFIP). Some of this information was retrieved from the HAARP 2000 Flood Damage Reduction Measures (attached below).

This is some important and interesting information taken from the HAARP 2000 document.

"Using National Flood Insurance Program data, it was determined that the total number of insurance claims filed in Erie County between 1978 and 1999 were 2,307 with a total value of $7,747,208. The total number of insured structures in Erie County as of December 1999 was 3,891. Because statistical experience shows that only 20%, or in this case, 3,891, of properties located in floodplains are usually insured, there could be an additional 80%, or 15,564 properties at risk throughout the county. The municipalities that have filed the most numerous claims since 1978, and have thus received a large portion of the money spent on insurance claims, are the City of Buffalo with 399 claims, the Town of Amherst with 361 claims and the Seneca Nation of Indians with 346 claims."


Flood

Erie County is moderately vulnerable to losses from flooding. There are many mitigation projects in the county to reduce losses from flooding. According to the Erie County HAZNY, the impact of a flood could cause; serious injury or death is unlikely, moderate damage to private property, and moderate structural damage.

Ice Jam (189)

Ice jams occur when large chunks of ice flow downstream and become trapped at a point in a creek or stream. This creates a sort of natural dam. Ice jams are not a danger in themselves but they can cause flooding upstream. One-third of the 49 floods/flash floods which occurred between 1993 and 2002 were due to ice jams. The probability of an ice jam in Erie County is moderately high. Erie County has a low vulnerability to Ice Jams. According to the Erie County HAZNY, the impact of an ice jam could cause; serious injury or death is unlikely, moderate damage to private property, and moderate structural damage to public facilities.

Ice jams can occur in the same areas as mentioned above for flooding but are more problematic in South Buffalo Cazenovia Park near the Stevenson Bridge and areas in West Seneca where the creeks bend and turn rapidly as well as behind Southgate Plaza in West Seneca. Municipalities that experience ice jams check for problem areas frequently in the winter months. Once an ice jam is spotted it can be easily cleared away to increase downstream flow.

There is a mitigation project in the works with The Army Corp of Engineers to build structures to stop the forming of large ice jams in some of the problem areas in Erie County.

Since the only detrimental effect from ice jams is flooding and occurs in parts of the same areas listed for flooding, refer to flood section for the county's vulnerability to ice jams.

Earthquake (188)
Although Erie County is in close proximity to the Clarendon-Linden Fault, earthquakes are infrequent events, occurring once every 8-50 years. The impact to the county has been minimal. The probability of a future earthquake in Erie County is moderately low. In Erie County the vulnerability of an earthquake is high. According to the Erie County HAZNY, the impact of an earthquake could cause; serious injury or death is likely, but not in large numbers, moderate damage to private property, and moderate damage to public facilities.

According to data from the Multidisciplinary Center for Earthquake Engineering Research "there is only a 50% chance that earthquakes with a maximum intensity of 1X or greater should have happened during the past 250 years in New York State. Therefore, our 250 years of recorded history may be too short to include a larger earthquake. It is also possible that no earthquakes larger than VIII will ever happen in New York. Larger earthquakes have occurred in the nearby region of Canada and the United States, although they have been rare. We still don't know whether or not the geology of New York excludes such large earthquakes. In order to better estimate earthquake hazard in New York, we need additional information. Here is a listing of past earthquake events in New York State.


Earthquake History

Communities nearest the fault line are subject to infrequent tremors. There is some speculation that the fault may run under the Great Lakes and through other areas.

Some disaster coordinators feel that the population is unprepared for an earthquake. Others feel that since this has never happened before, little time should be spent on this particular hazard. We will continue to explore this issue with them.

Included here are maps showing the seismic hazard for the State of New York.


Earthquake

Wave Action/Seiche (168)

Wave action is a continuously driven surge of water with great force causing shoreline erosion and property damage. This is generally due to a storm system with high winds. When this action occurs in a lake it is called a "seiche". There have been two seiche incidents within the past 10 years on Lake Erie. This first occurred on 12/20/00. High winds at the eastern end of Lake Erie caused the water to rise above five feet in a few hours. High water levels, along with 10 to 14 foot waves caused shoreline erosion and local flooding. Evacuations were ordered at Hoover Beach. The lake remained above flood stage for a few hours. Damage was estimated at $50,000. There were no injuries or fatalities.

The second seiche occurred on 3/9/02. Winds above 50 knots on Lake Erie caused the wake level to rise at the eastern end of the lake. The lake exceeded the light foot flood stage and peaked at 9 feet 63 inches at 2340 hours. The damage was estimated at $35,000. No injuries or fatalities occurred. Evacuations were not ordered.

Seiches can be a problem on any part of the Erie County shoreline but because of recreation and residential activities are a greater problem in parts of Hamburg and Evans. In those areas there are residential homes and commercial activities close to the shore. Seiches are only an issue in some parts of Hamburg and Evans because other areas have cliffs along the shoreline which would stop any wave action.

This hazard was included because of its potential for monetary loss in municipalities along Lake Erie. It also has a moderate potential of occurrence since this region commonly has storm systems with moderate to high winds. The probability of a future seiche is moderately high. When a seiche does occur it has a high monetary loss and does cause moderate damage. The vulnerability for a seiche in Erie County is moderate. According to the Erie County HAZNY, the impact of a seiche could cause; serious injury or death is likely, but not in large numbers, moderate damage to private property, and moderate structural damage to public facilities.

Mitigation measures for this hazard will be the same as those utilized for flooding.

Extreme Temperatures (166)
Extreme temperatures are defined as 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. This hazard occurs throughout Erie County.

The proximity of the county to Lake Erie produces a moderating effect upon summer temperatures. According to meteorologists, the past five (5) summers have had a majority of days below the average mean summer temperature. This pattern assists in keeping respiratory problems to a minimum for populations at risk.

The proximity of the county to Lake Erie can and does produce periods of extreme cold during the winter. Artic air masses and high winds combine to produce temperatures with below zero wind chills.

During periods of extreme cold during weather, the local media runs public service announcements advising people to take shelter and to protect their pets and livestock.

The Department of Emergency Services and local disaster coordinators provide information year round to the public via libraries, the County Fair, etc.

Although the winter cold may seem to be excessive, it is a normal part of life for county residents. Their experience in dealing with this classifies this as a moderately low hazard. The probability of experiencing extreme temperatures in Erie County is moderately high. The vulnerability of Erie County to extreme temperatures is low. According to the Erie County HAZNY, the impact of extreme temperatures could cause; serious injury or death is likely, but not in large numbers, little or no damage to private property, and little or no structural damage to public facilities.

Wildfire (166)
Although wildfire was ranked as a moderately low hazard, it is included at the request of several communities.

The HAZNY survey defines wildfire as an uncontrollable combustion of trees, brush or grass involving a substantial land area which may have the potential for threatening human life and property.

The types of wildfires that occur in Erie County are brush fires and do not pose the threats that Western wildfires or even the recent wildfires on Long Island, NY do. There is no specific geographical extent of where wildfires may occur in Erie County. Wildfires in Erie County occur as brush fires and occur most commonly along railroad tracks. Thus wildfires may occur anywhere along railroad tracks in Erie County. Typically they occur in areas of low population where there is moderate vegetation near the tracks. We were unable to locate an exact number of brush fires. Data provided by the New York State Office of Fire Prevention and Control does not include a separate category for brush fires. The category most applicable is "outside" which includes dumpster fires.

The communities citing brush fires as occurring frequently work with community department of public works and various railway companies to ensure that grass along the railroad tracks are mowed frequently. Damage is typically very small with brushfires because they do not spread rapidly and are quickly put out. It is a low magnitude hazard.

Due to the increased amounts of rainfall and lower than average summer temperatures, the potential for brush fires has decreased in 2003 and 2004.

The following US Forest Service maps indicate that Erie County along with all of New York State is classified as a low fire danger class. The probability of future occurrences in Erie County is moderate. Erie County has a low vulnerability to wildfire. According to the Erie County HAZNY, the impact of a wildfire could cause; serious injury or death unlikely, moderate damage to private property, and little or no structural damage to public facilities.


Fire Danger Class

Landslide/Soil Subsidence (not ranked in Erie County HAZNY)
Due to the topography of the county, landslide has historically been a very low hazard. But within the past few years, the Town of Amherst has experienced a number of sinking homes due to soil subsidence. Landslide was the most appropriate place to address this hazard. This hazard is not high in the County HAZNY or any other municipality besides Amherst. In Erie County the probability of soil subsidence is low but the probability in Amherst is high. In Amherst this is becoming a high monetary loss. As the town or county has never encountered this phenomenon at this level before, we are currently in the process of learning how to prepare for, prevent and mitigate the problem. This hazard was included because of the high monetary loss Amherst is facing as a result of this hazard and because there may be a small potential for it to occur in other places.

