CATTARAUGUS COUNTY
Multi-Jurisdictional Hazard Mitigation Plan

Cattaraugus County
303 Court Street
Little Valley, NY 14755

Prepared By:

Cattaraugus County Departments of Public Works;
Economic Development, Planning and Tourism;
Real Property/GIS; and Emergency Services

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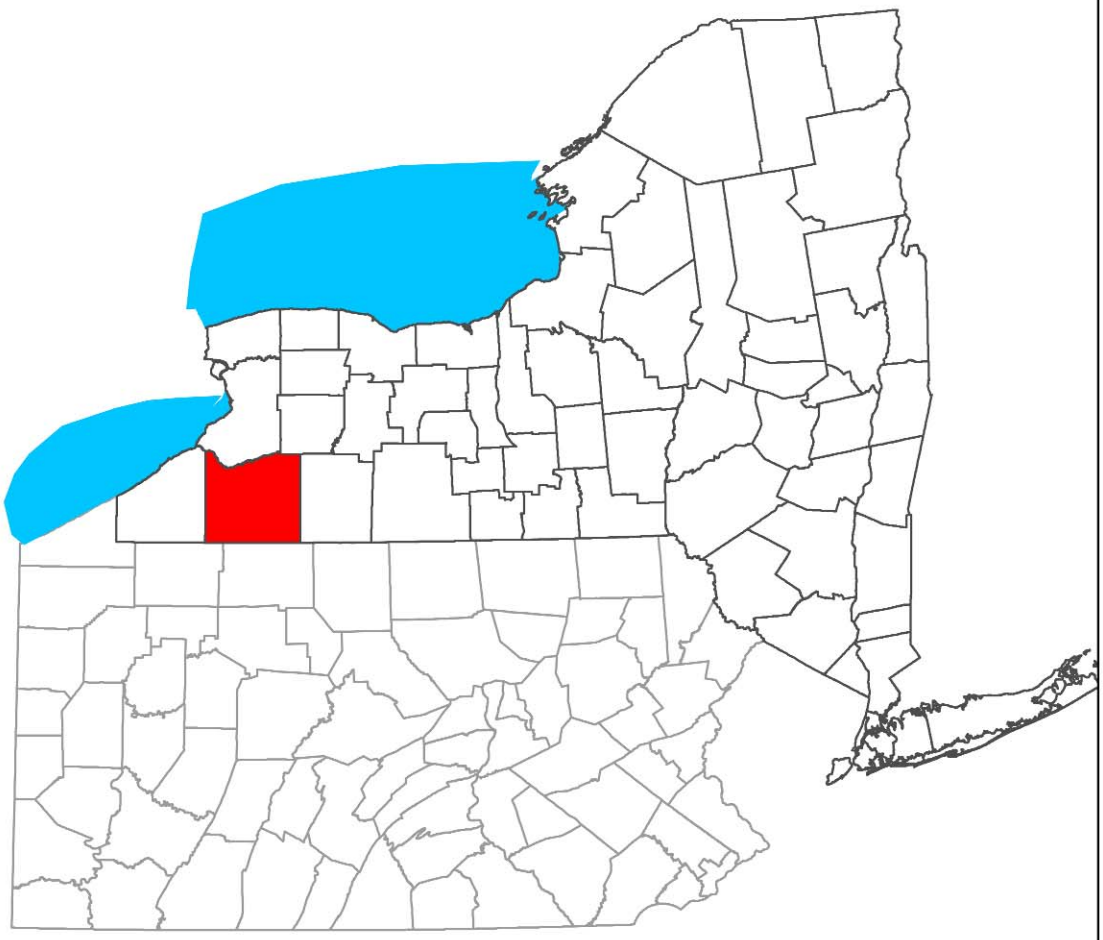
List of Acronyms

DMA2K	Disaster Mitigation Act of 2000
FEMA	Federal Emergency Management Agency
FIRM	Flood Insurance Rate Map
NFIP	National Flood Insurance Program
NOAA	National Oceanic and Atmospheric Administration
NRCS	National Resources Conservation Services
NWS	National Weather Service
SEMO	State Emergency Management Office
E.S.	Emergency Services
CEO	Code Enforcement Officer
CCHSA	Cattaraugus County Highway Superintendants Association
HAZNY	Hazard Analysis

Location of Cattaraugus County, New York



This map was created using
GIS TECHNOLOGY
Prepared by
Cattaraugus County
Department of Economic Development,
Planning & Tourism
303 Court St.
Little Valley, NY 14755
Paul R. Bishop, Senior Planner
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1.0 Executive Summary

In response to the Disaster Mitigation Act of 2000 (DMA2K), the Cattaraugus County Departments of Public Works; Economic Development, Planning and Tourism; GIS/Real Property; and Emergency Services initiated this mandatory five year update of the Multi-Jurisdictional Hazard Mitigation Plan. The goal of this update was to re-examine the potential natural hazards that could affect Cattaraugus County. After that re-examination the goal was to estimate what those potential impacts could be, review current impacts, and develop new implementation action items to mitigate impacts from the identified natural hazards.

Active participants in this Multi-Jurisdictional Hazard Mitigation Plan include all municipalities within Cattaraugus County and are listed below. The three Seneca Nation Reservations are not directly participating, but did have input into the planning process. The Seneca Nation has a separate plan which was recently approved.

- Cattaraugus County
- Towns of Allegany, Ashford, Carrollton, Cold Spring, Conewango, Dayton, East Otto, Ellicottville, Farmersville, Franklinville, Freedom, Great Valley, Hinsdale, Humphrey, Ischua, Leon, Little Valley, Lyndon, Machias, Mansfield, Napoli, New Albion, Olean, Otto, Perrysburg, Persia, Portville, Randolph, Red House, Salamanca, South Valley and Yorkshire.
- Villages of Allegany, Cattaraugus, Delevan, Ellicottville, Franklinville, Gowanda, Little Valley, Portville, and South Dayton
- Cities of Olean and Salamanca

A Planning Committee was formed consisting of representatives of various departments of county and town governments. During the preparation for updating the Plan, it was determined that while highly welcomed and invited, the vast majority of local municipalities again cited lack of time and personnel to physically attend meetings. It was decided early on in the revision process that the County would take the lead and that representatives would attend several Town Highway Superintendants meetings as well as individual town and village board meetings to disperse and gather information. The County would be responsible for compiling all the information that the participants supplied. Through these personal meetings and mailings potential natural hazards were investigated and eight were determined to have happened or could happen in Cattaraugus County in the past or had a strong likelihood they could happen in the future. Other natural hazards were noted, but these were deemed to be either unlikely or should they occur, there would not be significant risk to life and property damages would be minimal. The eight natural hazards this plan will focus on are:

1) Winter Storm
2) Flooding
3) Severe Storm
4) Ice Storm
5) Tornado
6) Wildfire
7) Landslide
8) Dam Failure

A review of each municipality's profile of population, critical facilities, locations, assessed value of parcels in hazard zones, past histories, and a vulnerability analysis for each identified natural hazard was developed. Reviewing this analysis, problem statements were identified that indicated why vulnerability issues existed. From the problem statements, goals and objectives were identified to set the direction for how to mitigate the hazard vulnerability. The problem statements, goals and objectives led to the development of possible mitigation action items that could be implemented. At this time, county and local capability assessments were developed to assist in determining what agencies might be able to implement the mitigation action items. The action items were then analyzed and prioritized based on criteria established by the project group using the STAPLEE method. From the prioritization and capability assessments, an implementation plan was developed that included who was responsible for what actions, an estimate of how much it would cost, potential funding sources and proposed time frame to completion.

Throughout the planning process, the public was invited to participate. Through press releases of the planning activity, public informational meeting, a booth set up at the County fair, project group discussions at local municipalities board meetings, the county web page posting and information gathering survey, as well as other venues, the public was constantly advised, updated and requested to participate in the planning process. (Appendix B – Public Outreach and Appendix I – Survey Comments)

After completion of the Multi-Jurisdictional Hazard Mitigation draft plan, public involvement was encouraged via press releases and posting on the County's web page to invite comments. A comment period was available to respond with written comments. The public comments, as well as SEMO/FEMA comments were incorporated into the final plan. When FEMA approved the final draft plan, it was then provided to the local jurisdictions for formal adoption. The final plan, with adoption resolutions (see Appendix K), will be submitted to SEMO/FEMA in compliance with DMA2K Legislation.

2.0 Plan Initiation - Cattaraugus County Multi-Jurisdictional Planning Process

The primary purpose of updating the Multi-Jurisdictional Hazard Mitigation Plan for Cattaraugus County was to identify any changes that have taken place in the last five years regarding the community policies, actions, and tools for implementation over the long term that will result in a reduction in risk and potential for future losses from natural hazards within Cattaraugus County. Efforts were made to solicit public input during the plan updating process. As part of the update process for the Multi-Jurisdictional Hazard Mitigation Plan, the following materials were reviewed by the planning committee.

- Emergency Plans
- Flood Plans
- Flood Ordinances
- Watershed Plans
- Storm Water Management Plans
- FIRMS
- County HAZNY
- Individual municipality's HAZNY
- CEMP
- Village of Gowanda Flood and Hazard Mitigation Plan (2/01)
- New York State Hazard Mitigation Plan
- Neighboring counties' Hazard Mitigation Plans

The Multi-Jurisdictional Hazard Mitigation Plan was then tailored to incorporate the existing plans. Partners that had no HAZNY for their communities were encouraged and assisted by Cattaraugus County Public Works and Emergency Services in preparing/updating their HAZNY and were encouraged to create emergency plans if they did not already have one. Partners were also informed of the other plans that their neighboring municipalities were using -- ie, Land Use Plans.

The Cattaraugus County Multi-Jurisdictional Mitigation Plan includes resources and information to assist county residents, local government, public and private sector organizations, and others interested in participating in planning for natural hazards. The mitigation plan provides a list of activities that may assist Cattaraugus County and local jurisdictions in reducing risk and preventing loss from future natural hazard events. The action items address multi-hazard issues, as well as activities for winter storms, floods, severe storms, ice storms, tornadoes, wildfires, landslides, and dam failure hazards.

2.1 Geographic Scope of the Mitigation Plan

Preparation of the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan was in response to the Federal Disaster Mitigation Act of 2000, passed by Congress, and the subsequently developed rules, published in the Federal Register Notice, Part III 44 Parts 201 and 206 "Hazard Mitigation Planning and Hazard Mitigation Grant Program: Interim Final Rule" dated February 26, 2002.

This plan has been prepared under the local government of Cattaraugus County and has been prepared as a multi-jurisdictional plan. With cooperation from the local cities, towns, villages and the Seneca Nation along with Southern Tier West, the plan will geographically include the entire county.

2.2 The Planning Committee

The Cattaraugus County Multi-Jurisdictional Hazard Mitigation Action Plan is the result of a collaborative effort between Cattaraugus County, local municipalities, the private sector, Seneca Nation of Indians and regional and state organizations. A public information meeting was held to include Cattaraugus County residents in plan development. The Planning Committee guided the process of developing the plan. The following is a list of the members of the Planning Committee, as well as their title and a brief description of their role/contribution.

Cattaraugus County Department of Public Works
- Joseph Pillitterre, Commissioner of Public Works, expertise in county support and public information dissemination
- Mark C. Burr, P.E. Director of Engineering, County Hazard Mitigation Coordinator, expertise in mitigation measures
- Crystal Gross, Microcomputer Specialist, GIS mapping, data acquisition, point of contact for participants, Planning Committee Chair

- Cattaraugus County Economic Development, Planning and Tourism
  - Crystal Abers, Director, met personally with each municipal partner
  - Paul Bishop, Senior Planner, data acquisition, future projections, demographics, public information
  - James Isaacson, Senior Planner, data acquisition, web page information and public survery
- Cattaraugus County Emergency Services
  - Christopher Baker, Emergency Services Director & Fire Coordinator, review of participants existing emergency plans, integration into Multi-Jurisdicitional Hazard Mitigation Plan
  - Cathi Peters, Assistant to Director of Emergency Services, data acquisition, hazard analysis, liaison to local fire departments
- Cattaraugus County GIS/Department of Real Property Services
  - Dan Martonis, Director of GIS for Cattaraugus County, data acquisition
  - Christopher Holewinski, GIS Coordinator, data acquisition, hazard mapping
- Cattaraugus County Town Highway Superintendants Association
  - Steven Smuda, President, partner perspective, data acquisition and analysis

2.3 Pre-Planning Preparation and Planning Committee Meetings

On January 18th, 2007 the current Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan was approved by FEMA.

A preliminary meeting was held on February 17th, 2011 between Mark Burr and Crystal Gross to discuss the mandatory five year update of the plan, who should be on the Planning Committee and if the update could be done in-house. It was decided that Crystal Gross would lead the Planning Committee.

February 7th, 2011 – several telephone conversations and emails between Crystal Gross and Brian Paschen of Southern Tier West concerning STW's Watershed Management project and the County's Hazard Mitigation Plan and how the material gathered could benefit both projects. It was decided that both parties would share information and help each other in any way possible.

On February 17th, 2011 a meeting was held at the Cattaraugus County DPW building between Brian Paschen, Crystal Gross and Steve Smuda, President of the Cattaraugus County Town Highway Superintendants Association. Mr. Smuda invited Crystal Gross and Brian Paschen to attend the next scheduled Cattaraugus County Town Highway Superintendants Association (CCHSA) meeting to discuss the two projects.

On March 10th, 2011 Crystal Gross attended the regular monthly meeting of the CCHSA. She handed out informational materials, gave web address of current plan, spoke about the importance of mitigation, suggested doing a new county-wide Hazard Analysis, reminded everyone of the mandatory five year update, and asked for participation and support. It was suggested during the meeting that each municipality would do their own HAZNY and that then Ms. Gross could take all the HAZNYs and merge them into one 'county-wide' HAZNY. This would insure that each municipality's unique hazards would be recognized.

Nick McVie, formerly with Cattaraugus County Emergency Services and Crystal Gross attended the next meeting of the CCHSA on April 14th, 2011. They explained how the HAZNY worked and handed out individual packets based on the NYS standard HAZNY, asking for each hazard, ranking, frequency, and damages related to hazards. The Town Highway Superintendants filled out individual packets and returned them for input into the HAZNY program software.

Crystal Gross then processed the individual information packets, telephoned individual Highway Superintendants for clarification of issues, and produced individual HAZNYs for all who attended the meeting. Individual HAZNYs (Appendix G – HAZNY) were mailed out to municipalities on August 22nd, 2011. Ms. Gross then combined the HAZNYs along with HAZNYs produced by Emergency Services from local fire and police departments into one county-wide HAZNY for use in the Multi-Jurisdictional Mitigation Plan. Also included in the mailing were a list of critical facilities identified in the last plan.

Participants were asked to review the identified critical facilities in their jurisdiction and supply any additional locations. Also included for each participant was a floodplain map of their jurisdiction for review and comment. (Appendix E – Floodplain maps by township)

On November 21, 2011 the first full Planning Committee meeting took place. The current status of the plan was explained, requirements of the plan update were discussed, and individual departments were assigned roles and responsibilities.

New members attended the committee meeting on December 13th, 2011. Current status, requirements, and roles were again discussed along with ideas of how to gather information. Paul Frey, Cattaraugus County GIS Coordinator demonstrated his hazard gathering tool created on the iPad. Mr. Tom Abbati,

NYS Office of Emergency Management joined the meeting via a conference call and discussed requirements and scope of work concerning a grant received to fund the planning process as well as requirements of the plan itself.

Southern Tier West shared the hazard information they had collected during their Watershed Management project on December 29th, 2011 and Crystal Gross sent all the hazard information Cattaraugus County had to Southern Tier West on January 24th, 2012.

On March 2nd, 2012 the Planning Committee met to discuss the information shared from Southern Tier West and how to incorporate that information into the county plan. The committee determined that it was necessary to request information on repetitive loss properties from FEMA.

Joe Pillittere spoke about the plan at the monthly meeting of CCHSA on March 8th, 2012 and also at the Cattaraugus County Legislative session. At the March 7th Cattaraugus County Public Works Committee meeting, a presentation was given to the committee on the hazard mitigation plan process and the current work status. Informational handouts were given to all Committee members.

March 30th, 2012 the Planning Committee met and reviewed the critical facilities data. Crystal Abers discussed her trial face-to-face meeting during a partner's board meeting. Ideas were discussed regarding the questions to be asked and materials to be shown to partners.

The Planning Committee met on May 4th, 2011 to discuss the upcoming public information meeting and how to present the information to the public.

Crystal Abers commenced the visitations to municipal partners during their board meetings to explain hazard mitigation and obtain information from them.

On May 10th, 2012 the committee met with Paul Hoole, FEMA, to discuss the requirements of the Hazard Mitigation Plan and to update him on the plan's current status.

The Multi-Jurisdictional Hazard Mitigation Plan information page went live on the County's website on May 16th, 2012.

Invitations were sent out on June 4th, 2012 to neighboring counties, the Seneca Nation, and Southern Tier West to attend the Planning Committee meeting on June 15th, 2012. None of them chose to attend. However, Crystal Gross did speak with Allegany County and the Seneca Nation over the phone to discuss the progress on the plan and other issues.

A news release for the Pubic Information meeting was sent out and published. On June 14th, 2012 a press release was sent to: Arcade Herald, The Chronicle, Franklinville Pennysaver, Gowanda Pennysaver, Springville Pennysaver, Empire Pennysaver, Special E-fects, Salamanca Press and Olean Times Herald. The e-mail address, telephone number, and mailing address were provided for residents to ask questions or send comments.

The Public Information meeting was held in the Cattaraugus County Legislative chambers at the Cattaraugus County Center, 303 Court Street, Little Valley, NY 14755 on June 27th, 2012. Joe Pillittere presented a PowerPoint ® presentation explaining about the Hazard Mitigation Plan and program. Mark Burr spoke about mitigation projects and selecting future mitigation projects. Crystal Abers spoke about collecting information specific to each municipality in the county and partner responsibilities. Representatives from the Seneca Nation and various Fire Departments as well as municipal officials were present.

On July 20th, 2012 the Planning Committee met and discussed current status and other ways to get the information out to the public. Emails were sent out to all partners telling them of the information booth that would be at the fair.

From July 30th to August 4th, 2012 the Public Works and Planning Departments manned an information booth at the county fair. Surveys were handed out, maps of hazards were shown, and information was distributed to the general public.

The webpage was updated on August 17th, 2012 to include an information survey for public input and comment.

Another Planning Committee was held on August 24th, 2012 about how many municipal partners were left to meet and how the outreach was going. The comments made at the information booth at the county fair were discussed. Posters that will be mailed to local libraries were discussed.

During the regular monthly Planning Committee meeting held on September 21st, 2012 Ms. Abers updated the committee on the status of her visits to the partners' board meetings. She passed on the information gathered and the concerns the partners felt for various hazards. Comments from the public made to the web form were discussed and included in the plan. (See Appendix I – Survey Comments)

Also during the meeting Cattaraugus County Real Property presented equalization rates and the committee discussed how this information will be used along with GIS data to determine the values of properties in the hazard areas – mainly flood prone areas.

On October 3rd, 2012 another press release was sent out discussing the progress of the plan and asking for public input.

The Planning Committee met again on November 2nd, 2012. Mr. Ed Koorse, Seneca Nation of Indians spoke at length with Ms. Gross about the county's plan as well as the Seneca Nation's plan. Cattaraugus Community Action sent two representatives to the meeting to discuss Emergency Preparedness and information distribution. Partner status and information was again shared by Ms. Abers and partners' concerns were added to the draft of the plan. Public comments from the web based form were also discussed. Population maps were presented by the GIS Coordinator. Mr. Bishop updated the Tornado information for the plan.

Another press release was sent out on November 29th, 2012.

The ranking of hazards based on individual municipalities HAZNYs and concerns as well as the County's HAZNY and the Operations Manager's experiences took place during the Planning Committee meeting of December 7th, 2012. During this meeting several hazards were deemed to be of little risk and it was decided by the committee that they would not be included in this Plan. Those hazards were Earthquake, Drought, and Ice Jam. While these hazards do present a risk, the committee determined that the risk to life and the risk to property is negligible.

The remaining hazards were ranked as Winter Storm (including heavy snow), Flooding (including flash flooding), Severe Storm, Ice Storm, Tornado, Wildfire, Landslide (including severe erosion) and Dam Failure (earthen dams). This plan will concentrate on these eight hazards. While dam failure is not a 'natural hazard' it was added to this list because Cattaraugus County has several earthen dams that are nearing the end of their designed life span: flooding, severe storms, and tornados could all play a role in compromising the structural integrity of these dams.

Preliminary goals and preliminary projects for the hazards were discussed. The projects from the previous plan were reviewed. The Planning Committee was disappointed with the number of projects

that were never followed up on. The committee decided that during this update of the plan, the overambitious projects from the original plan would be tabled. The projects included in this update would be more specific and smaller in nature. The committee will then be able to follow these projects more closely and help to insure that they are completed.

During the regular Planning Committee meeting of January 4th, 2013, the official list of hazard ranking along with a narrowed down list of projects were discussed. Some projects were added due to additional information being received from the public via the web form, telephone calls, and from the partners via the face to face meetings.

Repetitive loss properties were also discussed. Mr. Burr, Director of Engineering for Cattaraugus County championed projects to first identify properties that are candidates for acquisition and then to find funding to acquire them.

On January 8th, 2013 letters were sent to all partners informing them of the quickly approaching end to the drafting stage of the plan and asking for any additional information or concerns they would like to see in the plan.

The Planning Committee met on February 1st, 2013. The STAPLEE Action Evaluation Table was among the topics of the meeting. Action Items were scored and responsibilities, costs, and timelines were discussed. Other topics of the meeting included ways to incorporate the plan into existing plans and how the plan will be monitored.

On February 6th, 2013 copies of the preliminary STAPLEE Action Evaluation Table were sent to all partners for review and comments.

On March 1st, 2013 the Planning Committee met to review the draft plan. Ms. Gross related to the committee all the comments received pertaining to the STAPLEE Action Evaluation from municipalities. The vast majority of comments from the participating partners were positive, with a few minor corrections that needed to be addressed.

The Planning Committee meeting of March 29th, 2013 was the last meeting prior to completion of the Draft Plan. The committee did the final review of the draft and decided that the vacant housing units needed more clarification. A press release was approved to let the public know that the Plan was available on the County website for review and comment.

On April 1st, 2013 the Draft Plan was uploaded to the website.

On April 2nd, 2013 a press release was sent to the various news outlets in the county.

On April 5th, 2013 the Draft Plan was sent to NYSOEM Mitigation for review.

The first review of the Draft Plan was returned to Cattaraugus County on June 24th, 2013 with requests for clarification, NFIP details, and additional information on partner action items. The Planning Committee met on June 11th, 2013 to discuss the reviewer's suggestions. For the next several weeks, committee members contacted the partners asking for additional information.

On September 23rd, 2013 the updated Plan was sent to NYSOEM for review.

Summary of Plan Development Collaboration

Date	Section	Comments
2/17/2011	Planning	Preliminary Planning Committee Meeting Mark Burr and Crystal Gross
3/10/2011	Participation	Meeting with Town Highway Supervisors, spoke about Hazard Mitigation
4/14/2011	Hazards	Attended Town Highway Supervisor Meeting, spoke about Hazard Mitigation, filled out individual HAZNY
5/25/11-10/27/11	Participation	Telephoned Town Highway Supervisors pertaining to Hazard Mitigation
8/22/2011	Hazards	mailed out HAZNYs along with maps asking for specific site information
11/21/2011	Planning	Planning Committee Meeting
12/13/2011	Planning	Planning Committee Meeting and Tom Abbati, NYSOEM conference call
3/2/2012	Planning	Planning Committee Meeting
3/8/2012	Participation	DPW and Planning spoke at Town Highway Supervisor Meeting on Hazard Mitigation
3/30/2012	Planning	Planning Committee Meeting
5/4/2012	Planning	Planning Committee Meeting
5/8/2012	Participation	Started individual meeting with partners
5/10/2012	Planning	Meeting with Paul Hoole, FEMA to discuss Multi-Jurisdictional Hazard Mitigation Plan
5/16/2012	Participation	Informational web site on MJHM plan goes live on Cattaraugus County website
6/4/2012	Participation	Sent out invitations for neighboring counties, Seneca Nation, and STW to attend next Planning Committee Mtg.
6/8/2012	Participation	Spoke with Allegany County and Seneca Nation of Indians about Plan, SNI doing their own Plan.
6/14/2012	Participation	News Release for Public Information Meeting on 6-27-12
6/19/2012	Participation	News Release for Public Information Meeting on 6-27-12 was published in Jamestown Post-Journal and online.
6/15/2012	Planning	Planning Committee Meeting
6/27/2012	Participation	Public Information Meeting - Cattaraugus County Legislative Chambers 6:30 p.m.
7/20/2012	Planning	Planning Committee Meeting
7/30/12-8/4/12	Participation	Public Outreach - information booth at County Fair
8/17/2012	Participation	Hazard Survey goes live on the website - for comments/concerns from the public
8/24/2012	Planning	Planning Committee Meeting
9/21/2012	Planning	Planning Committee Meeting
10/3/2012	Participation	News Release - Status of MJHM Plan/Contact Info/Web form
11/2/2012	Planning	Planning Committee Meeting - spoke with Ed Koorse SNI - Community Action sent representitives to the meeting
11/29/2012	Participation	Press Release was sent out with contact information
12/7/2012	Planning	Planning Committee Meeting - Hazards ranked
1/4/2013	Planning	Planning Committee Meeting - Repetitive loss properties
1/8/2013	Participation	Sent letters to all partners who have not given letters of participation
2/1/2013	Planning	Planning Committee Meeting
2/6/2013	Participation	Sent STAPLEE packet to all partners
3/1/2013	Planning	Planning Committee Meeting
3/29/2013	Planning	Planning Committee Meeting - Final review of Draft
4/1/2013	Participation	Draft uploaded to website for public review / comment
4/2/2013	Participation	News Release - Status of MJHM Plan/Contact Info/Web form
4/3/2013	Participation	Plan presented to Public Works Committee
4/5/2013	Planning	Plan was sent to NYSOEM/FEMA for review
6/24/2013	Planning	Plan was returned after review with requests for additional information
7/11/2013	Planning	Planning Committee met to review suggestions and comments
7/12-8/29/13	Participation	Contacted partners requesting additional information.
9/23/2013	Planning	The final copy of the updated Plan was sent to NYSOEM for review.

Table 1- Summary of Plan Development Collaboration

2.4 Involving the Public

Throughout the process every effort was made to include the public. (Appendix B – Public Outreach) An information web page was available on the Cattaraugus County website early in the process and the general public was invited to the Public Information Meeting on 6/27/12. Multiple news releases were sent out. Members of the Planning Committee attended several Town Highway Superintendant meetings. Each municipal partner was visited during a board meeting. An informational booth was set up and manned during the County Fair in August of 2012. (Appendix B – Public Outreach) Information was posted to the County website and the public was encouraged to fill out an on-line survey. (Appendix I – Survey Comments)

The first complete draft of the plan was posted to the web on April 1st, 2013.

An announcement was made on April 2nd, 2013 in the Olean Times Herald of the availability of the draft plan on the county website for review and comment.

3.0 Introduction to Cattaraugus County

3.1 Demographics

Cattaraugus County has a population of 80,317 per the 2010 census. The 2010 population total represents a 4.3% decrease from the 2000 census. Table 2 contains data on population, housing units, land area and population density for the Towns and Territories in Cattaraugus County. It also lists that same data for the County as a whole and for New York State for comparative purposes. Since the current plan was adopted in 2007, four of the County's villages were dissolved: Limestone, Perrysburg, Randolph, and East Randolph.

Table 2
Total Population, Housing Units, Land Area, and Population Density
New York State Local Areas, 2010

(Source: 2010 Census - Public Law 94-171 Data)

NAME	Population Total	Housing Units			Land Area (Sq. Mi.)	Density (Persons/ Sq. Mi.)
		Total	Occupied	Vacant		
New York	**19,378,102**	**8,108,103**	**7,317,755**	**790,348**	**47,126.4**	**411.2**
Cattaraugus County	**80,317**	**41,111**	**32,263**	**8,848**	**1,308.4**	**61.4**
Allegany Town	8,004	2,890	2,676	214	70.9	112.9
Allegany Territory	1,020	458	390	68	36.3	28.1
Ashford Town	2,132	1,044	883	161	51.7	41.2
Carrollton Town	1,297	655	548	107	42.3	30.7
Cattaraugus Territory	314	108	99	9	5.8	53.7
Coldspring Town	663	374	278	96	51.5	12.9
Conewango Town	1,857	635	518	117	36.1	51.4
Dayton Town	1,886	830	725	105	35.5	53.1
East Otto Town	1,062	620	423	197	40.1	26.5
Ellicottville Town	1,598	2,489	755	1,734	45.1	35.4
Farmersville Town	1,090	715	445	270	47.8	22.8
Franklinville Town	2,990	1,643	1,206	437	51.8	57.7
Freedom Town	2,405	1,065	901	164	41.0	58.7
Great Valley Town	1,974	1,255	820	435	49.6	39.8
Hinsdale Town	2,168	1,179	888	291	38.7	56.0
Humphrey Town	687	522	273	249	37.1	18.5
Ischua Town	859	485	347	138	32.4	26.5
Leon Town	1,365	485	396	89	36.2	37.7
Little Valley Town	1,740	858	691	167	29.8	58.4
Lyndon Town	707	623	293	330	33.2	21.3
Machias Town	2,375	1,398	917	481	40.4	58.7
Mansfield Town	808	635	337	298	40.1	20.1
Napoli Town	1,248	581	405	176	36.4	34.3
New Albion Town	1,972	1,013	796	217	35.6	55.3
Oil Springs Territory	0	5	0	5	0.4	0.0
Olean City	14,452	7,154	6,454	700	5.9	2,446.3
Olean Town	1,963	945	870	75	29.6	66.3
Otto Town	808	447	317	130	32.7	24.7
Perrysburg Town	1,626	736	648	88	28.4	57.2
Persia Town	2,404	1,045	968	77	20.9	115.1
Portville Town	3,730	1,729	1,532	197	35.6	104.8
Randolph Town	2,602	1,150	998	152	36.1	72.1
Red House Town	38	25	17	8	55.7	0.7
Salamanca City	5,815	2,842	2,468	374	6.0	970.2
Salamanca Town	481	237	203	34	18.4	26.2
South Valley Town	264	335	137	198	36.8	7.2
Yorkshire Town	3,913	1,901	1,641	260	36.2	107.9

Table 2- Total Population, Housing - Units, Land Area, and Population Density

The most densely populated municipalities in the County are the City of Olean, with a population of 14,452 and a density of 2,446 people per square mile, and the City of Salamanca, with a population of 5,815 and a density of 970 people per square mile. Also, the southeastern corner of the County, composed of the Towns of Allegany, Hinsdale, Olean and Portville; the Villages of Allegany and Portville; and the City of Olean have a combined population of 30,317, which is approximately 38% of the County's total population. The population density of this southeastern corner of the County equates to 168.8 people per square mile as compared to the County wide density of 61.4 people per square mile.

