

TOWN & VILLAGE OF ARCADE HAZARD MITIGATION PLAN

**May 2, 2003
(Revised October 2003)
(Revised March 30, 2004)
Adopted May 17, 2005**

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**Prepared for the
Town and Village of Arcade**

Prepared by



**GENESEE/FINGER LAKES
Regional Planning Council**

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PLANNING PROCESS

A. Purpose and Scope of Plan

1. Plan preparation

The development of the Town and Village of Arcade Hazard Mitigation Plan can be considered a three-phase process. The first phase was the development of the Town and Village of Arcade Flood Mitigation Action Plan, which was completed in September 1999. The second phase was the completion of a hazard analysis using the automated program HAZNY (Hazards New York) in 2002. The third phase was the development of the all Hazard Mitigation Plan, which includes the integration of the Flood Mitigation Action Plan and the hazard analysis.

The Village and Town of Arcade had experienced several floods in the past, resulting in severe damage to residential, commercial, and public property as well as risks to the safety of residents and others. Beginning in October 1997, meetings to discuss flooding problems and streambank erosion issues in the Village and Town of Arcade had been held and attended by a number of local, regional, state and national agencies.

From these discussions the Arcade Flood Mitigation Planning Committee was formed. The Village, as lead agency on behalf of the Town and Village, applied for and was awarded a Federal Emergency Management Agency Flood Mitigation Assistance - Planning Grant from the New York State Emergency Management Office. The Committee expanded its membership to review flood risks and hazards, encourage public involvement, develop mitigation activities, and recommend action steps to alleviate flood-related problems in the Village and Town of Arcade.

In 2002, based on the Disaster Mitigation Act of 2000, the Town and Village of Arcade applied to the New York State Emergency Management Office, and was awarded a grant to complete an all hazard mitigation plan. In October 2002 the Planning Committee came together to do an initial hazard analysis under the direction of the New York State Emergency Management Office (SEMO). The Planning Committee finalized the Town and Village of Arcade Hazard Analysis Report in December of 2002 and used it as the basis for the development of this report.

a. Planning Committee

The Town and Village of Arcade Hazard Mitigation Plan was prepared by the Genesee/Finger Lakes Planning Council under the direction of the Town and Village of Arcade All Hazard Planning Committee (see Table 1). The Planning Committee was originally formed for the development of the Flood Mitigation Plan and it stayed together through the development of the All-Hazard Mitigation Plan.

Table 1 - Planning Committee			
Agency	Title	Last.	First.
Village Of Arcade			
	Mayor	Doster	Mike
	Superintendent of Public Works	Kilburn	Larry
	Clerk/Treasurer	Offers	Joanne
	Fire Chief	Williams	Neil
	Police Chief	Laird	John
	Planning Board	Hebdon	Jamie
	Zoning	Zielonka	Marv
	Historian	Mason	Jeff
Town Of Arcade			
	Supervisor	Berwanger	Doug
	Highway	Lester	Chris
Wyoming County			
	Emergency Management Office	Reger	Jim
	Planning & Development	Tindell	Richard
Genesee Finger Lakes Regional Planning Council			
	Director	Zorn	David
	Associate Planner	Haremza	Jason
	Assistant Planner	Simmons	Courtne
Arcade Merchants			
	President	Kempf	Linda
Chamber Of Commerce			
	Arcade	Kurzawa	David
Pioneer Central School			
	Principal	Munro	Kevin
New York State			
	Department of Environmental Conservation	Anderson	Rebecca
	State Emergency Management Office	Clark	Bill
	State Emergency Management Office	Maloney	Kerry
	Department of Transportation	Johnston	Ed
Federal			
	Army Corps' of Engineers	Berkley	Phil
Insurance			
	Arcade Agency	Slocum	Eric
Industries			
	Koike Aronson	Moran	Mike
	Prestolite Electric	Koch	Bill
	Pioneer Credit Recovery	Balus	Kathy
	American Precision	Biggie	John
	Tpi- Arcade	Pohlman	Jack
Other			
	Arcade Herald	Rix	Judy

The documentation provided below offers a brief synopsis of each meeting held by the Planning Committee and the Public Outreach/Preparation Subcommittee (POPS), Flood Hazard Assessment Subcommittee (FHAS), and Flood Solutions Development Subcommittee (FSDS) during the development of both the Flood Mitigation Action Plan and the All Hazard Mitigation Plan. The Village of Arcade's Superintendent of Public Works took attendance and notes for each meeting.

Full Committee

December 18, 1998 – The Committee held its initial meeting to discuss the overall purpose of the plan (including preliminary goals and objectives) and begin developing a process to involve the public and identify flood hazard areas.

It was decided that a Public Outreach and Participation Subcommittee (the POPS) and a Flood Hazard Assessment Subcommittee (the FHAS) would be formed and each member of the Committee present chose to work on one of the two subcommittees.

January 15, 1999 – A review of actions by the POPS at their initial meeting was presented to the Committee. The goals and objectives of the flood mitigation action plan were discussed along with possible action steps and the progress of the planning process.

February 19, 1999 – The Committee reviewed the progress of the POPS and FHAS and a check on the planning process, and further discussion of the goals and objectives of the plan took place. An identification of critical facilities followed along with possible action steps for making flood information readily accessible to residents, businesses, and others.

March 19, 1999 – The responses from the residential/agricultural survey developed by the POPS were given to the G/FLRPC for tabulation and analysis. A copy of the POPS's commercial/industrial survey was shown to the Committee for review and comments. Public information meetings, as suggested by the POPS, were also discussed. The data collected by the FHAS were reviewed and the Committee explored other possible sources of data collection.

April 16, 1999 – A discussion of several warning systems to be used in the event of a flood was given and the relevance of each one to Arcade followed. An initial draft of the basemap showing the floodway, floodplain, municipal boundaries, roads, and hydrography was reviewed. The Committee also reviewed the work done by the subcommittees.

May 21, 1999 – The Committee decided that the work of the POPS was complete and that the Committee at its monthly meetings would handle any additional public outreach and participation activities. The activities of the FHAS were discussed and that the work of that subcommittee would be completed following its next meeting.

June 18, 1999 – The Committee decided that for the month of July, it, the FHAS, and the POPS would be combined to form the Flood Solutions Development Subcommittee (FSDS). A draft of the flood mitigation action plan was distributed for comments and review to the Committee members present with additional copies to be sent to members not able to attend. A copy of the *Flood Solutions Worksheet* developed by the Southern Tier Central Regional Planning and Development Board was distributed for the upcoming FSDS meeting.

October 23, 2002 – The Committee met with SEMO to begin preparation of an all Hazard Mitigation Plan. The SEMO gathered information from the Committee for the development of the initial Hazard Analysis Report (HAZNY).

December 10, 2002 – The committee reviewed and completed the Hazard Analysis Report (HAZNY), completed the risk assessment, reviewed land use and development trends, and identified other existing associated plans.

January 8, 2003 – The Committee reviewed and updated the Flood Mitigation Action Plan and reviewed the outline of the all Hazard Mitigation Plan.

February 26, 2003 – The Committee developed and reviewed the mitigation strategy for the all Hazard Mitigation Plan.

March 26, 2003 – The Committee reviewed the draft all Hazard Mitigation Plan and considered plan maintenance procedures and the adoption process.

Flood Hazard Assessment Subcommittee (FHAS)

January 7, 1999 – The FHAS inventoried existing reports, studies, and data that was available from federal, state, county, and local agencies and departments. Also reviewed was existing work underway by the Wyoming County SWCD and the NRCS. A survey of structural elevations in the village and town was considered and deemed a worthwhile task provided that funding was available.

February 25, 1999 – The topics addressed included the surveying of structures at various locations throughout Arcade and damage to the Arcade & Attica Railroad as a result of the past summer's flooding and other floods.

The number and location of structures to be surveyed for ground elevation and first floor elevation was clarified and damage to tracks owned by the Arcade & Attica Railroad was discussed along with action steps for alleviating similar damage in the future.

March 25, 1999 – The primary focus of the meeting was the identification and surveying of structures that have been repeatedly damaged by flooding (according to the surveys) and the use of this data to the Committee in determining appropriate action steps to mitigate damages due to flooding.

Aerial photos of the village and town from 1963, 1974, 1985, and 1990 were provided by the Wyoming County SWCD and the members present identified areas where Cattaraugus and Clear Creeks and their tributaries had diverged from their previous course, new development had occurred, and flooding problems were persistent.

April 23, 1999 – The FHAS reviewed proposed structures to be surveyed in the village and town. Revisions to the list were made and were approved for submission to Douglas C. Myers Professional Land Surveyor, P.C.

May 28, 1999 – The critical facilities in the village and town were finalized and placed on a draft map for digitization in the GIS. Areas flooded during the June 26, 1998 flood, but not shown on the FIRM, were delineated and placed on the draft map for approval at the June 18 meeting of the Committee.

Public Outreach/ Participation Subcommittee (POPS)

January 14, 1999 – The POPS addressed the issues of educating property owners on the NFIP, developing surveys to address flood damage from the previous summer, and providing the *Arcade Herald* with information on the flood mitigation action plan and planning process.

January 22, 1999 – The meeting focused on the NFIP and raising awareness of its benefits to homeowners. The meeting served as an informational session on the NFIP and the pros and cons of the program were discussed. The residential/agricultural and commercial/industrial surveys were developed.

February 11, 1999 – It was announced that the residential/agricultural surveys had been sent and that the commercial/industrial survey would also be mailed shortly. The POPS carried on the planning of informational meetings regarding flood insurance, contacting local newspapers concerning the plan, and other possible meetings and topics for the future.

March 11, 1999 – There was a review of the commercial/industrial survey and the survey was sent to local businesses. Further preparation for the public information meetings was carried out as was continuing communication with local newspapers.

April 8, 1999 – Dates and venues for three public participation meetings in May was finalized and announced to the local press. A flier for the meetings was produced, comments were made, and the flier was to be distributed after a review by the Committee. Presentations for the meetings were developed and passed on for review by the Committee.

Flood Solutions Development Subcommittee (FSDS)

July 16, 1999 – The comments and revisions of the draft report were submitted and the additional flooded areas of the June 26, 1998 flood were finalized. Proposed streambank erosion remediation projects in the village and town were presented by the Wyoming County SWCD. Many of the proposed projects were determined to have a positive impact on flooding in Arcade.