Landslides are not an issue anywhere in Erie County and soil subsidence is only an issue in parts of Amherst. This is a severe problem in Amherst. As a county there is a low vulnerability to soil subsidence. The impact of soil subsidence could cause; serious injury or death is unlikely, serious damage to private property, and moderate structural damage to public facilities.

Attached in the below document is a map created by the New York State Geological Survey for landslide susceptibility.


landslide map

Technological Hazards

Hazardous Materials in Transit (302)
Serving as a transportation corridor for industrial shipping, incidents involving hazardous materials during transport are a frequent event throughout the county. During 2002 there were nine (9) incidents involving hazardous materials in transit.

Number of Releases on Land:	8
Number of Releases in Air:	1
Number of Releases in Water:	0
Number of Releases Involving Radioactive Materials:	1
Number of Releases Involving Rail Vehicles:	2
Number of Releases Involving Cars:	1
Number of Releases Involving Trucks:	6
Number of Releases Involving Watercraft:	0
Number of Releases Involving Aircraft:	0

Substances Released

Diesel Fuel	Hydraulic Fluid
Sulfuric Acid	Gasoline
Low Level Radioactive Solid	Hydrogen Chloride Gas

In compiling these statistics we reviewed SARA Title III reports, DOT reports, information from the Erie County Sheriff's Department and reports from haz mat response teams in the County.

Although hazardous material accidents in transit have historically occurred on a regular basis in Erie County, we utilized the most current statistics which were for the year 2002.

While accidents happen frequently, the situation is resolved quickly, resulting in minimal damage to the environment and harm to the population. The probability of this hazard occurring is high.

Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 2000 requirements, hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan.

Hazardous Materials at Fixed Sites (293)
Due to the numerous industrial and manufacturing facilities (both operating and closed) within the county, hazardous materials incidents are a frequent occurrence. Here is a listing of all Title III facilities in Erie County.


Title III

The probability of this hazard occurring is high. Included in this section are the following:

- Summary of Hazard Analysis-Facilities Vulnerability Zones

Hazardous Facilities
Vulnerability Zones

- Summary of Hazardous Materials Incidents at Fixed Site 2002

Based upon information from SARA Title III records, reports from haz mat response teams and the EPA, we find that this hazard occurs on a regular basis throughout the county. The probability for future events remains constant and may decrease in the future as the industry/manufacturing sector diminishes throughout the area.

Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 2000 requirements, hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan.

Hazardous Materials Incidents at Fixed Sites 2002*

Number of Releases on Land:	14
Number of Releases in Air:	4
Number of Releases in Water:	2
Potential Biohazard Incidents (powder substances):	7

Substances Released

Diesel Fuel (4 releases)	Gasoline (4 releases)
Hydraulic Fluid	Lithium battery contents (fire release)
Butyl Acetate	Thionyl Chloride (explosion release)
Ammonia	Radiological Solid (low level)
Motor Oil	Sodium Hypochloride
Ferrous Chloride	Tincture of Benzoin
Jet Fuel	Hydrogen Chloride Gas
Kerosene	Unknown (excluding biohazard powder substances – l release)

*This list is compiled using data collected under the general duty clause CAA 112(r), SARA Title III and other DOT and EPA regulations.

Included here is the Hazardous Materials Annex from the Comprehensive Emergency Management Plan. This annex gives an overview of notification and alerting the public, danger assessment, training and other aspects of hazardous materials incidents.

Hazardous Materials
Response Annex

Explosion (262) **and Fire** (248)
Fire is a very frequent hazard throughout all of Erie County. Fires range from small, easily extinguished fires to fully involved structure fires that cause fatalities.

Statistics from the NYS Office of Fire Prevention and Control provide information on past fire damage/occurrence. There is no doubt that the probability of future occurrences is high.

Overall Fire Summary
January 1, 2001 – December 31, 2001

	Fires	Civilian Injuries	Civilian Deaths	Property Loss
Residential	345	10	0	5,168,250
Business/Public	113	0	0	357,950
Industry	56	2	0	391,200
Mobile	301	4	0	897,400
Outside	72	0	0	11,400
Undetermined	15	0	0	500
No Response	879	0	0	429,350
TOTAL:	***1781***	***16***	***0***	***7,256,050***

The main cause of all fires for this period was listed as unintentional. The next most frequent cause was failure of equipment.

Overall Fire Summary
January 1, 2004 – June 30, 2004

	Fires	Civilian Injuries	Civilian Deaths	Property Loss
Residential	101	0	0	546,500
Business/Public	49	0	0	180,800
Industry	12	0	0	273,500
Mobile	58	30	0	399,450
Outside	28	0	0	0
Undetermined	8	0	0	175,000
No Response	13	0	0	150,000
TOTAL:	***269***	***30***	***0***	***1,725,250***

The main cause of all fires for this period was listed as unintentional. The next most frequent cause was failure of equipment.

Explosions are not listed as a separate category on the NYSOFPC data base. This made it difficult to identify specific causes of explosions and fire resulting from explosions. For this reason, the hazard "Explosion" as listed in the County HAZNY report is included in this section.

Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 2000 requirements, hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan.

Included here is a map of Observed Fire Danger Class for the continental United States. This map shows the fire risk in our area.


Fire

Transportation Accidents
The large number of transit corridors throughout the County contributes to the moderately high ranking of this hazard. Transportation modes within the county include ground, air, rail and water. The probability of this hazard occurring is high.

To provide statistics for this hazard, we utilized the Freedom of Information Act (NYS Dept. of Motor Vehicles), US DOT reports, Federal Railroad Administrations reports, US Coast Guard reports, National Transportation Safety Board information, the fire station located at the Greater Buffalo Niagara International Airport, the National Highway Transportation Safety Administration, the Erie County Sheriff's Department and the NYSDOH.

<u>Roadway</u>
Conflicting numbers showed varied totals for the exact number of roadway transportation accidents. Here are the statistics we were able to verify:

- For the year 2002 the total number of injuries was 321, including 17 fatalities.
- For the years 1998-2002 the number of large trucks involved in non-fatal crashes was 1,145.
- For the years 1998-2002 the number of buses involved in injury crashes was 85.
- For the years 1998-2002 the number of crashes involving large trucks that resulted in fatalities was 45.
- For the years 1997-2001 the number of alcohol related accidents was 3,091.
- For the years 1998-2002 the number of buses involved in non-fatal crashes was 156.

- For the years 1998-2002 the number of buses involved in fatal crashes was 5.
- Deaths due to motor vehicles crashes from 1990-1992 (Frequency = Mean Annual Frequency) (Rate = Mean Annual Frequency / Population * 100,000)

The Frequency for Erie County was 80
The Rate for Erie County was 8.2
Note: These are the most up-to-date statistics available

Railway

- For the years 2000 to 10/2003 (last available data), the total number of railway accidents was 81.
- The most common cause of these accidents was defective/missing crossties.
- These statistics did not include the number of injuries or fatalities. There have been at least two (2) rail fatalities in the years 2003 and 2004.
- The general pattern is a reduction of accidents yearly.
- The total number of high-rail incidents at public and private crossings totaled 13.

Automobiles: 6	Trucks: 1
Pickup Trucks: 2	Truck-Trailers: 1
Vans: 2	Other Motor Vehicles: 1

Marine Accidents

According to the United States Coast Guard Port Operations Office at Buffalo, NY there were no marine accidents in the year 2003. Reports for previous years were unavailable at the time of this report.

Air Accidents

Other than a crash by a Mercy Flight medical helicopter (6/03), no crashes have occurred with the County in the past three years.

Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 200 requirements. Hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan.

Oil Spill (230)

Oil spills are defined by HAZNY as the uncontrolled or accidental discharge of petroleum into water and/or onto land or sea.

Statistics provided by the NYSDEC for the period of 1/1/2003-12/31/2003 are as follows:

New Spills:	1,045
New Class A/B:	163

New Class C:	395
New Class D/E:	463
Non-Classed Spills:	24
New Groundwater Spills:	51
New Test/Task Failures:	59
Number of Closed Spills:	1,082
Reported Fish Kills:	0

Class A: Known release which created fire/explosion hazards (inside or outdoors), drinking water supply contamination or significant releases to surface waters. Examples:

- Any spill which creates an immediate danger to life or health
- Petroleum product loss greater than 25 gallons or petroleum vapors which have an immediate impact on an environmentally sensitive area and/or occupied structures.
- Spills of hazardous materials in unknown amounts or amounts greater than the reportable quantity.
- Spills reported by DEC personnel to the DEC Executive Duty Officer and/or USPEA.

Class B: Known or probable release, where, without action, there is a potential for a fire/explosion hazard (indoors or outdoors), contamination of drinking water supplies or significant releases to surface waters. Examples:

- Any spill with possible immediate danger to like or health.
- Known spill of unknown quantity and/or material or tank test failure at a site without secondary containment that satisfies regulatory requirements. Product or vapors not immediately apparent, but with possible significant impacts on surrounding environment or structures. Includes tank test failures and unexplained inventory losses. Includes abandoned drums.