The least densely populated municipalities in the County are the Towns of Red House (0.7 people per square mile), South Valley (7.2 people per square mile), and Coldspring
(12.9 people per square mile). Major portions of Red House and Coldspring are within the boundaries of Allegany State Park, while South Valley contains a significant number of acres of State and County forest land.

The Seneca Nation of Indians has three Territories within the boundaries of Cattaraugus County. These are the Cattaraugus Territory in the northwestern corner of the County, the Allegany Territory which runs along the Allegheny River and includes most of the City of Salamanca, and the Oil Springs Territory on the eastern border of the County.
These three Territories have a total population of 1,334 (not including the City of Salamanca) and includes both Senecas and non-Senecas. The total number of enrolled Seneca citizens is approximately 8,000. Many Seneca citizens live off-territory, some of which are located across the country as well as in other countries. Off-territory residents comprise nearly 1/2 of the citizenship.

The City of Olean contains 7,154 housing units, 700 of which are vacant (9.8%). The City of Salamanca contains 2,842 housing units, 374 of which are vacant (13.2%).
The County as a whole contains 41,111 housing units with 8,848 vacant units (21.5%). It should be noted that 6,035 of the vacant units are defined by the U.S. Census Bureau as “For seasonal, recreational, or occasional use” and are hunting cabins and seasonal ski lodging which accounts for the high vacancy percentage in Cattaraugus County.

Table 3 lists population projections for the County for every five years from
2015 to 2040. This data is supplied by the Cornell Program on Applied Demographics and is based on past data and projected births minus deaths plus net migration. These figures show a steadily decreasing population for the County over the next 30 years.

Table 4 shows the population figures for the County's municipalities for the last six censuses (1960-2010). The County's population peaked in 1980 at 85,697 and has steadily decreased to the current total of 80,317, which is very close to the County's total in 1960 of 80,187.

Table 3
CATTARAUGUS COUNTY
POPULATION PROJECTIONS
2015-2040

YEAR	POPULATION	CHANGE FROM PREVIOUS FIVE YEAR PERIOD
2010 (actual)	80,317	
2015	79,565	-0.94%
2020	79,627	+0.08%
2025	79,766	+0.17%
2030	79,915	+0.19%
2035	80,059	+0.18%
2040	80,218	+0.20%

Source: New York State Office for the Aging, 2011

Table 3- Cattaraugus County Population Projections

Table 4
CATTARAUGUS COUNTY
POPULATION BY MUNICIPALITY
1960-2010

Municipality	1960	1970	1980	1990	2000	2010
Allegany Town	6,483	7,542	8,619	8,327	8,230	8,004
Allegany Territory	1,059	1,113	1,243	1,143	1,099	1,020
Ashford Town	1,490	1,577	1,922	2,162	2,223	2,132
Carrollton Town	1,399	1,507	1,566	1,555	1,410	1,297
Cattaraugus Territory	262	277	352	359	388	314
Coldspring Town	580	638	708	732	751	663
Conewango Town	1,162	1,393	1,578	1,702	1,732	1,857
Dayton Town	1,931	2,004	1,981	1,915	1,945	1,886
East Otto Town	701	910	942	1,003	1,105	1,062
Ellicottville Town	1,968	1,779	1,677	1,607	1,738	1,598
Farmersville Town	721	754	978	869	1,028	1,090
Franklinville Town	3,090	2,847	3,102	2,968	3,128	2,990
Freedom Town	1,059	1,355	1,840	2,018	2,493	2,405
Great Valley Town	1,408	1,745	2,014	2,090	2,145	1,974
Hinsdale Town	1,538	1,781	2,182	2,095	2,270	2,168
Humphrey Town	415	405	529	580	721	687
Ischua Town	562	655	775	847	895	859
Leon Town	808	878	1,055	1,245	1,380	1,365
Little Valley Town	1,737	1,838	1,830	1,881	1,788	1,740
Lyndon Town	406	339	610	503	661	707
Machias Town	1,390	1,749	2,058	2,338	2,482	2,375
Mansfield Town	632	605	784	724	800	808
Napoli Town	670	778	886	1,102	1,159	1,248
New Albion Town	1,981	1,988	2,156	1,978	2,068	1,972
Oil Springs Territory	0	5	4	3	2	0
Olean City	21,941	19,169	18,207	16,946	15,347	14,452
Olean Town	2,268	2,211	2,130	1,999	2,029	1,963
Otto Town	715	731	828	777	831	808
Perrysburg Town	1,857	2,236	2,180	1,838	1,771	1,626
Persia Town	2,756	2,587	2,442	2,530	2,512	2,404
Portville Town	3,321	4,252	4,486	4,397	3,952	3,730
Randolph Town	2,513	2,621	2,593	2,613	2,681	2,602
Red House Town	235	158	110	159	38	38
Salamanca City	8,480	7,877	6,890	6,566	6,097	5,815
Salamanca Town	432	571	608	477	544	481
South Valley Town	205	164	212	281	302	264
Yorkshire Town	2,012	2,627	3,620	3,905	4,210	3,913
COUNTY TOTAL	**80,187**	**81,666**	**85,697**	**84,234**	**83,955**	**80,317**

Table 4 - Cattaraugus County Population by Municipality

Figure No. 1 is a map of the population data from the 2010 census.

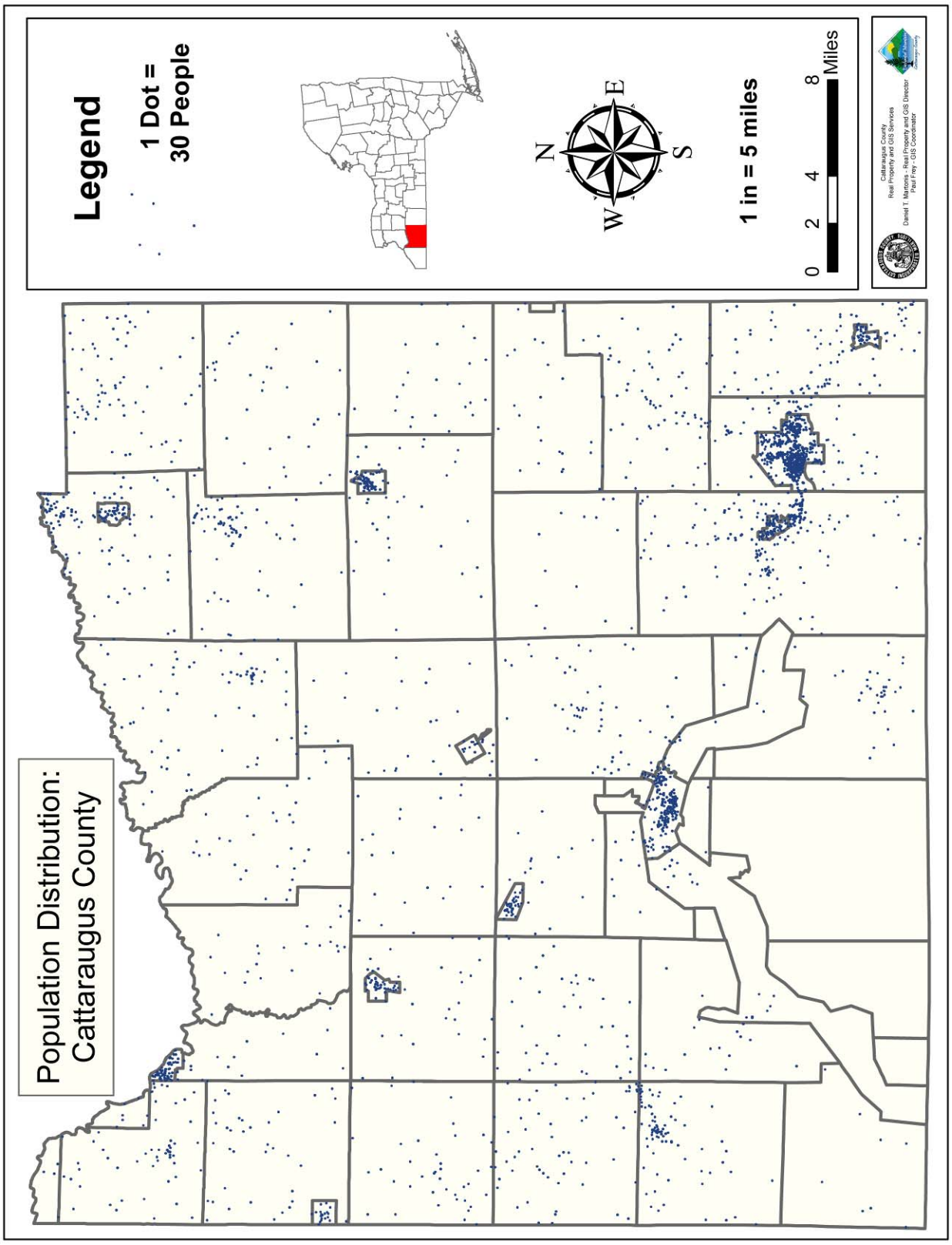


Figure 1 – Population Data from 2010 Census

3.2 Geographic Review

General Location

Cattaraugus County is located in southwestern New York and borders Pennsylvania's northwestern counties of McKean and Warren. It is centrally located to Buffalo and Niagara Falls, Rochester, Binghamton, Pittsburgh, Cleveland and Erie. New York City is about 350 miles to the east (6-1/2 hours driving time) along Interstate 86 (Route 17).

There are two very important interstate transportation corridors that intersect in the southern part of Cattaraugus County, Interstate 86 (east/west) and Route 219 (north/south). Interstate 86 (Route 17) runs along the southern portion of New York State and connects with Interstate 87 north of New York City. US Highway 219 runs north to Buffalo and south to Maryland and West Virginia. They intersect at Interstate 86 Exit 21 in Salamanca and Exit 23 at Bradford Junction. New York State Highway 16, which also runs north/south on the eastern side of the County, intersects with Interstate 86 at Exit 26 in Olean.

The southern part of Cattaraugus County is the only area of western New York that was not covered by the last ice age glaciation and is noticeably more rugged than neighboring areas that had their peaks rounded and valleys filled by the glacier.

The entire area is actually a dissected plateau of Pennsylvanian and Mississippian Age but it appears mountainous to the casual observer. The plateau is an extension of the Allegheny Plateau from nearby Pennsylvania. Southern Cattaraugus County is part of the Bradford Oil Field and petroleum and natural gas are a resource of the area.

Figure No. 2 depicts the geographic boundaries of Cattaraugus County.

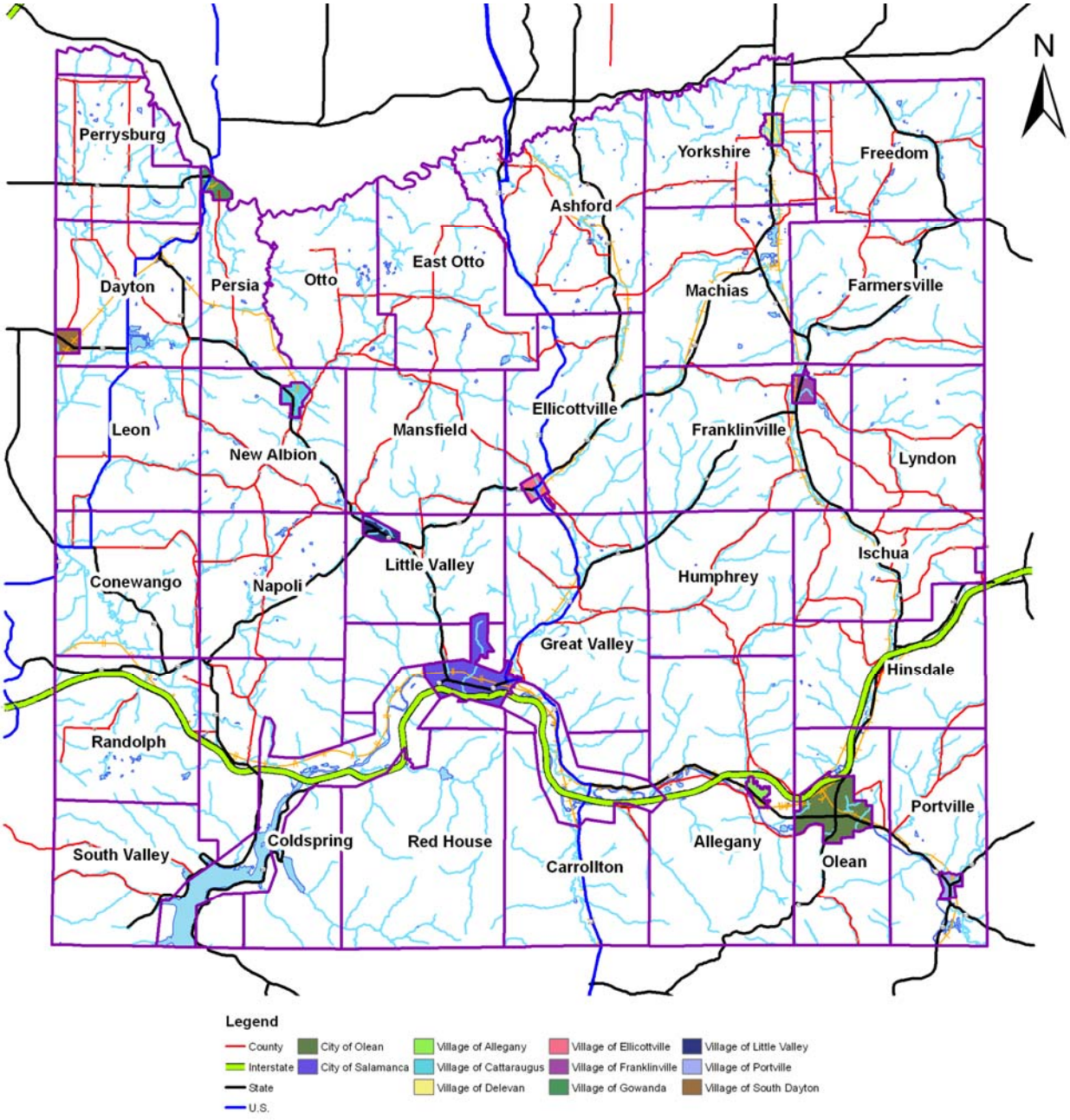


Figure 2 - Geographic Boundaries

3.3 Watersheds

A watershed is an area of land that drains into a body of water, such as a river, lake, reservoir, estuary, sea or ocean. The watershed includes the network of rivers, streams and lakes that convey the water, as well as the land surfaces from which water runs off. Watersheds are separated from adjacent watersheds by high points, such as mountains, hills, and ridges. New York State is divided into watersheds, or drainage basins, which are the basis for management, monitoring, and assessment activities. Cattaraugus County contains parts of five watersheds - Cattaraugus, Chautauqua-Conneaut, Conewango, Upper Allegheny and Upper Genesee.

A large portion of the County is covered by two of those watersheds, the Upper Allegheny and the Cattaraugus.

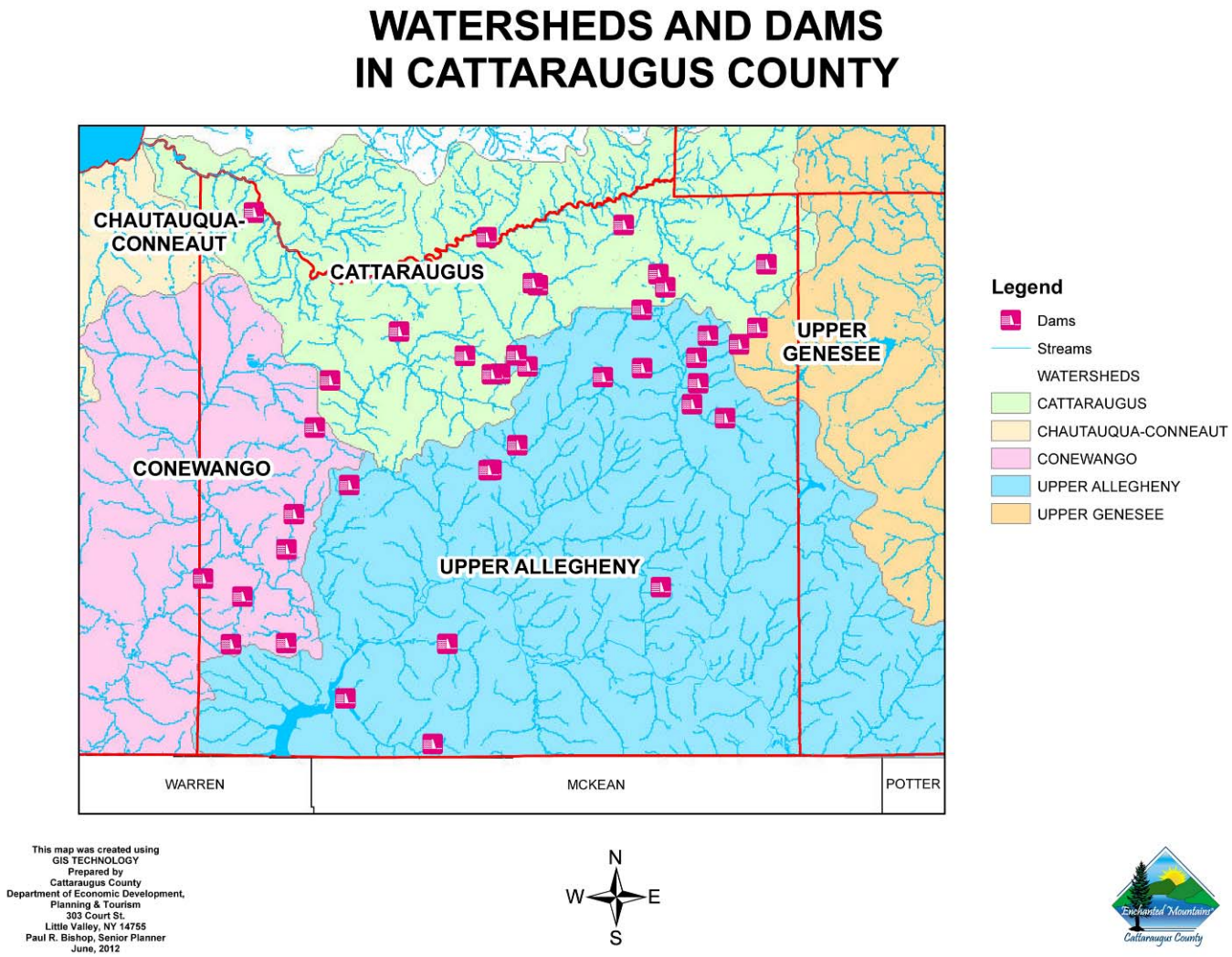


Figure 3 - Cattaraugus County Watersheds

3.3.1 Upper Allegheny Watershed

The Allegheny River enters Cattaraugus County from Pennsylvania in the southeast corner of the County. It makes a broad loop through the southern third of the County and reaches its northern-most point in the City of Salamanca. It leaves the County and New York State by way of the Allegheny Reservoir. This Reservoir was created by the construction of the Kinzua Dam near Warren, Pennsylvania in the mid 1960's.

Much of the residential areas in the Village of Portville and the Cities of Olean and Salamanca are protected by levee structures of various ages. The rest of this river channel is free to occupy its historic floodplain. Private property and roadways adjacent to the riverbank are threatened by erosion and are inundated by periodic floods.

The Seneca Nation of Indians' Allegany Territory runs on both sides of the river from the Hamlet of Vandalia westerly to the Pennsylvania State Line. The Upper Allegheny Watershed covers almost all of the lower 2/3 of Cattaraugus County and the Allegheny River ultimately drains to the Ohio River, the Mississippi River and the Gulf of Mexico.

3.3.2 Upper Allegheny Subwatersheds

Olean Creek is the largest tributary that enters the Allegheny River in New York State. It is also a source of drinking water for the City of Olean. Olean Creek is formed by the junction of Ischua Creek and Oil Creek. There are eight flood control impoundments that were constructed in the Ischua Creek Watershed in the 1960's. Two of these are recreational lakes. One of these, Harwood Lake, is maintained by the New York State Department of Environmental Conservation. Case Lake and the other six impoundments are maintained by Cattaraugus County. These impoundments have been a major relief to the historical flooding problem of this watershed.

The silty-sandy stream banks along the main stems of these streams erode where the riparian protection has been removed. Tributaries draining the steeper terrain of this watershed are a major erosion concern, again due to the glacial gravel depositions.

Great Valley Creek and Little Valley Creek are the next two major tributaries as we head downstream. They enter the Allegheny River from the north on both sides of the City of Salamanca. Their watersheds are very similar to that of the Ischua Creek. The soils along these streams are more granular and less fertile. Much of the former agricultural lands have been abandoned to other uses. The riparian vegetation is regenerating itself along these sections. These streams do not have any flood impoundments on them as they did not have the same history of flood frequencies and intensities as that of the Ischua Creek. Allegany State Park, to the south, is unique in the fact that it did not experience glaciation during the last two ice ages. The streams in this park are more stable than those in the adjacent surroundings. The raised elevation of this park experiences numerous, very intense storms and the lower reaches of the major tributaries are subject to erosion. Cold Spring Creek enters the river at the headwaters of the Allegheny Reservoir about 2 miles east of the Hamlet of Steamburg. This stream drains a transitional area between the higher plateau region and the lower lake plain region. Erosion along this stream is most apparent where agricultural uses have removed the buffering riparian vegetation.

The Conewango Creek, a major tributary of the Allegheny River whose confluence is near Warren, Pennsylvania, enters Cattaraugus County at a location approximately due west of the Village of Randolph. The main channel meanders northerly to nearly the Village of South Dayton before making a broad sweeping turn, eventually meandering southeasterly to the Hamlet of New Albion. Much of its broad, flat floodplain drained very slowly until the state constructed the Conewango Drainage Ditch in 1896.

This ditch runs northerly along the Cattaraugus-Chautauqua County line from Goodwins Landing to the Dredge Road near the Village of South Dayton. This project opened up this area of very fertile farmland. There are nine floodwater impoundments located in the headwaters of this creek. These are maintained by the Conewango Watershed Association and have greatly reduced the severity of flooding since their construction in the 1960's and 1970's. Typically, the loss of the protective riparian vegetation primarily due to agricultural pursuits is the major contributor to stream bank erosion.

3.3.3 Cattaraugus Watershed

Cattaraugus Creek forms nearly the entire northern boundary of Cattaraugus County.

Its headwaters originate in Wyoming County and its tributaries drain a small section of northwestern Allegany County, a small section of northeastern Chautauqua County, the southern quarter of Erie County, and the northern third of Cattaraugus County.

The subsoil in much of this drainage area consists of glacial deposits of sand, gravel and areas of unstable clays and silts. Steep stream gradients and the rapid runoff from any major storms make serious erosion a continuous problem in this watershed. Starting west of the Village of Arcade this creek cuts a major gorge along the Cattaraugus County line. This gorge reaches depths of over 250 feet in the Springville area and over 500 feet in the area east of the Village of Gowanda known as the Zoar Valley Natural Scenic Area. From this gorge the creek flows westerly through the Village of Gowanda and across the lake plain to Lake Erie. In addition to significant erosion, tributaries entering this creek along this gorge pick up massive amounts of woody debris from the heavily forested escarpment. The Cattaraugus Creek drains to Lake Erie, Lake Ontario and the St. Lawrence River.

3.3.4 Cattaraugus Subwatersheds

Many of the larger tributaries of Cattaraugus Creek flow through level areas of predominantly agricultural use. These areas are characterized by silty and coarse grained soils with medium and fine gravel streambeds containing few boulders.

Where there is lack of adequate protection to the riparian zones of these streams, erosion is a major problem. These tributaries include the South Branch of Cattaraugus Creek, Mansfield Creek, Connoisarauley Creek, Buttermilk Creek, Elton Creek, Clear Creek that runs through the Town of Freedom and many smaller tributaries.

3.4 Soils

Cattaraugus County has a wide variety of soil conditions that have an impact as to what type of damages could be anticipated from some natural hazard events. Many of the soils in the Cattaraugus Creek Basin are upland fines and are highly susceptible to erosion and landslides. This would be particular to the historic Thatcher Brook flooding damages and others along the Cattaraugus Creek headwaters.

These upland fine grained soils contribute to the unstable soils and landslides mostly located in the northern portion of the county. Landslides have taken place along Route 16 in the southeastern portion of the county. These soils are well drained, however, these areas have had landslides when they get super saturated. The northern portion of the county has various glacial tills. The southern portions of the county are comprised of residual and colluvial material. **Appendix B** contains a brief description of these soils.

General Soil Map

The general soil units have been grouped into general kinds of landscape. Each of the soil units are described on the following tables:

1. Areas dominated by very deep soils that do not have a fragipan and that formed in glacial till.

These soils make up about 10 percent of the county. They are on valley plains and uplands. They are dominantly very deep, well drained to somewhat poorly drained, and nearly level to very steep.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Valois-Chautauqua-Busti	Medium	Loamy glacial till	Uplands	5%
Fremont-Schuyler	Medium to moderately fine	Acid glacial till	Uplands w/low content of lime	2%
Salamanca-Almond	Medium to moderately fine	Acid glacial till	Uplands w/low content of lime	3%

2. Areas dominated by very deep soils that have a fragipan and that formed in glacial till.

These soils make up 45 percent of the county. They are on upland and valley sides. They are dominantly very deep, somewhat poorly drained to moderately well drained, and nearly level to moderately steep.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Erie-Langford	Medium	Loamy glacial till	Uplands, w/medium content of lime	5%
Volusia-Mardin	Medium	Loamy glacial till	Uplands, w/low content of lime	24%
Ischua-Yorkshire-Napoli	Medium	Loamy glacial till	Uplands, w/low content of lime	16%

3. Areas dominated by moderately deep soils and very deep soils that have a fragipan and that formed in glacial till.

These soils make up 1 percent of the county. They are on upland and valley sides. They are dominantly moderately deep and very deep, moderately well drained and somewhat poorly drained, and nearly level to very steep.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Hornell-Orpark	Moderately fine	Acid glacial till	Uplands,w/low content of lime	1%

4. **Areas dominated by very deep soils formed in glacial lake sediments**

These soils make up about 6 percent of the county. They formed in clayey, silty, and sandy lake-laid deposits that generally have no rock fragments. They are mainly in the plains and valleys that dissect the upland plateau in the northern part of the county and in the major valleys in the western part of the county. In most areas the soils are drained to very poorly drained.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Rhinebeck-Hudson-Niagara	Fine to medium	Glacial lake-laid deposits	On broad plains and dissected upland plateau w/medium content of lime	4%
Canandaigua-Swormville-Tonawanda	Medium	Glacial lake-laid deposits	Broad flats in valleys, w/medium content of lime	2%

5. Areas dominated by very deep soils formed in glacial till and glacial outwash.

These soils make up 10 percent of the county. They formed in morainic glacial till and gravelly outwash. They are moderately well drained to somewhat excessively drained. They are on valley terraces, outwash fans, and outwash plains throughout the county. The soils generally are nearly level to rolling, except along terrace fronts and in dissected hilly areas, where they range to very steep.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Valois-Chenango-Castile	Medium and moderately coarse	Morainic glacial till and gravelly outwash	On moraines and outwash plains in valleys w/low content of lime	10%

6. Areas dominated by very deep soils formed in glacial outwash and recent alluvium.

These soils make up 4 percent of the county. They formed in glacial outwash, silty lake-laid deposits, and recent alluvium. They are mainly in the major valleys that dissect the upland plateau in the central and southern parts of the county. In most areas the soils are nearly level and gently sloping. They are well drained to somewhat poorly drained.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Chenango-Pawling-Holderton	Well drained to somewhat poorly drained	Glacial outwash and recent alluvium	On alluvial floodplains, and in valleys	4%

***7.* Areas dominated by very deep soils and moderately deep soils that formed in residual and colluvial material.**

These soils make up about 24 percent of the county. They formed in residual and colluvial materials that are very deep to bedrock and residual material that is less than 40 inches deep over siltstone, sandstone and shale bedrock. They are in the southern part of the county. The soils are dominantly well drained to somewhat poorly drained.

NAME	TEXTURE	FORMATION	COMMENTS	COVERAGE (% OF COUNTY)
Buchanan-Rayne-Portville	Moderately fine and medium	Colluvial and residual material	Uplands, w/low content of lime	9%
Carrollton-Kinzua-Onoville	Moderately fine and medium	Residual and colluvial material	Uplands, above elevations of 1800 ft., low content of lime	15%

The general soil map **(Figures 4 & 5)** shows broad areas that have a distinctive pattern of soils, relief, and drainage. The general soil map can be used to compare the suitability of large areas for general land uses.

Additional soil data is included in Appendix H – Soil Data.