July 23, 1999 – The FSDS worked through the *Flood Solutions Worksheet* and discussed the full range of possible action steps and solutions to the flooding problems in Arcade. The flood solution recommendations provided in this plan are the outcome of not only this meeting and the previous FSDS meeting, but the diligent efforts of the Committee and the other two subcommittees.

b. Public Involvement and Participation

The Planning Committee itself represents a large cross-section of the general public in the Town and Village of Arcade. In addition there has been extensive public involvement and participation in the development of both the Flood Mitigation Action Plan and the all Hazard Mitigation Plan.

For the development of the Flood Mitigation Action Plan the Planning Committee and, in particular, the Public Outreach/Participation Subcommittee focused on increasing residents' awareness of the flood mitigation action plan and planning process and solicited input from residents regarding the extent of previous flooding and possible solutions. This input was incorporated into both the identification of flood issues and potential solutions.

In early March 1999, a survey was sent to residents and businesses requesting information regarding past flooding. The survey included questions pertaining to past flooding, source of floodwater and proximity to creeks, depth of water on property, and damage to property among others.

Of the nearly 1200 residential/agricultural surveys sent, over one-third were returned. Due to such a high response rate, the survey served as an invaluable resource in identifying areas susceptible to flooding not shown on the Flood Insurance Rate Map (FIRM). A large percentage of the commercial/industrial surveys were also returned.

In May 1999, the Village and Town of Arcade sent a flier to residents publicizing three events regarding the flood mitigation action plan, planning process, and National Flood Insurance Program. Two of the events were informational meetings.

The first informational meeting was held on May 5, 1999 and utilized displays and a short presentation by the Genesee/Finger Lakes Regional Planning Council to introduce the planning process to residents. A question and answer session followed in which residents voiced their opinions and concerns regarding the flood mitigation action plan and received feedback from Committee members.

The local school district (Pioneer Central School District) held its annual fair on May 8, 1999 and the Village of Arcade's booth included a video of the previous summer's severe flooding (June 26, 1998) and several informational displays on the flood mitigation action plan for the village and town. Representatives from the Planning Committee were available to answer questions and provide insight into the planning process.

At both the May 5, 1999 public information meeting and the Pioneer Community School Fair there were copies of the survey available for residents and businesses to complete if they had not done so already. In addition, blank notecards were available for persons wanting to leave comments or suggestions for the Committee to review at future meetings.

The third event was a flood insurance informational meeting organized by the Arcade-Knight Agency and the Independent Insurance Agency of New York. A representative from the NFIP gave a presentation and answered questions regarding the program.

Then in 2003, during the development of the all Hazard Mitigation Plan, the following two public meetings were held:

- January 29, 2003
 - Input
 - Review and input on the findings of the hazard analysis report
 - Review and input on the All-Hazard Mitigation Plan goals
 - Outcome
 - Revision of the hazard analysis
 - Revision of the goals
- April 28, 2003
 - Input
 - Review and input on the Action Plan
 - Outcome
 - Revision of Action Plan

Local newspapers in Wyoming and Genesee counties also served as a medium for informing citizens of the flood mitigation action plan and opportunities for participation in the planning process. There were several articles on both the Flood Mitigation Plan and the All Hazard Mitigation Plan in the Arcade Herald during their period of development.

c. Review and Comment by Outside Partners, Neighboring Communities, Local and Regional Agencies

The Draft Plan was distributed to the following agencies and municipalities for review and comment:

- Wyoming County Emergency Management Office
- Wyoming County Industrial Development Agency
- Wyoming County Planning & Development
- Genesee/Finger Lakes Regional Planning Council
- New York State Department of Environmental Conservation Region 9
- New York State Department of Transportation
- Town of Freedom, Supervisor, Ron Ashworth
- Town of Yorkshire, Supervisor, Dick Fuller
- Town of Sardinia, Town Clerk, Betsy Marsh

B. Authority

At the regular Village of Arcade Board meeting held January 7, 2003, the following resolution was passed:

ESTABLISHMENT OF ALL HAZARDS COMMITTEE

Motion by Mayor Doster, seconded by Deputy Mayor Wood and unanimously carried the, Village Board of Trustees establish an All Hazards Committee that will consist of various representatives from the Village of Arcade, the Town of Arcade, local businesses, Wyoming County, the Wyoming County Soil and Water Conservation District, the New York State Department of Environmental Conservation and the State Emergency Management Office. This committee will have the authority to draft an All Hazards Plan for the Village and Town of Arcade for submittal to the Village and Town Boards.

I. RISK ASSESSMENT

The risk assessment is a product of several resources. These include most recently the use of Hazards New York (HAZNY), which is described below. It also includes the collective knowledge of the Planning Committee (see Chapter 1), the Flood Mitigation Plan and All Hazard Mitigation process, public meetings and input (see Chapter 1), and a historical review including data collection, interviews with the Arcade Historian and searches of the Arcade Newspaper.

A. Hazard Analysis

1. Hazards New York (HAZNY)

On October 23, 2002, the Planning Committee, in conjunction with the New York State Emergency Management Office, conducted a hazard analysis using the automated program **HAZNY** (Hazards New York). Revisions and additions were made at the December 10, 2002 Mitigation Plan Planning Committee Meeting and the January 29, 2003 Public Meeting. **HAZNY** was developed by the American Red Cross and the New York State Emergency Management Office. The results of this hazard analysis are presented in this report.

The HAZNY is an automated interactive spreadsheet that asks specific questions on potential hazards in a community and records and evaluates the responses to these questions. The program then calculates a score for each of the hazards analyzed, based on the responses to the questions. The program includes historical and expert data on selected hazards and is designed specifically for group (stakeholders), rather than individual use. This ranking of hazards provides the community with a factual basis for prioritizing the community's resources to prepare for, respond to and mitigate against the hazards that pose the greatest risk to the community. Representatives from SEMO facilitate the meetings and record the results.

The five categories covered in the Hazard Analysis Workshop are: Scope, Frequency, Impact, Duration and Onset.

Scope indicates the size of the area that would be impacted by a potential. For this hazard analysis category, workshop participants are also asked if the hazard in question has the capability of triggering additional hazards—cascading effect. The area of impact of the hazard itself and its cascading effects, where they exist, are analyzed.

Frequency is defined as a prediction of how often a hazard has occurred in the past and could occur in the future.

Impact analyses how the hazard will impact people, private and public property. Specifically, impact is concerned with the hazard's ability to seriously injure or kill people, create private economic impact as well as impact on public facilities.

Onset inquires about warning time; that is, how much time is there between the initial recognition of the approaching hazard and when the hazard will impact the community on question.

Duration seeks information on how long the expected hazard will remain active; that is, over what period of time does the hazard occur, or how long will it take the community to recover from the event?

The Group analyzed 28 hazards potentially affecting the Town/Village. **HAZNY** rated each hazard based on the assessment and assigned a numerical value. These values are categorized as follows:

- 321 to 400 HIGH HAZARD**
- 241 to 320 MODERATELY HIGH HAZARD**
- 161 to 240 MODERATELY LOW HAZARD**
- 44 to 160 LOW HAZARD**

The hazards and their operational definitions are given in **Table 2** below. The analysis ranked the 28 hazards (see **Table 3**) and considered hazards that occur most often, hazards that occur with no warning, and hazards that present the greatest danger to life (see **Table 4**).

Table 2 – Hazard Definitions	
<i>Hazard Type</i>	Definition
Natural Hazards	
Avalanche	A mass of sliding snow, which usually occurs in mountainous terrain where snow is deposited on slopes of 20 degrees or more.
Coastal Erosion	The gradual washing or scouring away of sand and other natural materials from beaches, dunes, bluffs and other natural protective features by the wind and wave action of nor'easters, hurricanes and other tropical storms.
Drought	A prolonged period with no rain, particularly during the planting and growing season in agricultural areas. Drought can also affect urban areas particularly those dependent

	on reservoirs for their water.
Earthquake	The sudden motion or trembling of the ground produced by abrupt displacement of rock masses, usually within the upper 10-20 miles of the earth's surface.
Hurricanes	Tropical cyclones, formed in the atmosphere over warm ocean areas, in which wind speeds reach 74 miles per hour or more and blow in a large spiral around a relatively calm center or "eye". Circulation is counterclockwise in the Northern Hemisphere.
Landslide	The downward and outward movement of slope-forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rockfalls, rockslides, block glide, debris slide, earth flow, mud flow, slump, and other such terms.
Winter Storm (Severe)	Includes ice storms, blizzards, and extreme cold. The National Weather Service characterizes blizzards as being combinations of winds in excess of 35 miles per hour with considerable falling or blowing snow, which frequently reduces visibility.
Flood	A general and temporary condition of partial or complete inundation of Flash Flood normally dry land from the following: (a) overflow of inland or tidal waters (b) unusual or rapid accumulation of runoff or surface waters (c) mudslides/mudflows caused by accumulation of water (d) a situation in which rainfall is so intense and severe and runoff so rapid that it precludes recording and relating it to stream stages and other information in time to forecast a flood condition.
Subsidence	Depressions, cracks, and sinkholes in the earth's surface, which can threaten people and property. Subsidence depressions, which normally occur over many days to a few years, may damage structures with low strain tolerances such as dams, factories, nuclear reactors, and utility lines. The sudden collapse of the ground surface to form sinkholes, many tens of yards wide and deep within the span of a few minutes to a few hours poses immediate threat to life and property.
Tornado	A local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity or funnel. Winds have been estimated to be in excess of 300 miles per hour.
Wildfire	Any instance of uncontrolled burning in grasslands, brush, or woodlands.
Tsunami	A great sea wave produced by submarine earth movement or volcanic eruption.
Technological Hazards	
Hazardous Materials Incident (in situ)	The uncontrolled release of hazardous materials from a fixed site.
Hazardous Materials (in transit)	The uncontrolled release of hazardous materials during transport.
Power Failure	Any interruption or losses of electrical service due to disruption of power generation or transmission caused by accident, sabotage, natural hazards, equipment failure, or fuel shortage. A significant power failure is defined as any incident which would require the involvement of the local emergency management organization to coordinate provision of food, water, heating, etc.
Radiological (in situ)	An occurrence at a fixed nuclear power facility (i.e., commercial power plant or other reactor facility) resulting in a potential or actual release of radioactive material in sufficient quantity to constitute a threat to the health and safety of the off-site population.
Radiological (in transit)	Any incident that involves transportation, whether by vehicle or shipment, of anything containing radioactive materials.
Transportation	An incident involving passenger air or rail travel resulting in death or

Incident	injury.
Urban Fire	Uncontrolled burning in residential, commercial, industrial, institutional or other properties in developed areas.
Dam Failure	An uncontrolled release of impounded water resulting in downstream flooding.
Human-Caused Hazards	
Civil Disorder	A terrorist attack, riot, violent protest, demonstration, or illegal assembly.
Terrorism	Threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths.