Class C: Known petroleum or hazardous materials release with substantial potential for fire/explosion (indoors or outdoors), drinking water contamination, or release to surface water. Examples:

- Violation of standards/guidelines, but no immediate danger to life or health.
- Known petroleum spills of greater than 25 gallons with no surrounding structures.
- Reported hazardous material spills in more than minor amounts, but less than the reportable quantity.

Class D: Possible petroleum release with minimal potential for fire/explosion (indoors or outdoors), drinking water contamination, or release to surface waters,

known releases with no potential for damage or non- petroleum/non- hazardous spills. Examples:

- Possible violations of standards, but no immediate danger to life or health.
- Tank test failure with functioning on-site secondary containment that satisfies regulatory requirements
- Minor or nuisance spills
- Non-petroleum/non-hazardous spill

Class E: Investigation indicates there was no spill.

Due to the industrial nature of the County, this hazard has a history of frequent occurrences. The potential for future events is high. At this time, mitigation steps are those required by the EPA and DEC.

Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 2000 requirements, hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan.

Human Caused Hazards

Terrorism (338)
Terrorism was the highest ranked hazard in Erie County. This ranking is due to the following identified terrorist vulnerabilities:

- International Border
  - An open northern border of 450 miles of under-protected water boundaries and entry points.
  - Buffalo/Niagara is the third busiest border crossing in the United States.
  - U.S./Canada cross border commerce totals $1.2 billion/day.
  - 3.4 million passenger vehicles cross the Peace Bridge each year.
  - 2 million passenger vehicles cross the Rainbow Bridge each year.
  - 530,000 passenger vehicles cross the Whirlpool Bridge each year.
  - 721,000 commercial vehicles cross the Peace Bridge each year.

- Major Highway Links
  - Federal, state, county and local highways.

- International Airport

- Major Railroad Routes (CSX, Norfolk Southern, Amtrak)
  - Erie County has an international railroad bridge.
  - Erie County ranked number two nationally for the transportation of hazardous materials.

- Animal Research Facilities

- Agricultural/Food Processing and Distribution Systems

- Major Universities
  - Genetic, medical and bioinformatics programs.

- Military Facilities

- Ports and Inland Waterways

- Chemical and Industrial Manufacturing Facilities

- Bulk Chemical and Petroleum Storage Facilities

- Federal, State, and City Office Buildings

  - Here is a risk assessment of the Erie County Edward A Rath Building

Rath Risk Assessment

- Reservoirs, Water Supply and Filtration Plants and Distribution Systems

- Hospitals
  - Many jurisdictions have only one hospital facility.
  - Western New York's hospitals are concentrated almost exclusively in Buffalo.
  - Hospitals can contain radioactive substances such as cobalt and cesium.

- Professional Sports Teams (NFL, NHL)
  - Open access
  - Large number of people on site

- Major Events (Fairs, Expositions, Festivals etc)

- High Target Areas (Malls, Casinos, Historic Landmarks etc)

- High Tech Communications and Finance Centers
- Regional Concerns and/or Targets
  (Although these areas/facilities are not necessarily located within the borders of Erie County, an attack on them would be a regional concern.)
- Niagara Falls (Major tourist attraction, natural wonder of the world)
- Nuclear power plants and radioactive waste demonstration projects
- Northeastern seaboard power and electrical facilities (Major power generation site for New York City and surrounding areas.
- Lake Erie, Lake Ontario and the Finger Lakes, embody the world's largest supply of fresh water.
- Critical bridges
- Cyber-terrorism

All of Erie County is vulnerable to a terrorist attack. According to statistics provided by the Federal Bureau of Investigation before the Twin Tower attacks of 2001, Western New York (in particular Erie County) led the country in terrorist threats. This pattern began in 1998 and continues throughout the country today. Due to the very nature of a terrorist attack, it is difficult to accurately predict the probability of future events.

The potential for large numbers of injuries and deaths contributes to its high rating. Also contributing to its placement are potential loss and damage to the infrastructure and critical facilities. The financial loss for the area would be a severe blow to the local economy. The probability of a terrorist attack in Erie County is moderately high.

Low Hazards

The following hazards were rated as "low" due to their low ranking and a past history of occurring infrequently. According to historical events, if these hazards were to occur there would be little to no monetary loss. These hazards are not considered to be of any concern for Erie County or for any municipalities. They are not addressed in this edition of the plan. As time and funding allow, they may be addressed in future editions of the plan.

Drought	Infestation
Fuel Shortage	Dam Failure
Food Shortage	

Hazards Not Addressed
Since profiling and addressing manmade hazards in the plan is not necessary to meet the DMA 2000 requirements, hazard mitigation strategies will be addressed in future editions of the All Hazard Mitigation Plan for the hazards listed below.

Hazards listed here that may be considered a natural hazard or are a direct result of a natural hazard have been shown to occur very infrequently and were listed as low in all HAZNY's. According to historical events, if these natural events were to occur there would be little to no monetary loss. Since these hazards are not a danger to Erie County they have been omitted from the All Hazard Mitigation Plan.

- Civil Unrest
- Radiological (Fixed Site)
- Structural Collapse
- Radiological (In Transit)
- Utility Failure
- Air Contamination
- Water Supply Contamination
- Mine Collapse

If during the process of a HAZNY survey a particular community experiences one of these hazards on a regular basis, the Department of Emergency Services will assist that community in developing mitigation measures.

Identifying Assets
This section of the All Hazard Mitigation Plan includes a detailed map of each municipality as well as an All Hazard Mitigation Map of each municipality. These maps have been created specifically for use in this plan by the Erie County Department of Environment and Planning. The All Hazard Mitigation Map lists all facilities that have been deemed a critical facility in Erie County. During the February 10, 2003 disaster coordinators meeting, the definition of a critical facility in Erie County was discussed. As a result of that meeting we identified many critical facilities in Erie County such as, transportation systems, utilities, hazardous materials facilities, high potential loss facilities (power plants), and facilities that are essential to the health and welfare of the whole population (hospitals, nursing homes, schools, etc.).

Index of Maps

A


Village of Akron


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Town of Alden


Village of Angola


Village of Alden


Town of Aurora

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Village of Blasdell


Town of Brant


Town of Boston


City of Buffalo

C


Town of Cheektowaga


Town of Collins


Town of Clarence


Town of Concord


Town of Colden

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Village of Depew

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Town of North Collins

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Village of Orchard Park

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Village of Springville


Village of Sloan

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City of Tonawanda


Town of Tonawanda

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Town of Wales

Town of West Seneca

Estimating Potential Losses

To estimate potential losses in Erie County, an inventory asset chart derived from the FEMA Hazard Mitigation Workbook was used. This chart determines the proportion of buildings and the value of buildings that would be affected by a specific hazard. The type of structure is categorized by occupancy class to afford a better view of the types of populations affected. Since a large number of our natural hazards would affect the county as a whole, we have provided one chart to explain those hazards and another chart to explain flood and ice jam potential loss figures. More hazards will be listed as more information is gathered. The county-wide inventory asset chart includes severe storm, earthquake, ice storm, tornado, winter storm, and extreme temperatures.

County-wide Hazards

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community or State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area
Residential	277,838	277838	100%	21,135,931,526	21,135,931,526	100%
Commercial	18,560	18560	100%	5,610,973,393	5,610,973,393	
Industrial	1,170	1170	100%	950,717,348	950,717,348	100%
Agricultural	2,112	2112	100%	187,334,691	187,334,691	100%
Community Services	2,772	2772	100%	7,329,186,411	7,329,186,411	100%
Utilities	2,028	2028	100%	1,660,420,042	1,660,420,042	100%
Total	304,480	304,480	100%	36,874,563,411	36,874,563,411	100%

Flood, Ice Jam

Type of Structure (Occupancy Class)	Number of Structures			Value of Structures		
	# in Community or State	# in Hazard Area	% in Hazard Area	$ in Community or State	$ in Hazard Area	% in Hazard Area
Residential	277,838	18185	6.5%	21,135,931,526	1,825,791,021	86%
Commercial	18,560	1112	6%	5,610,973,393	702,124,290	13%
Industrial	1,170	124	11%	950,717,348	372,385,546	39%
Agricultural	2,112	490	23%	187,334,691	40,475,821	22%
Community Services	2,772	330	12%	7,329,186,411	5,258,364,956	72%
Utilities	2,028	449	22%	1,660,420,042	1,236,032,258	74%

Total	304,480	20,690	6.8%	36,874,563,411	9,435,173,892	26%

To create these tables, parcel (property) data was overlaid with Q3 data. The Q3 Flood Data are derived from the Flood Insurance Rate Maps (FIRMs) published by the Federal Emergency Management Agency (FEMA). The FIRM is the basis for floodplain management, mitigation, and insurance activities for the National Flood Insurance Program (NFIP). Flood hazard areas are determined using statistical analysis of records of river flow, storm tides, and rainfall; information obtained through consultation with the communities: floodplain topographic surveys; and hydrological and hydraulic analysis. Both detailed and approximate analyses are employed. Generally, detailed analyses are used to generate flood risk data only for developed or developing areas of communities. For undeveloped areas where little or no development is expected to occur, FEMA uses approximate analyses to generate flood risk data. Typically, only drainage areas that are greater than 1 square mile are studied.