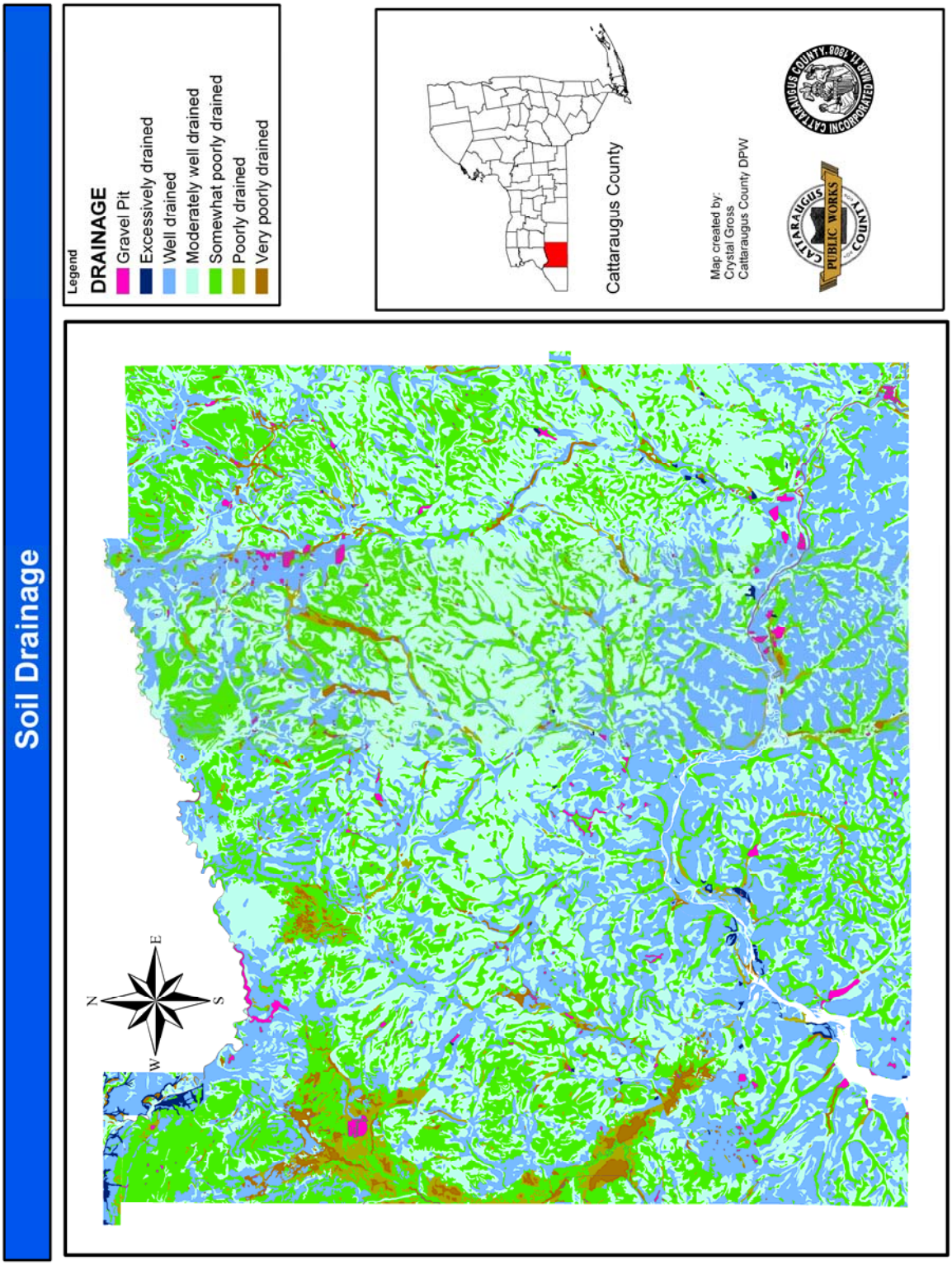


Figure 4 - Soil Drainage

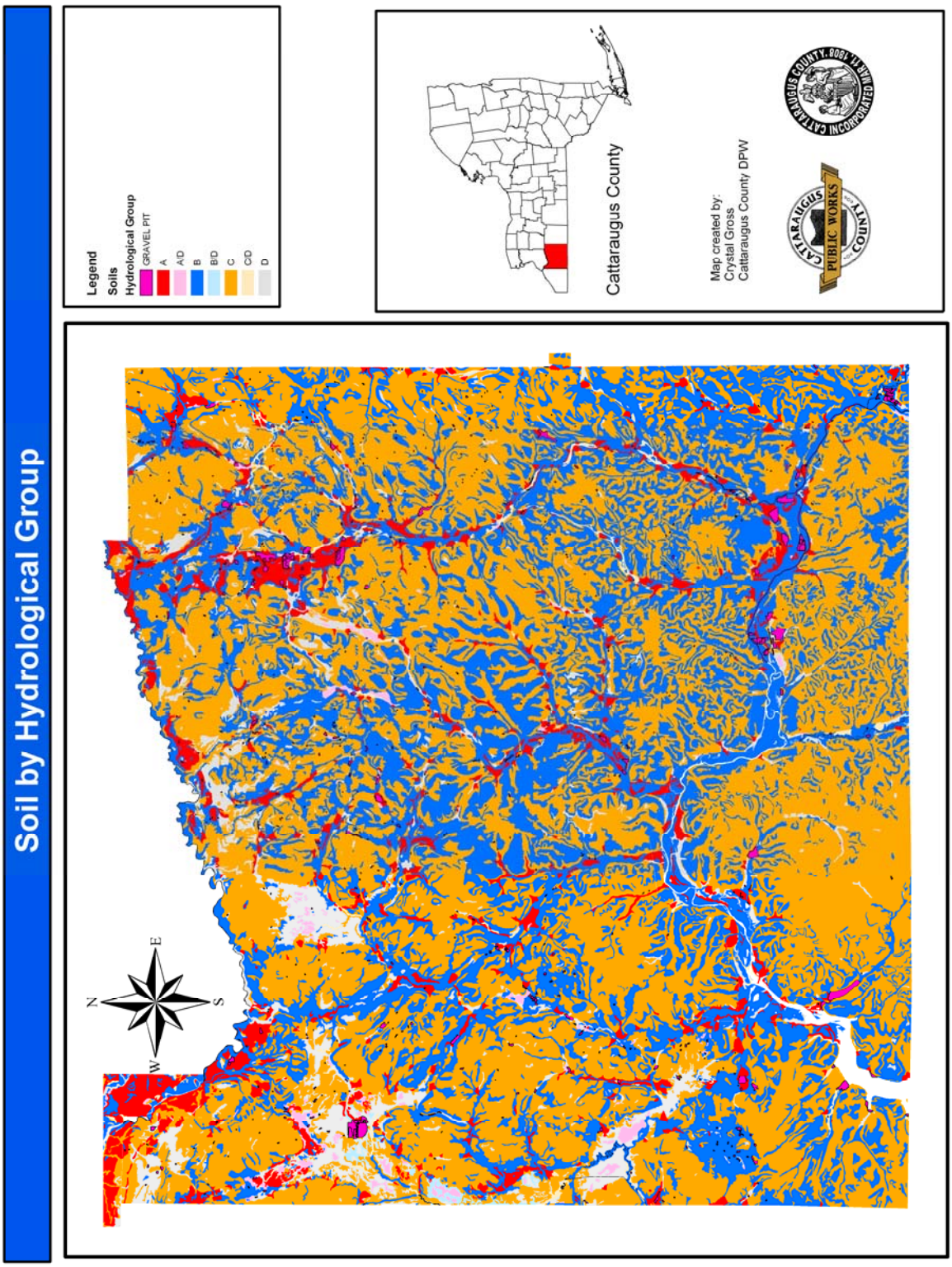


Figure 5 - Soil by Hydrological Group

4.0 Natural Hazard Risk Assessment and Vulnerability Analysis and Loss Estimation

Several hazards have been identified in Cattaraugus County that will be addressed in the Multi-Jurisdictional Hazard Mitigation Plan. These hazards were identified through an extensive process that utilized input from the following:

- Cattaraugus County Department of Planning, Economic Development and Tourism
- Public Input
- Local Jurisdictions within Cattaraugus County
- Researching Past Disaster Declarations in the county
- Review of Current FIRMs
- Risk Assessments Completed by the Cattaraugus County Department of Public Works
- Sheriff's Department
- Town, Village, and City Highway Superintendants
- Cattaraugus County DPW Engineering Staff and Operations Manager
- Cattaraugus County Emergency Services
- Multiple HAZNY's (1999 and 2003 and 2011)
- Hazard questionnaires

Upon completion of the research activities for these hazards, information was used to prioritize each natural hazard. Priority rankings were based on the probability that the hazard event would affect an area, the magnitude or severity of the hazard events, and the geographical extent that would be affected. The HAZNY was used as a guide to rank hazards with experience also playing a large role in the committee's decisions.

The next step in the natural hazard risk assessment was to profile each of the natural hazards that were identified during the natural hazard identification step, with the focus being shifted to those natural hazards that are most likely to affect Cattaraugus County in the future and have happened in Cattaraugus County in the past. The natural hazard profile contains specific information about each identified natural hazard type, including definitions, a brief history of the natural hazard within Cattaraugus County, the natural hazards probability of occurrence, affected geographic extent, and anticipated magnitude.

The next step in conducting the natural hazard risk assessment was creating a community profile for Cattaraugus County. The community profile contains specific information concerning those assets within Cattaraugus County that are located within each identified natural hazard area.

The final step is conducting the natural hazard events using the data gathered from the natural hazard and community profiling steps. Once the natural hazard risk assessment was completed, the foundation of this plan began to take shape. This foundation includes information about the history of previous natural hazard events, the value of existing assets located in those natural hazard areas, and an analysis of risk to life, property, and the environment that could result from a future natural hazard event.

4.1 Local Jurisdiction Priorities

A total of 44 individual municipal jurisdictions (including Cattaraugus County) played an active role in the development of this mitigation plan. Each participating jurisdiction had a representative that attended meetings and/or was asked to provide specific information regarding previous natural hazard events in their respective jurisdiction. Most partners created a new HAZNY (Appendix G – HAZNY), while those that did not provided a list of hazards of concern in their jurisdiction.

The individual HAZNYs were combined along with the Cattaraugus County DPW HAZNY and the Sheriff/Fire Department's HAZNY into one countywide HAZNY. (Figures 6, 7, and 8.)

The Planning Committee took all the individual municipal HAZNYs along with the hazard ranking lists and combined them into a comprehensive listing of ranked hazards. This ranking was determined in part by the HAZNY and hazard ranking lists along with historical data to determine the hazards that are most likely to present a danger to life and damage to property.

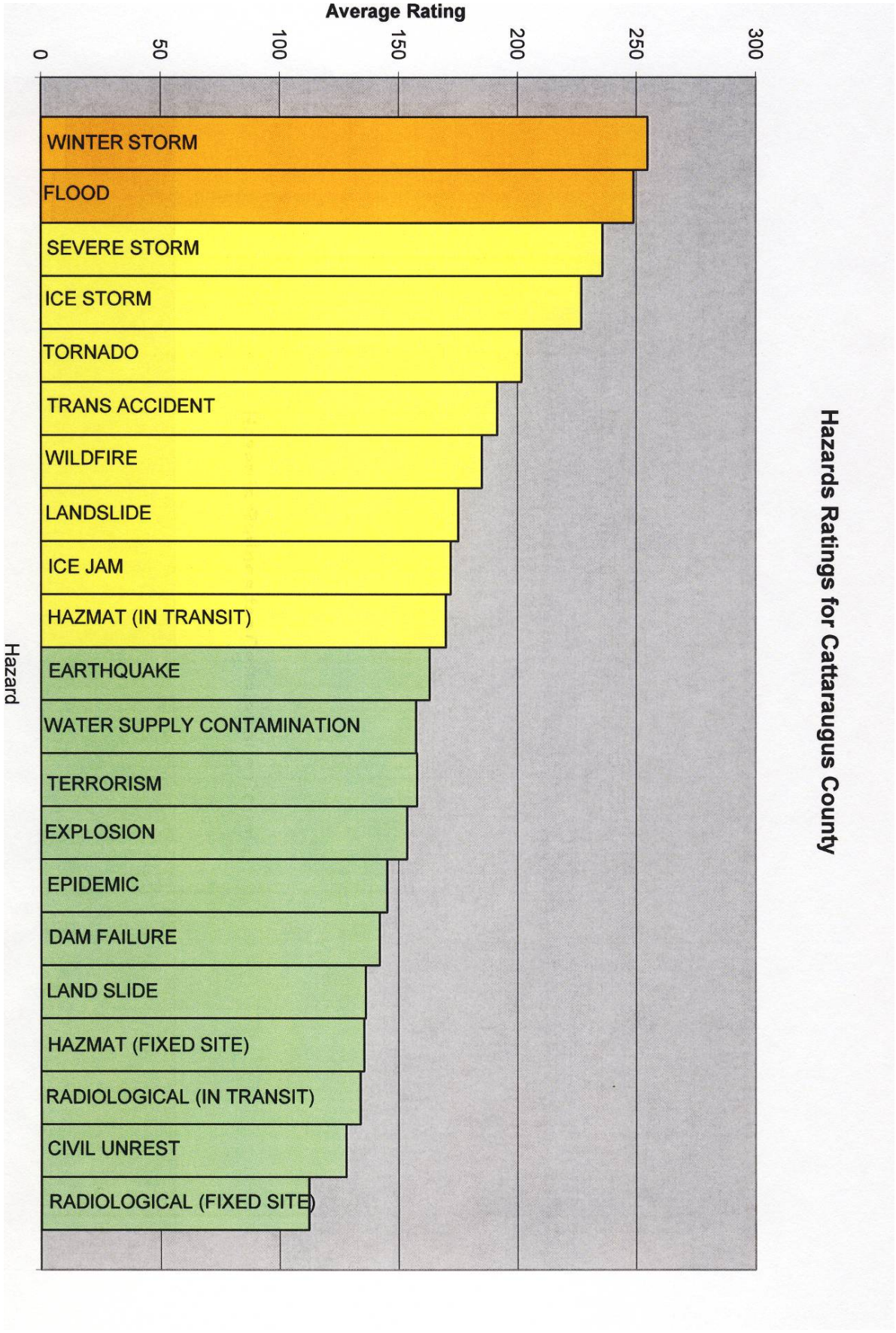


Figure 6 - Combined Hazard Ratings

Hazard Ranking after Municipal Surveys were imported into HAZNY

Cattaraugus County DPW	271	314	253	223	188	134	168	140	196	157	203	178	168	140	136	191	125	201	148	140	141		
City of Olean	294	266	270	245	222	185	151	134	162	113	198	245	196	148	130	107	248	168	113	107	144		
City of Salamanca	268	225	270	202	238	238	196	190	180	202	221	191	261	152	186	204	138	192	154	238	44	256	
Town of Allegany	247	256	248	191	207	238	238	228	146	219	130	180	107	222	116	58	237	188	192	86	44		
Town of Ashford	253	328	222	246	222	122	153	147	106	154	201	119	126	114	128	92	119	176	140	116	141		
Town of Conewango	248	276	295	257	269	242	193	107	107	274	159	107	107	238	296	238	107	107	107	188	107		
Town of Dayton	240	239	218	226	171	296	137	126	174	168	107	124	137	138	107	152	113	107	156	107	122		
Town of East Otto	179	216	188	173	182	172	188	240	194	241	169	132	178	158	153	158	138	97	205	132	132		
Town of Ellicottville	234	218	161	180	204	264	269	114	204	197	117	227	181	139	168	122	93	136	203	130	161		
Town of Farmersville	304	239	276	234	168	152	189	168	230	113	189	161	136	122	135	224	150	183	161	86	122		
Town of Hinsdale	235	283	146	123	140	240	124	122	231	136	124	107	107	124	116	107	44	44	107	107	44		
Town of Humphrey	274	252	294	260	256	144	154	227	269	223	230	186	256	193	174	192	161	82	184	117	176		
Town of Ischua	293	238	238	211	107	198	58	126	114	107	124	72	107	116	116	107	135	107	107	107	44		
Town of Leon	248	289	262	257	227	224	267	134	44	168	159	107	107	130	258	44	44	44	44	211	44		
Town of Little Valley	287	240	246	214	210	107	124	204	204	107	160	107	107	142	107	44	174	107	107	107	44		
Town of Lyndon	320	270	240	254	201	152	189	156	240	164	166	197	131	143	143	214	143	143	143	143	143		
Town of Machias	320	256	240	254	189	152	189	119	246	143	158	174	107	152	107	214	107	164	107	143	107		
Town of Mansfield	188	194	194	221	172	107	200	216	72	107	107	107	107	107	107	44	58	107	44	107	44		
Town of Olean	202	217	203	205	191	166	172	152	217	189	238	169	176	235	132	107	158	159	174	107	170		
Town of Otto	282	182	186	246	204	202	201	273	99	107	107	143	155	107	107	44	107	107	107	107	107		
Town of Perrysburg	257	293	267	236	198	224	221	151	150	202	160	140	107	135	114	149	58	44	44	107	44		
Town of Persia	238	278	274	249	240	155	230	240	210	196	183	158	280	146	136	208	212	168	217	79	194		
Town of South Valley	225	265	233	212	162	154	176	172	198	182	107	152	147	174	139	177	130	107	44	124	44		124
Town of Yorkshire	253	275	224	234	197	192	124	239	126	107	107	203	119	107	107	107	151	107	107	107	107		
Village of Cattaraugus	282	201	278	158	147	107	130	316	117	107	107	130	107	107	107	44	160	54	44	117	44		
Village of Delevan	300	258	242	276	220	225	165	139	164	210	130	139	110	140	152	231	284	132	124	72	44		
Village of Little Valley	234	198	195	221	149	139	172	168	182	218	188	176	194	172	226	205	158	220	193	119	172		
Village of South Dayton	236	122	238	202	220	212	191	119	93	162	186	178	107	158	137	44	44	158	44	58	44		
NYS Police +3	245	216	265	278	228	244	244	246	258	236	222	220	220	233	160	232		226	183	182	176		
Catt Co. Sheriff's Office +4	232	208	210	231	235	250	240	166	166	142	168	152	216	160	134	149	136	185	187	178			
NYS DEC +2	256	280	200	324	236	268	261	182	237	238	213	196	260	184	174	182	146	227	210	222	236		
Catt Co. OEM +2	260	316	270	217	256	224	207	142	167	149	180		134	178	136	152	142	134	186	133	164		
	255	249	236	227	202	192	185	175	172	170	163	157	158	154	145	142	136	135	134	128	112	256	124
	WINTER STORM	FLOOD	SEVERE STORM	ICE STORM	TORNADO	TRANS ACCIDENT	WILDFIRE	LANDSLIDE	ICE JAM	HAZMAT (IN TRANSIT)	EARTHQUAKE	WATER SUPPLY CONTAMINAT	TERRORISM	EXPLOSION	EPIDEMIC	DAM FAILURE	LAND SLIDE	HAZMAT (FIXED SITE)	RADIOLOGICAL (IN TRANSIT)	CIVIL UNREST	RADIOLOGICAL (FIXED SITE)	LEVIES	PIPELINE

Figure 7 - Individual HAZNY Scores

Hazards per Municipality Surveys - Ranked 1-20, 1 being the most likely to happen

	Winter Storm	Flood	Ice Storm	Severe Storms	Ice Jam	Tornado	Trans Accident	Landslide	Expolsion	Hazmit In Transit	Water Supply Contamination	Wildfire / Drought	Land Subsidence	Dam Failure	Earthquake	HazMat Fixed Site	Epidemic	Radiological In Transit	Civil Unrest	Radiological Fixed Site	Terrorism Biological	Terrorism Chemical	Terrorism Radiological	Levies
Cattaraugus County DPW Rank	1	3	5	2	4	6	9	10	15	11	13	8	14	20	19	12	18	16	7	17	21	22	23	
City of Olean Rank	2	1	4	3	7	21	8	16	9	12	5	20	6	22	13	11	10	15	23	14	18	17	19	
City of Salamanca Rank	1	4	3	2	17	6	7	12	14	13	9	15	22	11	20	21	16	20	5	23	10	19	18	8
Town of Allegany Rank	3	1	4	2	11	5	9	15	6	7	13	14	10	17	19	8	16	12	20	20	20	20	20	
Town of Ashford Rank	1	2	6	3	18	4	12	10	19	7	13	12	17	21	5	8	20	11	22	14	16	15	9	
Town of Conewango Rank	2	3	7	11	20	9	8	18	5	1	19	10	17	6	22	23	4	15	21	16	14	13	12	
Town of Dayton Rank	1	5	3	2	4	20	21	13	6	12	22	23	14	9	8	11	7	16	10	15	17	18	19	
Town of East Otto Rank	1	5	4	2	6	10	13	3	9	11	16	7	8	21	23	19	20	14	22	12	15	17	18	
Town of Ellicottville Rank	2	1	3	20	4	23	22	13	10	12	5	21	14	7	8	11	9	16	6	15	17	18	19	
Town of Farmersville Rank	1	4	3	1	5	10	6	17	15	13	7	9	18	8	12	14	16	20	11	19	21	22	23	
Town of Hinsdale Rank	2	1	10	5	3	23	4	22	23	18	20	21	23	23	23	23	23	19	23	23	23	23	23	
Town of Humphrey Rank	2	1	3	3	2	3	17	5	5	6	11	14	21	10	20	9	15	14	23	8	7	7	7	
Town of Ischua Rank	2	1	10	5	23	22	20	18	22	22	22	23	18	23	23	23	23	22	23	23	23	23	23	
Town of Leon Rank	1	3	2	4	11	5	6	10	13	12	18	7	9	16	17	14	8	18	15	18	18	18	18	
Town of Little Valley Rank	1	2	1	3	7	6	11	5	8	14	10	H	4	22	12	15	13	20	16	20	17	18	19	
Town of Lyndon Rank	1	4	3	2	5	10	6	16	15	13	7	9	17	8	12	14	18	20	11	19	21	22	23	
Town of Machias Rank	1	4	3	2	5	10	6	16	15	14	7	9	17	8	12	13	23	19	11	18	19	20	21	
Town of Mansfield Rank	3	18	1	2	15	10	23	21	19	16	23	20	14	22	20	17	19	11	23	12	23	23	23	
Town of Olean Rank	3	1	7	4	2	5	7	15	10	10	23	15	15	20	20	15	23	10	23	22	23	23	23	
Town of Otto Rank	1	4	3	5	7	9	6	2	18	17	8	10	21	22	19	11	20	16	23	15	23	23	23	
Town of Perrysburg Rank	1	2	4	6	5	14	8	12	3	7	11	10	23	9	17	23	16	23	15	23	23	23	23	
Town of Persia Rank	6	1	2	9	7	10	23	3	12	17	5	11	4	8	14	16	13	19	15	18	20	21	22	
Town of South Valley Rank																								
Town of Yorkshire Rank	1	4	3	2	7	8	9	5	10	15	14	13	6	12	11	21	22	19	23	20	18	17	16	
Village of Cattaraugus Rank	2	3	4	5	8	7	18	1	15	17	9	6	10	21	14	16	22	19	23	20	11	12	13	
Village of Delevan Rank	1	3	2	2	10	8	3	20	14	4	10	11	3	7	10	13	12	7	20	23	22	18	22	
Village of Little Valley Rank	1	5	3	2	4	11	1	6	4	2	6	9	7	10	8	5	4	3	7	5	11	10	12	
Village of South Dayton Rank	3	9	1	2	10	4	5	14	12	8	6	15	16	17	11	7	13	19	18	20	21	22	23	

non-HAZNY hazard ranking 3/15/12
Town of New Albion

2 4 4 4 8 10 11 11 12 12 12 13 13 14 15 15 16 16 17 17 18 18 19

2 1 3

Figure 8 - Hazard Ranking (non-HAZNY)

A critical facilities map (Figure No. 9) and floodplain map (Figure No. 10) were mailed to all local jurisdictions within Cattaraugus County. The purpose is to identify the impact of the hazards on critical facilities

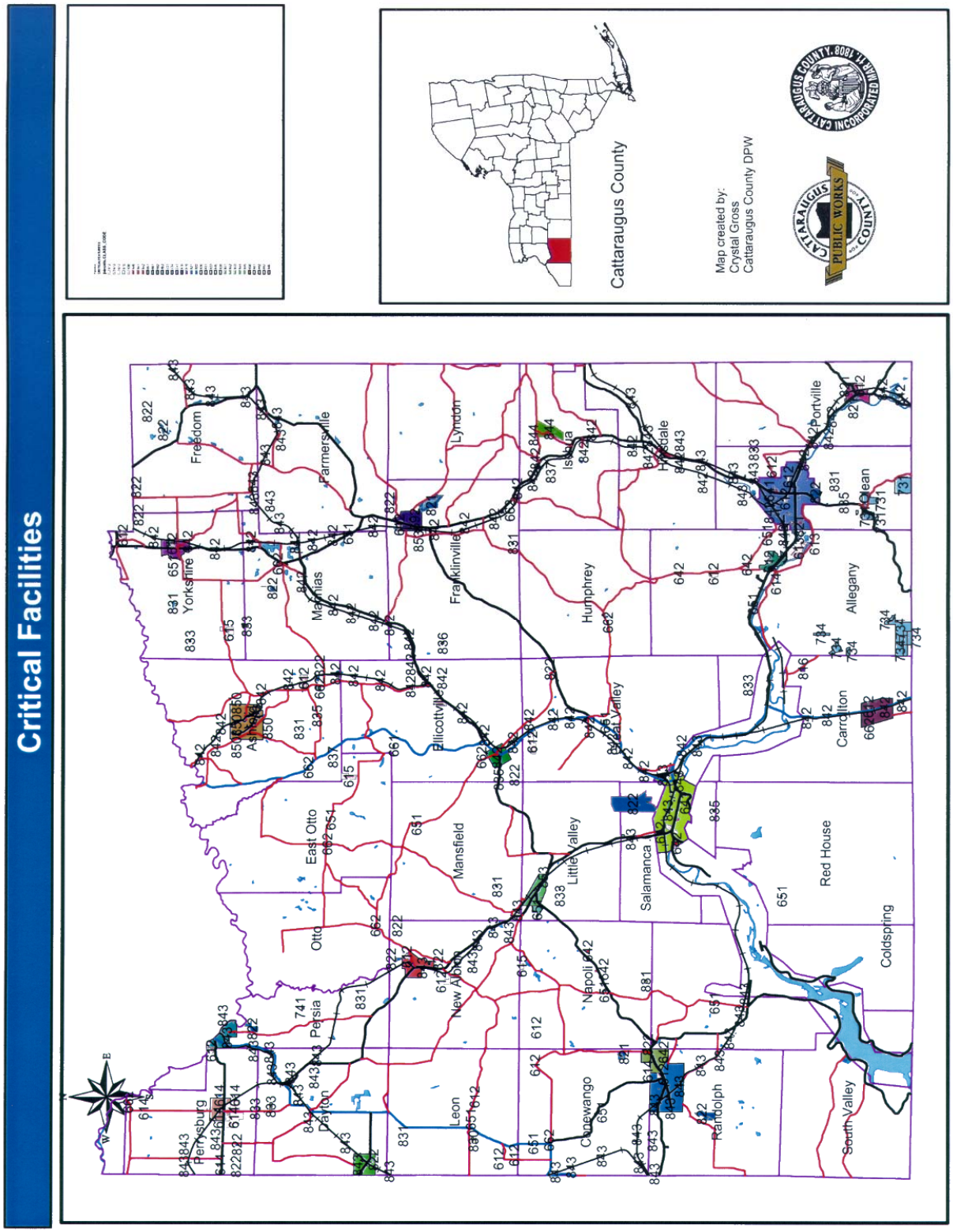


Figure 9 – Critical Facilities

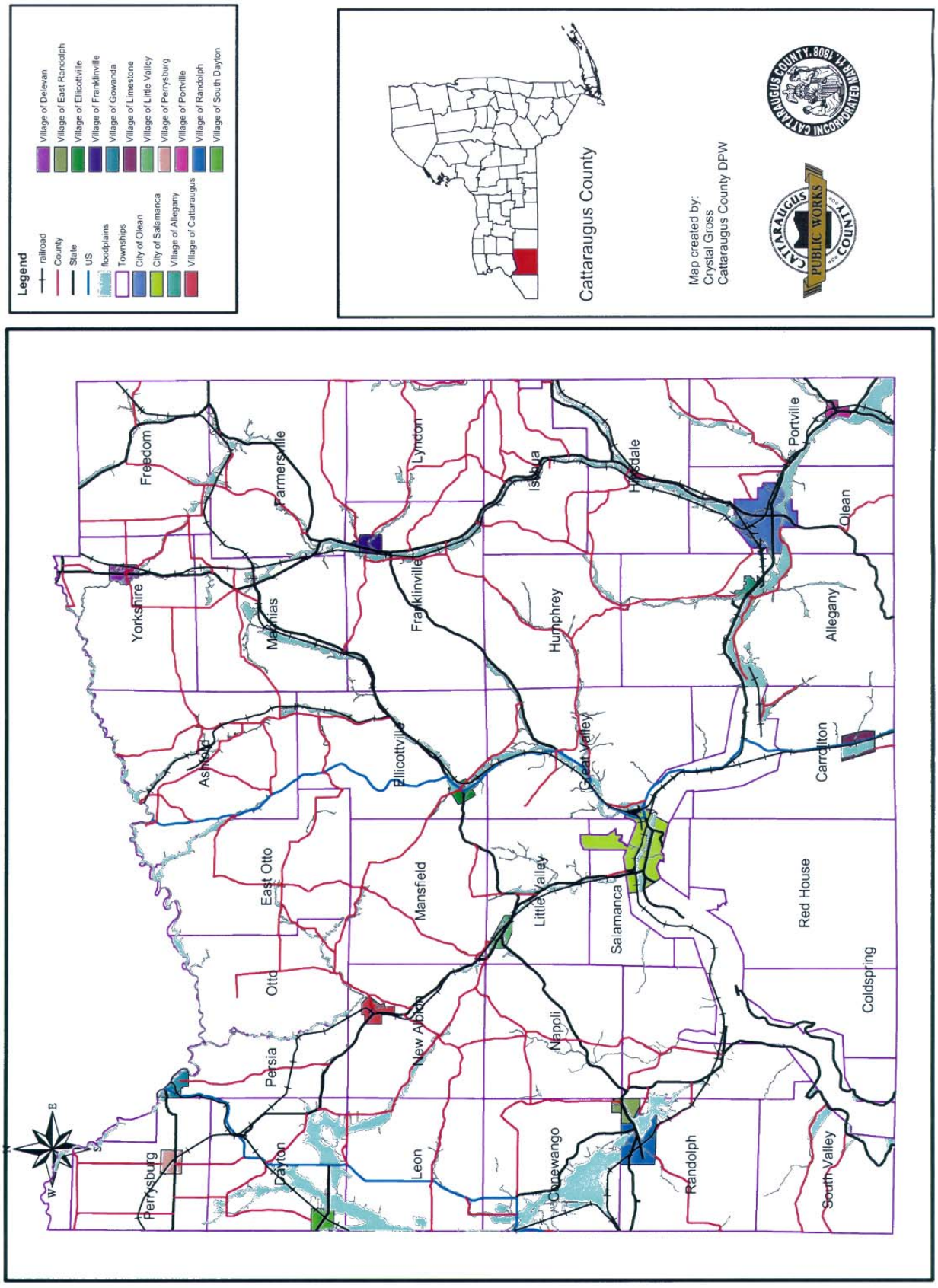


Figure 10 - Floodplains

The majority of participants indicated the following natural hazards had previously occurred in their jurisdiction, and that there is a **large** probability that they could occur in the future:

- Winter Storm (Heavy Snow)
- Flood (including Flash Flooding)
- Severe Storm
- Ice Storm

Some of participants indicated the following natural hazards had previously occurred in their jurisdiction, and that there is a **small** probability that they could occur in the future:

- Tornado
- Wildfire

A small percentage of participants indicated that the following natural hazards presented a risk to their community, which would be considered limited area hazards:

- Landslides/Land Subsidence/Expansive Soils/Erosion
- Dam Failure

Findings from Cattaraugus County indicate the following natural hazards have either not previously occurred in this jurisdiction or if they had occurred they presented little danger to life and property:

- Ice Jam
- Earthquakes
- Drought

4.2 The Cattaraugus County Comprehensive Emergency Management Plan

The Cattaraugus County Comprehensive Emergency Management Plan was developed to enhance the county's ability to manage emergency/disaster situations. This plan was prepared by county and local municipal officials working as a team in a planning process recommended by the New York State Emergency Management Office. This plan constitutes an integral part of a statewide emergency management program and contributes to its effectiveness. Authority to undertake this effort was provided by both Article 2-B of the State Executive Law and New York State Defense Emergency Act.

The development of this plan included an analysis of potential hazards that could affect the county and its local municipalities as well as an assessment of the capabilities existing in the county to deal with potential hazards. This plan, when updated, will mention that the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan exists and should be integrated into the Cattaraugus County Comprehensive Emergency Management Plan. It will be an Annex, page 176 of the CEMP.

The local partners in this Plan will also incorporate the Plan into their local ordinances and plans. (see section 5.3, page 91)

4.3 Cattaraugus County Emergency Operations Guidelines

This guideline results from the recognition on the part of local government and state officials that a comprehensive emergency management guideline was needed to enhance Cattaraugus County's ability to manage emergency and disaster situations. The guideline was prepared by county officials working cooperatively with their state agency counterparts in a planning effort coordinated by the New York State Emergency Management Office. The county guidelines constitute an integral part of a statewide emergency management program and contribute to its effectiveness. These guidelines, when updated, will mention that the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan exists and should be integrated into the Cattaraugus County Emergency Operations Guidelines as well as local plans and ordinances. See section 5.3, page 91 for more details on the local level.