Winter Storm (Severe)	256.0
Transportation Accident	252.8
Terrorism	252.0
Flood	251.5
Fire	247.8
Hazardous Materials In Transit	245.0
Explosion	239.5
Water Supply Contamination	228.2
Severe Storm	227.8
Ice Storm	224.2
Utility Failure	215.2
Oil Spill	209.2
Blight	208.5
Earthquake	204.2
Structural Collapse	194.5
Epidemic	191.2
Extreme Temperature	186.2
Ice Jam	183.0
Fuel Shortage	174.8
Tornado	174.8
Hazardous Materials at Fixed Site	168.2
Drought	150.5
Radiological (in transit)	150.2
Landslide	144.8
Civil Unrest	144.0
Air Contamination	138.2
Infestation	131.5
Food Shortage	95.2

HIGH HAZARDS

The analysis did not yield a High Hazard.

MODERATELY HIGH HAZARDS

Six hazards were determined to be Moderately High Hazards. These are **Winter Storm (Severe)**, **Transportation Accident**, **Terrorism**, **Flood**, **Fire**, and **Hazardous Materials in Transit**.

Winter Storm (Severe): 256.0, Moderately High Hazard

A severe winter storm is characterized as a storm system that develops in late fall to early spring and deposits wintry precipitation, such as snow, sleet, or freezing rain, with

a significant impact on transportation systems and public safety. For this analysis, the following could meet this definition:

- Heavy Snow - Six inches in 12 hours or less.
- Blizzard - Characterized by low temperatures, winds 35 mph or greater, and sufficient falling and/or blowing snow in the air to frequently reduce visibility to 1/4 mile or less for a duration of at least three hours.
- Severe Blizzard - Characterized by temperatures near or below 10 degrees F, winds exceeding 45 mph, and visibility reduced by snow to near zero for a duration of at least three hours.

Severe winter storms are a relatively common occurrence in the Town and Village of Arcade. For additional information on flooding in the Town and Village of Arcade see Section II.2.B.

Potential Impact: Large Region Cascade Effects: Highly Likely
Frequency: Frequent Event Onset: One Day Warning
Hazard Duration: Four Days to One Wk Recovery Time: One to Two Days

Impact:

- Serious injury or death is highly likely.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Transportation Accident: 252.8, Moderately High Hazard

A transportation accident has been characterized as a mishap involving one or more conveyances on land, sea, and/or in the air which results in mass casualties and/or substantial loss of property. For additional information on transportation accidents in the Town and Village of Arcade see Section II.2.B.

Potential Impact: Large Region Cascade Effects: Some Potential
Frequency: Regular Event Onset: No Warning
Hazard Duration: Less Than One Day Recovery Time: One to Two Days

Impact:

- Serious injury or death to large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Terrorism: 252.0, Moderately High Hazard

Terrorism has been characterized as the threat or use of violence to achieve political/social ends usually associated with community disruption and/or multiple injuries or deaths. There is no history of terrorism in the Town or Village of Arcade.

Potential Impact: Large Region Cascade Effects: Some Potential
Frequency: Rare Event Onset: No Warning
Hazard Duration: More Than One Week Recovery Time: More Than Two Weeks

Impact:

- Serious injury or death to extremely large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Flood: 251.5, Moderately High Hazard

Flooding usually is a natural, cyclic occurrence in existing waterbodies. When a waterbody overflows its 'normal' banks, a potentially violent and/or destructive waterway can form. A flash flood is a sudden transformation of a small stream into a violent waterway after heavy rain and/or rapid snowmelt.

Low-lying areas in the Village of Arcade are subject to periodic flooding caused by the overflow of Cattaraugus Creek and Clear Creek at their confluence among other factors. In the Town of Arcade, the principal flooding problems are located along Cattaraugus Creek and its tributaries as well as Clear Creek near the southern border of the town. For additional information on flooding in the Town and Village of Arcade see Section II.2.B.

Potential Impact: Small Region Cascade Effects: Some Potential
Frequency: Regular Event Onset: No Warning
Hazard Duration: One Day Recovery Time: One To Two Weeks

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

The Group noted the flooding history of Cattaraugus Creek, Clear Creek and other feeder streams. The Town/Village noted they receive flood warnings but they cannot warn of the severe flash floods.

Fire: 247.8, Moderately High Hazard

Fire has been characterized as the uncontrolled burning in residential, commercial, industrial, institutional, or other structures in developed area. There has been a limited number of devastating fires in the Town and Village of Arcade. For additional information on fires in the Town and Village of Arcade see Section II.2.B.

Potential Impact: Several Locations Cascade Effects: Some Potential
Frequency: Regular Event Onset: No Warning

Hazard Duration: Two to Three Days Recovery Time: One to Two Days

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Hazardous Materials In Transit: 245.0, Moderately High Hazard

Hazardous materials in transit has been characterized as the uncontrolled release of materials during transport, which when released can result in death or injury to people and/or damage to property and the environment through the material's flammability, toxicity, corrosiveness, chemical instability and/or combustibility. There has been a limited number of these occurrences in the Town and Village of Arcade. For additional information on accidents involving hazardous materials in transit in the Town and Village of Arcade see Section II.2.B.

Potential Impact: Large Region

Cascade Effects: Highly Likely

Frequency: Infrequent Event

Onset: No Warning

Hazard Duration: Four Days to One Wk

Recovery Time: Less Than One Day

Impact:

- Serious injury or death to extremely large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

MODERATELY LOW HAZARDS

Fifteen hazards were determined to be Moderately Low Hazards. These are **Explosion, Water Supply Contamination, Ice Storm, Utility Failure, Severe Storm, Oil Spill, Blight, Earthquake, Structural Collapse, Epidemic, Extreme Temperature, Ice Jam, Fuel Shortage, Tornado, and Hazardous Materials at Fixed Site.**

Explosion: 239.5, Moderately Low Hazard, will not be profiled further

Explosion has been characterized as the threat or actual detonation of an explosive device or material with the potential of inflicting serious injury to people or damage to property. This has rarely happened in the Town and Village of Arcade and it is not considered a major threat.

Potential Impact: Several Locations

Cascade Effects: Highly Likely

Frequency: Regular Event

Onset: No Warning

Hazard Duration: Less Than One Day

Recovery Time: One to Two Days

Impact:

- Serious injury or death to large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Water Supply Contamination: 228.2, Moderately Low Hazard, will not be profiled further

Water supply contamination has been characterized as the contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source. There is no history of water supply contamination in the Town and Village of Arcade.

Potential Impact: Small Region

Cascade Effects: Some Potential

Frequency: Infrequent Event

Onset: No Warning

Hazard Duration: More Than One Week

Recovery Time: One to Two Weeks

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Moderate structural damage to public facilities.

Severe Storm: 227.8, Moderately Low Hazard, will not be profiled further

Severe storms were characterized as hail storms, windstorms, and severe thunderstorms (with associated severe wind events such as derechos, gustnados, and downbursts). These are fairly regular occurrences in the Town and Village of Arcade but were not seen as presenting and major problems.

Potential Impact: Large Region

Cascade Effects: Some Potential

Frequency: Regular Event

Onset: Several Hours Warning

Hazard Duration: Less Than One Day

Recovery Time: One To Two Days

Impact:

- Serious injury or death is unlikely.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Ice Storm: 224.2, Moderately Low Hazard, will not be profiled further

An ice storm has been characterized as freezing rain, which accumulates in a substantial glaze layer of ice resulting in serious disruptions of normal transportation and possible downed power lines. While these have happened in the Town and Village of Arcade they were not seen as occurring often enough or causing major irreparable damage.

Potential Impact: Large Region
Frequency: Infrequent Event
Hazard Duration: Two to Three Days

Cascade Effects: Highly Unlikely
Onset: Several Hours Warning
Recovery Time: More Than Two Weeks

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Moderate structural damage to public facilities.

Utility Failure: 215.2, Moderately Low Hazard, will not be profiled further

A utility failure was characterized as loss of electric and/or natural gas supply, telephone service or public water supply as a result of an internal system failure and not by the effects of disaster agents. While utility failure was considered possible, it was not considered likely, except where it is a cascade effect of another hazard (such as severe winter storm or ice storm). The Village of Arcade is a municipal utility.

Potential Impact: Large Region
Frequency: Infrequent Event
Hazard Duration: Four Days to One Wk

Cascade Effects: Some Potential
Onset: No Warning
Recovery Time: Three Days to One Week

Impact:

- Serious injury or death is unlikely.
- Little or no damage to private property.
- Moderate structural damage to public facilities.

The Group noted the Village has its own municipal electric utility that also services the Town.

Oil Spill: 209.2, Moderately Low Hazard, will not be profiled further

An oil spill was characterized as the uncontrolled or accidental discharge of petroleum into water and/or onto land. In the Town and Village of Arcade this was considered a potential cascade effect of transportation accidents or hazardous materials in transit.

Potential Impact: Several Locations
Frequency: Infrequent Event
Hazard Duration: Two to Three Days

Cascade Effects: Some Potential
Onset: No Warning
Recovery Time: One To Two Days

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Blight: 208.5, Moderately Low Hazard, will not be profiled further

Blight was characterized as a disease of agricultural crops or non-agricultural plants resulting in withering, lack of growth, and death of its parts without rotting. Even though the largely agricultural land use in the Town of Arcade could be considered sensitive to this hazard, it was not considered a likely or overly-harmful possibility.

Potential Impact: Large Region Cascade Effects: Highly Unlikely
Frequency: Infrequent Event Onset: No Warning
Hazard Duration: More Than One Week Recovery Time: Less Than One Day

Impact:

- Serious injury or death is unlikely.
- Moderate damage to private property.
- Little or no structural damage to public facilities.

Earthquake: 204.2, Moderately Low Hazard, will not be profiled further

Earthquakes were characterized as a sudden motion of the ground caused by release of subterranean strain energy, due to plate tectonics, resulting in surface faulting (ground rupture), ground shaking, or ground failure (collapse). History has shown that even though the Town and Village of Arcade are near the Buffalo/Niagara/Attica earthquake region in New York State, there has not been serious damage in recent memory.

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

Impact:

- Serious injury or death to large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Structural Collapse: 194.5, Moderately Low Hazard, will not be profiled further

Structural collapse was characterized as a sudden structural failing, partial or fully, of buildings, bridges or tunnels, threatening human life and health. Any occurrence of structural collapse in the Town or Village of Arcade was considered to be likely from another hazard (such as a severe winter storm or fire).