5 Mitigation Strategy

General Mitigation Planning Approach

The general mitigation planning approach used to develop the plan is based on the FEMA publication, Developing the Mitigation Plan: Identifying Mitigation Actions and Implementing Strategies (FEMA 386-3) and input provided by the State of New York Emergency Management Office (SEMO). The FEMA document and SEMO guidance includes four steps, which were used to support mitigation planning. These steps are summarized below and presented in more detail in the following sections.

- **Develop mitigation goals and objectives**: Mitigation goals were developed using the hazard characteristics, inventory, and findings of the risk assessment. By reviewing these outputs and other municipal policy documents, objectives tying these overarching goals were identified and characterized into similar themes.

- **Identify and prioritize mitigation actions**: Based on the risk assessment outputs, the mitigation goals and objectives, existing literature and resources, and input from the participating entities, alternative mitigation activities were identified for each hazard of concern and across multiple jurisdictions and hazards. The alternative mitigation activities are presented in a table. The potential mitigation activities were qualitatively evaluated against the mitigation goals and objectives and other evaluation criteria. They were then prioritized into three categories: high, medium and low.

- **Prepare an Implementation strategy**: High priority mitigation activities are recommended for first consideration for implementation, as discussed under each hazard description in the following sections. However, based on community-specific needs and goals and available funding and costs, some low or medium priority mitigation activities may also be addressed or could be addressed before some of the high priority activities. Planning meetings during 2004 and early 2005 will support further evaluation and selection of mitigation activities. In addition, input or suggestions from SEMO and FEMA will be considered as the activities are evaluated further.

- **Document the mitigation planning process**: The mitigation planning process is documented throughout the plan.

5.2 Mitigation Goals and Objectives:

FEMA defines **Goals** as general guidelines that explain what should be achieved. Goals are usually broad long-term, policy statements, and represent a global vision.

FEMA defines **Objectives** as strategies or implementation steps to attain mitigation goals. Unlike goals, objectives are specific and measurable, where feasible.
This section presents the mitigation goals identified to reduce or avoid long-term vulnerabilities to the identified hazards. Erie County and the 44 participating municipalities developed these goals and objectives based on the risk assessment results and the existing authorities, policies, programs, resources, and capabilities of the jurisdictions in the study area. The goals and objectives are based on input from the community, research, and meetings of the planning group. Towns, Villages, and the 3 Cities have provided jurisdiction-specific input regarding activities that will support the mitigation goals and objectives.

The mitigation goals serve as general guidelines that clarify desired hazard reduction outcomes. The goals are based on the findings of the risk assessment and input from the public and the planning group, and represent a long-term vision for hazard reduction and the enhancement of mitigation capabilities. The goals are compatible with needs and goals expressed in other available community planning documents prepared by the participating communities and Erie County.

Each goal has a number of corresponding objectives that further define the specific strategies or implementation steps. These objectives were developed by the planning group through the knowledge of the local area, review of past efforts, findings of the risk assessment, qualitative evaluations, and identification of mitigation options.

The four mitigation goals with their respective objectives are presented below:

- **Goal 1: Protect Life and Property**

Objective 1-1: Implement mitigation activities that will assist in protecting lives and property by making homes, businesses, infrastructure, and critical facilities more resistant to hazards.

Objective 1-2: Encourage homeowners and businesses to take preventative actions in areas that are especially vulnerable to hazards.

Objective 1-3: Build upon past efforts to characterize flood events by conducting additional flood studies and create flood models.

Objective 1-4: Review existing local ordinances, building codes, safety inspection procedures, and applicable rules to help ensure that they employ the most recent and generally accepted standards for the protection of buildings.

Objective 1-5: Ensure that public and private facilities and infrastructure meet established building codes and immediately enforce the codes to address any identified deficiencies.

Objective 1-6: Incorporate hazard considerations into land-use planning and natural resource management.

Objective 1-7: Encourage homeowners, renters, and businesses to purchase the proper insurance coverage for their location for damages caused by hazards.

Objective 1-8: Integrate the recommendations of this plan into existing county and state programs.

Objective 1-9: Implement mitigation activities that encourage environmental cooperation and protection of the environment.

- **Goal 2: Increase Public Awareness**

Objective 2-1: Develop and implement additional education and outreach programs to increase public awareness of the risks associated with hazards and to educate the public on specific, individual preparedness activities.

Objective 2-2: Provide information on tools, partnership opportunities, funding resources, and current government initiatives to assist in implementing mitigation activities.

Objective 2-3: Implement mitigation activities that enhance the technological capabilities of the jurisdictions and agencies in the County to better profile and assess exposure of hazards.

- **Goal 3 Encourage Partnerships**

Objective 3-1: Strengthen inter-jurisdiction and inter-agency communications, coordination, and partnerships to foster hazard mitigation strategies and/or projects designed to benefit multiple municipalities.

Objective 3-2: Identify and implement ways to engage public agencies with individual citizens, non-profit organizations, business, and industry to implement mitigation activities more effectively.

- **Goal 4 Provide for Emergency Services**

Objective 4-1: Encourage the establishment of policies at the local level to help ensure the prioritization and implementation of mitigation strategies and/or projects designed to benefit essential facilities, services, and infrastructure.

Objective 4-2: Where appropriate, coordinate and integrate hazard mitigation activities with existing local emergency operations plans.

Objective 4-3: Identify the need for, and acquire, any specific emergency services and equipment to enhance response capabilities for specific hazards.

Objective 4-4: Review and improve, if necessary, emergency traffic routes; communicate such routes to the public and municipalities.

5.3 Identification, Analysis, and Implementation of Mitigation Activities

This sub-section discusses the identification, analysis, and implementation of mitigation activities for the Erie County multi-jurisdictional study area.

Identification

During the planning process, Erie County and the forty-four participating municipalities identified potential loss reduction activities for each hazard of concern. These were identified in line with the goals and objectives discussed in Section 5-3. The mitigation activities include a range of options in line with the six types of mitigation activities described in FEMA guidance (FEMA 386-3), including:

1. **Prevention:** Government administrative or regulatory actions or processes that influence the way land and buildings are developed and built. These actions also include public activities to reduce hazard losses. Examples include planning and zoning, building codes, capital improvement programs, open space preservation, and storm water management regulations.

2. **Property Protection**: Actions that involve modification of existing buildings or structures to protect them from a hazard, or removal of structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.

3. **Public Education and Awareness**: Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and school-age and adult education programs.

4. **Natural Resource Protection**: Actions that minimize hazard loss and also preserve or restore the function of natural systems. These actions include

sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.

5. **Emergency Services**: Actions that protect people and property, during and immediately following, a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities.

6. **Structural Projects**: Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, levees, floodwalls, seawalls, retaining walls, and safe rooms.

Analysis

The mitigation activities developed for this plan are grouped by hazard and presented in a series of tables in the following sub-sections. Each alternative mitigation activity was evaluated qualitatively using several evaluation criteria, including the consideration of social, technical, administrative, political, legal, economic, and environmental (STAPLEE) opportunities and constraints in implementation. Each of these evaluation criteria is summarized below. The evaluation criteria are described in terms of situations that present opportunities for implementation success or as areas that must be considered:

- **Social Criteria**: The public must support the overall implementation strategy and specific mitigation activities; therefore, community acceptance of the proposed mitigation activities must be considered.

- **Technical Criteria**: Such factors as technical feasibility of the proposed mitigation activity to reduce losses in the long term, with minimal secondary impact, must be considered.

- **Administrative Criteria**: Anticipated staffing, funding, and maintenance for each mitigation activity must be considered.

- **Political Criteria**: The political leadership of the municipalities must support the overall implementation strategy and specific mitigation activities, therefore, decision-maker acceptance of the proposed mitigation activities must be considered.

- **Legal Criteria**: Whether the communities have legal authority to implement the proposed mitigation activities must be considered.

- **Economic Criteria**: Funding needs and budget constraints must be considered.

- **Environmental Criteria**: Environmental impacts that could be caused by implementing specific mitigation activities must be considered.

The tables in this section identify the mitigation goals and objectives driving each mitigation activity and identify the outcome of the evaluation of each mitigation activity against the STAPLEE criteria. The planning group evaluated these criteria, ease of implementation, cost/benefit, and implementation timeframes to prioritize each mitigation activity as a high, medium, or low priority. All mitigation activities presented in the following tables include, to the extent that information was available, an implementation timeline, funding sources, and the jurisdiction responsible for carrying out the actions.