4.4 NCDC Database

The National Climatic Data Center (NCDC) maintains an on-line Storm Event Database of various weather events recorded for particular regions in the country. The database contains data that would affect Cattaraugus County including: flood, hail, lightning, tornadoes, precipitation, snow and ice, thunderstorms and windstorms, and extreme temperatures.

The Storm Event Database is updated when new data becomes available to the NCDC. The data is typically updated on a monthly basis and is usually 90-120 days behind a current month. All of the data contained in the Storm Event Database is received from the National Weather Service (NWS) and is made publicly available as soon as possible via the website, http://www.ncdc.noaa.gov/stormevents/

The on-line Storm Event Database contains summary information for 315 weather events affecting Cattaraugus County between May 15th, 1961 and May 29th, 2012. A table was prepared to show the history of each natural hazard event **(Appendix F – NCDC Weather).**

The data includes information on location, data, type, number of related injuries and deaths, and reported damage amounts for the following in Cattaraugus County:

- Thunderstorm/wind
- Tornado
- Hail
- High Winds
- Flash Flood
- Flood
- Heavy Snow
- Winter Storm
- Ice Storm

4.5 Federal Disasters

Listed below are events that have occurred since 1993 that have received a "Declaration of Disaster" by the President of the United States:

LIST OF DECLARATION OF DISASTERS

DATE	DISASTER	DISASTER NO.
March 1993	Blizzard	FEMA 3107-EM-NY
January 1996	Flood	FEMA 1095-DR-NY
June 1998	Flood	FEMA 1233-DR-NY
January 1999	Snow Emergency	FEMA 3136-EM-NY
May, June, July, August 2001	Flooding	FEMA 1335-DR-NY
November 2000	Snowstorm	FEMA 3157-EM-NY
December 2001	Snowstorm	FEMA 3170-EM-NY
September 11, 2001	Attack on America	FEMA 3191-DR-NY
July & August 2003	Severe Storms	FEMA 3186-EM-NY
August 2009	Flood	FEMA 1857-DR-NY

Table 5 - List of Declared Disasters

Table 6 shows each Declaration of Disaster by municipality and damage amounts.

FEDERAL DECLARED STORM EVENTS
CATTARAUGUS COUNTY

	March 1993 Blizzard FEMA 3107-EM-NY	January 1996 Flood FEMA 1095-DR-NY	June 1998 Flood FEMA 1233-DR-NY	Jan. 1999 Snow Emerg. FEMA 3136-EM-NY	May, June, July, Aug. Flooding FEMA 1335-DR-NY
Cattaraugus Co. (Govern)	$37,682.00	$86,281.12	$843,555.00	$82,802.00	$101,327.53
Town of Allegany	$6,725.00	$92,681.00	$0.00	$16,387.96	$39,726.10
Village of Allegany	$0.00	$2,870.06	$0.00	$3,171.33	$0.00
Town of Ashford	$4,682.00	$21,174.00	$182,726.00	$15,076.24	$66,014.32
Town of Carrollton	$1,045.00	$26,420.00	$0.00	$5,655.27	$0.00
Village of Cattaraugus	$536.00	$2,199.44	$0.00	$2,430.32	$0.00
Town of Cold Spring	$1,619.00	$3,153.06	$0.00	$3,484.04	$0.00
Town of Conewango	$4,402.00	$5,109.60	$0.00	$5,645.96	$0.00
Town of Dayton	$2,095.00	$5,112.62	$0.00	$5,649.30	$0.00
Village of Delevan	$281.00	$1,627.03	$0.00	$2,046.07	$0.00
Town of East Otto	$3,369.00	$5,508.83	$9,803.00	$6,087.10	$0.00
Village of E. Randolph	$0.00	$4,771.00	$0.00	$3,148.87	$3,340.40
Town of Ellicottville	$4,487.00	$13,570.00	$0.00	$12,040.40	$0.00
Village of Ellicottville	$988.00	$1,963.58	$0.00	$2,169.71	$0.00
Town of Farmersville	$4,392.00	$11,977.00	$0.00	$5,195.33	$28,416.16
Town of Franklinville	$5,035.00	$7,555.89	$0.00	$8,349.05	$278,220.26
Village of Franklinville	$0.00	$1,777.83	$0.00	$1,964.45	$0.00
Town of Freedom	$0.00	$0.00	$0.00	$0.00	$62,847.03
Village of Gowanda	$408.00	$5,755.30	$42,942.12	$6,359.45	$0.00
Gowanda (School)	$0.00	$1,131.49	$12,194.00	$1,250.27	$0.00
Tri-County Hospital	$0.00	$0.00	$7,362.00	$0.00	$0.00
Town of Great Valley	$2,823.00	$91,580.00	$0.00	$5,722.81	$138,172.62
Town of Hinsdale	$4,398.00	$53,098.00	$0.00	$7,665.13	$41,538.06
Hinsdale Fire Dept.	$0.00	$0.00	$0.00	$0.00	$0.00
Town of Humphrey	$2,461.00	$3,243.90	$0.00	$3,584.43	$59,920.22
Town of Ischua	$1,858.00	$11,641.00	$0.00	$0.00	$3,208.90
Ischua Fire Dept.	$0.00	$0.00	$0.00	$0.00	$0.00
Town of Leon	$4,218.00	$5,817.47	$0.00	$6,428.14	$0.00
Village of Limestone	$0.00	$0.00	$0.00	$0.00	$0.00
Town of Little Valley	$1,755.00	$49,133.00	$0.00	$5,430.95	$0.00
Village of Little Valley	$0.00	$49,133.00	$0.00	$4,903.63	$0.00
Town of Lyndon	$4,509.00	$3,431.46	$0.00	$3,791.72	$52,514.24
Town of Machias	$4,583.00	$8,390.73	$0.00	$9,271.52	$0.00
Town of Mansfield	$3,360.00	$4,157.15	$0.00	$4,593.53	$55,293.28
Town of Napoli	$3,342.00	$4,060.11	$0.00	$4,486.30	$13,490.08
Town of New Albion	$3,586.00	$3,996.11	$0.00	$4,415.50	$0.00
Town of Olean	$2,461.00	$12,555.00	$0.00	$0.00	$0.00
City of Olean	$2,046.00	$5,507.02	$0.00	$6,085.11	$0.00
Town of Otto	$3,130.00	$10,803.00	$6,392.00	$7,274.29	$0.00
Town of Perrysburg	$3,100.00	$7,231.80	$2,863.00	$7,990.93	$0.00
Village of Perrysburg	$0.00	$1,478.57	$12,160.00	$1,832.17	$0.00
Town of Persia	$1,406.00	$2,497.33	$18,454.00	$2,759.48	$0.00
Town of Portville	$2,828.00	$33,342.00	$0.00	$0.00	$0.00
Village of Portville	$321.00	$0.00	$0.00	$0.00	$0.00
Town of Randolph	$4,544.00	$4,107.83	$0.00	$4,539.04	$0.00
Village of Randolph	$669.00	$1,710.53	$0.00	$1,890.08	$0.00
Town of Red House	$0.00	$36,244.00	$0.00	$0.00	$0.00
City of Salamanca	$2,320.00	$5,013.79	$0.00	$5,540.10	$27,392.63
Town of Salamanca	$0.00	$2,103.36	$0.00	$2,324.16	$5,020.44
Seneca Nation of Indians	$0.00	$1,748.87	$0.00	****	$1,319.50
Village of South Dayton	$303.00	$1,825.73	$0.00	$2,017.38	$0.00
Town of South Valley	$0.00	$0.00	$0.00	$0.00	$5,958.10
Town of Yorkshire	$3,901.00	$5,392.70	$269,599.56	$5,958.78	$65,566.66
West Valley School	$0.00	$0.00	$3,445.00	$0.00	$0.00
West Valley Fire Dept.	$0.00	$0.00	$0.00	$0.00	$0.00
Weston Mills Fire Dept.	$0.00	$0.00	$0.00	$0.00	$0.00
DISASTER TOTALS	**$141,668.00**	**$719,882.31**	**$1,411,495.68**	**$297,418.30**	**$1,049,286.53**

* Fire Department
** Listed as Randolph/East Randolph
*** Olean Police Dept.
**** To be handled by Bill Sherman (FEMA Indian Affairs)
***** Town and Fire Department

Table 6 - Declared Disaster Costs by Municipality

FEDERAL DECLARED STORM EVENTS
CATTARAUGUS COUNTY

	Nov. 2000 Snowstorm FEMA 3157-EM-NY	Dec. 2001 Snowstorm FEMA 3170-EM-NY	9/11/2001* Attack on America FEMA 1391-DR-NY	July & August 2003 Severe Storms FEMA 1486-DR-NY		August Power Outage FEMA 3186-EM-NY
Cattaraugus Co. (Govern)	$90,718.40	$136,367.77	$8,836.15	$623,381.25		$591.45
Town of Allegany	$13,364.42	$14,736.66	$92.00	$350,260.71		$0.00
Village of Allegany	$3,790.90	$0.00	$0.00	$0.00		$760.45
Town of Ashford	$14,405.75	$20,122.31	$0.00	$0.00		$0.00
Town of Carrollton	$0.00	$0.00	$0.00	$21,077.58		$0.00
Village of Cattaraugus	$1,823.85	$3,787.87	$0.00	$0.00		$0.00
Town of Cold Spring	$4,284.63	$5,199.95	$0.00	$22,241.22		$0.00
Town of Conewango	$9,720.00	$17,878.90	$0.00	$0.00		$0.00
Town of Dayton	$6,383.55	$11,964.70	$0.00	$0.00		$0.00
Village of Delevan	$1,007.30	$1,354.60	$0.00	$0.00		$0.00
Town of East Otto	$9,471.60	$14,696.14	$0.00	$0.00		$0.00
Village of E. Randolph	$2,195.17	$1,024.40	$0.00	$12,816.11	**	$0.00
Town of Ellicottville	$13,768.46	$18,492.14	$0.00	$0.00		$0.00
Village of Ellicottville	$1,150.29	$0.00	$0.00	$0.00		$0.00
Town of Farmersville	$7,487.58	$12,102.61	$0.00	$19,245.90		$0.00
Town of Franklinville	$13,845.97	$24,935.10	$0.00	$181,562.46		$0.00
Village of Franklinville	$2,485.30	$3,881.03	$0.00	$0.00		$0.00
Town of Freedom	$4,355.04	$0.00	$0.00	$0.00		$0.00
Village of Gowanda	$3,299.42	$11,571.01	$0.00	$0.00		$0.00
Gowanda (School)	$0.00	$0.00	$0.00	$0.00		$0.00
Tri-County Hospital	$0.00	$0.00	$0.00	$0.00		$0.00
Town of Great Valley	$0.00	$0.00	$46.00	$0.00		$0.00
Town of Hinsdale	$13,503.81	$7,395.66	$46.00	$252,566.10		$0.00
Hinsdale Fire Dept.	$0.00	$0.00	$0.00	$10,484.84		$0.00
Town of Humphrey	$4,269.27	$6,248.34	$0.00	$110,785.97		$0.00
Town of Ischua	$4,124.76	$0.00	$0.00	$99,383.99		$0.00
Ischua Fire Dept.	$0.00	$0.00	$0.00	$42,226.58		$0.00
Town of Leon	$7,281.08	$14,834.86	$46.00	$0.00		$0.00
Village of Limestone	$0.00	$0.00	$46.00	$12,697.81		$0.00
Town of Little Valley	$5,423.65	$7,584.90	$46.00	$0.00		$0.00
Village of Little Valley	$3,520.49	$5,145.88	$0.00	$0.00		$0.00
Town of Lyndon	$3,557.75	$5,037.42	$0.00	$40,219.22		$0.00
Town of Machias	$6,160.22	$16,519.94	$46.00	$0.00		$0.00
Town of Mansfield	$8,410.53	$10,871.71	$0.00	$0.00		$0.00
Town of Napoli	$5,843.91	$11,024.75	$0.00	$17,342.22		$0.00
Town of New Albion	$5,101.68	$7,806.70	$0.00	$59,996.79		$0.00
Town of Olean	$0.00	$0.00	$46.00	$97,059.03	*****	$0.00
City of Olean	$0.00	$0.00	$5,165.78	$13,056.33		$833.75
Town of Otto	$6,720.18	$12,700.43	$1,138.00	$0.00		$0.00
Town of Perrysburg	$6,576.48	$10,069.01	$0.00	$1,968.00		$0.00
Village of Perrysburg	$0.00	$0.00	$0.00	$0.00		$0.00
Town of Persia	$3,233.09	$6,395.76	$0.00	$0.00		$0.00
Town of Portville	$0.00	$0.00	$0.00	$90,965.71		$0.00
Village of Portville	$0.00	$0.00	$0.00	$0.00		$0.00
Town of Randolph	$7,760.45	$12,454.73	$0.00	$0.00		$0.00
Village of Randolph	$3,203.21	$3,075.68	$0.00	$0.00	**	$0.00
Town of Red House	$0.00	$0.00	$0.00	$0.00		$0.00
City of Salamanca	$7,084.97	$9,814.90	$0.00	$0.00		$0.00
Town of Salamanca	$1,692.20	$3,028.08	$46.00	$0.00		$0.00
Seneca Nation of Indians	$0.00	$0.00	$46.00	$0.00		$0.00
Village of South Dayton	$1,205.60	$3,386.32	$0.00	$0.00		$0.00
Town of South Valley	$1,939.21	$3,011.50	$0.00	$21,091.18		$0.00
Town of Yorkshire	$7,400.74	$17,595.70	$46.00	$0.00		$0.00
West Valley School	$0.00	$0.00	$0.00	$0.00		$0.00
West Valley Fire Dept.	$0.00	$0.00	$1,230.00	$0.00		$0.00
Weston Mills Fire Dept.	$0.00	$0.00	$0.00	$4,795.80		$0.00
DISASTER TOTALS	**$317,570.91**	**$472,117.46**	**$16,921.93**	**$2,105,224.80**		**$2,185.65**

* Fire Department
** Listed as Randolph/East Randolph
*** Olean Police Dept.

Table 6 – Page 2

FEDERAL DECLARED STORM EVENTS
CATTARAUGUS COUNTY

	Aug 2009 Severe Storms FEMA 1857-DR-NY
Cattaraugus Co. (Govern)	$5,676,642.00
Town of Allegany	$0.00
Village of Allegany	$0.00
Town of Ashford	$25,000.00
Town of Carrollton	$0.00
Village of Cattaraugus	$0.00
Town of Cold Spring	$0.00
Town of Conewango	$0.00
Town of Dayton	$0.00
Village of Delevan	$15,000.00
Town of East Otto	$10,000.00
Town of Ellicottville	$10,000.00
Village of Ellicottville	$0.00
Town of Farmersville	$0.00
Town of Franklinville	$0.00
Village of Franklinville	$0.00
Town of Freedom	$0.00
Village of Gowanda	$45,000,000.00
Town of Great Valley	$0.00
Town of Hinsdale	$35,000.00
Town of Humphrey	$0.00
Town of Ischua	$10,000.00
Town of Leon	$0.00
Town of Little Valley	$0.00
Village of Little Valley	$0.00
Town of Lyndon	$0.00
Town of Machias	$0.00
Town of Mansfield	$0.00
Town of Napoli	$0.00
Town of New Albion	$0.00
Town of Olean	$0.00
City of Olean	$0.00
Town of Otto	$0.00
Town of Perrysburg	$250,000.00
Town of Persia	$0.00
Town of Portville	$0.00
Village of Portville	$0.00
Town of Randolph	$0.00
Town of Red House	$0.00
City of Salamanca	$0.00
Town of Salamanca	$0.00
Village of South Dayton	$0.00
Town of South Valley	$0.00
Town of Yorkshire	$0.00
DISASTER TOTALS	**$51,031,642.00**

Table 6 – Page 3

4.6 Natural Hazard Identification Summary

By collecting information from representatives from each jurisdiction, reviewing existing Cattaraugus County plans and reports, and gathering information from the NCDC Storm Event Database and Federal Disaster Database, the following natural hazards have been identified as those that could potentially affect Cattaraugus County. Future occurrences of natural hazards that could possibly result in losses to Cattaraugus County assets or human life:

- Winter Storm (Heavy Snow)
- Flood (including Flash Flooding)
- Severe Storms
- Ice Storm
- Tornado
- Wildfire
- Landslide
- Dam Failure

4.7 Natural Hazard Profiles / Vulnerability and Loss Estimation

Cattaraugus County has identified several hazards that are addressed in the Cattaraugus County's Multi-Jurisdictional Hazard Mitigation Plan. All the natural hazards that were identified in the previous subsection are those that **are likely to** affect Cattaraugus County. The profiles contain information about the different aspects of each natural hazard that demonstrates how each could affect Cattaraugus County differently. Information presented includes: definitions, a brief history of the natural hazard within Cattaraugus County, the natural hazards probability of occurrence, affected geographic extent, and anticipated magnitude.

Every effort was made to assess the vulnerability and estimate the losses that might occur during one of the natural hazard events.

On July 1, 2003, the County of Cattaraugus, in conjunction with the New York State Emergency Management Office, conducted a hazard analysis using the automated program, Hazard Analysis (HAZNY). HAZNY was developed by the American Red Cross and the New York State Emergency Management Office.

On March 14th, 2011 most municipalities in Cattaraugus County completed an individual HAZNY for their jurisdiction with the aid and assistance of Cattaraugus County Department of Public Works and Emergency Services. These HAZNY results were added together and an average HAZNY for the entire county was produced. This HAZNY was used as a guide to identify and rank hazards.

Appendix G - HAZNY contains the 1999, 2003, and 2011 HAZNY results for the County as well as individual HAZNYs for many of the municipal partners.

4.7.1 Winter Storms

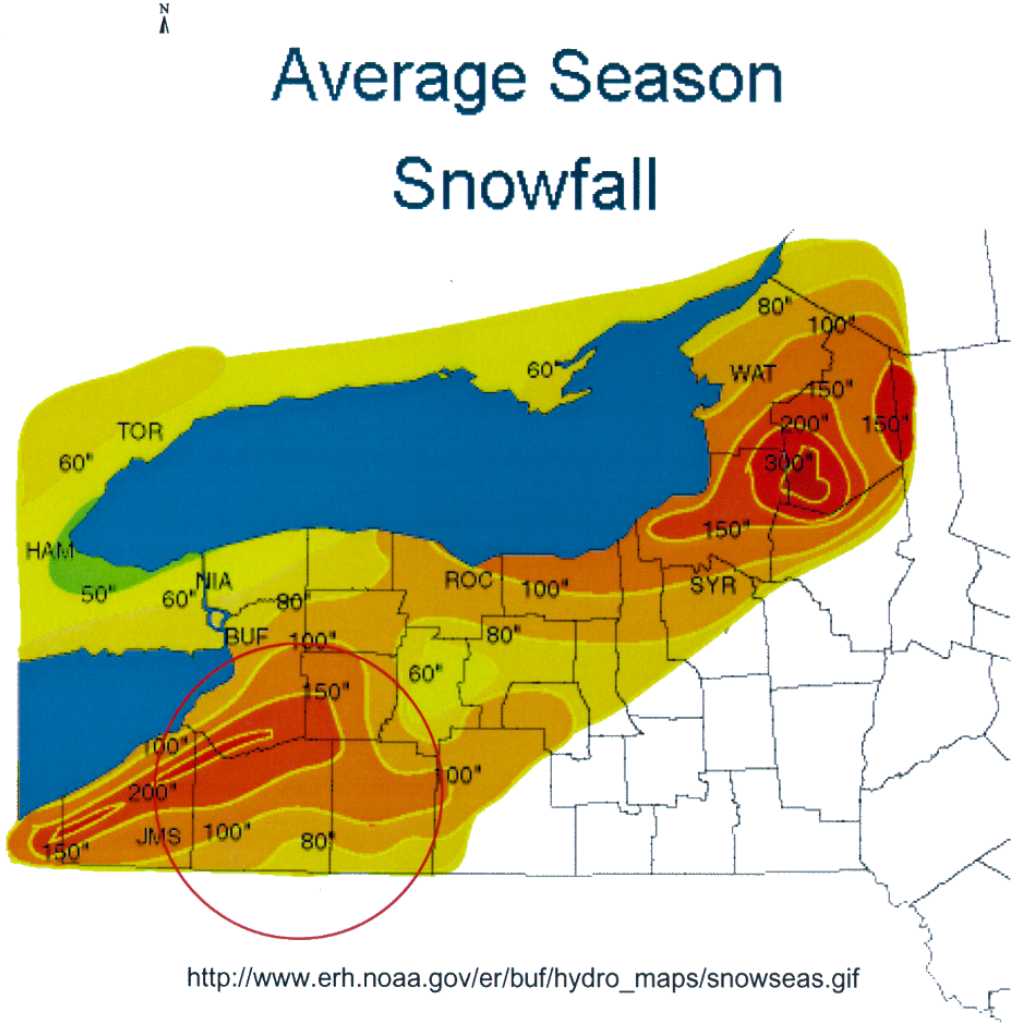
Definition: A winter storm can range from moderate snow over a few hours to blizzard conditions that last several days. All winter storms are accompanied by low temperatures and blowing snow, which can severely reduce visibility. A severe winter storm is one, which drops four or more inches of snow during a 12-hour period, or six or more inches during a 24-hour span. An ice storm occurs when freezing rain falls from clouds and freezes immediately on impact. All winter storms make driving and walking extremely hazardous.

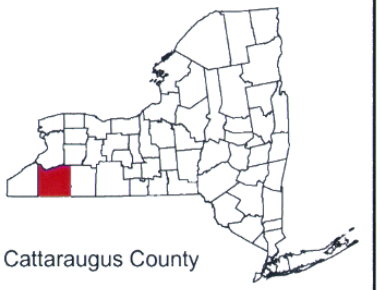
HAZNY Analysis:

- Potential Impact: Large Region
- Cascade Effects: Highly Likely
- Frequency: Regular Event
- Onset: Several Hours Warning
- Hazard Duration: Two to Three Days
- Recovery Time: One to Two Days

History: The information reviewed for this hazard mitigation plan reveals that winter storms have affected all of the jurisdictions within Cattaraugus County. (Appendix F – NCDC Weather Data). The data also indicates that single storms have previously been reported as affecting multiple sites within the county, as well as multiple sites throughout the state. These events are listed as snow squalls, heavy snow, heavy snow squalls, winter storm, excessive snow, or blizzard events. Records indicate that the towns in northern Cattaraugus County are hit harder by winter storm events, particularly the Town of Perrysburg which was mentioned 21 times and received 26" of snow in one event and 51" of snow in another event. South Dayton, located in the northwest portion of the county, is also hit hard by winter weather. In one event, it is recorded that 54" of snow fell in the Village of South Dayton. Figure No. 11 shows the average season snowfall in Cattaraugus County.

Average Season Snowfall





Map created by:
Crystal Gross
Cattaraugus County DPW

Figure 11 - Average Snowfall

Probability of Occurrence: Most of the severe winter storms in Cattaraugus County result from lake effect snow from Lake Erie. Lake effect snow is caused when very cold air flows over the relatively warmer water of a large lake. Evaporation from the lake surface under these conditions forms convective clouds that can not contain all of this water, and some of it falls back to the surface as snow. Lake effect snow showers often form into bands or lines, with abrupt edges to the falling snow. One location can receive a foot of snow, while another location just a few miles away receives only flurries. Cattaraugus County is prone to winter storms that have affected every jurisdiction within Cattaraugus County. On average, winter storms occur approximately seven times a year.

Geographic Extent:

Portions of northern Cattaraugus County are located within the traditional snowbelt. These areas would be affected more often by lake effect snow from Lake Erie. Cold air crossing the warmer waters of Lake Erie results in lake effect snow. In general, these northern portions of the county are more often hit with more events and deeper snows. However, other portions can also be impacted by occasional severe events.

Anticipated Magnitude:

- **Blizzard warning** - Sustained winds or frequent gusts of 35 mph (56 km/h) or greater, considerable falling and/or blowing snow reducing visibility frequently to 1/4 mile (0.4 km) or less for a period of three hours or more. There are no temperature criteria in the definition of a blizzard but freezing temperatures and 35 mph winds will create sub-zero wind chills.

- **Heavy snow warning** - Snowfall of 6 inches (15 cm) or more in 12 hours or less, or 8 inches (20 cm) or more in 24 hours or less.

- **Lake effect snow warning** - Lake effect snowfall of 6 inches (15 cm) or more in 12 hours or less, or 8 inches (20 cm) or more in 24 hours or less.

- **Ice Storm warning** - Accumulations of 1/4 inch (6 mm) or more of freezing rain.

- **Heavy sleet warning** - Accumulations of 1/2 inch (12 mm) or more of sleet.

Anticipated Damages:

There is a reasonable possibility that critical facilities could be affected, causing power outages and loss of other critical services. Additional hazards that can be triggered by a winter storm event include transportation restrictions and accidents, food and fuel shortages, exposure to cold temperatures and utility disruption. Normal emergency operations can be impeded. Since winter storms take place during the frigid winter months, many people, especially the elderly and infirm, may be stranded without heat and basic necessities. Transportation accidents my injure or kill several people due to winter storm conditions.

The principal cost resulting from winter storms is the expense of snow removal by highway departments. Indirect losses result from the disruption of normal transportation and economic disruption. Some structural damage can occur if heavy snow knocks down trees, utilities, or buildings.

Information reviewed for this hazard mitigation plan indicates that there have been four instances in which a Federal Disaster was declared for Cattaraugus County because of winter storms. This

information also indicates that there have been no fatalities or injuries due to winter storm events. The following Federal declared disasters total:

March 1993 Blizzard	$141,668.00
January 1999 Snow Emergency	$297,418.30
November 2000 Snowstorm	$317,570.91
December 2001 Snowstorm	$472,117.46

Cattaraugus County has 141 records for winter storms in the data reviewed for this hazard mitigation plan (Appendix F – NCDC Weather). Of these 141 records, total damage amounts are approximately $11,963,787 over the last 20 years. An average winter storm would produce $150,000 in damages (snow removal costs) with the maximum anticipated impact being $1,000,000 from this worse case type of event.

4.7.2 Floods (Including Flash Floods)

Definition: A great flow of water, a body of moving water, the flowing stream, as of a river, especially a body of water rising, swelling, and overflowing land. Flash flooding is rapid flooding of low-lying areas, rivers and creeks that is caused by the intense rainfall associated with a thunderstorm. Flash flooding occurs when the ground under a storm area becomes saturated with water so quickly that it cannot be absorbed.

HAZNY Analysis:

- Potential Impact: Large Region
- Cascade Effects: Highly Likely
- Frequency: Infrequent Event
- Onset: Several Days
- Hazard Duration: More Than One Week
- Recovery Time: More Than Two Weeks

Floods are typically described in terms of their statistical frequency. A “100-year floodplain” describes an event or an area subject to a one percent probability of a certain size flood occurring in any given year. This concept does not mean such a flood will occur only once in 100 years. Whether or not it occurs in a given year has no bearing on the fact that there is still a one percent chance of a similar occurrence in the following year. Since floodplains can be mapped, the boundary of the 100-year flood is commonly used in the compilation of floodplain mitigation programs to identify areas where the risk of flooding is significant.

History: There are 43 records for flood events which have occurred in Cattaraugus County in the data reviewed for this hazard mitigation plan (Appendix F – NCDC Weather Data). Of these 43 records, damage amounts are approximately $60,041,000. In addition, of these 43 flood events, 31 of them were recorded as flash floods.

In June 1998, Cattaraugus County was declared a State and Federal Disaster Area. During this event, Cattaraugus Creek rose faster than any time in memory and crested two feet over flood stage. Damages in the Village of Gowanda totaled $1,400,000. In July 2000, the Mayor of Salamanca declared a State of Emergency which included no unnecessary travel in the city due to mudslides and flooding. In August 2003, strong thunderstorms developed dropping 3 to 5 inches of rain in a short amount of time, causing flash flooding. Sections of Route 16 in the Town of Ischua were washed out. Cattaraugus County was declared a State and Federal Disaster Area.

In August 2009, Cattaraugus County was once again declared a State and Federal Disaster Area when a massive convective complex moved from lower Michigan across southern Ontario near Toronto then dove southeast across the Niagara Frontier and Western Southern Tier. This followed an earlier round of strong thunderstorms and heavy rains earlier in the day. Damage from the thunderstorm winds was widespread across the Niagara Frontier and Western Southern Tier. Trees as large as two to three feet in diameter were downed. Power outages were scattered throughout the region as the winds downed power lines. The unprecedented heavy rains that fell, four to six inches in less than two hours, resulted in some of the worst flash flooding the area has seen. In the Village of Gowanda (part of which is in Erie County and part in Cattaraugus county), extensive flash flooding occurred. Tri-County hospital in Gowanda was inundated by flood waters and subsequently demolished due to damage. Patients were transferred to Lakeshore Hospital in Irving. Several hundred homes sustained damage and 40 homes were condemned there. One fatality occurred in Gowanda as an 80-year-old man ventured out to check a bridge on his property and was swept away by the flood waters. The gage on Cattaraugus Creek at Gowanda showed a rise from six feet to near 13 feet in less than an hour (flood stage is 10 feet). Throughout Cattaraugus county over one-quarter of the roads were damaged or lost.

Probability of Occurrence: Flooding usually results in Cattaraugus County from prolonged heavy rainfall. Other causes of flooding include locally intense thunderstorms, snowmelt and ice jams. Flash floods occur in short periods of time, usually only a few hours. Flooding events are impossible to accurately predict. There may be long extended periods of time with no flooding events caused by rainfall and other times when areas have repeat flooding in the same areas due to consecutive storm events. Major riverene flood occurs approximately once every 15 years, with flash flooding occurring on an every year basis.

Geographic Extent: The information reviewed indicates that flooding affects all jurisdictions within Cattaraugus County. Based on information collected, there were 43 records for flooding in Cattaraugus County, two of which occurred in the Allegany State Park.

The flood hazard areas within Cattaraugus County are primarily those areas within the mapped 100-year floodplain (Figure No. 10 – Floodplains and Appendix E – Floodplain Maps by Town.) They are adjacent to the rivers and other watercourses in the county that are subject to flooding

Nearly all areas in the county could experience a flash flooding event. This depends on the intensity and duration of rainfall, the steepness of the watershed, the amount of impervious surfaces within the watershed and vegetation. The towns of East Otto, Hinsdale, Humphrey, and Lyndon all made note of the severe threat that flash flooding presents to them.

The Town of South Valley noted that in the past flash flooding has repeatedly combined with beaver dams, causing logs to jam in several of their sluice pipes and creating major washouts of their secondary roads.

In August of 2009, the northern towns and the Village of Gowanda experienced severe flash flooding as the result of severe rains. Major washouts were noted on east/west roads as well as severe damage to critical facilities in the Village of Gowanda and the Towns of Persia and Perrysburg.

Table 7 shows the estimated value of structures that are located within the floodplain. To find the estimated value of the structures, the assessed land value amount was subtracted from the total assessed value for the parcel. The resulting value was used as an estimated structural value.