Potential Impact: Several Locations Cascade Effects: Some Potential
Frequency: Infrequent Event Onset: No Warning
Hazard Duration: Less Than One Day Recovery Time: One to Two Days

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Moderate structural damage to public facilities.

Epidemic: 191.2, Moderately Low Hazard, will not be profiled further

Epidemic is characterized as the occurrence or outbreak of disease to an unusual number of individuals or proportion of the population, human or animal. There was no real history of epidemic in the Town or Village of Arcade.

Potential Impact: Large Region

Cascade Effects: Some Potential

Frequency: Infrequent Event

Onset: Several Days Warning

Hazard Duration: More Than One Week Recovery Time: Less Than One Day

Impact:

- Serious injury or death to large numbers.
- Moderate damage to private property.
- Little or no structural damage to public facilities.

Extreme Temperature: 186.2, Moderately Low Hazard, will not be profiled further

Extreme temperature was characterized as extended periods of excessive cold or hot weather with a serious impact on human and/or animal populations particularly elderly and/or persons with respiratory ailments. While this does occur from time to time in the Town and Village of Arcade it is not seen as a major issue.

Potential Impact: Large Region

Cascade Effects: Some Potential

Frequency: Infrequent Event

Onset: One Day Warning

Hazard Duration: Four Days to One Wk Recovery Time: One To Two Days

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Ice Jam: 183.0, Moderately Low Hazard, will not be profiled further

Ice jams are characterized as large accumulations of ice in rivers or streams interrupting the normal flow of water and often leading to flooding conditions and/or damage to structures. This does occur in the Town and Village of Arcade and has caused flooding. For additional information on flooding due to ice jams see Section II.2.B.

Potential Impact: Several Locations

Cascade Effects: Highly Likely

Frequency: Infrequent Event

Onset: One Day Warning

Hazard Duration: Two to Three Days

Recovery Time: One to Two Days

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

The Group noted the primary areas prone to ice jams: the Village's bridges, West and Main Sts.

Fuel Shortage: 174.8, Moderately Low Hazard, will not be profiled further

Fuel shortages are characterized as a situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments is interrupted. This was mainly considered to be an effect of other hazards, such as severe winter storms.

Potential Impact: Large Region

Cascade Effects: Some Potential

Frequency: Infrequent Event

Onset: A Week or More Warning

Hazard Duration: More Than One Week

Recovery Time: Three Days to One Week

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Tornado: 174.8, Moderately Low Hazard, will not be profiled further

Tornados were characterized as a local atmospheric storm, generally of short duration, formed by winds rotating at very high speeds, usually in a counterclockwise direction. The vortex, up to several hundred yards wide, is visible to the observer as a whirlpool-like column of winds rotating about a hollow cavity of funnel. Analysis showed that this was a rare occurrence in the Town and Village of Arcade.

Potential Impact: Large Region

Cascade Effects: Some Potential

Frequency: Rare Event

Onset: Several Hours Warning

Hazard Duration: Less Than One Day

Recovery Time: More Than Two Weeks

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Hazardous Materials At Fixed Site: 168.2, Moderately Low Hazard, will not be profiled further

Hazardous materials at a fixed site was characterized as the uncontrolled release of material from a stationary facility, which when released can result in death or injury to

people and/or damage to property and the environment through the material's flammability, toxicity, corrosiveness, chemical instability and/or combustibility. The Town and Village of Arcade have some industrial facilities that could potentially release hazardous materials.

Potential Impact: Several Locations Cascade Effects: Some Potential
Frequency: Infrequent Event Onset: No Warning
Hazard Duration: Less Than One Day Recovery Time: Less Than One Day

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

LOW HAZARDS

The analysis produced seven Low Hazards. These are **Drought, Radiological in Transit, Landslide, Civil Unrest, Air Contamination, Infestation, and Food Shortage.**

Drought: 150.5, Low Hazard, will not be profiled further

Drought was characterized as a prolonged period of limited precipitation affecting the supply and quality of water. There is very little history of this in the Town and Village of Arcade, which among other things controls its abundant water supply.

Potential Impact: Large Region Cascade Effects: Highly Likely
Frequency: Infrequent Event Onset: One Week or More Warning
Hazard Duration: More Than One Week Recovery Time: Less Than One Day

Impact:

- Serious injury or death is unlikely.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Radiological In Transit: 150.2, Low Hazard, will not be profiled further

Radiological in transit was characterized as a release or threat of release of radioactive material from a transportation vehicle including truck, rail, air, and marine vehicle. There is no history of this type of hazard in the Town and Village of Arcade, but it is possible given the railroads and state roads that go through the Town and Village.

Potential Impact: Several Ind. Locations Cascade Effects: No, Highly Unlikely
Frequency: Rare Event Onset: No Warning
Hazard Duration: Four Days to One Wk Recovery Time: One to Two Days

Impact:

- Serious injury or death is unlikely
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Landslide: 144.8, Low Hazard, will not be profiled further

A landslide was characterized as the downward and outward movement of slope-forming materials reacting to the force of gravity. Slide materials may be composed of natural rock, soil, artificial fill, or combinations of these materials. The term landslide is generalized and includes rockfalls, rockslides, creep, block glides, debris slides, earth-flow, mud flow, slump, and other similar terms. While landslides are possible in the Town and Village of Arcade, there is little evidence that this would happen in areas with people or structures.

Potential Impact: Several Locations

Cascade Effects: Highly Unlikely

Frequency: Rare Event

Onset: No Warning

Hazard Duration: Less Than One Day

Recovery Time: Three Days to One Week

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Civil Unrest: 144.0, Low Hazard, will not be profiled further

Civil unrest was characterized as an individual or collective action causing serious interference with the peace, security, and/or functioning of a community (e.g., riot). There is no history of this hazard in the Town and Village of Arcade.

Potential Impact: Single Location

Cascade Effects: Some Potential

Frequency: Rare Event

Onset: No Warning

Hazard Duration: Less Than One Day

Recovery Time: Three Days to One Week

Impact:

- Serious injury or death is likely but not in large numbers.
- Moderate damage to private property.
- Moderate structural damage to public facilities.

Air Contamination: 138.2, Low Hazard, will not be profiled further

Air contamination was characterized as pollution caused by atmospheric conditions, (as opposed to a chemical spill or release type of situation) such as a temperature inversion induced smoggy condition sufficiently serious to create some danger to human health. There was no evidence of this occurring in the Town and Village of Arcade.

Potential Impact: Large Region Cascade Effects: Some Potential
Frequency: Rare Event Onset: One Day Warning
Hazard Duration: Four Days to One Wk Recovery Time: Less Than One Day

Impact:

- Serious injury or death is likely but not in large numbers.
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Infestation: 131.5, Low Hazard, will not be profiled further

Infestation was characterized as an excessive population of insects, rodents, or other animals requiring control measures due to their potential to carry diseases, destroy crops, or harm the environment. There was no evidence of this occurring in the Town and Village of Arcade.

Potential Impact: Large Region Cascade Effects: No, Highly Unlikely
Frequency: Rare Event Onset: One Day Warning
Hazard Duration: Four Days to One Wk Recovery Time: Less than One Day

Impact:

- Serious injury or death is unlikely
- Moderate damage to private property.
- Little or no structural damage to public facilities.

Food Shortage: 95.2, Low Hazard, will not be profiled further

Food shortage was characterized as a situation where the normal distribution pattern and/or the timely delivery of foodstuffs to retail establishments for normal consumer demand is interrupted for a substantial period of time. There was no history of this occurring in the Town and Village of Arcade. Additionally, potential occurrences of this would most likely be connected with other hazards such as severe winter storms but the duration of the hazard does not appear to be an issue.

Potential Impact: Large Region Cascade Effects: No, Highly Unlikely
Frequency: Rare Event Onset: A Week or More Warning
Hazard Duration: Two or Three Days Recovery Time: Three Days to One Week

Impact:

- Serious injury or death is unlikely
- Little or no damage to private property.
- Little or no structural damage to public facilities.

Table 4 – Hazard Analysis		
Hazards That Occur Most Often*	Hazards That Occur With No Warning*	Hazards That Present the Greatest Threat to Life*
Winter Storm (Severe)	Transportation Accident	Transportation Accident
Transportation Accidents	Terrorism	Terrorism
Flood	Flood	Hazardous Materials in Transit
Fire	Fire	Explosion
Explosion	Hazardous Materials in Transit	Earthquake
Severe Storm	Explosion	Epidemic
	Water Supply Contamination	
	Utility Failure	
	Oil Spill	
	Blight	
	Earthquake	
	Structural Collapse	
	Hazardous Materials at Fixed Site	
	Radiological in Transit	
	Landslide	
	Civil Unrest	
* Hazards that were rated as occurring regularly or frequently	* Hazards that were determined to occur with no warning	* Hazards that were determined to cause serious injury or death to large or extremely large numbers

2. Hazard Analysis

Based upon this analysis and limited resources, the State Emergency Management Office recommends that the Town and Village of Arcade consider profiling and developing mitigation measures for the moderately high hazards including **Winter Storm (Severe)** and **Transportation Accident, Terrorism, Flood, Fire** and **Hazardous Materials in Transit**.

B. Hazard Profile

1. Past Hazard Events

Severe Winter Storms

Severe Winter Storms occur often in Western New York. These have had cascading effects such as transportation accidents, flood (spring melt off in association with rain), utility failure (most commonly electric), and structural collapse (roofs). **Table 5** profiles severe winter storms over the last ten years that have affected the entire Town and Village of Arcade.