Particular attention was given to those mitigation activities that addressed existing and new buildings and infrastructure. For example in section 5,4,1,1 mitigation activities were developed including "Analysis repetitive flood properties within Erie County and identify feasible mitigation options (through the Erie County Floodplain Management Plan). Conduct regular maintenance and inspections on the local flood control projects, construct synthetic floodways to disperse flow and reduce the velocity of creeks and streams and retrofit, acquire, and /or relocate buildings in flood-prone areas (including wet or dry flood proofing) and in section 5.4.4 mitigation activities were developed including "Develop a program to promote tie-downs of mobile homes for flood and severe wind events".

In the City of Buffalo, the County of Erie has been completing construction on a new $33 million Public Safety Campus. This building will meet all of the new federal requirements for terrorist incidents. It is also a state of the art facility to bring all critical emergency communications for the city and county together under one roof. The facility will also have the latest and most sophisticated security systems available.

Particular attention also was given to those mitigation activities that address essential facilities and infrastructure. For example in section 5.4.1.2 mitigation activities include: "Retrofit critical structures to increase resistance to storm hazards and promote hazard resistant construction of new buildings;" Section 5.4.1.3 mitigation activities include "Retrofit critical facilities with wind resistant designs and construction;" and Section 5.4.2.1 mitigation activities include "Retrofitting critical facilities with the latest utility connections" and "Acquisition of generators to support critical communications systems."

Within the last year, there has been a $2.4 million renovation and addition to the Erie County Training and Operations Center. Some of the completed items are as follows:

- installation of new sprinkler system
- enhanced security throughout facility including
    - card access at entrance including security gate
    - enhanced security lighting

- off-site perimeter camera surveillance by Town of Cheektowaga Police
- Larger generator and fuel storage tank to maintain full operation of the facility in case of power loss.
- New addition to house the equipment for the County Hazardous Materials Team, Weapons of Mass Destruction Trailers, and the Erie County Sheriff's Department Bomb Disposal Unit.

There have also been updates to the County Office Building in downtown Buffalo. There is a new state of the art fire alarm system and advanced security system which includes:

- card readers for access to secure locations
- security cameras on each floor in critical locations
- new fire alarm system includes audio and visual alerting to meet the ADA requirement. The audio alert includes tone component and voice alerting.

Additionally, the planning group established public information activities and NFIP Community Rating System (CRS) promotion, as high priority activities based on their relative affordability, multi-jurisdictional impact, and significant potential benefits. The planning group will promote CRS by providing information on the County website, implementing a mailing to all code enforcement officers/NFIP Coordinators, and sharing information with the municipal officials association. Additionally, the County will communicate with the general public through public meetings and related zoning ordinances, so one multi-jurisdictional mitigation activity is to promote CRS in Erie County and provide specific examples of how to address CRS. Several municipalities have developed storm water plans to comply with the new Phase II storm water regulations, so multi-jurisdictional efforts for storm water management are not included; however, some storm water activities are included where they will support mitigation for the hazards of concern, such as flood. Certain activities, such as buy-outs in flood zone areas, are ranked as lower priorities on the cost/benefit ratio review.

Throughout the mitigation planning process, mitigation activities were evaluated at various planning group meetings. Activities were submitted for inclusion by individuals, members of the public, Local Emergency Planning Committee members and planning group members, and during the brainstorming sessions (for example, a planning group meeting held on March 8, 2005. At various intervals, members of the planning group met and communicated via email and telephone to develop and discuss mitigation activities for the hazards identified in this plan based on the criteria listed above, current programs and policies, and the results of the risk and exposure assessments. Each municipality also developed jurisdiction-specific mitigation activities and submitted them to the County Mitigation Coordinator. Additionally, the County Mitigation Coordinator solicited input and mitigation activities from various agencies in the County, such as local Disaster Coordinators and Local Public Works Superintendents, the Erie

County Water Authority, the National Weather Service, Niagara Transportation Authority, Verizon, Niagara Mohawk, and New York State Electric and Gas. The County Mitigation Coordinator and the other planning group members reviewed the mitigation activities prior to their inclusion in the plan to ensure the mitigation activities met the goals and objectives of the mitigation plan, addressed the STAPLEE criteria, and were assigned a high, medium, or low priority.

The planning group determined that any mitigation activity that may help the communities become more disaster resistant should be included in the plan even if funding is not currently available or if a mitigation activity was assigned a lower priority based on the STAPLEE criteria or cost/benefit evaluation. Therefore, most of the mitigation activities identified by the group are included in the following sub-sections. Only those mitigation activities that were considered to present prohibitive costs, technical or practical issues, high cost/benefit ratios, or other concerns based on community priorities and needs were removed from consideration. For example a mitigation activity to develop better flood warning systems was eliminated from consideration because NOAA indicated the most flood damage in the study area results from flash floods and a warning system would not support notification for this type of flooding. Similarly, a general mitigation activity to construct berms or levees in flood-prone areas was removed because the county plans to conduct additional engineering studies to evaluate the feasibility of berms and levees. Therefore, the study effort included as mitigation activity, rather than construction of a berm or levee. Finally, property buy-outs were removed as mitigation activities due to the high cost/benefit ratio.

It should be noted that some mitigation activities are applicable to more than one hazard. For example, mitigation strategies related to the removal of tree limbs and the provision of back-up generators apply to the severe winter storm, severe storm and utility failure hazards. Mitigation activities related to compliance with the new storm water regulations are applicable to the flood and water supply contamination hazards. The multi-jurisdiction and multi-hazard sub-section focuses on such cross-hazard activities.

Implementation

Erie County and the forty-four participating municipalities prioritized the potential mitigation activities for each hazard of concern and ranked each as a high, medium, or low priority. The priority for each proposed mitigation activity was determined by analyzing the community's vulnerability to each hazard (as presented in Section 4 of this Plan), the potential benefits of the mitigation activity, and the feasibility of the mitigation activity based on a review of the STAPLEE criteria. Mitigation activity priorities also are based on "the extent to which benefits are maximized according to a cost/benefit review" (DMA 2000). For example, low cost activities that support cross-jurisdiction and multi-hazard benefits are assigned a high priority in some cases, based on the cost/benefit review. For example, a number of high priority mitigation activities focus on

public awareness and education programs or integrating the mitigation plan into current programs because these types of mitigation measures are affordable, achievable, can address multiple hazards and have an immediate benefit.

The planning group also identified specific mitigation activities that will prevent future losses; however, current funding is not identified for all of these activities at present. The County and participating municipalities have limited resources to take on new responsibilities or projects, The implementation of these mitigation activities is dependent on the approval of each local elected governing body and the ability of the communities to obtain funding from local or outside sources. Where such activities are high priorities, the communities will work together and with the County, SEMO, and other agencies to secure funds.

In general, mitigation activities ranked as high priorities will be addressed first. However, medium or even low priority mitigation activities will be considered for concurrent implementation. Therefore, the ranking levels should be considered as a first-cut, preliminary ranking and will evolve based on input from each municipality, the public, SEMO, FEMA as the plan is implemented. Although flooding is not considered a high hazard it is considered a high priority. This is because mitigation efforts have the most effect in that there are easy, inexpensive ways to reduce monetary losses. Flooding can be very devastating and damaging both environmentally and monetarily.

Listed in this document are the Top Ten Hazard ratings for each municipality as well as basic mitigation strategies and the severity for the municipality. Mitigation goals and strategies are also discussed later in the All Hazard Plan in more detail.

Hazards, Effects and Mitigation Measures.›

Mitigation actions were considered for prioritization by a qualitative assessment. Financial considerations were considered to be priority over environment, second only to life and safety. Without knowing the cost and mitigation actions to be taken, cost-benefit review could be performed on a case by case analysis.

A local capability assessment was taken into consideration while drafting mitigation goals and strategies. Attached is a summary table listing local capabilities.

capability assessment

Future Hazard Mitigation Goals and Strategies

Present mitigation measures will be continued in the future. However, it is understood and well known that more mitigation measures need to be taken in the future so that Erie County and its municipalities can realize their goals of saving life, property and the environment from the devastating effects of natural and man made hazards.

A. Flooding

GOAL: To make Erie County more resistant to flood damage.

OBJECTIVE #1: Continue mitigation efforts in area streams.
In the future, Erie County and its 25 Town, 16 Villages and 3 Cities will continue stream bank stabilization efforts, erosion and sedimentation studies, stream cleaning and maintenance, and participation in flood control system inspections and maintenance as listed in the Comprehensive Floodplain Management Plan. More aggressive programs will be created to address problems in creeks that have not been maintained in the past, and for others when necessary. Should a flooding event create the need for the Erie County Comprehensive Floodplain Management Plan (see copy enclosed in this plan) to be reinstituted, the County and its municipalities will again participate.