Municipality	Total Assessed Structural Value	# PARCELS	Agricultural	Residential	Vacant	Commercial	Recreational	Comm. Service	Industrial	Public Service	Forest
Allegany, T	$210,600,542	477	26	290	100	27	4	9	9	6	6
Allegany, V	$14,417,713	195		124	20	41	1	7		2	
Ashford, T	$508,337,811	228	25	127	60	4		3	3	2	4
Carrollton, T	$8,017,690	257		137	80	7	2	8		6	17
Cattaraugus, V	$918,200	50		26	21			2		1	
Coldspring, T	$8,539,636	183	23	87	37	4		3		2	27
Conewango, T	$4,806,270	246	76	101	57	1		2		3	6
Dayton, T	$5,162,790	190	70	75	41	1		1	1	1	
Delevan, V	$2,486,161	89	1	64	15	4		4		1	
East Otto, T	$5,546,499	137	16	73	42	1	3	1			1
Ellicottville, T	$74,529,704	442	9	273	116	16	13	5	3	6	1
Ellicottville, V	$39,584,070	241		178	21	32	1	3	5	1	
Farmersville, T	$7,487,100	166	19	86	46	10	1	1		3	
Franklinville, T	$6,316,422	207	10	100	85	1		4	1	5	1
Franklinville, V	$9,577,328	85		54	14	8	1	4	2	2	
Freedom, T	$16,635,650	245	18	159	52	6	3		4	2	1
Gowanda, V	$22,996,312	354		257	39	38	2	12	1	4	1
Great Valley, T	$38,421,550	449	85	243	65	21	3	5	3	4	20
Hinsdale, T	$12,699,328	175	7	101	44	11	5	2	1	4	
Humphrey, T	$8,216,100	150	8	98	39		1	1			3
Ischua, T	$2,178,700	52		22	18	2		3	1	2	4
Leon, T	$7,222,040	139	51	48	33	1		3			3
Little Valley, T	$12,468,369	184	26	86	53	8	2	4			5
Little Valley, V	$5,961,500	86		47	17	10	3	7	1	1	
Lyndon, T	$2,949,800	42	8	23	11						
Machias, T	$11,331,337	185	25	95	48	3	1	1	5	6	1
Mansfield, T	$1,882,950	31	8	12	7	1	1			1	1
Napoli, T	$2,028,220	66	13	30	20			3			
New Albion, T	$2,574,400	109	5	63	36		1	2		1	1
Olean, C	$64,836,828	373		239	78	30	5	6	4	9	2
Olean, T	$14,104,422	293	1	176	81	23		3	1	8	
Otto, T	$3,304,700	88	21	31	20	4	1	2			9
Perrysburg, T	$27,405,000	41	3	23	6	2		6		1	
Persia, T	$2,700,150	78	8	42	19					2	7
Portville, T	$24,701,434	442	4	291	105	29		3	4	6	
Portville, V	$1,550,180	22		12	4	2		2		2	
Randolph, T	$17,849,185	194	23	91	42	19	2	7	2	6	2
Salamanca, C	$8,637,030	262	2	166	46	15	7	7	1	15	3
Salamanca, T	$2,233,963	50	2	27	18	2				1	
South Dayton, V	$448,750	23	4	10	8					1	
South Valley, T	$2,625,500	97		42	23	5	1	2			24
Yorkshire, T	$1,777,204	179	14	120	37	3	2	1	1	1	
	$1,226,068,538	7602	611	4349	1724	392	66	139	53	118	150

Table 7 - Structure Value of Parcels in Floodplain

The digital FEMA Q3 data was overlaid on the county's most recent ortho data. Three thousand, two hundred and ten (3210) rooftops were pinpointed as being within the floodplain. The parcels containing these points were then extracted into a new GIS layer. The resulting layer contained 1975 parcels. To find the estimated value of the structures, the assessed land value amount was subtracted from the total assessed value for the parcel. The resulting value was used as an estimated structural value.

Cattaraugus County – Rooftops Identified in the Floodplains

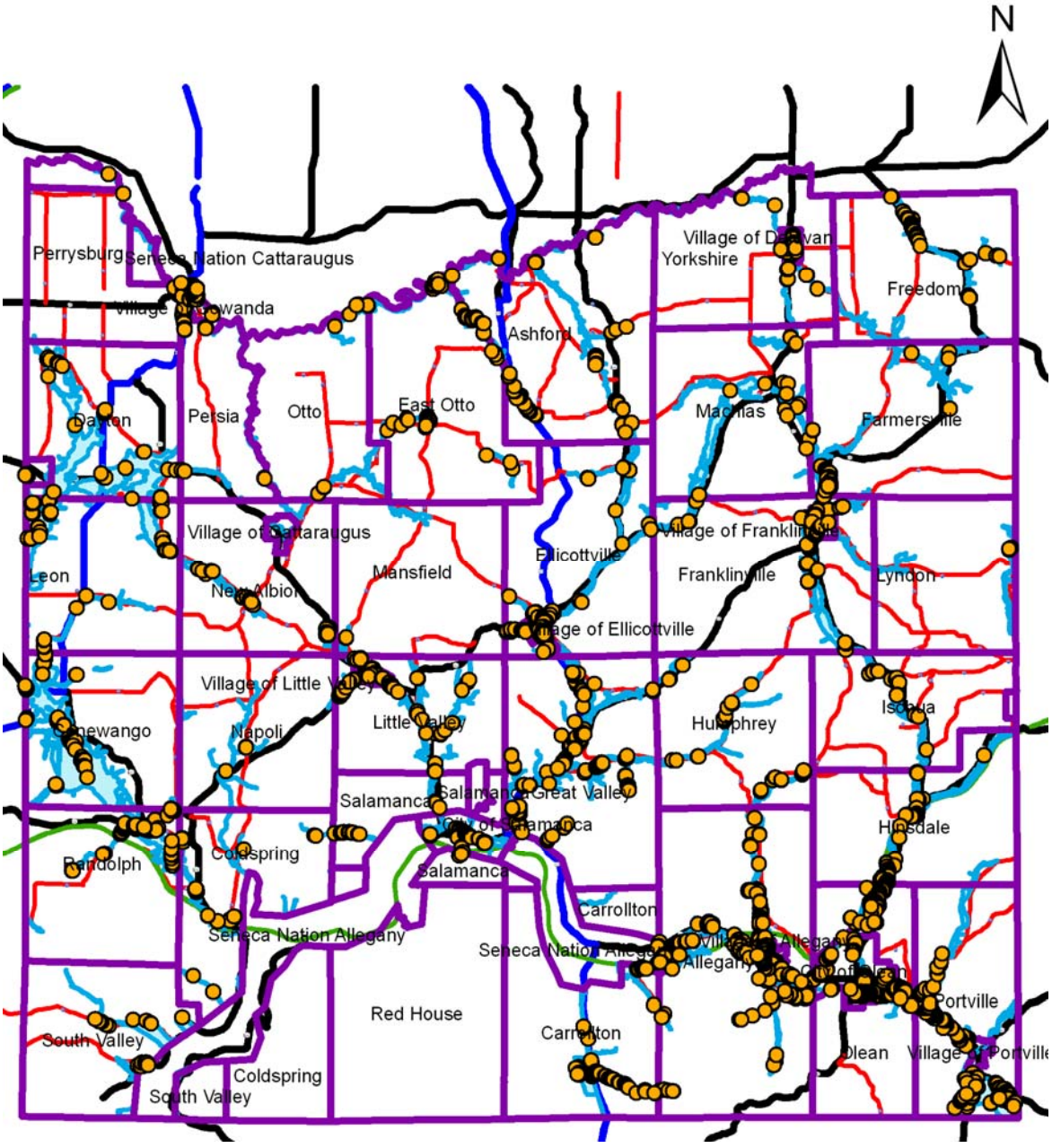


Figure 12 - Rooftops Identified in the Floodplains

Municipality	Total Assessed Structural Value	# PARCELS	Agricultural	Residential	Vacant	Commercial	Recreational	Comm. Service	Industrial	Public Service	Forest
Allegany, T	$155,566,001	157	5	118	7	13	3	5	2	2	2
Allegany, V	$6,730,700	82		61		17		4			
Ashford, T	$4,027,300	51	3	40	6	1			1		
Carrollton, T	$3,348,600	63		46	7	4	1	4		1	
Coldspring, T	$1,189,500	24		20	2			1			1
Conewango, T	$1,416,150	61	9	44	5	1		1			1
Dayton, T	$775,900	20	5	12	2			1			
Delevan, V	$1,694,295	19		13	1	2		3			
East Otto, T	$2,039,100	38	3	31	2	1	1				
Ellicottville, T	$23,896,240	66		53	4	5	2	1	1		
Ellicottville, V	$24,223,150	142		112	4	22			4		
Farmersville, T	$2,193,700	28	1	16	3	7	1				
Franklinville, T	$1,327,400	32	1	23	5	1		1	1		
Franklinville, V	$6,599,300	25		14	4	4	1	1	1		
Freedom, T	$3,654,200	50	1	40	4	5					
Gowanda, V	$9,987,900	187		150	9	18	1	7	1	1	
Great Valley, T	$11,721,350	102	5	77	3	12	2	2	1		
Hinsdale, T	$2,566,600	49	2	32	5	6	2	1		1	
Humphrey, T	$1,092,600	21		20	1						
Ischua, T	$936,900	15		10	1			2	1	1	
Leon, T	$1,403,100	28	8	12	7			1			
Little Valley, T	$6,238,500	37	4	22	5	4	1	1			
Little Valley, V	$337,500	12		5	2	3	1	1			
Lyndon, T	$1,403,300	3	1	2							
Machias, T	$800,400	17		10	5	1		1			
Mansfield, T	$29,500	1		1							
Napoli, T	$176,900	2	1	1							
New Albion, T	$860,000	31	1	27	3						
Olean, C	$12,256,100	125		107	2	13		1	1	1	
Olean, T	$5,823,850	97		72	8	16		1			
Otto, T	$252,200	8	2	5	1						
Perrysburg, T	$26,532,900	13		8		1		4			
Persia, T	$1,008,700	24		23	1						
Portville, T	$14,222,497	207	2	162	17	22		1	3		
Randolph, T	$5,363,100	44	1	29	4	7	1	1		1	
Salamanca, C	$1,380,348	61		52	2	4		2		1	
Salamanca, T	$615,100	12		11	1						
South Dayton, V	$53,500	2		1	1						
South Valley, T	$944,500	13		7		3					3
Yorkshire, T	$105,040	8		7	1						
	$344,793,921	1977	55	1496	135	193	17	48	17	9	7

Table 8 - Estimated Value of Structures on Parcels with Rooftops in Floodplains

Table 9 lists the critical facilities located within the floodplain. This data was obtained by overlaying the digital FEMA Q3 data over the county's parcel layer and querying the Real Property data. All parcels were selected having class codes indicating schools, highway garages, welfare, orphanages, health care, hospitals, government, military, police, fire, wells, pipelines, utilities, communication, water, wastewater, and transportation. Individual maps of each municipality were then printed and sent to the local municipality for review and comments. Changes were made as required.

Critical Facilities Located within the Floodplain in Cattaraugus County

Municipality	Total Assessed Value of Structures	Count	Animal Welfare	Benevolent	Cable TV	Ceiling Railroad	Cemetery	College/Univ	Comm Service	Elec & Gas Spec	Electric and Gas	Electric Pwr - Fosl	Electric Pwr-Other	Elec SubStation	Elect Trans Impr	Flood Control
Allegany, T	167,071,349.00	24						1	1					1		2
Allegany, V	1,886,900.00	8		1												
Ashford, T	499,823,222.00	9				2	2									
Carrollton, T	1,424,690.00	14			1	2	1									
Cattaraugus, V	169,200.00	3					1									
Coldspring, T	5,506,072.00	6														
Conewango, T	742,555.00	5														
Dayton, T	376,400.00	3														
Delevan, V	1,521,649.00	5				1										
East Otto, T	89,800.00	1														
Ellicottville, T	5,576,456.00	14				4	2			1					1	
Ellicottville, V	3,062,100.00	8					1									
Farmersville, T	250,000.00	4					1									
Franklinville, T	1,494,702.00	10		1		1	1									1
Franklinville, V	6,569,020.00	7												1		
Freedom, T	225,300.00	6				1										
Gowanda, V	7,721,097.00	15							1		1					
Great Valley, T	4,901,362.00	12				2	2							1		
Hinsdale, T	4,938,028.00	7													1	
Humphrey, T	194,600.00	1														
Ischua, T	967,600.00	6														
Leon, T	379,500.00	3					1									
Little Valley, T	4,331,900.00	4														
Little Valley, V	2,998,200.00	8														
Machias, T	2,469,137.00	12				4										
Mansfield, T	0.00	1														
Napoli, T	0.00	3					1									
New Albion, T	1,000.00	3					1									
Olean, C	33,184,298.00	18					1						1	1	1	1
Olean, T	2,888,132.00	12	1				2					1			4	
Otto, T	568,600.00	2														
Perrysburg, T	26,219,600.00	7														
Persia, T	7,000.00	2														
Portville, T	2,104,020.00	13													1	3
Portville, V	654,480.00	4					1									1
Randolph, T	6,240,690.00	15		1										1		1
Salamanca, C	4,753,110.00	22					1								1	
Salamanca, T	370,963.00	1												1		
South Dayton, \	31,900.00	1														
South Valley, T	0.00	2														
Yorkshire, T	121,611.00	3				1										

Municipality	Gas Gen Plant	Gas Regulation	Gas Trans Impr	Gas Well	Government	Government Bldgs	Highway Garage	Homes for Aged	Hospitals	Indian Res	Landfill/Dumps	Library	Manufacturing	Manufacturing - Lt	Mine/Quarry
Allegany, T			1		1	1									6
Allegany, V							1								
Ashford, T					1								3		
Carrollton, T	1					1	1								
Cattaraugus, V															
Coldspring, T						1				1					
Conewango, T															
Dayton, T							1								1
Delevan, V						1	1								
East Otto, T															
Ellicottville, T													1		2
Ellicottville, V													5		
Farmersville, T															
Franklinville, T													1		
Franklinville, V													2		
Freedom, T													1		3
Gowanda, V						2		1				1	1		
Great Valley, T													1		2
Hinsdale, T							1							1	
Humphrey, T															
Ischua, T							1			1	1		1		
Leon, T							1								
Little Valley, T							1								
Little Valley, V						2	1					1	1		
Machias, T							1								5
Mansfield, T															
Napoli, T															
New Albion, T											1				
Olean, C						1					1		1	1	1
Olean, T													1		
Otto, T															
Perrysburg, T		1							1	2					
Persia, T											1				
Portville, T													1		3
Portville, V															
Randolph, T						1							2		
Salamanca, C			1										1		
Salamanca, T															
South Dayton, \															
South Valley, T															
Yorkshire, T				1											

Municipality	Misc Gov Service	Nonceiling Railroa	Other Educational	Other Health Bldg	Pipeline Spec Fran	Police/Fire	Professional Assc	Rec Facilities	Religious	Road/Sts/Highway	School	Sewage	Special Schools	Telephone	Waste Disposal	Water Suppl
Allegany, T					1			1	3		1				1	
Allegany, V		1				4										
Ashford, T															1	
Carrollton, T						2			3			1				
Cattaraugus, V		1									1					
Coldspring, T		3							1							
Conewango, T		3							1		1					
Dayton, T		1														
Delevan, V						1					1					
East Otto, T			1													
Ellicottville, T									1		1		1			
Ellicottville, V						1						1				
Farmersville, T		3														
Franklinville, T		2				1			1			1				
Franklinville, V		1		1						1	1					
Freedom, T		1														
Gowanda, V		1					1		5					1		
Great Valley, T						1			2			1				
Hinsdale, T		2							1							
Humphrey, T						1										
Ischua, T		1							1							
Leon, T											1					
Little Valley, T								2	1							
Little Valley, V						1		1				1				
Machias, T		2														
Mansfield, T		1														
Napoli, T								2								
New Albion, T								1								
Olean, C		2							2	1	1					
Olean, T		3														
Otto, T						1			1							
Perrysburg, T				1				1			1					
Persia, T																
Portville, T		2							2				1			
Portville, V		1							1							
Randolph, T	1	3				2		1	1			1				
Salamanca, C		2		2					4		1	7				
Salamanca, T																
South Dayton, \		1														
South Valley, T								2								
Yorkshire, T									1							

Table 9 - Critical Facilities Located in Floodplain

Table 10 depicts a breakdown of Estimated Value of Structures in the 100-Year Floodplain verses insurance coverage as a percentage.

The flood events were divided into minor events ($100,000 and less) and major events (greater than $100,000) in damages. Over the last 10 years, there has been 13 minor events with total damages of $467,000 or approximately $36,000 average per event. The reoccurrence rate would be about 1½ events per year. Nine major events have taken place for a total damage amount of $51,980,000 averaging $5.8 million per event. The reoccurrence rate for these major events would be about 0.9 events per year.

Anticipated Magnitude: The depth of the flooding would vary by geographic region throughout the county.

Anticipated Damages:

There is a strong possibility that critical facilities could be affected, causing power outages and loss of other critical services. Additional hazards that can be triggered by a flooding event include transportation accidents, food and fuel shortages. Normal emergency operations can be impeded. Water supplies can become contaminated and become unsafe to drink.

Of the 43 flood events reviewed for this hazard mitigation plan, 31 reflect damages as a result of flash floods and the remaining twelve are categorized as floods. The twelve flood events had damage totaling $3,162,000 or $263,500 per event. The data also indicated that one injury and one fatality have occurred during traditional or flash flooding events within the county. On average, Cattaraugus County experiences three major flooding events per year with an average damage estimate of $3,000,000 per event.

Repetitive Loss Properties:

There are fifteen Repetitive Loss Properties identified in Cattaraugus County. They are located in the Village of Allegany and Towns of East Otto, Farmersville, Great Valley, Olean, Randolph, Salamanca, and Portville. Of those fifteen properties, eleven are residential and four are commercial. All are located within the 100 year floodplain.

NFIP Insurance Report with Estimated Values of Structures With Rooftop in Floodplains by Percentage of Coverage

CID	Community Name	Total Premium	V-Zone	A-Zone	Current	Total	Assessed Value	% Insured
360061	ALLEGANY, TOWN OF	$28,590	0	40	57	$4,972,600	$155,566,001	3%
360967	ALLEGANY, VILLAGE OF	$22,548	0	39	43	$2,884,200	$6,730,700	43%
360062	ASHFORD, TOWNSHIP OF	$1,114	0	1	3	$212,600	$4,027,300	5%
360063	CARROLLTON, TOWN OF	$2,575	0	5	9	$460,400	$3,348,600	14%
361367	CATTARAUGUS, VILLAGE OF	$948	0	1	3	$112,300	$0	0%
360064	COLD SPRING, TOWN OF	$1,991	0	1	6	$771,800	$1,189,500	65%
360065	CONEWANGO, TOWN OF	$981	0	1	4	$202,600	$1,416,150	14%
360066	DAYTON, TOWN OF	$0	0	0	0	$0	$775,900	0%
361368	DELEVAN, VILLAGE OF	$763	0	1	2	$106,200	$1,694,295	6%
360067	EAST OTTO, TOWN OF	$2,290	0	5	6	$273,500	$2,039,100	13%
360069	ELLICOTTVILLE, TOWN OF	$10,877	0	23	24	$2,506,400	$23,896,240	10%
360070	ELLICOTTVILLE, VILLAGE OF	$42,031	0	32	43	$6,638,800	$24,223,150	27%
360071	FARMERSVILLE, TOWN OF	$2,629	0	4	8	$339,600	$2,193,700	15%
360072	FRANKLINVILLE, TOWN OF	$2,784	0	4	6	$393,300	$1,327,400	30%
360073	FRANKLINVILLE, VILLAGE OF	$855	0	0	2	$298,000	$6,599,300	5%
360074	FREEDOM, TOWN OF	$3,564	0	5	8	$652,800	$3,654,200	18%
360075	GOWANDA, VILLAGE OF	$29,258	0	42	66	$3,744,400	$9,987,900	37%
360076	GREAT VALLEY, TOWN OF	$9,282	0	15	29	$1,989,300	$11,721,350	17%
360077	HINSDALE, TOWN OF	$3,212	0	4	9	$528,900	$2,566,600	21%
360078	HUMPHREY, TOWN OF	$372	0	0	1	$60,000	$1,092,600	5%
360079	ISCHUA, TOWN OF	$1,575	0	3	4	$208,200	$936,900	22%
360081	LIMESTONE, VILLAGE OF	$358	0	0	2	$100,000	$1,403,100	7%
361066	LITTLE VALLEY, TOWN OF	$1,729	0	2	6	$264,900	$6,238,500	4%
360082	LITTLE VALLEY, VILLAGE OF	$519	0	0	3	$104,900	$337,500	31%
360083	LYNDON, TOWN OF	$0	0	0	0	$0	$1,403,300	0%
360084	MACHIAS, TOWN OF	$395	0	0	1	$80,000	$800,400	10%
360085	MANSFIELD, TOWN OF	$0	0	0	0	$0	$29,500	0%
360086	NAPOLI, TOWN OF	$0	0	0	0	$0	$176,900	0%
360087	NEW ALBION, TOWN OF	$1,243	0	2	4	$240,800	$860,000	28%
360088	OLEAN, CITY OF	$102,096	0	56	163	$23,065,800	$12,256,100	188%
360089	OLEAN, TOWN OF	$18,852	0	24	40	$3,387,400	$5,823,850	58%
360090	OTTO, TOWN OF	$781	0	1	2	$202,500	$252,200	80%
360091	PERRYSBURG, TOWN OF	$0	0	0	0	$0	$26,532,900	0%
360092	PERSIA, TOWN OF	$284	0	0	1	$40,300	$1,008,700	4%
360093	PORTVILLE, TOWN OF	$50,143	0	72	109	$7,480,100	$14,222,497	53%
360094	PORTVILLE, VILLAGE OF	$31,053	0	4	67	$7,302,800	$0	0%
360095	RANDOLPH, TOWN OF	$6,078	0	1	3	$1,136,500	$5,363,100	21%
360097	SALAMANCA, CITY OF	$10,381	0	4	25	$1,878,700	$1,380,348	136%
360098	SALAMANCA, TOWN OF	$589	0	1	2	$59,700	$615,100	10%
360100	SOUTH VALLEY, TOWN OF	$0	0	0	0	$0	$944,500	0%
361104	YORKSHIRE, TOWN OF	$425	0	0	2	$187,000	$105,040	178%
	County Total	$408,049	0	393	763	$72,887,300	$344,740,421	

Table 10 – NFIP Insurance Report vs Estimated Value

4.7.3 Severe Storms/Wind Storm/Hurricane Remnants

Definition: Violent disturbance of the atmosphere accompanied by thunder, lightning, rain, snow or hail. Thunderstorms are often accompanied by gusty winds, heavy rain and occasional hail. Situated as it is, so far inland, Cattaraugus County has never experienced a true hurricane. In 1972, the remnants of Hurricane Agnes crossed our county and dumped torrential rains, causing extensive flooding and wind damage.

HAZNY Analysis:

- Potential Impact: Large Region
- Cascade Effects: Highly Likely
- Frequency: Regular Event
- Onset: No Warning
- Hazard Duration: Less Than One Day
- Recovery Time: Three Days to One Week

History: There are 118 records for severe storms that have occurred in Cattaraugus County in the data reviewed for this hazard mitigation plan (Appendix F – NCDC Weather Data). This data also shows that single storms have previously been reported as affecting multiple sites within the county as well as multiple sites throughout the state**.** Figure 13 shows the wind zones in the United States. The Village of South Dayton has recorded 50 mph sustained winds lasting 2-3 hours.

Probability of Occurrence: The entire county is vulnerable to damage from thunderstorms, hail or wind. Several villages reported that their old growth trees are extremely vulnerable to sudden, violent wind gusts. Those most at risk from lightning are people who are outdoors, especially under or near tall trees, in or on water, and on or near hilltops. June, July and August seem to be more prone to severe weather events, with an estimated average of severe storm events occurring at an estimated average of six times per year.

Geographic Extent: Cattaraugus County lies at the western edge of the Allegany plateau area. As storm fronts reach these increased elevations, greater amounts of rainfall and winds are experienced. Many times these storm events are concentrated in isolated watersheds, causing flash flooding, while the adjacent watersheds experience little or no flooding. The locations within the county vary and are randomly disbursed.

Anticipated Magnitude: Magnitude of a wind event is 50 kilometers per hour.

Anticipated Damages: It is reported in the NCDC Database that there are 118 records of severe storms that affected Cattaraugus County occurring from April 1993 to May 2012. The average damage per event, for which there was a dollar amount listed, was $90,000. There was a report of two injuries from a single event that occurred from a lightning strike in September 2001. In July and August of 2003 as well as August of 2009 there were severe storm events that were declared as federal disasters with large value damages. These disaster declarations were also listed under flood events in the NCDC Database.

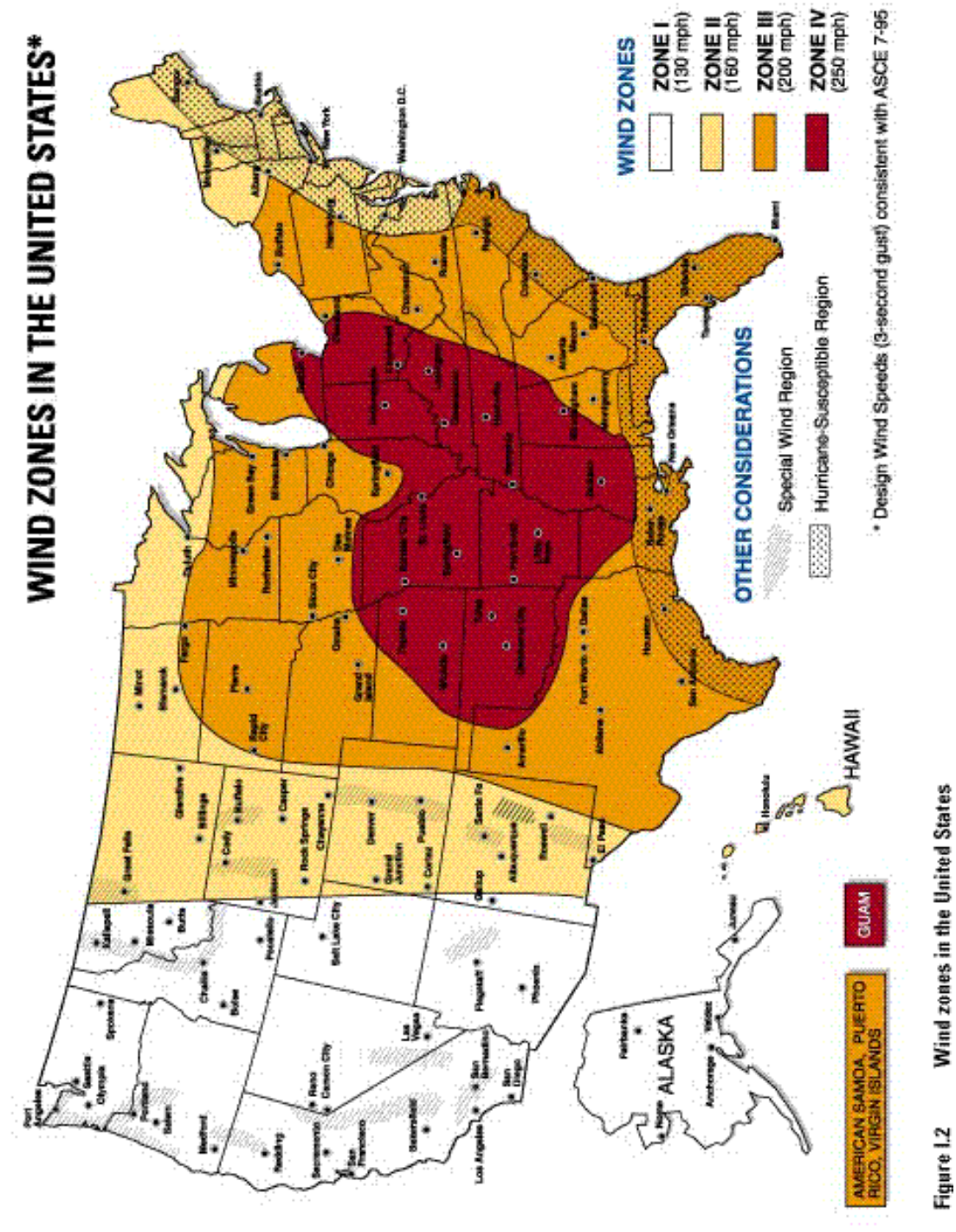


Figure 13 - Windzones

4.7.4 Ice Storms

Definition: A severe weather condition characterized by freezing precipitation forms a glaze on objects. Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

HAZNY Analysis:

- Potential Impact: Large Region
- Cascade Effects: Highly Likely
- Frequency: Infrequent Event
- Onset: Several Hours Warning
- Hazard Duration: Four Days to One Week
- Recovery Time: More Than Two Weeks

History: According to the NCDC database ice storms have occurred twice in the last eight years **(Appendix C – History of Natural Hazard Events)**, in one event accumulating up to ½" of ice. The Town of Humphrey reported a town wide ice storm in March of 1994 that knocked the electric out for four days. The Town of Randolph noted that they experience an ice storm at least once a year. There have been no recorded injuries or fatalities during these events; however, it must be noted that icy road conditions still exist during most winter weather conditions making sometimes treacherous conditions for the travelling public.

Probability of Occurrence: Based on information provided, the probability of a major ice storm occurring in Cattaraugus County is judged to be once every three years.

Geographic Extent: There are no topographic or other natural or man-made factors within Cattaraugus County that would predict geographic locations of future ice storms that may occur throughout the county.

Anticipated Magnitude: Defined as an event where more than ¼" of ice accumulates.

Anticipated Damage: It is a strongly possibility that critical facilities could be affected, causing power outages and loss of other critical services. Additional hazards that can be triggered by an ice storm include transportation accidents, food and fuel shortages, utility disruption and communication losses. Normal emergency operations can be impeded. Since most ice storms take place during the frigid winter months, many people, especially the elderly and infirm, may be stranded without heat, electricity or access to needed services.

In the data reviewed for this hazard mitigation plan the records of two winter storms were researched for Cattaraugus County. Of these two records, damage amount totals are approximately $60,000.00, which would make an average event be approximately $30,000. A worst case scenario -- such as the 1998 North County ice storm -- could vastly exceed that amount. That storm affected 320,000 people and totaled $55,950,736 in damages. This works out to approximately $15 per person. If a storm of similar magnitude were to occur in Cattaraugus County, population 80317 (2010 Census data), at the same $15/person, the total damage could exceed $1.2 million, county wide.

4.7.5 Tornado

Although tornadoes occur in many parts of the world, they are found most frequently in the United States. In an average year, 1,200 tornadoes cause 60-65 fatalities and 1,500 injuries nationwide.

Definition:

■ A tornado is a violently rotating column of air extending from a cumuliform cloud, such as a thunderstorm, to the ground.

■ Tornadoes may appear nearly transparent until dust and debris are picked up or a cloud forms within the funnel. The average tornado moves from southwest to northeast, but tornadoes can move in any direction and can suddenly change their direction of motion.

■ The average forward speed of a tornado is 30 mph but may vary from nearly stationary to 70 mph.

■ Waterspouts are tornadoes that form over warm water. Waterspouts can move onshore and cause damage to the land.

Enhanced Fujita Scale

The new Enhanced Fujita Scale (EF-Scale) was adopted on February 1, 2007.
The range of tornado intensities remains as before, zero to five, with EF-0 being the weakest, associated with very little damage and EF-5 representing complete destruction.