Table 5 – Severe Winter Storms Affecting the Town and Village of Arcade Over the Last 10 Years		
Date	Property Damage	Description
1/13/93	\$500 K	A low pressure system which moved east from the eastern Great Lakes and a second low pressure system which formed along the Middle Atlantic Coast and moved northeast brought heavy snow to much of eastern New York. The snow mixed with sleet and freezing rain from the Mohawk Valley south during the day on the 13th before changing back to snow during the late afternoon and evening. Snowfall amounts ranged from five to fourteen inches Many accidents were reported across the area with over 6,000 customers left without power as the heavy snow and mixed precipitation downed power lines. There were also reports of thunder from the Mohawk Valley south on the afternoon of the 13th as the intense storm moved into the region.
1/31/93	\$50 K	An Alberta Clipper moved across northern New York on the 31st of January as another low pressure formed along the New England Coast. Heavy snow fell across much of northern New York on the 31st with amounts ranging from 6 to 14 inches. Many accidents were reported across the area as a result of the heavy snow.
2/12/93	\$500 K	A low pressure system moved up the Atlantic Coast on the 12th and 13th of February dumping heavy snow across eastern New York. Snowfall amounts ranged from 5 to 18 inches. In addition to the heavy snow many areas also received sleet and freezing rain with the storm, which added to traveling difficulties. As a result numerous traffic accidents were reported across New York.
2/16/93	\$500 K	A low pressure system moved northeast from the Tennessee Valley early on the 16th across southeastern New York and off the northern New England Coast on the 17th dumping heavy snow across much of eastern New York. Snowfall amounts ranged from 5 to 15 inches. Numerous traffic accidents were reported across the area.
2/21/93	\$50 K	A low pressure system which moved northeast from the Ohio Valley on the 21st and a second low pressure system which formed along the Middle Atlantic Coast and moved northeast on the 22nd combined to dump heavy snow across much of eastern New York. Snowfall amounts across the area ranged from 5 to 14 inches.
11/1/93	\$50 K	An early season snowstorm dumped between six and fourteen inches of heavy, wet snow across the Southern Tier and portions of Central New York. The weight of the snow downed trees and power lines. Power outages, though short-lived, were rather widespread. Numerous automobile accidents were blamed on the poor road conditions.
12/21/93	\$50 K	
1/8/04	\$50 K	
1/14/94	\$50 K	
1/2/95	\$9 K	
11/15/95	\$7 K	
11/15/95	\$25K	Heavy snow and squalls
11/16/95	\$5 K	
1/3/96	\$100 K	A major winter storm brought heavy snowfall to the area. In general 10-15 inches of snow fell across the area. Warsaw reported 15 inches. School closings were the rule. The winter road conditions were blamed for many automobile accidents, some with injuries.
3/4/96	\$29 K	A cold flow across Lake Erie produced lake effect snow squalls. Although the lake was 70% ice covered, there was open water west of Erie, PA. Arcade 10".
12/19/96	\$40 K	Arctic air crossing the warm waters of Lake Erie produced a narrow intense band of lake effect snow. Snowfall rates of two to three inches an hour were common in the band. Parts of the New York State Thruway were closed for more than 12

		hours. Thirty to forty cars were stranded near Angola. A state of emergency was declared in Dunkirk and various municipalities imposed driving bans. Many school districts cancelled classes throughout the four county area.
1/6/97	\$28 K	Cold air crossing the warmer waters of Lake Erie produced multiple bands of lake effect snow which persisted for nearly 36 hours. Numerous accidents were blamed on the snow and whiteouts. Specific reports included: 12" in Arcade
1/10/97	\$58 K	Lake effect snow bands set up Friday morning over the Niagara peninsula and Niagara county before shifting south to the Buffalo metro area during the afternoon. Although the band at times drifted north and south, the Buffalo metro area bore the brunt of the storm receiving near record snowfall. Some Buffalo suburbs received 24-30" of snow. During Saturday morning, over a foot of snow fell in just four hours over Amherst and Tonawanda. Numerous accidents were blamed on the storm, several of which were fatal.
1/16/97	\$31 K	Lake effect snows dropped between six and twelve inches of snow in intense bands off Lake Erie. The snows combined with strong winds to produce hazardous conditions. The New York State Thruway was closed between Henrietta and Depew for a good portion of the 17th. Numerous auto accidents, several fatal, were blamed on the snow and frequent whiteouts. Specific amounts included: Arcade 6".
3/6/97	\$81 K	Low pressure deepened rapidly as it passed across Pennsylvania and drew cold air southward changing rain over the area to heavy, wet snow. Totals ranged from six to nine inches near Lake Ontario to five to seven inches across metro Buffalo and the western Finger Lakes. Numerous accidents were blamed on the heavy snow which fell after several weeks of mild, spring-like conditions.
3/14/97	\$196 K	Deepening low pressure over Missouri tracked northeast and brought a mix of ice and snow to the area. Several inches of the icy slush coated trees and power lines, the weight of which downed the trees and lines. Various school districts throughout the area cancelled classes because of the treacherous conditions. Countless automobile accidents, some with injuries, were blamed on the storm. Power outages were scattered across the region.
11/14/97	\$200 K	An early season winter storm brought heavy snow to the area as low pressure moved north along the Atlantic coast. Snowfall amounts ranged from six to twelve inches across the region with the highest amounts over the Genesee valley and western Finger Lakes. The snow was wet and heavy and snarled traffic badly. Countless accidents were reported, many with injuries. Several school districts were forced to close. A record 9.5 inches fell at the Buffalo-Niagara Airport. At Rochester, the 10.6 inches that fell also established a record for the date.
12/10/97	\$107 K	Moisture associated with low pressure approaching the area overspread the region. Most locations had a burst of snow which fell at the rate of one to two inches per hour for several hours. The heaviest snow fell at the worst possible time, creating havoc with the rush hour traffic. Numerous auto accidents were blamed on the storm and several school districts were forced to close early. Snowfall totals ranged from four to six inches in the Buffalo and Rochester metro areas to a foot of heavy, wet snow across the higher elevations of the Finger Lakes and the southern tier. Specific snowfall amounts included: 12" in Arcade.
12/30/97	\$184 K	A strong storm moved up the east coast of the U.S. and dropped up to a foot and a half of snow across the Finger Lakes and eastern Lake Ontario regions. The heavy snow downed power lines and trees east of Rochester. Numerous auto accidents, several with injuries, were a result of the snow. Strong winds combined with the snowfall to produce blowing and drifting snow resulting in significantly reduced visibilities.
3/14/98	\$50 K	Cold air crossing the warmer waters of Lake Erie produced lake effect snow squalls. The heavy snow resulted in slick roadways and numerous accidents.
3/21/98	\$280 K	Deep low pressure tracked from Kentucky to New England and brought heavy snow to the entire region. The storm began as a period of freezing rain and sleet

		Friday evening the 20th and changed over to snow early Saturday morning. The heaviest snow from the storm fell over the northern counties from the Buffalo-Niagara Falls area to Rochester and Oswego county. It was the largest snowfall of the entire winter season in the Buffalo metro area. The snow made roadways extremely slick and innumerable accidents resulted. The heavy ice and snow on power lines and trees resulted in scattered power outages throughout the area.
12/22/98	\$161 K	This first significant lake effect snowstorm of the season was a long lasting one. Arctic air surged into the region following the passage of a strong cold front. The activity off Lake Erie did subside a couple of times during the event, but only for a few hours each time. Lake snows never shut down off Lake Ontario throughout the four day event. The peak times for the event were Tuesday the 22nd--up to 8" off Lake Erie and up to 18" off Lake Ontario; Tuesday night--up to 18" off Lake Ontario; Thursday the 24th afternoon and night--off Lake Ontario up to 30" on the Tug Hill; and Friday--off Lake Erie up to 8" on the Buffalo metropolitan area. The storm totals were not overly impressive since the snow squalls oscillated across the area as winds shifted with the passage of weak troughs. Southeast of Lake Erie, generally 8-12" fell in the snowbelts of southern Erie and Wyoming and northern Chautauqua and Cattaraugus counties. The heavy falling and blowing snow reduced visibilities and driving conditions became treacherous. Numerous automobile accidents (several with injuries and one fatal) were blamed on the wintry conditions. Several school districts cancelled classes giving an early start to the holiday recess.
12/31/98	\$66 K	Lake effect snow squalls developed as cold air crossed the warmer waters of the Great Lakes. The southern suburbs of Buffalo received nearly two feet of snow on New Years eve. In some communities, major roads and businesses were closed and holiday events were cancelled. Snow fell at the rate of one to two inches per hour. The snow and blowing snow created near blizzard conditions and were blamed for numerous auto accidents. The snow squalls continued into the new year.
1/1/99	\$100 K	Lake effect snows which began on New Years Eve continued into the New Year. Off Lake Erie, the snows continued south of metro Buffalo, across the traditional ski areas. Off Lake Ontario, the intense band was dropping snow at the rate of 2 to 3 inches per hour. Specific reports included: Arcade 12".
1/2/99	\$330 K	An intensifying storm over the Southern Plains moved northeast spreading a mix of snow, sleet and freezing rain across the area. Several inches of snow were followed by sleet and freezing rain. In some areas, especially east of Lake Ontario, an unprecedented four to five inches of sleet fell. The wintry precipitation stalled traffic and forced schools to extend the holiday break a few more days. Numerous automobile accidents, several with injuries, were blamed on the storm.
1/4/99	\$270 K	Heavy lake effect snow squalls began on the evening of the 3rd. Off Lake Erie, the band slowly drifted south over the Niagara Frontier and Western Southern Tier during the next two days. Total snowfall from the 48 hour event was fairly consistent across the region due to the slow southerly drift of the snow band. The entire region had over a foot of snow with slightly higher amounts over the northern and southern suburbs of Buffalo where the band stalled somewhat. In Buffalo, amounts ranged from 13" downtown to 17" north and 20" south.
1/6/99	\$105 K	Low pressure moving northeast across the region brought heavy snow and zero visibilities to the region. The synoptic snow was enhanced by moisture from the Great Lakes ahead of a cold front. Once the front moved through the region the cold air crossing Lakes Erie and Ontario produced lake effect snow squalls. Numerous automobile accidents, several with injuries, were blamed on the heavy snow and reduced visibilities. It was the fourth significant lake effect event in two weeks.
1/9/99	\$95 K	A general snowfall fell across the region as a result of a large weather system over the Ohio Valley. Most of the Niagara Frontier received six to nine inches of