TIME FRAME: Ongoing
FUNDING: Existing budgets and mitigation grants when available.
LEAD: Erie County Emergency Services, in conjunction with Soil and Water Conservation
SUPPORT: Erie County and other municipal Public Works Departments, & State and Federal agencies

OBJECTIVE #2: Create a public education program for residents to ensure stream mitigation efforts are not defeated.
Currently, the county is working with the municipal disaster coordinators and their various local municipal planning and other departments in getting the word out to the public about monitoring and discouraging any building in buffers and greenways which can be used to reduce flooding damage, and explaining the "dos and don'ts" of stream maintenance and use. It is our hopes that by working with these municipal departments that this will help prevent future damage by reducing development in flood prone areas, and by discouraging landowners from detrimental behaviors such as throwing debris in the streams or removing rocks or dirt that serves as bank erosion protection.

TIME FRAME: Ongoing
FUNDING: Existing budgets and grants when available.
LEAD: Erie County Disaster Coordinators Association
SUPPORT: Soil and Water Conservation, Erie County Emergency Services

OBJECTIVE #3: Create public education programs and prevention legislation for urban residents regarding yard waste, debris and storm water runoff.

Another public education program that is needed is for the urban residents who place yard debris at the roadside. During rain events, this debris washes onto storm sewer grates, clogging the sewers and creating "urban flooding". Many of the municipalities have yard debris pick-up programs at least once a month, some communities just do it in the spring and fall, and some other municipalities have local regulations or Code Enforcement Officers that address property maintenance. One important program listed in the Comprehensive Floodplain Management Plan is to identify and stop illegal hook-ups of sanitary sewers to storm sewer in the Town of Hamburg and the Village of Blasdell. These programs would continue, and if funding became available, more aggressive and useful campaigns could also be implemented. Some municipalities in Erie County have even gone as far as to institute Legislation and enforcement to address "dumpers", those people who dump household trash, furniture and appliances, and lawn debris along area waterways.

TIME FRAME: When funding becomes available
FUNDING: Grants when available.
LEAD: Municipalities
SUPPORT: Soil and Water Conservation, Erie County Emergency Services

OBJECTIVE #4: Secure funding to buy out properties in flood plains that pose repetitive loss problems, and raise or modify properties when cost efficient.

Acquisition and Relocation of Flood Damaged Buildings are listed in HARRP 2000 as well as the Comprehensive Floodplain Management Plan. Erie County has previously helped the Town of Hamburg with a project along Lake Erie after the Federal declared Flood Disaster of 2000. This project was conducted with the assistance of the New York State Emergency Management Office and a Mitigation grant which assisted in purchasing a residential property that was sinking into Lake Erie. There are other municipalities, which have additional homes that would be need to be added to a list of properties that would need to be addressed with future funding opportunities. The cost of the work to be done for the protection of the properties is far greater than the cost to buy the properties and destroy them. Review of these properties and the conditions that cause the flooding that affects them tells us there is no real "fix" for the problems. Our efforts would only be "band-aid" measures, and would not alleviate the problem entirely. The cost to buy out the homes is estimated at an average cost of anywhere between 50 to 250 thousand dollars. A true "fix" for the flooding problems experienced by these properties is either non-existent or would cost in the millions of dollars.

TIME FRAME: When funding becomes available
FUNDING: Grants when available, possibly Federal or State Funding if associated with flood control project creation.

LEAD: Soil and Water Conservation/Erie County Municipalities
SUPPORT: Emergency Services, Public Works, State and Federal Agencies

OBJECTIVE #5: Continue to support of the National Weather Service and its storm watchers program

Erie County and its municipalities will continue to support the efforts of the National Weather Service and its storm watchers program. The data provided by the rain and river gauges maintained and monitored by the National Weather Service Staff, and its group of storm watchers with their ability to accurately predict creek and river crests, is invaluable to Erie County during a heavy rain events. Their predictions, based on current precipitation and river level upstream, can give Erie County up to four hours of lead time for impending river crests and flooding.

TIME FRAME: Ongoing
FUNDING: Existing budget and support of the National Weather Service
LEAD: Emergency Services
SUPPORT: County and Municipal governments

OBJECTIVE #6: Obtain the Storm Ready designation through the National Weather Service.

Erie County is started to meet the requirements needed to obtain the National Weather Service "Storm Ready" designation possibly by the end of 2005. In an effort to continue this work, we are in the process of creating a campaign to encourage residents and businesses to purchase NOAA Weather Radios. We feel that the service provided by these radios would help Erie County residents prepare sooner for flooding events, thereby decreasing the number of life threatening incidents due to people staying in their homes when they should be leaving. The NOAA radio also offers the quickest avenue to hazardous weather warnings, showing their greatest benefit during severe summer storms when warning time may only be minutes.

TIMEFRAME: Ongoing
FUNDING: Existing budgets and future grants when available.
LEAD: Erie County Emergency Services
SUPPORT: National Weather Service

OBJECTIVE #7: Create legislation that will promote "best practices" and provide funding for ongoing mitigation projects.

As listed in HARRP 2000, tax incentives, mortgage standards, and insurance credits can be used as incentives to promote mitigation objectives. Mitigation efforts that Erie County and its municipal disaster coordinators would like to institute include incentives for landowners that leave buffers or green areas along streams, and for landowners that allow storm water projects to be built on their property for the protection of downstream residents.

TIMEFRAME: Five years.
FUNDING: Current budgets or grants, if available. None expected for legislation.
LEAD: County and Municipal disaster coordinators
SUPPORT: Soil and Water Conservation, County and Local Public Works

OBJECTIVE #8: Continue to work with Erie County Environment and Planning with its efforts to further enhance their GIS database

Erie County Environment and Planning has a Geographical Information System (GIS) database that includes information on soils, tax maps and land use from current and past aerial photos. This allows us to update our flood maps, develop watershed models for zoning and land use decisions, design regional storm water projects, and to give better information to the municipal boards making land use decisions. This GIS system is currently being used by many departments and municipalities to develop proper planning for land use and other factors by municipal planning and governing bodies. There is still much work to be accomplished to make the system more beneficial.

TIMEFRAME: GIS is continually being upgraded
FUNDING: Funding is provided through Erie County Environment and Planning Budgets. Additional funding from grants would further enhance the program.
LEAD: County Environment and Planning
SUPPORT: Emergency Services, Municipalities, New York State

OBJECTIVE #9: Provide technical assistance to municipalities for more effective legislation regarding land use, zoning laws, storm water management, etc.

Our towns and villages need assistance in creating more effective zoning laws and land use regulations (HARRP 2000), and further assistance in enforcing these laws. Technical assistance for identifying floodplains and flood prone areas must be completed first, along with education for town and village officials, so that new regulations and laws are properly applied and enforced. Some examples of regulations and laws are listed in the Comprehensive Floodplain Management Plan and HARRP 2000. HARRP 2000 lists subdivision regulations and building codes on new land as well as environmental regulations to protect sensitive natural areas. The Comprehensive Floodplain Management Plan lists floodplain regulations such that municipalities should have ordinances in place for building codes to meet the minimum requirements of the National Flood Insurance Program. All municipalities need assistance to develop and implement storm water management programs consistent with the local municipal building permit applications **Many components of these storm water programs will require additional staff time and expertise to implement, however, current staffing levels are not sufficient and staff does not have the expertise to complete**

these tasks. Municipalities would like to work cooperatively to reduce costs for planning and implementation.

TIMEFRAME: As soon as possible
FUNDING: Mitigation Grant when available and approved.
LEAD: Erie County Environment and Planning, Emergency Services and Municipal Governments
SUPPORT: NYS

OBJECTIVE #10: Complete various construction and maintenance projects, and create a schedule for ongoing maintenance of completed projects.

All county and municipal public works/highway departments need funding and assistance for ditching programs, debris removal programs, and drainage system installation and maintenance projects as appropriate. The projects can be identified through the recurrence of damages from previous Disaster Declarations from flooding. Some examples of projects which are listed in the Comprehensive Floodplain Management Plan: reducing lake erosion, building a berm on Blasdell Creek, installation of a low cost ice retention facility along Cazenovia Creek, and shoal removal along Buffalo and Cazenovia Creek.

TIMEFRAME: As soon as possible, when funding becomes available.
FUNDING: Existing budgets for a portion if supplemented by grants, State or Federal funds.
LEAD: Highway Superintendents in all municipalities
SUPPORT: Municipal Governments, NYS and Federal Government

B&C. Summer/Winter Storms

GOAL: To prevent injury and loss of lives and reduce damage to infrastructure as a result of Severe Summer and Winter Storms.

OBJECTIVE #1: Create a NOAA Weather Radio awareness and discount purchase campaign.

Again, the County is currently trying to create a campaign for NOAA Weather Radio purchases by residents and businesses. We feel these will be very beneficial for the summertime storms that usually receive very little warning, giving people added minutes to prepare and get to shelter.