Scale	Typical Damage
EF-0 (65-85 mph)	**Light damage:** Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over.
EF-1 (86-110 mph)	**Moderate damage:** Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF-2 (111-135 mph)	**Considerable damage:** Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF-3 (136-165 mph)	**Severe damage:** Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF-4 (166-200 mph)	**Devastating damage:** Whole frame houses Well-constructed houses and whole frame houses completely leveled; cars thrown and small missiles generated.
EF-5 (>200 mph)	**Incredible damage:** Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly through the air in excess of 100 m (109 yd); high-rise buildings have significant structural deformation; incredible phenomena will occur.
EF No rating	**Inconceivable damage:** Should a tornado with the maximum wind speed in excess of EF-5 occur, the extent and types of damage may not be conceived. A number of missiles such as iceboxes, water heaters, storage tanks, automobiles, etc. will create serious secondary damage on structures.

Table 11 - Enhanced Fujita Scale

Cattaraugus County Tornadoes
1961-2011

Date	Scale	Fatalities	Injuries	Width (yards)	Length (miles)
5/15/1961	F-3	0	0	Unknown	3
8/17/1965	F-0	0	0	300	<1
7/24/1967	F-3	0	0	250	11
8/6/1968	F-2	0	4	250	31
6/20/1969	F-3	0	0	Unknown	84
2/24/1975	F-1	0	2	100	<1
6/5/1975	F-0	0	0	Unknown	<1
9/18/1977	F-1	0	0	100	11
6/29/1980	F-1	0	0	40	10
8/28/1990	F-0	0	2	60	<1
7/17/1992	F-1	0	0	20	<1
6/13/1994	F-1	0	0	Unknown	1
6/13/1994	F-2	0	1	33	3
7/26/2009	EF-1	0	0	100	12.9
7/26/2009	EF-0	0	0	100	2.2
7/24/2010	EF-2	0	0	800	7.6
7/24/2010	EF-1	0	0	50	1.2
7/24/2010	EF-1	0	0	100	7.8
		0	**9**		

Table 12 - Cattaraugus County Tornadoes

Table 11 shows that there have been four F-0/EF-0, eight F-1/EF-1, three F-2/EF-2, and three F-3/EF-3 tornadoes reported since 1961.

HAZNY Analysis

- Potential Impact: Large Region
- Cascade Effects: Highly Likely
- Frequency: Infrequent Event
- Onset: No Warning
- Hazard Duration: Less Than One Day
- Recovery Time: Three Days to One Week

History

According to data reviewed **(Appendix F – NCDC Weather Data)**, it has been reported that tornadoes have affected Cattaraugus County at least fifteen times since 1961. The data also indicates that tornadoes within Cattaraugus County have resulted in four injuries and zero deaths**.**

Probability of Occurrence

Records indicate that tornadoes have occurred, on average, approximately 5 times per decade. Tornadoes occurring within Cattaraugus County are classified as a small probability hazard with most of the recorded tornado events occurring in the spring/summer seasons.

Geographic Extent
The information used to complete this report shows that fifteen tornadoes occurred in Cattaraugus County and they have affected random areas of the County.

Figure No. 14 shows the Tornado tracks.

Anticipated Magnitude: F1/F2

Anticipated Damages
There is a very high possibility that critical facilities could be affected causing power outages, communication disruption and loss of other critical services. Additional hazards that can be triggered by a tornado event include transportation accidents and depletion of available emergency responders. Normal emergency operations will be impeded. Loss of life could be anticipated. To date, there are no fatalities reported due to tornado events in the County. Total property damage for the above mentioned tornadoes is approximately $14 million. The average damage would be approximately $1 million, per event with a worst case tornado causing as much as $9 million, in damages.

Tornado Tracks in Cattaraugus County 1961-2011

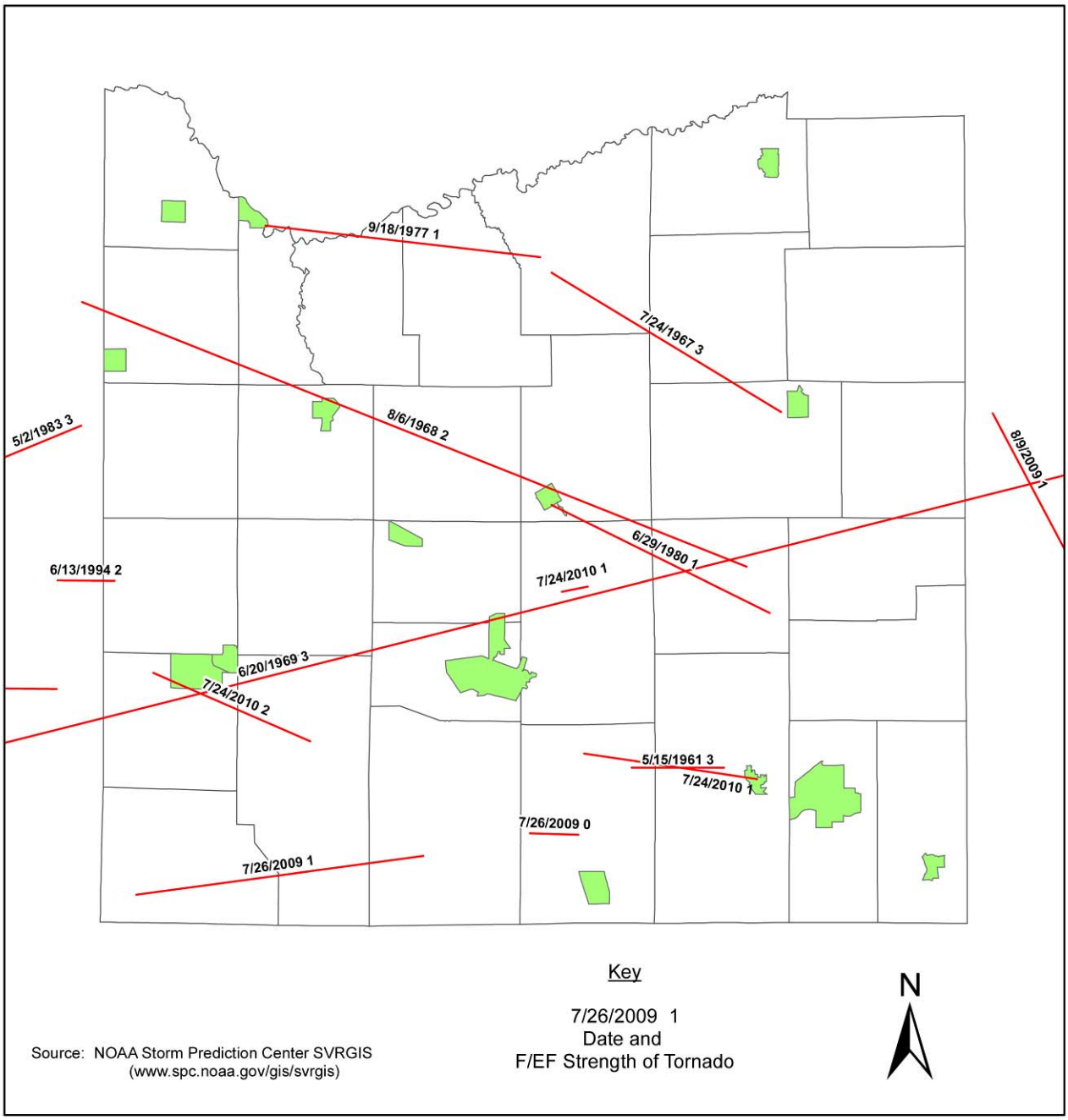
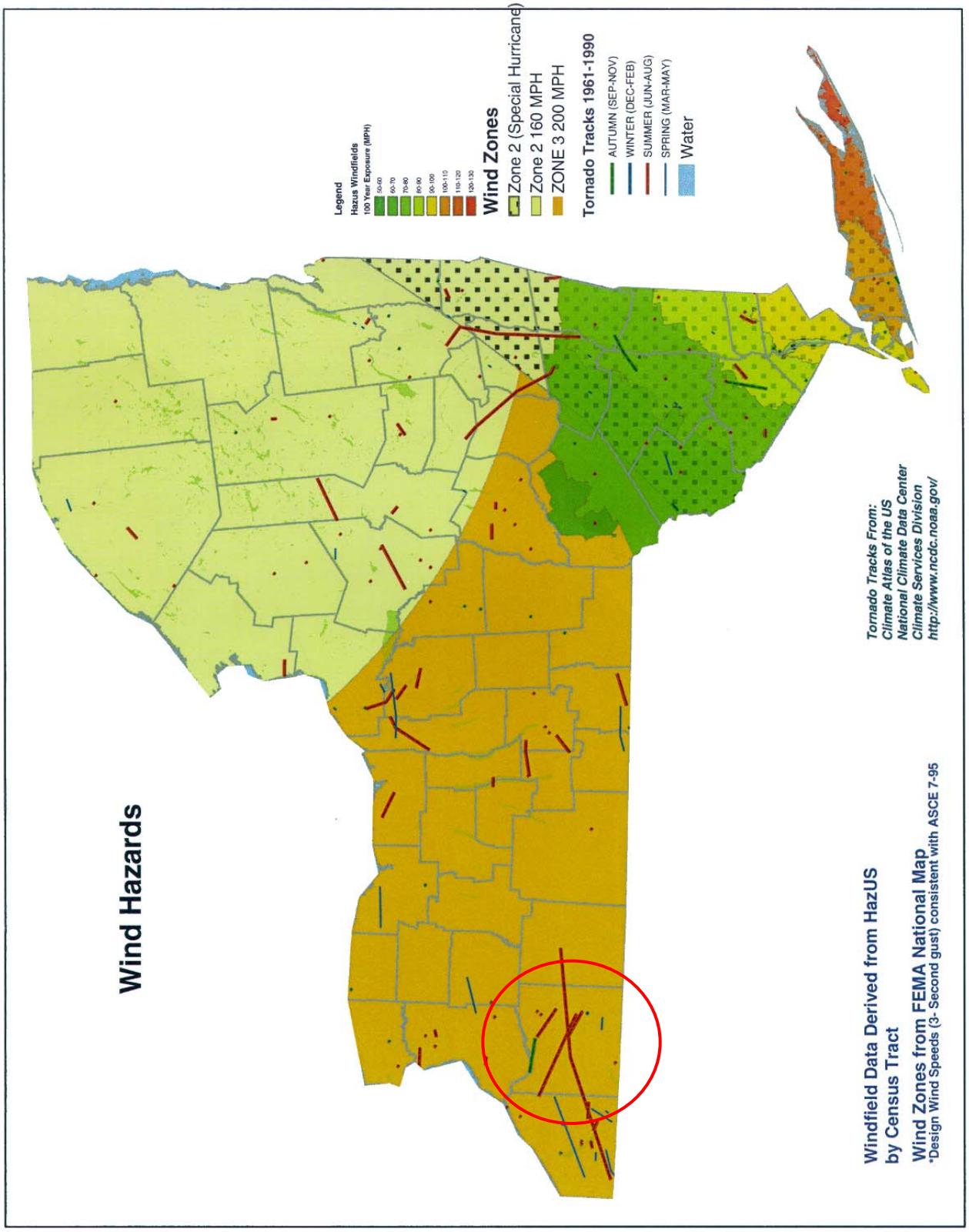


Figure 14 - Tornado Tracks in Cattaraugus County

Figure 15 – Tornado Days per Century

Figure 16 – Wind Days per Year



Cattaraugus County's wind and tornado risk is the same throughout the County. The county is in Wind Zone 3, which indicates that structures should be designed for wind speeds of 200 mph

Figure 17 – Wind Hazards in New York State

4.7.6 Wildfire

Definition: **Wildfire** - A fire that is burning strongly and out of control on an area of grass or bushes in the countryside. Also known as a forest fire, it **is** often caused by lightning; or human carelessness and arson. Drought and small forest fires are major contributors to extreme forest fires. Wildfires often begin unnoticed. They spread quickly, igniting brush, trees and homes. Fire is a rapid, self-sustaining oxidation process of combustible gases ejected from a fuel. It starts by subjecting the fuel to heat or another energy source, e.g. a match or lighter, and is sustained by the further release of heat energy.

HAZNY Analysis (Wildfire):

- Potential Impact: Small Region
- Cascade Effects: Highly Likely
- Frequency: Regular Event
- Onset: No Warning
- Hazard Duration: Two to Three Days
- Recovery Time: Less than One Day

History: Although Cattaraugus County has the potential for a major wildfire, the possibility of a California type of forest fire is small (normal/below normal). Cattaraugus County does have its share of forest/brush fires, losing approximately 200 acres per year. Because of the vast amount of hardwood (Decidious) trees, and their natural characteristic of losing/shedding their leaves in the fall, the county's forests have plenty of natural fuel for fires. However, because of the annual rainfall in our area, most fires are not caused by natural causes. Most forest/brush fires in Cattaraugus County are caused by downed power lines servicing the oil/gas industry, unattended burn barrels, campfires, or arson.

The Town of Coldspring noted that brush fires are often set along Old Rte.17 during the summers. The Town of Little Valley noted that small areas of the nearby state forest areas catch fire every five years, causing heavy smoke. The Village of Cattaraugus noted the vulnerability of its main business district should the surrounding forest catch fire.

The Town and Village of Ellicottville noted that due to increased development in their areas, water supplies may become low during dry conditions.

Figure No. 15 depicts the observed fire danger for Cattaraugus.

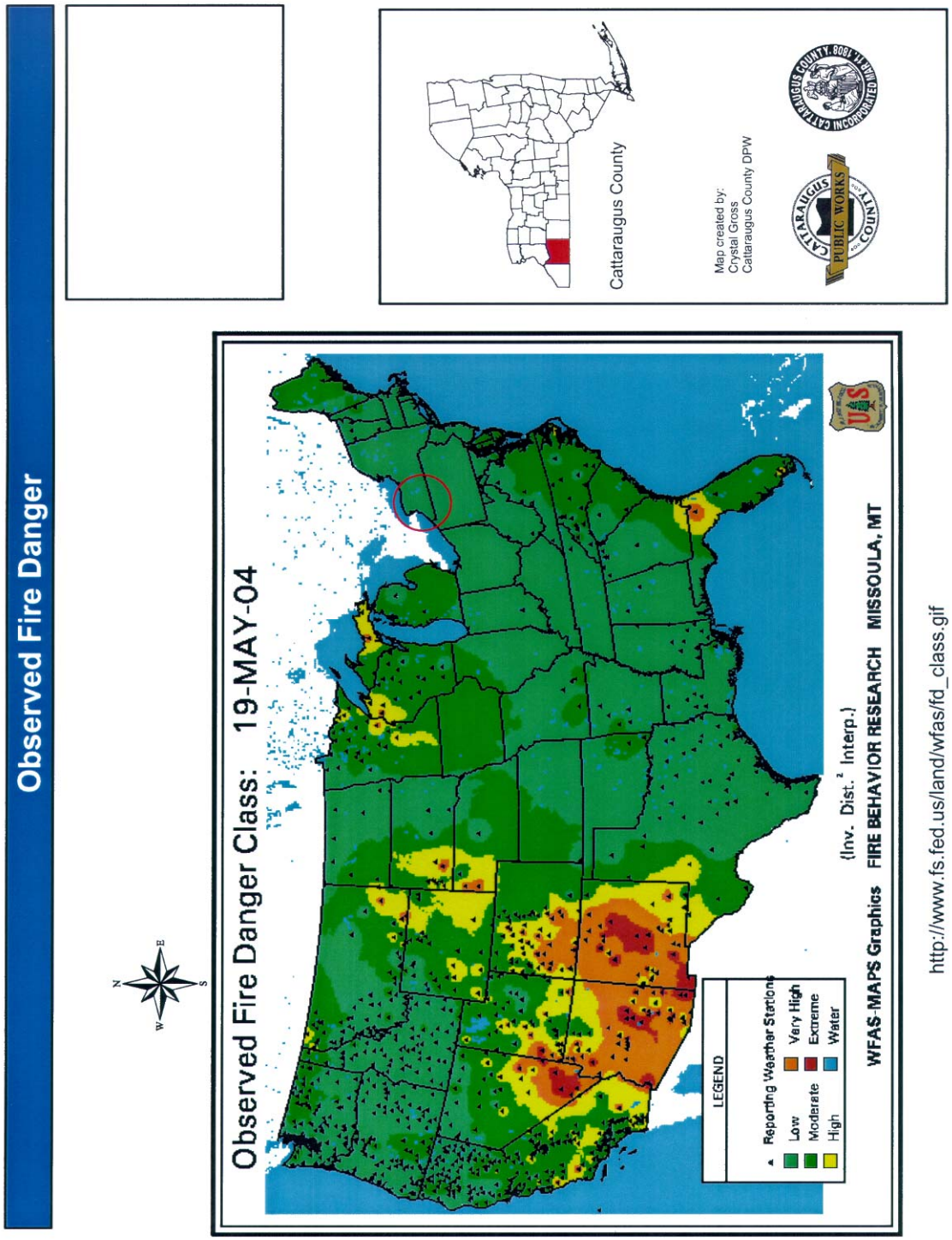


Figure 18 – Observed Fire Danger in the United States

Probability of Occurrence: The potential for a severe wildfire to occur in Cattaraugus County is Normal to Below Normal – with small occurrences every five years. It is believed by the Planning Committee that risk is increasing due to former crop land that is being allowed to go back to brush.

Geographic Extent: Figure No. 19 shows the forested areas within Cattaraugus County that are vulnerable to fires. Forests/Parks include:

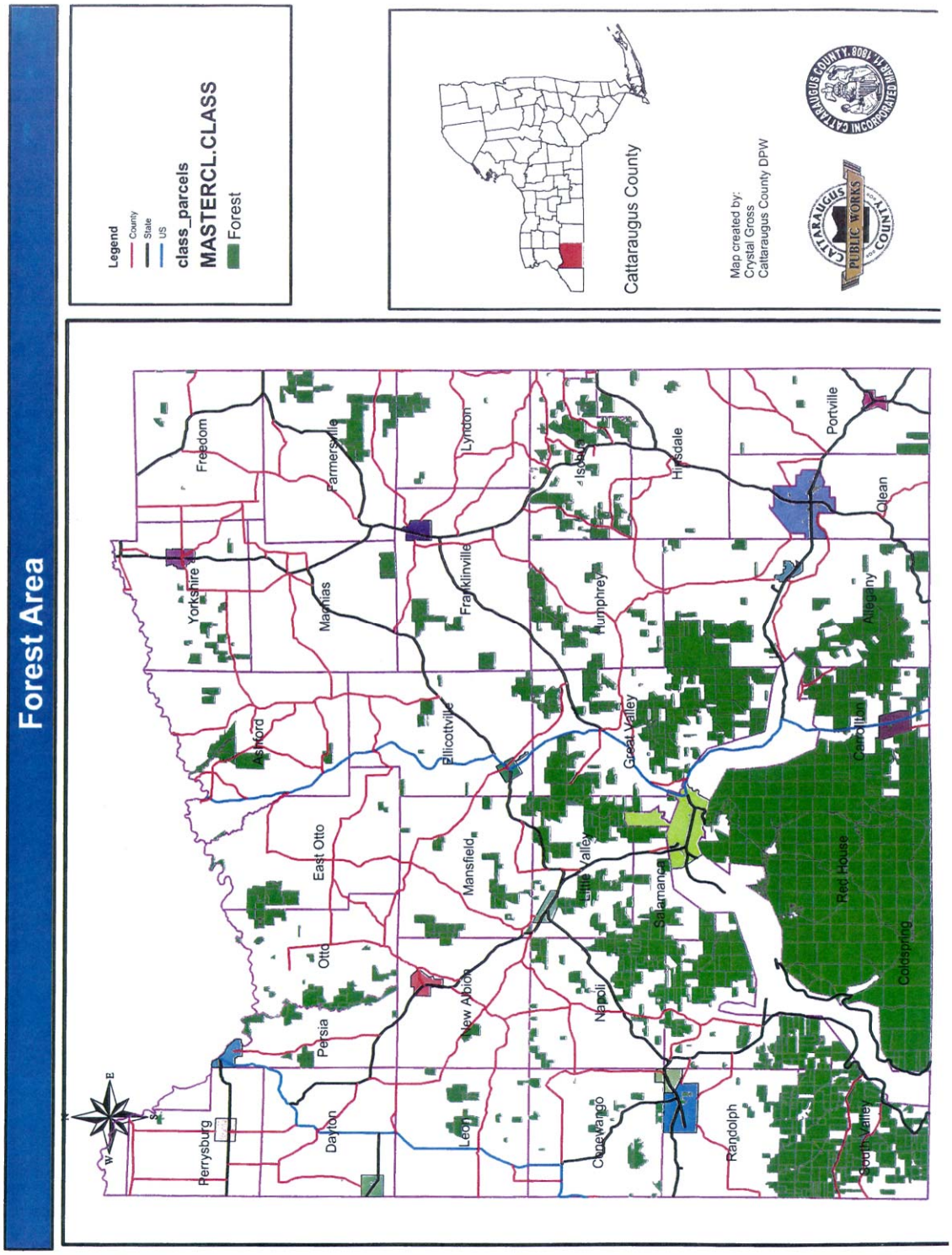


Figure 19 – Cattaraugus County Forest Areas

Rock City State Forest is a 6,015 acres reforestation area located in the Town of Little Valley. Two thousand, nine hundred and five acres of this Rock City State Forest are owned by the State.

McCarty Hill State Forest is a 3,110 acres state-owned reforestation area located in the Town of Little Valley. This park spans across towns of Great Valley, Little Valley, Mansfield and Ellicottville.

Windfall Creek State Forest is a 968 acres state-owned reforestation area located in the Town of Great Valley. This park spans across the towns of Great Valley and Carrollton.

Allegheny Reservoir Access is a 1,100 acres state owned park located in the Town of South Valley along the west shore of the Allegheny Reservoir.

Allegany State Park is located in Cattaraugus County and contains 65,000 acres. Most of this park is primitive woodland. There are two developed areas, Red House and Quaker. There are over 300 campsites and 300 cabins. Allegany State Park features a mix of hemlock/hardwood forest, mountains, rolling hills, meadows, streams, ponds and lakes.

Anticipated Magnitude:

A credible worst case wildfire in Cattaraugus County would be one that results in the complete loss of several rural structures and up to 1,000 acres of timber damage.

Anticipated Damage:

Records reviewed for this plan indicate that there have been no major wildfires/fires and/or droughts in Cattaraugus County. Depending on the location, the damage caused by a 1,000 acre fire could amount as high as $300,000 in damages.

4.7.7 Landslide

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

History: They occur after heavy rains when steep banks wash down into the roadways. The Route 16 corridor, between Franklinville and Hinsdale, has had large landslides. The Town of New Albion has several trouble spots where severe erosion and landslides occur. When these slides impact a structure, it renders the structure unsafe. The Town of Yorkshire noted landslides occurring on Creek and Bolton Roads with several “sink holes”. The Town has acquired an endangered structure along Cattaraugus Creek. Of note are the Town of East Otto – Connoisarauley Road and Town of Persia – Point Peter and Dewey Roads. Also of note is the Skinner Hollow area and the Village of Cattaraugus. Figure 20 depicts known slide areas. According to information taken from the Landslide Inventory Map of New York pub. 1989, produced by NYSGS, Cattaraugus County has had 17 incidences.

The Village of Cattaraugus noted that three roads in or near the Village have dropped and slid. The main business district of the Village is situated on a steep slope. Threats of a landslide from the nearby hill are always a concern, with Leavenworth and Waverly streets being especially vulnerable and requiring high maintenance. There are about a dozen homes that are at risk in the Village of Cattaraugus due to land subsidence.

The City of Salamanca noted riverbank scour and settlement along the banks of the Allegany River.

Probability of Occurrence:

Landslides occur after a period of intense heavy rain or rapid thawing and are estimated to occur along with flooding, estimated three per year. Changes in ground conditions and water table (artesian conditions) can influence the rate and magnitude of an event. In addition, some areas have continuous slides that are accelerated by precipitation events.

Geographic Extent:

Landslides have occurred throughout Cattaraugus County. Many landslides are located along Cattaraugus Creek, which makes up the northern border of the County. In addition, landslides occur near fine ground soils with poor drainage characteristic primarily along stream and reverine settings. To date, landslides have impacted many very small areas. In one instance, along County Road 76 (Lovers Lane Road) in the Town of New Albion, the earth around one residence dropped approximately 4 feet in the Spring of 2004. The road adjacent to this property needs continual maintenance to ensure the safety of the travelling public. Other sites would include County Road 12 in the Town of Otto, Connasauraley in the Town of East Otto, Town Line Road in the towns of Ashford/Yorkshire and Creek Road in the Town of Yorkshire. The Village of Cattaraugus has to repair water and sewer utilities on a regular basis, for example, four times in the Spring of 2004.

Anticipated Magnitude:

The amount of damage associated with landslides is small, but they are constantly reoccurring in regular maintenance and repair costs of impacted roads ($30,000.per year). In addition, if residential damage occurs and deemed not able to rehabilitate, private losses could approach $50,000 to $80,000 per residential structure. Certain conditions can be life threatening such as structural failure, or disruption to utilities (natural gas, propane, and electric.

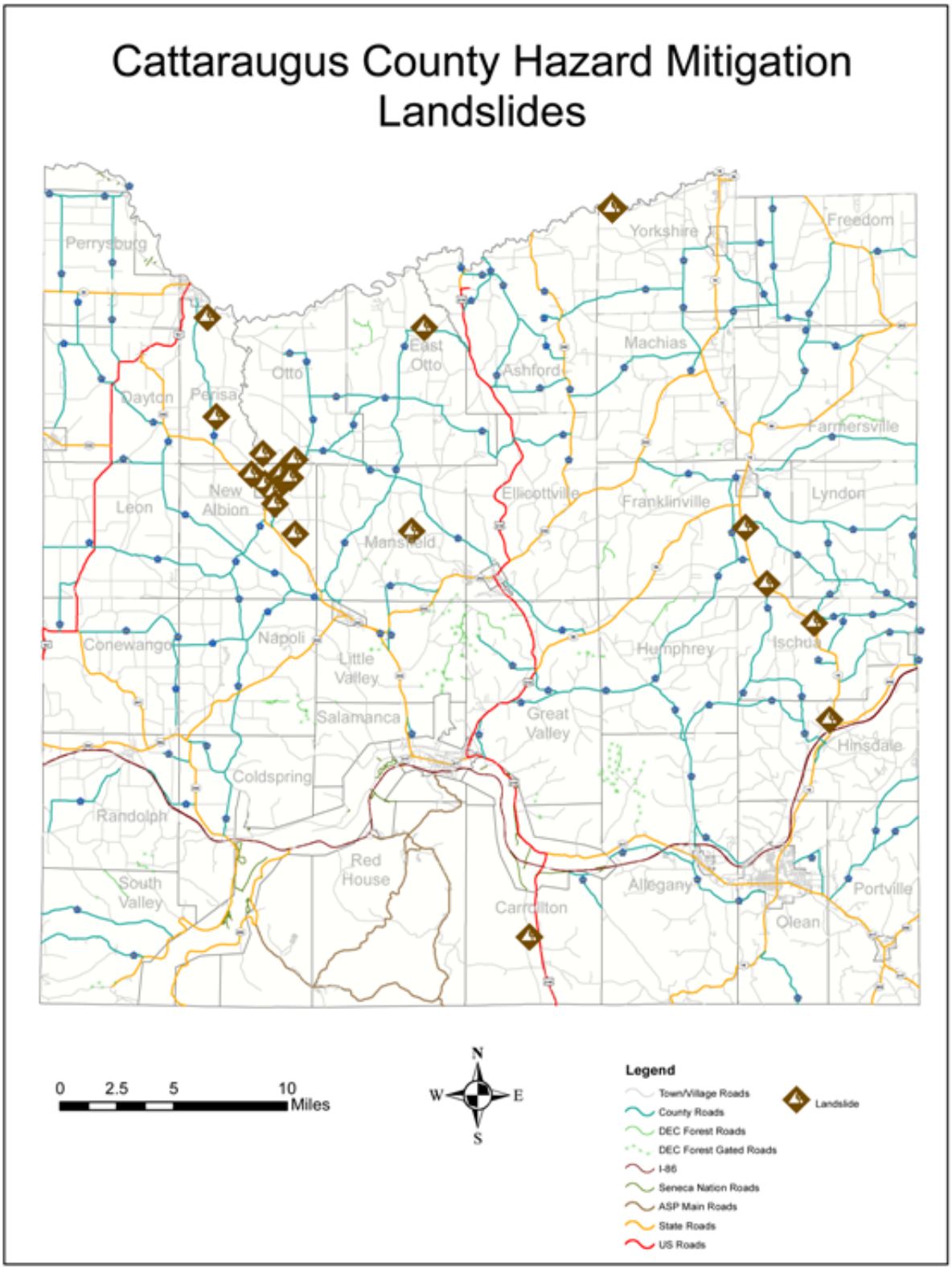


Figure 20 - Identified Landslide Areas in Cattaraugus County

4.7.8 Dam Failure

Definition: Dam failures can occur as a result of structural failures, such as progressive erosion of an embankment or by overtopping and breaching by a severe flood. Earthquakes may also weaken a dam's integrity and have the ability to cause a dam failure. Two factors influence the potential severity of a full or partial dam failure; the amount of water impounded, and the density, type, and value of development and infrastructure located downstream.

HAZNY Analysis:

- Potential Impact: Small Region
- Cascade Effects: Highly Likely
- Frequency: Rare Event
- Onset: No Warning
- Hazard Duration: One Day
- Recovery Time: One Week to Two Weeks

History: Information reviewed for this hazard mitigation plan indicates that there has been no dam failure recorded for Cattaraugus County. The failure of large beaver dams has occurred in surrounding areas within Cattaraugus County. These structures are in generally remote areas and significant damages have not generally occurred. Cattaraugus County currently has several earthen dams that are nearing the end of the designed lifespan. Glover's Mill near the Village of East Randolph had a minor dam that failed in 2000 damaging a number of downstream residences. Figure 21 illustrates the locations of dams within Cattaraugus County.