		new snow. Across parts of the Genesee Valley and Finger Lakes, snowfall amounts were somewhat lower...a result of a brief changeover to freezing rain. To the east of Lake Ontario, snowfall amounts ranged from six to ten inches.
1/15/99	\$290 K	Near record snowfalls of four to six feet across the region during the last part of December and first half of January put a strain on area buildings. Roof collapses and entire structure failures were numerous across the area. Numerous barns across the region collapsed under the excessive weight of the snow, in several dairy cows were injured and killed. Several garages collapsed damaging the automobiles and machinery inside them. The structure failures aided in the decision by the State and FEMA to declare disaster areas and make assistance available to the counties.
3/4/99	\$3 M	Deep low pressure moved from West Virginia north across New York to Quebec, Canada. Heavy rain changed to heavy snow as cold air circulated into the region. Snow fell at the rate of two to three inches per hour. Drifts reached four to five feet in places. The New York State Thruway (I-90) was closed from Depew to Syracuse. Several hundred cars were stranded in the closed section. The Governor declared Monroe, Wayne, Oswego, Wyoming, Livingston, and Cayuga counties State Disaster Areas. Orleans, Ontario, Wyoming, Livingston, Monroe and Wayne counties were also declared Federal Disaster Areas. The National Guard was called on to help remove cars, rescue stranded motorists and deliver food and medical supplies. Schools and businesses were closed throughout the area. Nearly 10,000 customers lost power during the storm.
3/6/99	\$2.7 M	A strong storm moved from Ohio to New England and dropped a general six to twelve inches of snow across the entire region. The snow fell just two days after much of the area was recovering from another major winter storm. The heavy snow was blamed for numerous auto accidents--some with injuries.
3/22/99	\$450 K	Low pressure developed over Virginia and moved northeast across eastern New York to Quebec, Canada. Rain changed to snow as cold air circulated behind the low. Snowfall amounts east of Lake Ontario ranged from six to twelve inches in most areas, but neared two feet over the higher elevations of the Tug Hill Plateau. East of Lake Erie, the general snows were enhanced by flows off Lake Erie resulting in snowfall amounts up to twelve inches. About 1000 power customers were without electricity east of Lake Ontario as the heavy snow brought down tree limbs onto transmission lines. Numerous auto accidents, several with injuries, were blamed on the heavy snow. Specific snowfall reports included: Arcade 8".
12/16/99	\$46 K	Cold air crossing the Great Lakes produced lake effect snows downwind of Lakes Erie and Ontario. Off Lake Erie the band of precipitation began across the Niagara Peninsula, but settled south quickly across the Buffalo metro area before settling over southern Erie, Wyoming and the northern portions of Chautauqua and Cattaraugus counties. Snow fell heavily in this area and thunder was reported. Snowfall totals were close to a foot.
1/13/00	\$44 K	Low pressure moved across Pennsylvania and brought a general snowfall of three to six inches of snow to the entire western New York area. Across the western southern tier and the higher elevations of the western Finger Lakes, snowfall totals reached twelve inches. Several school districts in the southern tier cancelled classes.
2/14/00	\$320 K	Low pressure moved across the Ohio Valley and Pennsylvania spreading a wintry mix of snow, sleet and freezing rain across the area. Snowfall amounts of four to eight inches in addition to 1/4 to 1/2 inch ice were common across the Niagara Frontier, Western Southern Tier and Western Finger Lakes Region. East of Lake Ontario, ice accumulations were less however snowfall amounts were closer to ten inches.
2/19/00	\$40 K	Low pressure moved from the Ohio Valley to the Jersey coast spreading snow across the region. While most areas received a general four to six inches of

		snow, higher elevations of the Western Southern Tier and Finger Lakes received between six and ten inches.
11/20/00	\$46.5 M	Cold air crossing the warm waters of Lakes Erie and Ontario resulted in lake effect squalls that dropped over two feet downwind of the lakes. Off Lake Erie, the squall developed around midday on the 20th in a southwest flow ahead of a cold front. Snow fell at the rate of two to four inches per hour for several hours. The storm crippled much of the Buffalo metro area. Tens of thousands of people were stranded in autos as city and suburban streets became clogged with traffic and came to a standstill. Three thousand school children were stranded in buses which were unable to complete their routes. Snowfall in this early stage were as high as two feet in a narrow strip about three miles wide. After the passage of a cold front the squall moved south on the northwest flow setting up across the western southern tier of New York. Nearly two feet of snow fell across that region on the 21st-22nd. The squall lifted north again on the 22nd ahead of another cold front with several inches in southern Erie county. After the frontal passage late on the 22nd, the squall moved back south and dissipated as strong high pressure built in across the area.
12/6/00	\$151 K	Lake effect snow bands meandered across the areas downwind of Lakes Erie and Ontario from late on the 5th through the 7th. A cold front crossed the region and ushered in a west to northwest flow of cold air. The squalls which developed dropped up to two feet of light, fluffy snow.
12/18/00	\$63 K	Lake Effect snow bands combined with strong post-cold frontal winds to make driving hazardous in blowing and drifting snow. Snowfalls of up to a foot off Lake Ontario were enhanced in part by orographic lift.
3/4/01	\$1.5 M	A complex low pressure system that plagued the Northeast brought significant snowfall to western and central New York. The snow in western New York came in two phases from Sunday night to early Monday morning (4th-5th) and again Monday night to Tuesday morning (5th-6th). The heaviest snow fell during the first period and was associated with upper level energy, while the second snow period resulted from the western fringe of a large coastal storm south of New England. Snowfall totals for the 48-hour event were generally between 12-18" from the Genesee Valley eastward and 8-12" across far western New York.
12/24/01	\$14.3 M	Lake effect snow bands developed and persisted for an unprecedented five days meandering north and south across the region. Multiple bands of snow developed over the Niagara peninsula during Monday, the 24th, morning and extended into Niagara and northern Erie counties into early afternoon dropping up to six inches. The activity consolidated into a single band during the mid-afternoon and dropped south across the Buffalo metro area through the evening and early overnight. Snowfall rates of 4" per hour and thunder were reported during the evening. The band drifted back north to the Niagara peninsula on Christmas day. On Wednesday the 26th, the band over the peninsula began to drift south and for the next two days continued to meander across Buffalo and its northern and southern suburbs. States of Emergency and driving bans were declared. The National Guard was called in to help in snow removal. Nearby cities including Rochester, New York and Toronto, Ontario sent snow removal crews and equipment to aid in the cleanup. The weight of the seven feet of snow caused roof collapses and in several cases entire buildings collapsed. Arcade received 30".
1/31/02	\$6.8 M	A three to five inch snowfall overnight of the 30th-31st turned to freezing rain during the morning hours. Ice accumulations of one-half to three-quarters inch occurred. Hundreds of thousands were left without power as the heavy ice build-up downed trees and power lines. Some areas were without power for up to 72 hours. Winds picked up and gusted to 55 mph. Trees and tree limbs fell blocking roads and damaging homes and automobiles. Tree damage included large and small limb breakage and bark damage as well as the uprooting of trees. States of Emergency were declared across the Niagara Frontier counties.

3/10/02	\$38 K	A strong cold front crossed the region during the evening hours of March 9th dropping temperatures thirty to forty degrees. The cold air produced lake effect snow bands off Lake Erie during the wee hours of the 10th. The bands started in the Buffalo area and extended to Rochester for a few hours around daybreak before settling south during the day. Amounts were generally six to eight inches but 30 to 40 mph winds on Sunday created hazardous conditions in blowing and drifting snow. Road closures were reported.
11/17/02	\$210 K	Low pressure brought a mixture of rain, freezing rain and snow to the southern tier and the western Finger Lakes region. The weight of the ice and snow brought down limbs and power lines. Numerous automobile accidents, some with injuries, were blamed on the icy conditions.
12/1/02	\$110 K	Lake effect snows developed in a cold, northwest flow during the overnight hours of the first. Over the higher elevations of Chautauqua county up to 18" of snow fell. As the winds backed to southwest, the snow band lifted north and settled over the City of Buffalo and its northern suburbs. On the second, the band weakened and drifted back south.
12/16/02	\$30 K	A general four to six inch snowfall fell across the area. In some locations, lake and terrain effects resulted in high snowfall amounts.
12/21/02	\$10 K	Lake effect snows developed just after midnight on the 21st, peaked during the late morning hours and quickly shut down by mid afternoon. Snow fell at the rate of one to two inches per hour during its peak.
12/25/02	\$135 K	Low pressure moved northeast along the Appalachians and brought a general heavy snow to much of the region on Christmas eve and Christmas day. A eight to twelve inch blanket of snow covered the area with higher amounts generally over the Finger Lakes Region.
1/11/03	\$130 K	A sharp cold front crossed western and central New York late on the 10th. Lake effect snow developed overnight in the cold, westerly flow. The activity began in a fairly broad area at first covering southern Erie and Wyoming counties off Lake Erie and southern Jefferson and northern Lewis counties off Lake Ontario. Very intense single bands set up during the morning of the 11th. Accumulations of two to four inches an hour were common off Lake Erie and three to five inches an hour off Lake Ontario.
1/26/03	\$30 K	A broad area of lake effect snows continued off both Lakes Erie and Ontario in a cold westerly flow. The lake effect snows were enhanced over the higher elevations of the southern tier and Finger Lakes region where snowfall totals on the 26th ranged from eight to twelve inches.

Source: NOAA, 2004

Transportation Accidents

There is a significant amount of truck and rail traffic through the Town and Village of Arcade, mostly on state routes. Transportation accidents involving hazardous materials in transit have occurred as well. **Table 6** profiles transportation accidents and hazardous materials in transit issues over the century that have affected the entire Town and Village of Arcade.

Date	Issue	Description
10/24/1907	Switch opened at down grade curve,	Locomotive buried its nose into several parked rail cars, several people injured.
3/24/1916	Bad wreck on B. A. and A	Plow and two engines go off track of the Buffalo Arcade and Attica RR--no injuries
12/24/1920	Wreck on Pennsy	Broken rail led to 4 freight cars to be demolished
1/23/1925	Twelve cars wrecked	Accident occurred on the Pennsylvania RR near Arcade; no injuries
5/29/1939	Freight cars wrecked on Penn. RR	6 cars left the track; no injuries
4/9/1943	Gallons of gasoline lost near Arcade	Over 2,000 gallons of gas poured over a section of Bliss-Arcade Highway when a tank truck overturned; cause was overloaded truck
3/29/1990	Five car accident	Five-car accident on 3/21 at the corner of Church and Main leaves 2 dead and multiple injuries with downed wires
7/4/1991	Arcade plane crash knocks out electrical power	No injuries; single engine plane crashed during takeoff; power out for 4/5 hours
3/19/1992	6 Car Pile Up on Route 39 Injures 2	Near Eagle/Arcade line; weather contributed

Source: Arcade Herald

Flooding

Low-lying areas in the Village of Arcade are subject to periodic flooding caused by the overflow of Cattaraugus Creek and Clear Creek at their confluence. In addition, flooding at the Water Street and Main Street bridges occurs as a result of clogging by trees and debris. The floodwaters from both areas back up and flow down Pearl Street and along the south side of Main Street.

Other frequent flooding areas in the Village are Church, Park and Water Streets. The runoff coming down the hill at the end of Park and Water Streets, and the overflow diversion area from Haskell Creek, are the main sources of flooding in this area of the Village (*Village of Arcade Flood Insurance Study*, FEMA, March 3, 1992: 2).

In the Town of Arcade, the principal flooding problems are located along Cattaraugus Creek and its tributaries as well as Clear Creek near the southern border of the town. The Flood Insurance Study states that most major floods in recent years have occurred in the late spring or early summer and were caused by excessive rainfall. However, flooding has also occurred during the winter as a result of snowmelt combined with rainfall.