TIMEFRAME: Within one year.
FUNDING: None expected, grant funding if needed and available.
LEAD: Erie County Emergency Services and Local Municipal Disaster Coordinators
SUPPORT: Local retail outlet, NWS

OBJECTIVE #2: Create a cooperative tree maintenance program among the municipalities and Niagara Mohawk & NYSEG, and bury utilities when feasible.

We would like to work cooperatively with New York State Electric and Gas Corporation (NYSEG) and Niagara Mohawk to devise a tree removal plan in road and utility rights-of-way. Highway Departments do not have the time, money or people to undertake massive tree trimming/removal projects, nor do they have the experience for working near the power lines. We hope that a cooperative effort with NYSEG and Niagara Mohawk would allow enough people and equipment to undertake such a project, if funding were to become available. An alternative to removing trees is to bury utility lines when feasible and appropriate. This project, due to the cost involved, would have to apply to new installations, not existing utilities.

TIMEFRAME: When funding becomes available.
FUNDING: Grants when available.
LEAD: Erie County, NYSEG and Niagara Mohawk
SUPPORT: Municipalities

OBJECTIVE #3: Research cooperative buying and storage programs for de-icing materials.

Another serious issue facing the County and its municipalities is a lack of available de-icing materials and the money to pay for these materials and store these materials. Due to salt rationing and the lack of cinders, a far better product than sand or gavel, more money is being spent on less product for less satisfactory results.

TIMEFRAME: Within five years for research and solution possibilities.
FUNDING: Existing budgets for a portion if supplemented with grants or State/Federal funding.
LEAD: Highway Supervisors, Municipal Governments
SUPPORT: NYS, Federal Governments

D. Epidemic

GOAL: To identify contagious disease or illness trends in a timely fashion and stop the spread of such illness/disease as quickly as possible.

OBJECTIVE #1: Continue participation in the 8 County Health Coalition Epidemiology program.

This program is an information sharing network that can quickly identify the spread of numerous diseases or identify illness trends. It is assumed that if a disease or illness is quickly identified, the spread of the disease or illness can be prevented.

TIMEFRAME: Ongoing

FUNDING: Existing budget when needed, possible grant use in future for updates to the system.
LEAD: Erie County Health Dept. (ECHD) and the other 7 County Western New York Health Departments
SUPPORT: Hospitals, NY State Dept. of Health (NYSDOH)

OBJECTIVE #2: Continue vaccination clinics for flu, pneumonia, childhood immunizations, and other preventable diseases.

Erie County Health Department will continue its efforts to immunize and vaccinate as many people as possible for contagious diseases when feasible and medically advised.

TIMEFRAME: Ongoing
FUNDING: Existing funds, use of grants in future if needed.
LEAD: ECHD
SUPPORT: NYSDOH

OBJECTIVE #3: Lobby New York State for mutual aid plans and exceptions to licensing regulations when needed and practical, and clarify authority for quarantine.

Erie County would like to see State legislation and planning for mutual aid across county and state borders in the event of an epidemic. There also needs to be more concrete rules regarding when a quarantine of an individual/household can be ordered, and who has the authority to enforce the quarantine. The County has created a database of medical personnel that have retired or moved into administration, but can still use their medical skills accurately and efficiently. This team of volunteers is called SMART (Specialized Medical Advanced Response Team). We have been very thorough in our planning for contagious disease, for mass vaccination/treatment facilities, and we have realized that we do have enough personnel to run these programs if we need them. There are many retired nurses, doctors, etc. that still have skills that could be used during an emergency if the State would allow them to work without a current professional license. They have the opportunity to join the all-volunteer SMART Team

TIMEFRAME: Lobbying efforts are ongoing
FUNDING: None expected, existing funds or grants if needed.
LEAD: ECHD
SUPPORT: NYSDOH

E. Hazardous Materials

GOAL: To prevent hazardous materials releases; and to prevent injury and the loss of lives, and protect the environment, from the effects of hazardous materials releases.

OBJECTIVE #1: Educate the public and business community in proper hazardous materials storage and disposal, continue disposal programs, and continue/create legislation and training programs.

In the future, Erie County would like to create and deliver an educational program for residents and businesses regarding the safe storage and disposal of hazardous materials. We will continue the Household Hazardous Materials Day for home owners to dispose of old hazardous chemical products. We would also like to assist our municipalities in creating zoning laws that would be beneficial for ground water, streams and water bodies. We would continue to encourage local business and industry to train with their fire department and to remain in compliance with all laws and regulations regarding hazardous materials handling, storage and disposal.

TIMEFRAME: Ongoing and as soon as possible.
FUNDING: Existing budgets, grants when available.
LEAD: Erie County LEPC, and the 5 Hazardous Materials Response Teams
SUPPORT: Municipalities, Local Industry

OBJECTIVE #2: Lobby for tougher hazardous materials release laws, enforcement and penalties.

Erie County would like to see tougher laws and stricter enforcement for the unscrupulous individuals that "park and dump" hazardous materials. We find that many transportation accidents in which loads or fuel are lost begin with the driver of the vehicle trying to "dump the load" (either the load being hauled or from a ruptured fuel tank) and drive off before being caught. Many are reported before they are able to escape, and the truth of the situation is found out. We have had our share of "mystery spills" as well, when product is discovered with no vehicle or evidence of its origin in sight.

TIMEFRAME: As soon as possible.
FUNDING: None expected.
LEAD: EMO, LEPC
SUPPORT: NYS DEC

OBJECTIVE #3: Educate the public on the proper procedures to take if a hazardous material is released near their location.

The Erie County LEPC has conducted media campaigns and has revised its brochure to educate the public on shelter in place procedures should a hazardous materials release occur near their location and they must shelter for protection. Information on evacuation/fleeing procedures would also be included. The National Weather Service currently activates our EAS system for the County and its municipalities in which they will instruct residents of an affected area on whether to shelter in place or evacuate to a certain location or locations. The

National Weather Service also is endorsing the purchase of NOAA Weather Radios.

TIMEFRAME: Within one year and annually thereafter.
FUNDING: None expected, LEPC grant funding if needed.
LEAD: LEPC
SUPPORT: Erie County Emergency Services, NWS

OBJECTIVE #4: Provide further training and equipment for first responders/law enforcement regarding meth labs and hazardous materials releases.

Erie County still has gone a long way in the training of our first responders and law enforcement officers for response to Hazardous Materials incidents but still needs improvement with regards to meth labs. Training is continuing with the DCJS Homeland Security Exercise Evaluation Program (HSEEP).

TIMEFRAME: Continuing
FUNDING: Grant money
LEAD: Emergency Services, Law Enforcement Agencies
SUPPORT: Municipal Highway/Code Enforcement, Fire Depts, OFPC

F. Terrorism

GOAL: To reduce opportunities for acts of terrorism or "home grown" terrorism in Erie County; and to respond in the most efficient manner possible in any purposeful event to allow the least amount of damage and impact on the County.

One crucial needs for terrorism mitigation in Chemung County is a radio communications system with the ability to allow interagency communications.

OBJECTIVE #1: Establish a radio system that allows interagency communication

Erie County, has an old and antiquated communications system which does not allow for first response agency communications during emergencies and when otherwise needed. The current radio communications system is inadequate due to limited channels, the inability to speak interagency, and due to the terrain there are large "dead spots" where radio transmissions are not possible. During a terrorist event it will be crucial for police agencies to be able to speak with one another and coordinate efforts. This is not possible currently. In addition, all County police agencies are in favor of a law that allows officers to become "multi-jurisdictional" during a large scale emergency event. No one agency has enough personnel to adequately cover all the demand that will be placed on it during a terrorist event. Therefore, it has been suggested that a more efficient use of officers would be to combine the agencies and assign them where they are

needed, regardless of physical boundaries. To do this, we would not only need a law or provision to allow multi-jurisdictional coverage, but also radio frequencies that can be received on all police radios.

TIMEFRAME: As soon as possible
FUNDING: Some funding is available through Homeland Security Funding currently available and possibly existing funds and potential Statewide Wireless Partnering
LEAD: Emergency Services, Central Police Services, Erie County Sheriff's Office
SUPPORT: Municipalities, NYS Police

OBJECTIVE #3: Obtain training and equipment for terrorism response for all law enforcement.

Our County SWAT team also needs equipment for terrorist response. While we currently have a portion of the law enforcement "escape PPE" cache provided by the state, we have not received all the components. Therefore, the equipment is unusable at this time. However, when the order is complete, this cache is for escape purposes only, it is not for working in hazardous atmospheres for extended periods. During a terrorist event, it is highly likely our SWAT team would be called upon to work at a scene with a hazardous atmosphere for investigation and evidence collection. They currently have very limited equipment and training for such work. All Erie County law enforcement agencies are training for terrorism and WMD. Due to overwhelming training requirements that already need to be met by law enforcement, this "added training" needs funding for training costs and overtime. Federal funds from Homeland Security is being used for training exercises, but the funds will only pay for training and exercises. More is needed for future training events.