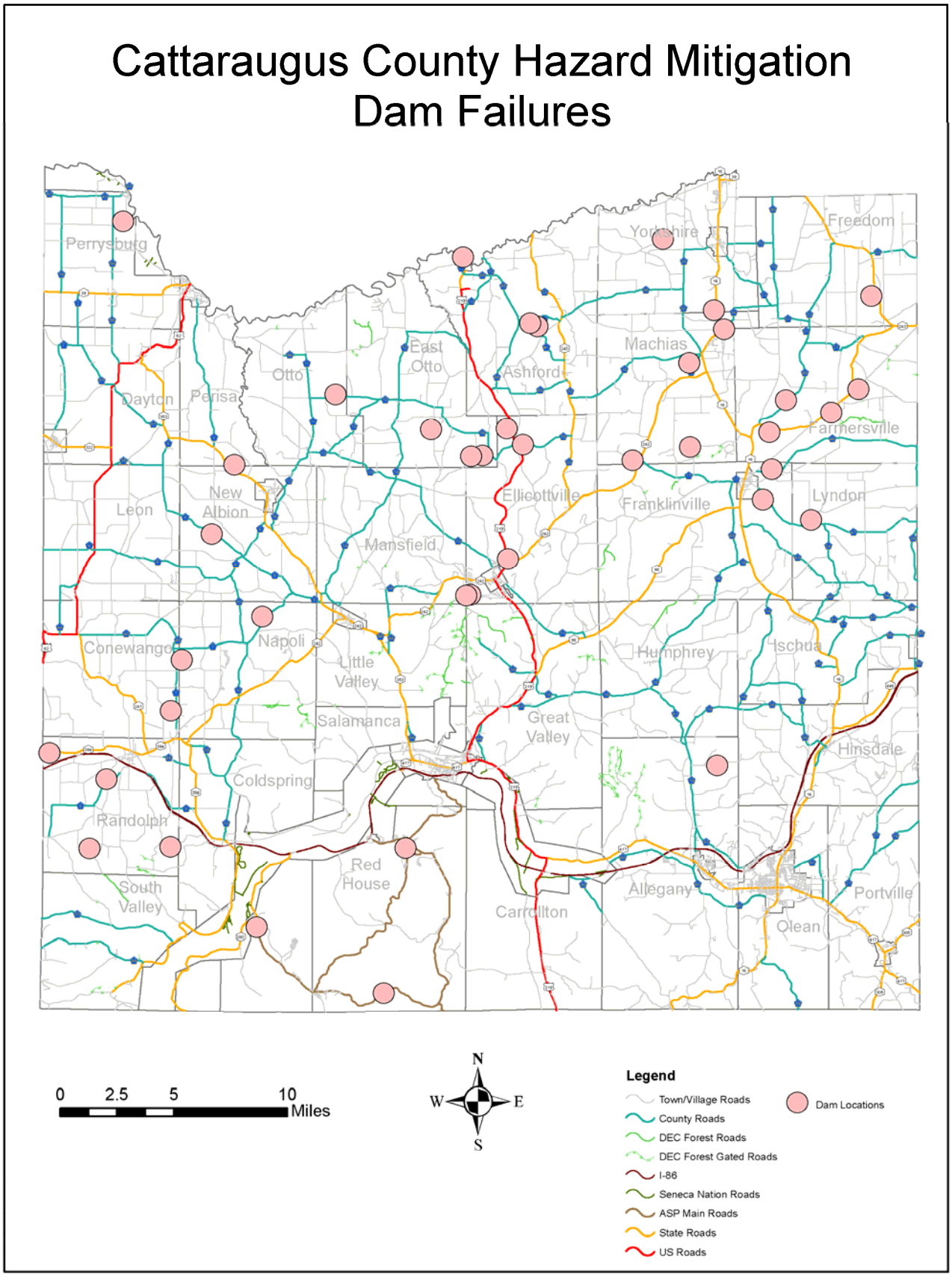


Figure 21 - Dam Locations

Table 13 - Major Dams in Cattaraugus County

NAME OF DAM	DAM LOCATION	DAM SIZE
Conewango Creek – Site 1	SR 394, Town of Randolph, Davis Brook	61,261 cubic yards Earthen Fill – 43' height
Conewango Creek – Site 3	County Road 64, Town of Ellington, Chautauqua County, Tributary of Clear Creek	
Conewango Creek – Site 6	County Road 85, Town of Cherry Creek, Chautauqua County, Cherry Creek	
Conewango Creek – Site 9A	Smith Road, Town of Villenovia, Chautauqua County, Tributary of West Branch	
Conewango Creek – Site 13 (New Albion Lake)	County Road 5, Town of New Albion, Conewango Creek	116,078 cubic yards, Earthen Fill – 39' height
Conewango Creek – Site 16	County Road 7, Town of Napoli, Elm Creek	87,677 cubic yards, Earthen Fill, 49' height
Conewango Creek – Site 16A	Walker Road, Town of Conewango, Elm Creek	234,279 cubic yards, Earthen Fill, 42' height
Conewango Creek – Site 19	County Road 8, Town of Randolph, Battle Creek	95,264 cubic yards, Earthen Fill, 65' height
Conewango Creek – Site 33	Pickup Hill Road, Town of Cherry Creek, Chautauqua County, Little Cherry Creek	
Ischua Creek – Site 1	County Road 16, Town of Machias, Upper Ischua Creek	66,950 cubic yards, Earthen Fill, 28' height
Ischua Creek – Site 2	County Road 80, Town of Farmersville, Johnson Creek	138,749 cubic yards, Earthen Fill, 38' height
Ischua Creek – Site 3	State Route 98, Town of Farmersville, Carpenter Brook	100,066 cubic yards, Earthen Fill, 38' height
Ischua Creek – Harwood Lake	State Route 98, Town of Farmersville, Carpenter Brook	NYSDEC –Owner
Ischua Creek – Site 4	County Road 46, Town of Franklinville, Saunders Creek	102,600 cubic yards, Earthen Fill, 51' height
Ischua Creek – Site 5	Livingston Road, Town of Lyndon, Tributary of Gates Crk	214,000 cubic yards, Earthen Fill, 52' height
Ischua Creek – Site 6A (Case Lake)	County Road 24, Tributary of Franklinville, Gates Creek	298,821 cubic yards, Earthen Fill, 62' height

Table 14 - Small Dams in Cattaraugus County

Holimont Upper Reservoir Dam
Red House Lake Dam
William O Nannen Pond Dam
Sunset Saddle Dam (Holimont)
Rotary Lake Dam
Richard Weishan Pond Dam
Edgar Ploetz Recreational Pond Dam
Rainbow Lake Dam
Camp Chautauqua Pond Dam
Quaker Run Dam
Lime Lake Outlet Dam
James Hughey Dam
Kapic Pond Dam
Efner Davis Pond Dam

Probability of Occurrence: Although a dam failure could occur in Cattaraugus County, it is an infrequent event and would potentially impact a small region (as per the Glover's Mill event). According to the International Commission of Large Dams (ICOLD), the three major causes of dam failure are overtopping by flood, foundation defects, and piping. The probability of failure is estimated in excess of 1 in 50 years.

Geographic Extent: There are a total of nine dams within the Conewango Creek Watershed. Four of them are in Chautauqua County and all flow to Cattaraugus County. Five are located in Cattaraugus County, with one of these being a combined recreational area (New Albion Lake). The Conewango Watershed is periodically inspected by the Conewango Creek Watershed Commission, NRCS and the Cattaraugus County Soil & Water Conservation.

The Ischua Creek Watershed has seven dams, two recreational (Harwood Lake and Case Lake), one county and one NYSDEC. This watershed also has one retention basin and one levee system both located in the Town of Franklinville. NRCS, Cattaraugus County Soil & Water Conservation and the Cattaraugus County Department of Public Works annually inspects these dams within watershed.

Cabic Pond is located on Route 353 approximately three miles north of the Village of Cattaraugus in a rural area and is not considered to be a major threat if it should fail.

Town of East Otto – Plato Rd – Timber Lake (privately owned)

The Town of Salamanca noted the 'Newton Street Mountain', a mountain south of the city watershed. Dam failure here could potentially slide into Newton Creek causing flooding of creek or mudslides.

Anticipated Magnitude: Complete failure, potentially with multiple sites.

Anticipated Damages:

If the Harwood Lake Dam, located above the Village of Franklinville should fail, there is a very high possibility that critical facilities would be affected, causing power outages and loss of other critical services. Additional hazards that can be triggered by a dam failure event include transportation disruptions, damage to residential and commercial areas and damage to highway infrastructure. Normal emergency operations can be impeded. Loss of life could be anticipated.

The failure of the Harwood Lake Dam could result in loss of life and millions of dollars in damage.

The following structures are currently classified as **"C" high hazards** by the New York State Department of Environmental Conservation:

- Ischua Creek Site 1 Dam
- Ischua Creek Site 4 Dam
- Davis Brook Dam (Conewango Site #1)
- Ischua Creek Site 6A Dam
- Ischua Creek Site 5 Dam
- Ischua Creek Site 2 Dam
- Conewango Creek Site 16 Dam
- Conewango Creek Site 16A Dam
- Conewango Creek Site 19 Dam
- Holimont Upper Reservoir Dam

These structures are currently classified as high hazards. Failure of these dams could cause loss of life, serious damage to homes, public utilities, highways and may cause extensive economic loss.

The following structures are currently classified as **"B" Moderate Hazards** by the New York State Department of Environmental Conservation:

- Red House Lake Dam
- Conewango Creek Site 13 Dam
- William O Nannen Pond Dam
- Sunset Saddle Dam (Holimont)
- Rotary Lake Dam (Camp Scout Haven)
- Richard Weishan Pond Dam
- Edgar Ploetz Recreational Pond Dam
- Harwood Lake Dam
- Kingsbury Hill Dam (Ischua Watershed #3)
- Rainbow Lake Dam
- Camp Chautauqua Pond Dam
- Quaker Run Dam
- Lime Lake Outlet Dam
- James Hughey Dam
- Kapic Pond Dam
- Efner Davis Pond Dam

Cattaraugus County is in the preliminary stages of developing an Emergency Action Plan for dam failures within Cattaraugus County.

4.8 Community Profile

In order to determine what assets in Cattaraugus County are at risk for losses due to a natural hazard event, an inventory of assets were compiled listing the estimated value of structures (Table 6, Page 36) that are located within the floodplains, which include:

- Agriculture
- Commercial/Industrial
- Community/Government
- Forest
- Public Services
- Residential
- Vacant

The county also inventoried all critical facilities (Table 15) located in Cattaraugus County along with critical facilities that are located within the floodplain (Table 16).

For other natural hazard events that are not easily mapped, historical data was reviewed in **Appendix C.** It should be noted that dollar values are calculated at the time of the occurrence and not prorated to current value at the time of plan development.

4.8.1 Critical Facilities

Critical facilities are defined in the FEMA planning guide as those facilities that "Are essential to the health and welfare of the whole population and are especially important following hazard events". Critical facilities are defined as fire stations, police/law enforcement facilities, hospitals, shelters, administration buildings, airports, nursing home/assisted care facilities. County staff provided information regarding the number and location of these facilities within Cattaraugus County using the current parcel class codes.

Table 15 lists type and number of critical facilities per municipality.

A total of 2386 critical facilities were identified within Cattaraugus County using the parcel data.
These include:

49 parcels associated with fire and police stations.

3 hospitals – The parcel data still reflects the class code as hospital even though in 2013 only one operational hospital is located in Cattaraugus County. The hospital is in the City of Olean. The hospital in the Village of Gowanda was lost in the 2009 flooding event.

1 airport.

Table 16 shows the locations of critical facilities within Cattaraugus County that are in the floodplain.

Critical Facilities in Cattaraugus County

Municipality	Total Assessed Value of Structures	Count	Air Transportaion	Animal Welfare	Benevolent	Cable TV	Ceiling Railroad	Cellular Telephone Tower	Cemetery	City/Town Vill Public Park	College/University	Community Service	County Owned Public Park	County Reforestation	Cultural Bldg	Cultural&Recreational	Education	Electic Distribution -Outside	Electric & Gas Spec Fran	Electric and Gas	Electric and Gas Transmissio	Electric Power - Fossil	Electric Power - Other
Allegany, T	$806,764,120	158				1		1	6		1	1										1	
Allegany, V	$1,797,962	18			1				1														
Ashford, T	$211,441,559	47				1	1	1	8				1	1			1	1					
Carrollton, T	$895,115,908	150			1	1	2		2			1											
Cattaraugus, V	$4,920,169	28							2						1								
Coldspring, T	$1,249,529,170	155							2	1													
Conewango, T	$74,037,259	42							5														
Dayton, T	$11,802,651	23							2						3								
Delevan, V	$3,921,819	14					1																
East Otto, T	$73,472,486	20							2						1								
Ellicottville, T	$49,921,297	36				1	5		6										1				
Ellicottville, V	$6,727,312	17					1		2														
Farmersville, T	$174,181,041	33							2					1									
Franklinville, T	$102,245,427	27			2		1		1														
Franklinville, V	$5,637,827	33							1						1								
Freedom, T	$23,803,038	45				1	1		7	2													
Gowanda, V	$5,785,096	40			1				1	3		1			1					1			
Great Valley, T	$604,836,184	181					3		8														
Hinsdale, T	$73,423,158	40							3														
Humphrey, T	$203,219,377	62						1	3					4									
Ischua, T	$225,919,305	48	1						6														
Leon, T	$91,002,568	30						1	5														
Little Valley, V	$4,016,719	25							1														
Machias, T	$98,512,510	42					5		4														
Mansfield, T	$124,588,877	45							6														
Napoli, T	$105,580,390	28							5														
New Albion, T	$35,049,494	25							4														
Olean, C	$32,817,513	144			8				2	10	1				1			1			1	1	2
Olean, T	$13,546,962	40		1		1			3										1			1	
Otto, T	$180,117,952	45							4														
Perrysburg, T	$189,509,103	65					1		6				1							1			
Persia, T	$74,003,622	17							2				1							1			
Portville, T	$34,105,578	26							2					1									
Portville, V	$4,437,955	25			2				2														
Randolph, T	$184,178,949	88			3				6									1					
Redhouse, T	$1,715,138,660	123																					
Salamanca, C	$57,795,740	96					1		2			2			2	1				1			
Salamanca, T	$226,945,161	50				1			1					1									
South Dayton, V	$3,304,855	16								1													
South Valley, T	$781,289,039	162							1					8									
Yorkshire, T	$80,980,333	77					2		4					3									

Municipality	Electric SubStation	Electric Transmission Improv	Electrical and Gas	Flood Control	Forest Lands	Forest Section 480	Forest Section 480A	Forest Section 532B	Gas Distribution - Outside	Gas Generation Plant	Gas Pipeline	Gas Regulation	Gas Transmission Improve	Gas Well	Government	Government Bldgs	Health Care	Highway Garage	Homes for the Aged	Hospitals	Indain Reservation	Junk Well	Landfill/Dumps	Library	Manufacturing	Manufacturing - Light Indust	Manufacturing-HiTech	Military	Mine/Quarry	Misc Governmanet Service
Allegany, T	2			2				8					1		1	1		2	1			8							15	
Allegany, V																3		1						1						
Ashford, T		1						3							4	1		2							6					
Carrollton, T								45		1			1			2		1												
Cattaraugus, V																2		1						1	6					
Coldspring, T								39								1		1			1									
Conewango, T	1			1			1											2												
Dayton, T	1															1		2					1						1	
Delevan, V															1	2		1						1						
East Otto, T	1							2								1		1							1					
Ellicottville, T		3														1		1							1			1	2	
Ellicottville, V																2		1							5					
Farmersville, T		1						16								2														
Franklinville, T		1		1				7															1		1				1	
Franklinville, V	2															4		3						1	5					
Freedom, T														7	1			1							1	1			12	
Gowanda, V		1										1				3	1	2	1	1			2	1	7				1	
Great Valley, T	1					1		17								1		1			2				2				3	
Hinsdale, T	1	1													1	1		1	3							1				
Humphrey, T								27							1															
Ischua, T																		1			1		1		1					
Leon, T																		1							1					
Little Valley, V																7		2						1	1					
Machias, T	1							1				1				1		2	1					1		1			14	
Mansfield, T								14				1	1			1		1					4							
Napoli, T								11										1											1	
New Albion, T	2							1										1					1		2					
Olean, C	3	10		1					1						1	5		2	2	1			1	1	11	3	1	1	1	
Olean, T		9	1										2			1		1							4				1	
Otto, T		1						4					4			1														1
Perrysburg, T	1											1		21		3		2		1	2									
Persia, T								1			1							1					1						1	
Portville, T		1		3												1							1		5				3	
Portville, V				2												1		3						1	2					1
Randolph, T	4			1				11								1		2						1	4				1	1
Redhouse, T								##										1												
Salamanca, C		9			1								5		2			1						1	18				3	
Salamanca, T	1							23								2									1					
South Dayton, V	1															1		1							3					
South Valley, T								40						1		1														
Yorkshire, T	4												2	18		1		1							2				5	

Municipality	Nonceiling Railroad	Oil-Forced Flow	Oil-Natural Flow	Other Educational	Other Health Bldg	Parking Lots	Pipeline Spec Fran	Police/Fire	Private Forest	Private Hunting/Fishing	Professional Assoc	Public Parks	Radio	Recreational Facilities	Reforestation	Religious	Road/Streets/Highway	School	Sewage	Solid Waste	Special Schools	State Owned Public Park	State Owned Reforestation	Telecommunications	Telephone	Waste Disposal	Water Spec Fran	Water Supply	Water Transportation	Water Treatment	Water-Public	Welfare	Wetlands	Wild Lands
Allegany, T	2	1			3		1	1	83			1		1		8	1	1							2	1								
Allegany, V	1							4								4		1										1						
Ashford, T								3	3	1						4		1							1	1		1						
Carrollton, T			9					2	71				1			5		1	1						1			1	1					
Cattaraugus, V	1					2		2								6		2							1						1			
Coldspring, T	2							1	100							2						2	1					1					1	
Conewango, T	3				1			1	14	1						3		3			1			1									4	
Dayton, T	2				1			1		1			4			3																		
Delevan, V								1								6		1																
East Otto, T				1				1	5							4																		
Ellicottville, T				1					9							1		1			1							1						
Ellicottville, V								1								3			1						1									
Farmersville, T	4							1	4							2																		
Franklinville, T	2							1								3			1			1		1	1			1						
Franklinville, V	1				1			2						1		5	1	3							1			1						
Freedom, T	1		1											1		4												4						
Gowanda, V	1				1			1			1					5									1			1						
Great Valley, T	2							2	126	2				2		3		1	1		1							2						
Hinsdale, T	4							1	16							3		1							1			2						
Humphrey, T								1	22							2							1											
Ischua, T	1							2	32							2																		
Leon, T								1	15							2		4																
Little Valley, V				1	1	1		1						1		4		1	1						1			1						
Machias, T	2							1					1			4									1			1						
Mansfield, T	1							1	8							2							3		1								1	
Napoli, T				1	2									2		1		1					1		1			1						
New Albion, T									2					2		1		1										7					1	
Olean, C	2			1	2	6		3								37	1	10	1						2			7						
Olean, T	3		1		2			1					2			2		1							2									
Otto, T				1				2	26							1																		
Perrysburg, T	3				1			2						1		3		1	1		8						1	4						
Persia, T									7																			1						
Portville, T	2							2							1	2		1			1													
Portville, V	1							1								6									1				1	1				
Randolph, T	3				3			3	25					2		6		1	4						1			2					2	
Redhouse, T									7																									
Salamanca, C	2				2											18	1	3	10	1	1				1			4				1	2	1
Salamanca, T									19																1									
South Dayton, V	1							1								3									1			2	1					
South Valley, T									105					2								4												
Yorkshire, T				2				1	14				4			4		1	1			2			1			5						

Table 15 – Critical Facilities in Cattaraugus County

Municipality	Total Assessed Value of Structures	Count	Animal Welfare	Benevolent	Cable TV	Ceiling Railroad	Cemetery	College/Univ	Comm Service	Elec & Gas Spec	Electric and Gas	Electric Pwr - Fac	Electric Pwr-Othe	Elec SubStation	Elect Trans Impr	Flood Control	Gas Gen Plant	Gas Regulation	Gas Trans Impr	Gas Well	Government	Government Bldg	Highway Garage	Homes for Aged	Hospitals	Indsin Res	Landfill/Dumps	Library	Manufacturing	Manufacturing - L	Misc/Quarry	Misc Gov Service	Noncoiling Railro	Other Educationa	Other Health Bldg	Pipeline Spec Fra	Police/Fire	Professional Ass	Rec Facilities	Religious	Road/Sts/Highwa	School	Sewage	Special Schools	Telephone	Waste Disposal
Allegany, T	167,071,349.00	24						1	1					1		2			1		1	1									3				1		1	3		1					1
Allegany, V	1,886,900.00	8		1																			1									1				4										
Ashford, T	499,823,222.00	9				2	2														1							3																	1
Carrollton, T	1,424,690.00	14			1	2	1										1					1	1														2			3			1			
Cattaraugus, V	169,200.00	3					1																									1									1				
Coldspring, T	5,506,072.00	6																				1				1						3							1						
Conewango, T	742,555.00	5																														3							1		1				
Dayton, T	376,400.00	3																					1							1		1													
Delevan, V	1,521,649.00	5					1															1	1													1					1				
East Otto, T	89,800.00	1																																1												
Ellicottville, T	5,576,456.00	14				4	2			1					1													1		2								1		1		1		
Ellicottville, V	3,062,100.00	8					1																					5							1						1			
Farmersville, T	250,000.00	4					1																									3												
Franklinville, T	1,494,702.00	10		1		1	1									1												1				2			1			1			1			
Franklinville, V	6,569,020.00	7												1														2				1		1							1	1			
Freedom, T	225,300.00	6				1																						1		3		1												
Gowanda, V	7,721,097.00	15							1		1											2		1			1	1				1					1		5					1	
Great Valley, T	4,901,362.00	12				2	2							1														1		2						1		2			1			
Hinsdale, T	4,938,028.00	7													1								1							1		2						1						
Humphrey, T	194,600.00	1																																			1								
Ischua, T	967,600.00	6																					1			1	1	1				1							1					
Leon, T	379,500.00	3					1																1																		1				
Little Valley, T	4,331,900.00	4																					1														2	1						
Little Valley, V	2,998,200.00	8																				2	1				1	1								1		1				1			
Machias, T	2,469,137.00	12				4																	1							5		2												
Mansfield, T	0.00	1																														1												
Napoli, T	0.00	3					1																														2						
New Albion, T	1,000.00	3					1																				1										1							
Olean, C	33,184,298.00	18					1						1	1	1	1						1				1		1	1	1		2						2	1	1				
Olean, T	2,888,132.00	12	1				2					1			4													1				3												
Otto, T	568,600.00	2																																		1			1					
Perrysburg, T	26,219,600.00	7																1							1	2								1			1			1				
Persia, T	7,000.00	2																									1																
Portville, T	2,104,020.00	13													1	3												1		3		2						2				1		
Portville, V	654,480.00	4					1									1																1						1						
Randolph, T	6,240,690.00	15		1										1		1						1						2			1	3			2		1	1		1			
Salamanca, C	4,753,110.00	22					1								1				1									1				2		2				4		1	7			
Salamanca, T	370,963.00	1												1																														
South Dayton, V	31,900.00	1																														1												
South Valley, T	0.00	2																																			2							
Yorkshire, T	121,611.00	3					1													1																		1						

Table 16 - Critical Facilities in the Floodplain

4.8.2 Population Data

Cattaraugus County's entire population is at risk for natural hazard events to occur. While certain events, such as an earthquake, dam failure or wildfire would be considered a rare occurrence, there is no way to predict when such an event would take place within Cattaraugus County or how many people might be impacted.

According to the United States Census Bureau, there are 41,111 housing units in Cattaraugus County (2010 census). Most of the population lies in the cities of Olean and Salamanca and the Town of Allegany.

There are 3,210 residences in the floodplain. At 2.52 persons per household, there are 8,090 people living in the 100-year floodplain within Cattaraugus County.

For other hazard events, typically tornadoes, severe storms and flash floods are generally confined to a small area. If these events occur in one of the higher populated areas, there could be substantial property damage. Events such as winter storms are more widespread and the amount of damage or injuries depends on the intensity of the event.

4.8.3 Future Growth

New York State Route 219 is currently being studied for an upgrade to a four-lane highway from its current termination in Ashford (Cattaraugus County) to the City of Salamanca in the near future. A committee of local representatives made up of county, village and town officials and property owners has been established as the Route 219 Development Committee. This Committee is undertaking corridor economic development and land use planning along Routes 219, 16, 62 and near the Allegany State Park. Appropriate development along these corridors and at interchanges along I-86 is promoted. The Committee is working closely with the NYSDOT to achieve these goals.

The total county population is stagnant or slightly decreasing. There are shifting population trends within the county showing primarily decreases in the cities and villages and increases in the surrounding towns.

Cattaraugus County has experience some areas of growth since the original Multi-Jurisdictional Hazard Mitigation Plan was adopted. Most of this growth is seen in the hillsides and valleys in and around Ellicottville, New York, where a number of housing developments have sprung up. Many of these are seasonal units and vary in type from small townhouses to large single-family residences. In addition, commercial development is occurring on the periphery of our two cities. Other development that is more difficult to track is the slow steady increase in single lot home developments in our rural towns. As populations in the cities and villages continue to decline and the population moves out into the surrounding rural countryside, more single-family homes are built on former farmland to accommodate this growth. The County sees this practice continuing for the immediate future.

Cattaraugus County expects, and is planning on, more growth in the areas on Figure 22.

The growth in the Town and Village of Ellicottville may impact storm water run-off and drinking water supplies. Other areas of the county are not deemed at this time to have any increased vulnerability due to growth.

Future Growth Areas

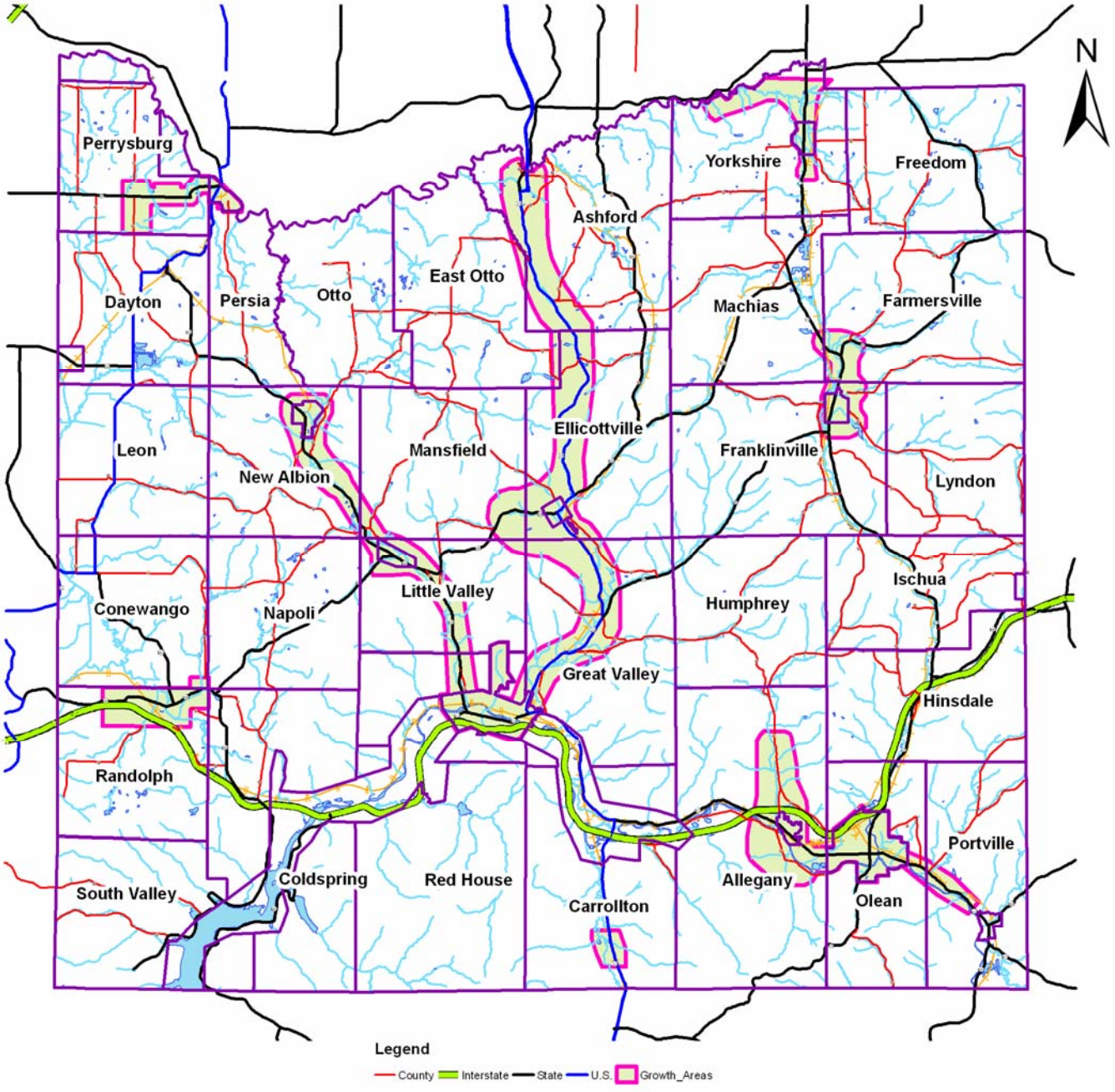


Figure 22 - Future Growth

4.9 Vulnerability Analysis and Loss Estimation Summary

Table No. 17 represents the estimated losses for each of the identified natural hazards based upon the analysis procedures that are described in this document. This information was based upon data, which was available at the time this plan was prepared.

VULNERABILITY ANALYSIS AND LOSS ESTIMATION SUMMARY

Natural Hazard	Anticipated Frequency	Anticipated Injuries	Anticipated Loss of Life	Anticipated Damage
Winter Storms	7 per year	4	Yes	$1,050,000 0.029%
Flood	3 per year	0	Yes	$3,000,000 0.083%
Severe Storms	6 per year	2	0	$540,000 0.015%
Ice Storms	1 every 3 years	0	0	$30,000 0.001%
Tornado	1 every 2 years	2	Yes	$1,000,000 0.028%
Wildfire/Fire	1 every 5 years	0	0	$300,000 0.008%
Landslide	3 per year	0	0	$30,000 0.001%
Dam Failure	<1 every 50 years	Yes	Yes	>$10,000,000 0.276%

Table 17 - Vulnerability and Loss Estimation

* Represents percentage of total structure value in the county ($3,625,683,501) – 2012
The Anticipated Damage comes from the Natural Hazard Profiles.

5.0 Mitigation Plan

5.1 Problem Statements, Goals, and Alternate Action Items

Now that each identified natural hazard that could affect Cattaraugus County has been profiled, and an estimation of potential future losses should an event occur has been calculated, an identification of appropriate mitigation action items and a strategy to implement them can be presented.

The next step for the development of the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan was to take each natural hazard and address problems that could arise from each specific event. From these problem statements, goals were addressed for each hazard, and then objectives and action items were identified after reviewing web sites and other mitigation resources.

Action items that are the same as those in the 2006 Cattaraugus County Multi-Jurisdictional Hazard Mitigation plan are noted by their action number. If the action is similar, but not exact a brief description is also provided.

A. Winter Storms

Problem Statements:

- High winds can create zero visibility “white out” conditions.
- Heavy snowfall can reduce visibility to nearly zero, particularly in windy conditions.
- Heavy snowfall can disrupt delivery of Emergency Services when streets and sidewalks are restricted or closed.
- Heavy snowfall can cause damage to roofs of buildings.
- Freezing rain poses a significant risk to power lines, trees, and the traveling public.
- Heavy snow can collapse trees and utility lines.
- Heavy snowfall affects the local economy when people are “snowed in”.

Goal A1 – Reduce health and safety risk to Cattaraugus County citizens in the event of future winter storm events.

Objectives:

- Educate citizens on the levels of snow winter storm warnings.
- Make citizens aware of safe alternate heating sources.
- Encourage families/individuals to have an emergency communications plan.
- Reduce health and safety risk to citizens regarding driving in winter conditions.