The greatest recorded flood occurred in the Village and Town of Arcade on July 6, 1902; it was estimated to have had a recurrence interval of greater than 200 years. Other significant floods occurred in the Village and Town of Arcade in 1908, March 1942, March 1956, September 28, 1967, March 1971, June 1972 (Hurricane Agnes), June 18, 1984, June 11, 1986, June 21, 1989, January 19, 1996, June 1996, and June 26, 1998.

Newspaper articles describing the 1902 flood reported “a torrent of water, six feet deep, pouring down from Clear Creek along Main Street and Pearl Street.” (*ACE Memorandum*, December 12, 1990: citing newspaper articles printed by the *Wyoming County Herald*, July 11 & 12, 1902).

The flood of September 28, 1967 “produced substantial damage” (*ACOE Memorandum: 3*). Although this flood had an estimated recurrence interval of 40 years (*Village of Arcade Flood Insurance Study: 3-4*), the total precipitation was 4.0 inches on September 28 and 0.92 inches the next day. This heavy rainfall resulted in over \$27,000 in damage to approximately 40 residences and commercial establishments as well as public property.

After the flood of June 1984, “many people recalled it was the highest water in town since the aftermath of Hurricane Agnes in 1972, when the creek rose above the street level.” Areas affected included the elementary school, village offices and the backup well on Church Street as well as portions of Park Street, Mill Street, and Haskell Avenue. (*Wyoming County Herald, June 21, 1984.*)

In 1989, on June 21 and 23, 4.6 inches of rain fell in the basin. “The flood resulted in many residences, buildings, and basements being flooded, people being evacuated on Main and Water Streets, major damage to public roads, farm erosion and crop damage, and a declaration of a State of Emergency.

Based on backwater computations, it is estimated that the June 1989 flood had a discharge of 9,700 cubic feet per second and a 100-year frequency of occurrence.” (*ACOE Memorandum: 3*) After this flood local officials sent out damage questionnaires to the residents affected by the flood and the Corps of Engineers established high water marks and conducted damage surveys. The Corps determined that most of the structures in the flood area were residential and commercial and that the flood had resulted in approximately \$645,000 in flood damage (*ACOE Memorandum: 5*).

The more recent floods in the Village and Town of Arcade have also been severe. On January 19, 1996 the area experienced flooding at American Precision Industries on Route 98 (as a result machine oil was washed into Cattaraugus Creek); on Genesee Road at Route 98; at the Town Highway parking lot; in the Open Gate Trailer Court (about 20 units were affected) where flooding from Cattaraugus Creek came over the road and over the railroad tracks (at Genesee Road and behind the Open Gate Trailer Court); in the Mockingbird Campground; at a residence on Route 98 south of Genesee;

and at Ray Milks' Farm Market. There was substantial flooding the following spring as well.

The June 26, 1998 flood served as the impetus for the creation of the Flood Mitigation Action Plan and has been well documented. A video of the flooding was produced and shows the floodwaters as they inundated Main Street, Route 98, Water Street, and other areas as described later in this report. Information from residents, officials, and business owners regarding the June 26, 1998 flood is referenced frequently and serves as the basis for the delineation of areas that can expect to be flooded again during heavy rainfall.

Fire

Major fires have occurred in the Town and Village of Arcade throughout the 1900's including the Main Street fire of and fires at industrial facilities. **Table 7** profiles major fires over the century that have affected the entire Town and Village of Arcade.

Table 7 - Fires		
Date	Fire	Description
12/14/1898		The central business district in Arcade was destroyed by fire on the eve of Dec. 14, 1898]. Burned all buildings on Main Street within the vicinity of the Citizen's Bank Building.
1/29/1904	A double building completely gutted	Two story double bldg. on East Main Street caught fire from a stove in the laundry
8/22/1907	Cheese Factory Destroyed by Fire: Weed Hill Factory and \$800 Burned	
3/5/1909	Union Hotel burned:	Destroyed all of its contents Friday morning
4/24/1914	900 chicks, 300 hens burned	One large henhouse destroyed
8/5/1921	Fire destroyed O'Dell and Eddy Plant	Loss estimated at \$300,000; causes unknown; Manufacturer of "last blocks, bushel baskets, celery crates, meat boxes and lumber, plus general sawing...Largest plant of its kind in the world...employed 60 men."
1/26/1923	School house destroyed	Fire of unknown origin completely wiped out school building and all contents in Arcade Center on Friday evening
1/25/1924	Fire Destroyed Hooper's Grocery Store at Arcade	Building was a local landmark dating back to 1834
4/30/1926	Fire Damages Arcade Plant	50,000 damage to O'Dell and Eddy factory; 'last block' building

		destroyed
8/10/1928	Fire in Arcade	Gasoline tanks and contents destroyed; Four fire companies called; \$10,000 loss; occurred at Arcade Garage Company
2/7/1936	K.R. Wilson Building. destroyed by fire	150,000 loss of assembly bldg.; Modern Bldg. 200 ft. long, 60 ft. wide
6/7/1939	Boiler explosion at Borden's; 1 killed, 2 injured	demolished powder, builder and coiler rooms; no accompanying fire
3/15/1940	Fire destroyed Clark hatchery	In E. Arcade. 9,000 eggs and 2,100 chickens lost
3/4/1970	Vandalism paralyzes Arcade electric system	Damage estimated at over \$10,000; Insulators broken by rifle fire, ground wires cut; no actual loss of power occurred
7/7/1983	Seven Companies Battle Fire at Drake Feed Mill	Building located on the north side of West Main Street, Arcade; defective wiring suspected cause; "Century-old building
1/2/1989	Explosion causes damage at Arcade Dimension	Fire quickly extinguished; damages at \$40,000; no injuries
3/4/1993	Yansick Lumber Building lost	80' x 100' structure on West Main Street; no dollar estimate of losses

Source: Arcade Herald

Terrorism

The only known terrorism threat occurred on July 9, 1987 when a bomb threat disrupted the Motorola plant. A telephoned bomb threat caused the evacuation of 200 at the Main Street plant

2. Vulnerability Assessment

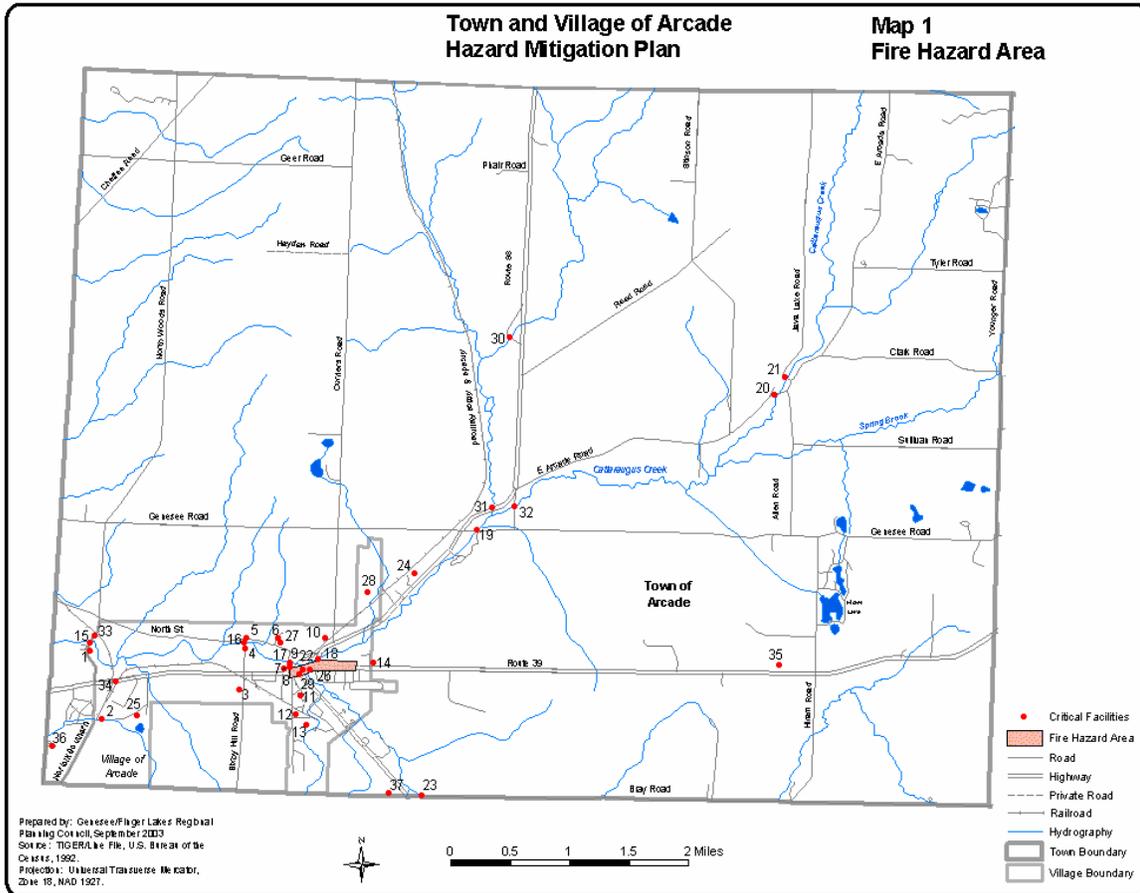
a. Introduction

The Planning Committee identified 37 critical facilities in the Town and Village of Arcade that would be effected by hazards (see [Map 9](#) and [Table 13](#)). The general extent of the hazard's impact to assets is described in Section 2f, Loss Estimation, and Tables 12 and 13. The Planning Committee determined that most of the identified hazards have the potential to happen anywhere in the Village and/or Town (large region). Each hazard below has a map that delineates the Town and the Village. It was determined that the following could occur at specific locations:

Fire

Fire can occur anywhere in the Town and Village of Arcade. However, for the purposes mitigation planning, and based on the profile above, it is mainly associated with the

density of structures in the Village of Arcade, where the land use is largely commercial and high density residential. The Fire Hazard Area can be seen on Map 1. It has been determined that fire were to occur in the Fire Hazard Area large areas could be destroyed given the density and materials of buildings. Additionally, the Fire Hazard Area has many critical facilities (see Section II.B.1.e for additional information on Critical Facilities). Therefore, **Map 1** shows the Fire Hazard Area.