TIMEFRAME: Currently being conducted
FUNDING: Federal and State grants are available.
LEAD: Central Police Services and Law Enforcement Agencies
SUPPORT: Emergency Services, Municipalities

G. Transportation Accidents

GOAL: To reduce transportation accidents on roadways and railways; and to lessen the impact of air incidents with a quick and efficient response.

OBJECTIVE #1: Continue to support the activities of the Intelligent Transportation System Architecture plan and the activities of NITTEC

The committees that are active in the County regarding transportation issues will have a tremendous impact on the future of accident prevention. Through these committees ideas are discussed and needs are addressed. Variable message boards and speed indicators have been placed in key areas within the County. New York

State DOT will continue to update its notification system to include automatic de-icing equipment and video surveillance of traffic.

TIMEFRAME: Ongoing
FUNDING: Existing budgets and grants when available.
LEAD: Erie County, Municipal Governments
SUPPORT: Participating Committee agencies

OBJECTIVE #2: Coordinate with Norfolk-Southern rail company to present public education programs on railroad safety.

Norfolk-Southern has excellent education programs for school aged children and for the public regarding safety near railroads. Training programs are also offered for firefighters and first responders regarding response to training derailments.

TIMEFRAME: Within one year and bi-annually thereafter.
FUNDING: None expected, existing budgets or grants if needed.
LEAD: Sheriff's Office, Norfolk-Southern
SUPPORT: School Districts, Media Outlets

OBJECTIVE #3: Research a radio based traveler advisory system, possibly in cooperation with the Amber Alert System and/or variable message signs.

Erie County would like to see a radio system that travelers could tune into in their car for alerts to hazardous road conditions or traffic tie-ups/accidents ahead. Research would have to be done to determine feasibility and cost. Possible use of Amber Alert System hardware, flashing signs or variable message boards was suggested.

TIMEFRAME: When time and cost permits
FUNDING: Must be researched
LEAD: Traffic Safety Board, NYSDOT
SUPPORT: Municipal Governments

OBJECTIVE #4: Continue to create more media campaigns with safe driving messages appropriate to the season.

AAA in conjunction with the NITTEC members have several message suggestions aimed at the most common driving errors associated with crashes in Erie County, based on our crash reporting system.

TIMEFRAME: As soon as possible
FUNDING: Grants when available
LEAD: Traffic Safety Board
SUPPORT: Erie County Public Information Officer, Law Enforcement Agencies

Mitigation Strategies Utilizing Geographic Information Systems

The Erie County Geographic Information Services program under the guidance of Erie County Emergency Planning has developed or is in the process of developing a few important mitigation strategies relevant to hazards in Erie County. One application created by the GIS program uses ArcView to identify the location of a chemical accident or spill then switches to the EPA's Aloha software to generate the plume. After the Aloha program generates the plume, the model switches back to ArcView to plot the plume on top of the "critical infrastructure" layers (such as hospitals, schools, police and fire stations, nursing homes, etc.). The model then generates a report in MS Word that includes a map of the plume as well as a listing of all the critical infrastructures impacted by the plume.

Another ArcView application was used during the December 2001 7' snowstorm. This GIS application is used to highlight and display the status of roads for a variety of events such as tagging street segments that are closed, one lane open for emergency vehicles, 2 lanes opened, plowed curb to curb, etc. The application color codes the roads based on their condition, and can also be used to quickly calculate the distances (feet, miles) of roads in each condition.

The Erie County GIS office also develops and maintains Internet and Intranet mapping programs. These Internet Mapping Services (IMS) are available for a wide range of county and local government purposes. The GIS Office has developed a password protected IMS for the emergency response community. The system can be used to view critical infrastructure and incident data over a standard web browser. Users can turn layers on and off, zoom and pan around the map, and query the databases for information about the facilities. Chemical plumes that are generated with the Chemical Plume Model listed above can be imported and displayed in the IMS. The Streets Closure application (also listed above) can be used to generate a map layer for display in the IMS.

The new Public Safety building which will be the new home of EC Emergency Services will include GIS technology in the form of "Smart or Touch Tables". These tables, which are similar to conference room tables, are actually interactive computer displays. GIS applications, such as the applications just listed can be displayed and controlled with "hands-on" finger tip motions. Individuals at the table can view layers of critical infrastructure, aerial photos, Internet Mapping, etc. at their fingertips. In place of static paper maps, or solid material 3-dimensional models, the Touch Table can ensure that emergency personnel are viewing and using the most up-to-date data.

Multi-Jurisdictional Mitigation Actions

To further utilize the HAZNY process we asked all municipalities to identify one identifiable action item for a hazard. As of the time of this writing we do not information from the Town of Orchard Park, Town of Aurora and Village of East Aurora, Town of Newstead and Village of Akron, Town of Alden, Town of Clarence, City of Lackawanna, Town of Colden, Village of Gowanda, and Village

of Depew. All other municipalities have listed their one mitigation action in this chart.

muncipality mitigation

6 Plan Maintenance

Each year the Erie County Department of Emergency Services will review this plan along with the Comprehensive Emergency Management Plan. A committee representing all initial Planning Committee municipalities and agencies such as, The Erie County Department of Emergency Services, Local Disaster Coordinators, and the Disaster Preparedness Advisory Board will evaluate the plan every two years. The committee will review and re-evaluate its stated risks and hazards, evaluate the relevance of its goals and objectives, evaluate the effectiveness and appropriateness of its mitigation action plan and measures, and document the county's progress in accomplishing the plan's stated goals and objectives.

Local Disaster Coordinators will review their respective municipal plans at least every two (2) years with an updated copy kept on file at the Department of Emergency Services. Local Disaster Coordinators will offer the general public an opportunity to review and comment on the plan via meetings held in their areas.

All reviewers will examine data related to disasters that occur within the county. This data includes, but is not limited to financial records, current zoning laws, codes and land use plans. The results will be measured to ensure that mitigation activities/plans are effective. If such plans prove to be ineffective, such as high loss of life/injuries, elevated financial costs, etc., they shall be adjusted as necessary.

Revisions made to the plan will be submitted for local Legislative Body approval. The public will be involved to the same extent they were included in prior sections of the plan. After local legislative review and revision, the plan will be submitted to the New York State Emergency Management Office and the Federal Emergency Management Agency.

Continued Public Involvement
To ensure and encourage continued public involvement, Disaster Coordinators and/or the Department of Emergency Services shall invite the public to review and comment on the plan at least yearly. The public shall be notified via various media outlets.

Utilizing local media, citizens are encouraged on a regular basis to join any number of local emergency response/planning teams. These teams include, but are not limited to the Local Emergency Planning Committee, Erie County Haz Mat Organization, Citizen Corps, municipal planning committees, etc.

Implementation through Existing Programs

The Erie County All Hazard Plan (including all incorporated plans) shall be considered by each municipality prior to the adoption of new/amended zoning laws, land use plans, master plans, public safety statues and community police and fire prevention activities. The Local Disaster Coordinators shall serve as an advocate of this process within their respective municipal government. If a local municipality chooses to draft a plan specific for their area, a copy shall be sent to and kept by the Erie County Department of Emergency Services.

7 Supporting Maps and Documents

Document #1

Map of Erie County

Document #2

Map of the City of Buffalo

Document #3

Map of the City of Lackawanna

Document #4

Map of the City of Tonawanda

Document #5

Chemical Facilities in Erie County

Document #6

Fire Companies in Erie County

Document #8

Major Commercial Areas in Erie County

Document #9

Shelters in Erie County

Document #10

Detailed Topography with Flood Zones

Document #11

Major Transportation Routes in Erie County

Document #12

Regional Map

Document #13

Historical Sites in Erie County

Document #7

Critical Facilites in Erie County

Document #14

All Hazard Mitigation Map

Document #15

Waterways in Erie County

Document #18

Wells

Document #16

Waterbodies in Erie County

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Vector Borne Diseases

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Mines

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Climate Outlook

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Animal Shelter Annex

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Comprehensive Emergency Managem

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Comprehensive Floodplain Manageme

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Cross Border Contingency Plan

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Debris Management Plan

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Emergency Alert System

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Evacuation Annex

H

Hazardous Materials Response Annex

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Radiological Protection Addendum

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Seasonal Transportation Plan

9 Information Sources / Bibliography

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Erie County Health Department
Erie County Historical Society
Erie County Sheriff's Department
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Federal Highway Administration
Federal Railroad Administration
FEMA – www.fema.gov
Great Lakes Commission – www.glc.org
Hamburg Sun
Metro Community News
Multidisciplinary Center for Earthquake Engineering Research
National Highway Transportation Safety Administration
National Transportation Safety Board
National Weather Service – www.nws.noaa.gov
NOAA – www.noaa.gov
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NYS Department of Geology (located At NYS Museum)
NYS Department of Labor
NYS Dept. of Motor Vehicles
NYS DOT
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