Action Items:

A1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of

emergency telephone numbers. (2006 Action Item D1.2 expanded and additional items have been added – in progress)

A1.2 Develop safety strategies for winter storm events in local driver education classes. (2006 Action Item D1.3)

A1.3 Develop public service awareness announcements before and during and emergency.

A1.4 Town of Coldspring, rock work, ditches, and banks cut back to facilitate snow removal during heavy snow events.

Goal A2 – Reduce potential of infrastructure damages from future winter storm events.

Objectives:

- Implement an informational program to encourage local utility companies to harden or bury their transmission lines.
- Reduce risk to existing above ground utilities from trees that may be susceptible to damage during winter storm events.
- Make sure critical facilities have emergency communications plans and power backup plans.

Action Items:

A2.1 – Continue to work with critical facilities to develop emergency communications plans and emergency power backup plans. – (2006 action Item D2.1)

B. Floods (Including Flash Floods)

Problem Statements:

- Flood warnings do not reach all citizens.
- Residents do not know what to do in the event of a flood.
- Motorists attempt to drive through flooded roadways.
- Pedestrians attempt to walk through flooded roadways.
- Residents are not aware they are in a flood zone.
- Repetitive loss properties need to be acquired and turned into green space.
- Poor storm sewer drainage causes flooding in low lying areas and roadways.
- Poor soil drainage in flood hazard areas.
- Debris carried by floodwaters can impact bridges, highways, dams, culverts and utilities.
- Citizens are not informed about floodplain maps and regulations.
- Health risks associated with the cleanup.
- Water collects in low-lying areas such as some roadways, underpasses, neighborhoods and areas adjacent to creeks and streams.
- Undersized and repetitively damage infrastructure needs to be replaced.
- Adequate and accessible emergency centers/services need to be obtained during flood events.

Goal B1 – Reduce loss of life and raise public awareness about flood hazards, flood safety, and flood damage protection measures.

Objectives:

- Periodically distribute flood hazard information to owners of flood-prone property and the general public. Information will include flood-prone areas (known locations of high water table), property owner responsibilities for streams, flood-proofing ideas, flood insurance, and flood safety measures.
- Develop and implement a public outreach and education program about stormwater management.
- Implement an educational program for local government with important flood fighting information.
- Make sure citizens understand floodplain maps and regulations and risks.
- Ensure that there is adequate emergency centers and that they are located in accessible areas.

Action Items:

B1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of emergency telephone numbers, storm drain maintenance procedures. (2006 Action Item C2.2, C4.1, C4.2)

B1.2 Educate municipalities on "Smart Growth" practices in the floodplains. (2006 Action Item L.3 training municipalities in floodplain management)

B1.3 Action Item L.3 training municipalities in floodplain management

B1.4 Evaluate areas that need a flood warning system constructed. (2006 Action Item C1.1 – Initial stages completed in 2007.)

B1.5 Continue to support Flood Risk management Feasibility Study in the Village of Gowanda, and Towns of Perrysburg, Persia, and Dayton, as well as Erie County and the Town of Collins. (2006 Action Item C1.2 –"Continue the Thatcher Brook Task Force within the Village of Gowanda" currently in progress. Also 2006 Action Items C5.4 Widen Thatcher Brook, C5.5 Diversion Channel). Continue with the Feasibility study on hydraulic improvements by ACOE for the Thatcher and Grannis Brook area in both Cattaraugus and Erie Counties. (2006 Action Item C5.6 Hydraulic improvements)

B1.6 Village of Delevan, study under drain flooding on Delevan Ave.

B1.7 The Town of Allegany needs to have an adequate emergency center on the southern side of the Allegheny River.

Goal B2 – Protect new and existing structures and infrastructure, as well as replace undersized and repeatedly damaged infrastructure.

Objectives:

- Ensure the risk is reduced for high flooding risk properties, especially repetitive loss properties.
- See that Code Enforcement Officers receive periodic training to effectively enforce existing floodplain development regulations.
- Identify, replace, and protect undersized or repeatedly damaged infrastructure.

Action Items:

- B2.1 Develop a plan to identify repetitively damaged/undersized infrastructure. (2006 Action Item C2.1 inspecting/maintaining drains, C2.3 evaluate culvert sizing, C2.4 identify flash flood prone areas– in progress)
- B2.2 Replace repetitively damaged/undersized culvert in Town of Ashford on Ahrens Rd.
- B2.3 Replace repetitively damaged/undersized culvert in Town of Mansfield on Erdman Hill Rd.
- B2.4 Replace repetitively damaged/undersized culvert in Town of New Albion on Waverly St.
- B2.5 Replace repetitively damaged/undersized culvert in Town of New Albion – Linlyco Lake overflow.
- B2.6 Replace repetitively damaged/undersized culvert in Town of Otto, Colvin Rd.
- B2.7 Replace repetitively damaged/undersized culvert in Town of Otto, Traffic St.
- B2.8 Replace repetitively damaged/undersized drainage pipe in Town of Otto on North Otto Rd on private property.
- B2.9 Replace repetitively damaged/undersized culverts in Town of Perrysburg east/west roads.
- B2.10 Replace repetitively damaged/undersized culvert in Town of Persia on Hawkins Rd.
- B2.11 Replace repetitively damaged/undersized culvert and drainage system in Village of Little Valley on Fourth St.
- B2.12 Replace repetitively damaged/undersized culvert in Village of Little Valley on Winship Ave.
- B2.13 Replace repetitively damaged/undersized culvert in Village of Little Valley on Thompson Ave.
- B2.14 Explore alternate ways to handle flash flood runoff during storm events on east/west roads.
- B2.15 Implement/Encourage training for Code Enforcement Officers. (2006 Action Item L.3 training municipalities in floodplain management)
- B2.16 Replace undersized culvert in Town of Ischua on Baxter Mill Rd
- B2.17 Replace culverts in the Town of Olean on Back Hinsdale and East River Rd.
- B2.18 Improve storm sewer drainage in Village of Allegany on 7th St.
- B2.19 Install new culvert to mitigate flooding on Emerson Rd. in Town of Hinsdale.
- B2.20 Replace undersized culverts on Little Bone Run, Birch Drive, and Pierce Run in Town of South Valley.
- B2.21 Improve storm water drainage in the Village of Portville, Brooklyn St.
- B2.22 Replace undersized culvert on Lyndon Center Rd. in Village of Franklinville.
- B2.23 Replace/improve culverts/drainage CR5, CR6, CR60, CR19, CR24, CR12, CR14, CR75.
- B2.24 Install culvert on 4th Street in Town of Little Valley.
- B2.25 Improve drainage on Bush Hill Rd in Town of Farmersville.
- B2.26 Improve drainage in Town of Freedom on Edmunds Rd.
- B2.27 Install culvert on Livingston Rd in Town of Lyndon.
- B2.28 Drainage in the Village of South Dayton.
- B2.29 Town of Great Valley, hydraulic study of culverts.
- B2.30 City of Olean, hydraulic study of under drains city-wide.
- B2.31 Town of Red House, hydraulic study of culverts.
- B2.32 City of Salamanca, drainage study along Wildwood Ave.
- B2.33 Town of Conewango, improve drainage on Swamp Rd and Brown Rd.

Goal B3 – Ensure that streams, drainage ways, and drainage structures are maintained to minimize the potential for obstruction of flow.

Objectives:

- Develop and implement a strategy for stabilizing stream channels in locations where bank erosion threatens development.
- Develop and implement a strategy for maintenance of privately owned stormwater drainage systems.

Action Items:

B3.1 Identify Stream Stabilization projects throughout county.
B3.2 Stream Stabilization in Town of Humphrey on Morgan Hollow Rd.
B3.3 Stream Stabilization/diversion ditch in Town of Otto on North Otto Rd.
B3.4 Stream Stabilization/diversion ditch in Town of Otto on South Hill Rd.
B3.5 Stream Stabilization/Beaver dam control in Town of Mansfield on Baase Rd.
B3.6 Stream Stabilization in Town of New Albion on Gowin Gulf Rd.
B3.7 Stream Stabilization in Town of New Albion on Maple Hill Rd.
B3.8 Stream Stabilization in Town of New Albion on Ingersoll Rd.
B3.9 Stream Stabilization in Town of New Albion on Skinner Hollow Rd.
B3.10 Stream Stabilization in Town of New Albion on Waite Hollow Rd.
B3.11 Stream Stabilization in Town of Perrysburg on Prospect St.
B3.12 Stream Stabilization in Town of Leon on Frog Valley Rd.
B3.13 Stream Stabilization in Town of Salamanca on West Bucktooth Run Rd.
B3.14 Stream Stabilization in Town of Napoli on Narrows Rd.
B3.15 Stream Stabilization in Town of Franklinville on Morgan and Claire Valley Rds.
B3.16 Stream Stabilization in Ashford Triangle on CR32.
B3.17 Stream Stabilization in Town of Machias along Bear Creek.

Goal B4 – Clean Debris from creeks, waterways, and drainage structures

Objectives:

- Ensure that water collection and drainage in critical areas is minimized following flash flooding events.
- Ensure current storm drainage systems can handle flash flooding events.
- Develop and implement a program for routine inspection and maintenance of streams, roadside ditches, and drainage-ways to reduce the potential for flooding caused by debris obstructions.
- Remove debris laying in the creeks following tornados and severe storms.

Action Items:

B4.1 Project committee will investigate a plan for county, town, village, and city employees to perform routine inspections and maintenance – including the removal of debris - from road ditches, culverts, streams, and other drainage features. (2006 Action item C4.1 and C4.3)
B4.2 Clean Debris from waterways in Town of New Albion on Maple Hill Rd.
B4.3 Clean debris from Little Conewango and Battle Creeks in the Town of Randolph.

Goal B5 – Identify/Acquire Repetitive Loss Properties

Objectives:

- Identify repetitively damaged structures.
- Seek funding to acquire repetitively damaged structures.
- Turn repetitively damaged properties into green space.

Action Items:

B5.1 Identify properties that have been repetitively damaged during flooding events.

B5.2 Seek a funding source to acquire these properties and turn them into green space – County Road 32, Ashford Triangle properties.

C. **Severe Storms**

Problem Statements:

- Above ground utilities are prone to damage.
- Falling trees or falling branches damage structures due to improper or inadequate pruning.
- Utility and communication lines could be down for an undetermined amount of time.
- Utility outages resulting from severe storm events may cause damage to electronic items, perishable food items and place vulnerable and disabled citizens at increased health risk.
- There are limited tree planting educational programs or tree trimming / maintenance programs for private citizens.
- Damage to structures from severe storm events, especially older buildings is significant because structures were built with inadequate regard for wind speed.
- Roofing and siding systems are not designed to resist hail and ice damage.

Goal C1 – Reduce loss of life and risk of damage to utility infrastructure in Cattaraugus County in the event of a severe storm event.

Objectives:

- Periodically distribute severe storm information to property owners and the general public. Information will include supplies to have on hand, emergency numbers, electrical wire safety, falling trees and limbs safety.
- Implement an educational program for local government with important severe storm survival information.
- Severe scour occurs at bridges and culverts during severe storm events, explore protection methods.
- Ensure utility lines are protected from severe storm related damage.
- Ensure falling trees or branches do not damage utility lines during a severe storm event.
- Ensure that all residential and commercial building codes adopted throughout Cattaraugus County reference the most current standards for wind uplift.
- Encourage implementation of preventive measures for existing development to reduce the vulnerability to severe weather damage, such as the proper way to anchor mobile homes.

Action Items:

C1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of emergency telephone numbers, storm survival procedures.

C1.2 Investigate a Tree Maintenance program to identify susceptible trees. (2006 Goal B2)

C1.3 Investigate measures to protect bridges and culverts from severe scour during storm events.

C1.4 Town of Humphrey Morgan Hollow Bridge bank repairs damaged by severe storms.

C1.5 Town of Humphrey, South Cooper Hill repairs.

C1.6 Develop educational training for Municipal Code Enforcement Officers to confirm compliance with applicable building codes.

D. Ice Storms

Problem Statements:

- Freezing precipitation causes automobile accidents.
- Communications and power lines can be damaged resulting in loss of power
- Falling branches and trees.
- Freezing temperatures can cause problems with burst pipes, ruptured water mains.
- Limited transportation, treacherous conditions, obstacles for downed trees and utilities.
- Public is unsure of what to do during an ice storm.
- Public travel is impaired, restricted, or closed.

Goal D1 – Reduce loss of life and raise public awareness about ice storm events and how to respond.

Objectives:

- Educate the public as to downed utility hazards.
- Reduce health and safety risk to citizens regarding driving in winter conditions.
- Educate the public as to public announcements, warnings and closures.
-

Action Items:

D1.1 Continuous Public Education – This will be done via pamphlets and website resources. Include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of emergency telephone numbers, ice storm survival procedures, driving in icy conditions tips. (2006 Action Item D1.2)

D1.2 Remove large boulders and other obstructions in highway right of way in the Town of Allegany.

Goal D2 – Reduce loss of life and risk of damage to infrastructure in Cattaraugus County in the event of an ice storm event.

Objectives:

- Ensure utility lines are protected from ice storm related damage.
- Ensure falling trees during a severe storm event do not damage utility lines.
- Ensure improvement of emergency power and communication capabilities during an ice storm event.
- Investigate road reconfiguration in historically problematic areas.

Action Items:

D2.1 Identify list of at risk utility lines. (2006 Action Item A1.1)
D2.2 Initiate a tree maintenance program. (2006 Action Item C1.2)
D2.3 Identify historically problematic icy pavement areas on local roads. (2006 Action Item A2.1 high potential sites)
D2.4 Investigate possible changes to intersection of Dake Hill in Town of Otto.
D2.5 Provide guide as to where to obtain travel and emergency aid.

E. Tornado

Problem Statements:

- Limited emergency and medical relief to affected areas.
- Potential exists for death and/or serious injury.
- Major economic losses are possible from destroyed businesses resulting from a tornado event.
- Lack of public shelters.
- Poor public awareness of shelter locations.
- Older buildings not to current wind codes.
- Not all mobile homes anchored against tornado winds.
- Loose items become hazardous and dangerous during a tornado event.
- Health and safety hazards.

Goal E1 – Reduce loss of life and safety risk to the community during the occurrence of a future tornado event.

Objectives:

- Educate the public to secure all loose items on decks, porches and in yards.
- Provide resident education regarding tornado protection and preparedness.
- Minimize the number of loose items that can become hazardous and dangerous during a tornado event.
- Give as much warning as possible when a Tornado threat is active.
- Educate Code Enforcement Officers on building and maintenance codes.

Action Items:

E1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of emergency telephone numbers, tornado spotting and preparation and survival procedures.(2006 Action Item F1.2)

E1.2 Develop, maintain, and spread list of Emergency Shelters and preparedness resources and needs. (2006 Action Item F1.1 public shelters)
E1.3 Develop reverse 911 call directory for early warning.
E1.4 Develop requirements for building codes.

Goal E2 – Reduce losses from tornado events to present and future structures in Cattaraugus County.

Objectives:

- Ensure that existing mobile homes and older buildings having the most potential for losses from tornado events are protected.
- Ensure that all Cattaraugus County and municipal building codes reflect current standards for anchoring against straight line and tornado winds.
- Clean Tornado debris from waterways after Tornado to prevent future flooding events.

Action Items:

E2.1 Clean Tornado debris promptly from local waterways to prevent future flooding.
E2.2 Support the enforcement of Building codes to insure trailers are properly tied down.

F. Wildfire

Problem Statements:

- Residents are unaware of wildfire risks because of the infrequency of large scale events.
- Public is not aware of, or do not obey all open burning laws.
- Area fire departments lack adequate training and equipment to handle a major wildfire.
- Residents are unaware of land management and landscaping options to limit fire spread.
- Builders and developers are uninformed of wildfire preventative and protection options.
- Water resources are not known.
- Threat is increasing due to former farmed lands being allowed to grow brush.

Goal F1 – Reduce health and safety risk to Cattaraugus County residents in the event of future wildfires.

Objectives:

- Make sure that residents are educated on hazards of wildfires, evacuation procedures, and open burning laws and penalties.
- Ensure that Fire Departments have improved capabilities for responding to and extinguishing wildfires.
- Ensure residents are aware of precautions to prevent spreading of fires.
- Ensure firefighters know where there are alternate sources of water.

Action Items:

F1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as: the dissemination of American Red Cross evacuation centers, supplies to have on hand, listing of emergency telephone numbers
F1.2 Increase media coverage of threat and evacuation procedures during peak wildfire times of the year.
F1.3 Increase enforcement of existing open burning laws.
F1.4 Expand training and awareness for fire departments in wildfire hazard areas.

Goal F2 – Reduce threat to existing and future structures from wildfires.

Objectives:
- Ensure that high and moderate wildfire risk areas are identified.
- Ensure that critical facilities and number of residential properties in high and moderate wildfire risk areas are identified.
- Ensure that building codes include fire resistant precautions.
- Ensure that wildfire vulnerability assessments are done.

Action Items:
F2.1 Identify water resources and dry hydrants.
F2.2 Identify proposed future dry hydrant sites.
F2.3 Coordinate with all jurisdictions to develop list of resources available and needed.
F2.4 The Town and Village of Ellicottville need to conduct a study for a water retention reservoir for water needs.

G. Landslides

Problem Statements:
- Structures built at the turn of the century are now being threatened due to naturally occurring creek realignments.
- Disruption of roadways and rail lines due to ground movement.
- Damage to underground utilities and services.
- Potential for failure of dams and impoundments.
- Transportation Disruption.
- Public doesn't understand the danger of a slow landslide.

Goal G1 – Reduce the danger to the public and damage to private property/infrastructure in Cattaraugus County in the event of a landslide.

Objectives:
- Educate the public on what to look for and what to do when land starts to slide.
- Make sure the possibility of future damage to private homes is minimized.
- Make sure future damage to underground utilities and services, electric grid, natural gas, water and sewer lines, and communication networks are minimized.

Action Items:

G1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as the dangers posed by a slow land slide, what to look for, and what to do when a slide occurs.
G1.2 Identify structures and areas that are vulnerable to landslides.
G1.3 Acquire vulnerable structures.
G1.4 Enforce “Smart Growth” Practices.
G1.5 Town of Mansfield on Hollister Hill, replace undermined pipe.
G1.6 Do a study on the slide at Skinner Hollow in the towns of New Albion, Otto, and Mansfield.
G1.7 Study slide conditions in the Village of Cattaraugus.
G1.8 Study slide conditions along the Cattaraugus Creek in the towns of Ashford, East Otto, and Otto. (2006 Action item C5.2)
G1.9 Study slide conditions in the Town of Portville near the Allegheny River.
G1.10 Study slide conditions in the Town of Otto at Dunkleman Hill Rd.
G1.11 Study slide conditions in the Town of Mansfield at Hollister Hill Rd.
G1.12 Study slide conditions in the Town of Persia near the Gowanda water reservoir on Point Peter Rd. (2006 Action Item C5.3 erosion control)
G1.13 Study slide conditions in the Town of Carrollton on Parkside Dr.
G1.14 Stabilize slides on county roads 21 and 76.
G1.15 Town of Yorkshire, list of at risk properties along Cattaraugus Creek.

H. Dam Failure

Problem Statements:

- Earthen dams nearing the end of their useful life.
- Danger to public.
- Damage to buildings, bridges, highways, culverts, roads and utilities.
- Severance of communications.
- Disruption of transportation system.
- No funding.
- No accurate inundation maps.

Goal H1 – Reduce health and safety risk to Cattaraugus County residents in the event of future dam failures.

Objectives:

- Ensuring that dams are properly maintained and meet applicable design standards.
- Ensure that there is an emergency plan in place.
- Ensure that there is an evacuation plan in place.
- Complete a Dam Risk Assessment for each site.
- Educate the public.
- Seek funding to complete inundation maps and update plans.

Action Items:

H1.1 Continuous Public Education – This will be done via pamphlets and website resources and include such information as the signs of a dam starting to fail and what to do if it before, during and after a failure. (2006 Action Item H1.1, H1.3)

H1.2 Update Emergency Action Plans.
H1.3 Update maintenance and repair program.
H1.4 Seek funding source for inundation mapping and plan updates – Lime Lake Outlet Dam.
H1.5 Conduct emergency drills. (2006 Action Item H1.2)

5.2 Completed Mitigation Actions

Completed Hazard Mitigation Grants during last ten years

Identification	Municipality	Type	Hazard
1404-0006	Village of Gowanda	Acquisition	Flood
1534-0004	Town of New Albion	Acquisition	Landslide
1534-0013	Cattaraugus County	Engineering Study	Landslide
1564-0004	City of Salamanca	Culvert	Flood
1564-0009	City of Salamanca	Culvert	Flood
1564-0002	Village of Cattaraugus	Relocate Critical Facility	Landslide
1665-0012	Town of Yorkshire	Acquisition	Landslide
1827-0003	Town of Conewango	Elevate Road	Flood
1857-0001	Cattaraugus County	Culvert	Flood
1857-0002	Town of Olean	Culvert	Flood

5.3 State and Local Mitigation Capabilities

The Planning Committee has been actively working with local municipalities to identify measures effective in mitigation. The geography of Cattaraugus County varies widely with small mitigation needs known only at the local level.

A list of mitigation implementation tools already in use by the local governments is included in Appendix C – Partner Information.

The primary county agencies in Cattaraugus County responsible for mitigation activities are the Cattaraugus County Department of Public Works, Cattaraugus County Department of Economic Development, Planning and Tourism as well as the Cattaraugus County Department of Emergency Services. The Department of Emergency Services serves as the conduit for all state and federal programs and funding for mitigation activities, as well as disaster response planning and execution. The Cattaraugus County Department of Economic Development, Planning and Tourism can provide an insight into Smart Growth strategies.

Cattaraugus County is an integral part of the New York State Highway Emergency Task Force which includes the Local Highway Emergency Task Force. The Local Highway Emergency Task Force will monitor the activities of the County Emergency Operations Center(s) to ensure that all highway emergency activities are proceeding rapidly in the affected area(s). The task force will also identify needs, establish priorities and deploy resources for the area(s) affected by the event.

County departments having degrees of responsibility for mitigation activities include:

- Cattaraugus County Director of Engineering (also serves as Hazard Mitigation Coordinator for Cattaraugus County) – Responsibilities include county road maintenance, snow and ice control, responsible for bridges and culverts on the county highway system and oversees design and construction of new county-owned facilities.
- Cattaraugus County Emergency Services – Oversees and coordinates all Emergency Plans within the county. Provide training and support for various activities.
- Cattaraugus County Legislature – Oversees the use of planning dollars for the county's Capital Program and Five-Year Program.
- Cattaraugus County Soil & Water Conservation - Programs and grants used for preserving natural resources within the county, as well as education and technical assistance.
- Cattaraugus County Department of Economic Development, Planning & Tourism – Responsible for reviewing and approving development throughout the county to make sure any new developments comply with the county and local development regulations.
- County Sheriff, local police and fire departments – Provides first responder response to incidents, educational programs on prevention and enforcement of laws within the county and local jurisdictions.
- Town Highway Departments – Responsible for maintenance of local roads, responsible for bridges and culverts on local highway system, and snow and ice control.
- City of Salamanca – Responsibilities include snow and ice control, leaf collection, maintenance of city streets, maintenance of storm sewers, and sidewalk maintenance.
- City of Olean – Responsibilities include city street maintenance, snow and ice control, responsible for bridges and culverts within city limits.
- New York State Department of Transportation – Responsibilities include snow and ice control, maintenance of state roads, responsible for bridges and culverts on state roads and on the Seneca Nation of Indians Reservation.
- Seneca Nation of Indians – Has its own Emergency Services department.

5.4 Mitigation Implementation Strategy

All action items were reviewed and prioritized using a STAPLEE Action Evaluation Table. A plus (+) sign was used to indicate items that were advantageous and a negative (-) was used to indicate items that were not advantageous. Particular attention was paid to the cost effectiveness of these action items. Using a percentage of positives to negatives a score was acquired to help rank the hazards with the higher the resulting score the more feasible the action item (Appendix L) and the higher the priority. These action items were then presented to the Planning Committee and the individual municipalities through informal meetings, mailings, and telephone conversations. Each action item was then assigned a ranking of H – High, M – Medium, or L – Low priority based on the STAPLEE score, the ranking of the hazard covered by the action item, and the likelihood of danger to the public that the action item could mitigate. (Appendix L-STAPLEE Action Evaluation Table)

Since the last Multi-Jurisdictional Hazard Mitigation Plan the local municipalities have incorporated mitigation into their regular activities, policies, and budgets.

Through the development of this updated Multi-Jurisdictional Hazard Mitigation Plan, all partners have again committed to review their existing local ordinances that are currently in place and to update them or create them if necessary. Cattaraugus County and its partners will review, update, and use already established Comprehensive Plans, building codes, zoning ordinances, floodplain maps, land use plans (current and potential future land use), emergency plans, as well as capital improvement plans that could enhance hazard mitigation strategies. (A breakdown by municipality can be found in Appendix K – Additional Information, page 6, Mitigation Strategy: NFIP Compliance and Integration into Local Planning Process.)

The Cattaraugus County Planning Committee provides technical assistance in incorporating these and other planning tools, including NFIP floodplain maps, into the local mitigation process. For instance, future changes to the zoning or land use regulations or changes to the comprehensive development plan will consider hazard mitigation philosophy and be consistent with the requirements of the multi-hazard mitigation plan.

5.5 Mitigation Plan Adoption

On April 3rd, 2013 the Cattaraugus County DPW Commissioner addressed the Public Works Committee for Cattaraugus County on the development of the Multi-Jurisdictional Hazard Mitigation Plan. The Committee was advised that a draft plan will be submitted on April 5th, 2013 for review and comment with revisions and approval scheduled for the summer of 2013. On June 24th, 2013 the first draft of the plan was received back from NYSOEM with suggested correction and revisions noted. The revised plan was submitted to NYSOEM on September 23rd, 2013. On _____ FEMA notified NYSOEM of their intention of approving the plan pending formal adoption by all participants. On _____ a copy of the final plan and adoption resolution sample were sent to each participant.

5.6 Mitigation Plan Monitoring

Once the mitigation plan is adopted and in place, the plan will be monitored by the Planning Committee which will continue to consist of the Cattaraugus County Hazard Mitigation Coordinator, the Director of Cattaraugus County Emergency Services, and representatives from other county departments every quarter using a progress reporting form similar to FEMA 386-4, 'Bringing the Plan to Life, Worksheet #1', to track the progress of the mitigation action items. The chief elected official, or their representative, from any participating partner that has a mitigation action pending will also be included and will report on their project's progress.

Throughout the monitoring process, the public will be invited to participate and take an active role in the process. The Multi-Jurisdictional Hazard Mitigation Plan will be available not only on the county web site, but also at various locations throughout the county. The public will be invited to participate in the required update process and also be given the opportunity at any time to make comments on the plan.

5.7 Mitigation Plan Evaluation

Every December the plan shall be evaluated with a form similar to FEMA 364-4, *'Bringing the Plan to Life', Worksheets #2, #3, and #4* as to whether :

- goals and objectives address current and expected conditions
- the nature or magnitude of risks have change
- current resources are still appropriate for implementing the plan
- outcomes have occurred as expected
- agencies and other partners participated as originally proposed

5.8 Mitigation Plan Update

The plan shall be updated by the Planning Committee consisting of the Cattaraugus County Hazard Mitigation Coordinator, the Director of Cattaraugus County Emergency Services, and representatives from other county departments as required. Participating partners will be notified and asked to attend the meetings for their input. Additional information as it becomes available will be reviewed and revised into the plan using a form similar to FEMA364-4 'Bringing the Plan to Life', Worksheet #5. The plan may be updated annually if warranted, but will be updated at no less than the five-year intervals as required by DMA2K. Revisions to this plan may include updates to existing local planning mechanisms such as building codes, land use plans, floodplain regulations, zoning codes, etc.

Every time the plan is revised the public will be notified with press releases, information on Public Access Television, website notices, and radio announcements of the fact. The public will always be asked for comments and suggestions.

6.0 Plan Maintenance Process

The mission of the Cattaraugus County Hazard Mitigation Plan is to promote sound public policy designed to protect citizens, critical facilities, infrastructure, private property, and the environment from natural hazards. This can be achieved by increasing public awareness, documenting the resources for risk reduction and loss-prevention and identifying activities to guide the county towards building a safer, more sustainable community. The following outlines the maintenance plan:

- This plan, along with Comprehensive Emergency Management Plan (CEMP), will be reviewed annually. This Multi-Jurisdictional Hazard Mitigation Plan is reviewed by the Cattaraugus County Hazard Mitigation Planning Committee. The CEMP is reviewed by Cattaraugus County Office of Emergency Servides staff and designated planning team members.
- The plan will be updated whenever conditions change that may affect the current plan.
- During the review and update of this plan, capital projects and the five-year plan for Cattaraugus County and other municipalities will be taken into consideration.
- The Planning Committee will solicit public input and comments each time that this plan is revised.

- The media can be used to encourage public involvement including municipal websites, newspaper articles, posting notices in municipal offices and directly contacting potential interested individuals.

The Cattaraugus County Department of Planning, Tourism and Economic Development will be asked to review each revision of the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan. This review will take place prior to submission to the Cattaraugus County Legislature and each participating local municipality's boards for adoption.

Each time the Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan is revised, the contents will be reviewed with each participating local municipality's board for adoption. Once all recommended changes are considered and incorporated, all local jurisdictional participants will then formally adopt the revised plan.

The plan revisions will then be incorporated into all copies of this document, including those posted on the municipal websites and noted in CEMP revisions.

6.1 Protect Life and Property

- Implement activities that assist in protecting lives by making homes, businesses, infrastructure, critical facilities, and other property more resistant to losses from natural hazards.

- Reduce losses and repetitive damages for chronic hazard events while promoting insurance coverage for catastrophic hazards.

- Improve hazard assessment information to make recommendations for discouraging new development and encouraging preventative measures for existing development in areas vulnerable to natural hazards.

6.2 Public Awareness

- Develop and implement education and outreach programs to increase public awareness of the risks associated with natural hazards.

- Provide information on tools, partnership opportunities, and funding resources to assist in implementing mitigation activities.

6.3 Natural Systems

- Balance watershed planning, natural resource management, and land use planning with natural hazard mitigation to protect life, property, and the environment.

- Preserve, rehabilitate, and enhance natural systems to serve natural hazard mitigation functions.

6.4 Partnerships and Implementation

- Strengthen communication and coordinate participation among and within public agencies, citizens, non-profit organizations, businesses, and industry to gain a vested interest in implementation.

- Encourage leadership within public and private sector organizations to prioritize and implement local, county, and regional hazard mitigation activities.

6.5 Emergency Services

- The Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan is an annex to the County CEMP. Any revisions to the Multi-Jurisdictional Hazard Mitigation Plan will be noted and incorporated into future updates to the CEMP. CEMP reviews are completed on an annual basis and updates are made as needed.
- The Cattaraugus County Multi-Jurisdictional Hazard Mitigation Plan will be uploaded to DisasterLAN online software which is used by the Office of Emergency Services during monitoring, exercise, and disaster response. This will make the plan available to emergency operations staff at all times during emergency management. A printed copy of the plan will also be available in the Cattaraugus County Emergency Operations Center and Mobile Command Post.