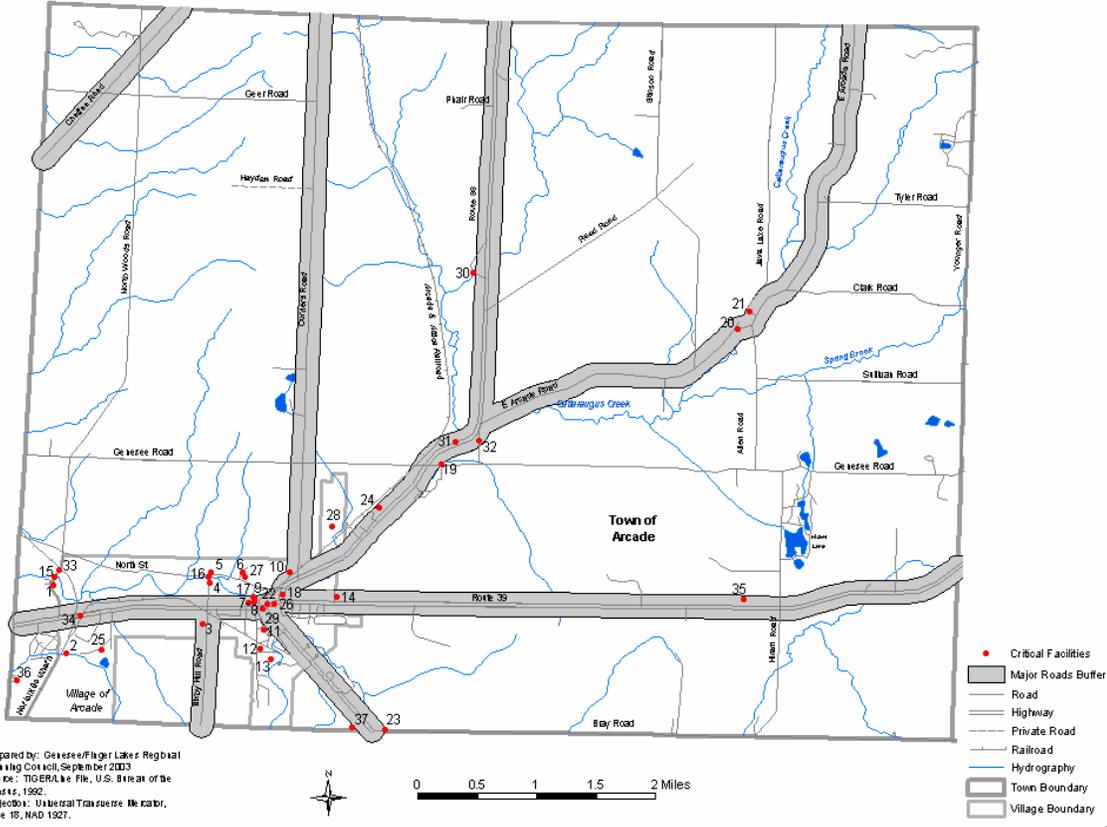


Hazardous Materials in Transit, Oil Spills, Transportation Accidents and Radiological in Transit

These hazards have been, and are mainly associated with, the major roads in the Town and Village of Arcade. This would be a more severe hazard if a problem were to occur in the Village given the land use. However, given the nature of a radiological accident, potentially all areas could be effected. Therefore, these corridors have been delineated and shown on **Map 2**. Additionally, as Map 2 indicates, if a radiologic in transit event were to occur in the Village or the southwest section of the Town, there is a high risk of effecting a critical facility (see Section II.B.1.e for additional information on Critical Facilities).

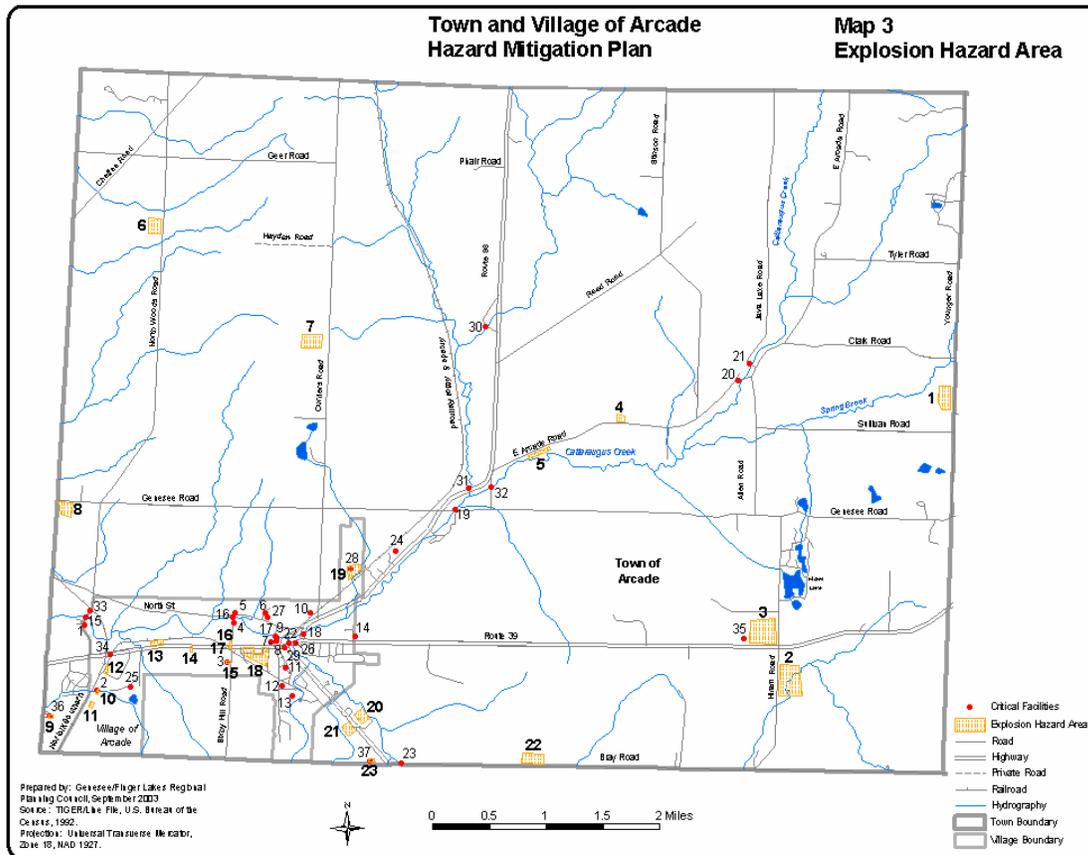
**Town and Village of Arcade
Hazard Mitigation Plan**

**Map 2
Hazardous Materials in Transit**



Explosion

In the Town and Village of Arcade potential explosions are mainly associated with the storage of explosive materials. Most of these sites are outside of the densely populated Village and are not near other structures. Therefore, explosions would most likely be single hazard events. These locations are listed on **Table 8** and shown on **Map 3**. However, as shown on Map 3, if an explosion were to occur within the Village, it would most likely effect one or more critical facilities (see Section II.B.1.e for additional information on Critical Facilities)

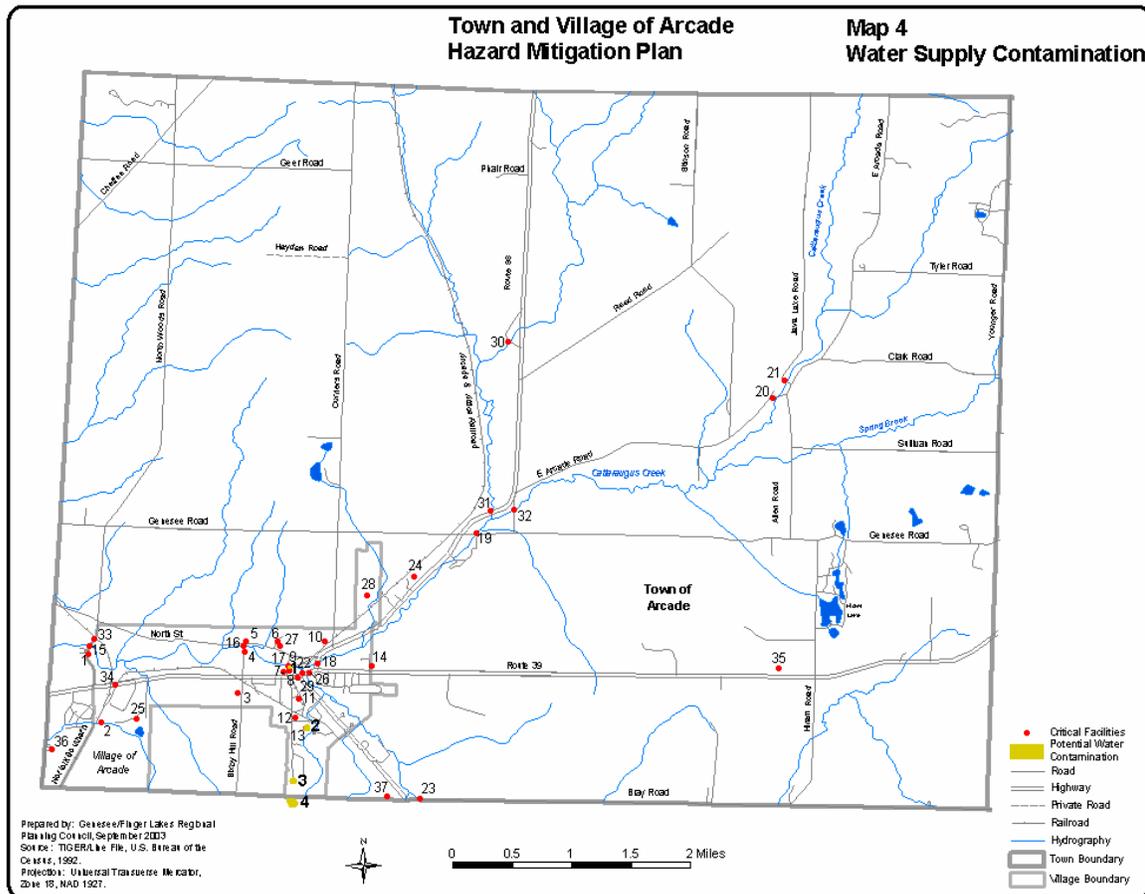


Number	Name	Number	Name
1	Dzeicks Farm	13	Koike Aronson
2	Zielenieski Farm	14	Gas Station
3	Alamater Farm	15	Bixby Hill Substation
4	Youngers Farm	16	Gas Station
5	Hanson Materials Blacktop	17	Gas Station
6	Neamon Farm	18	Prestolite
7	Krueger Farm	19	API
8	Russel Farm	20	Foamex
9	County Line Substation	21	TPI - Arcade
10	Industrial Park Substation	22	Brav Farm
11	Dry Creek Products	23	Freedom Substation
12	Blue Seal Feeds		

Water Supply Contamination

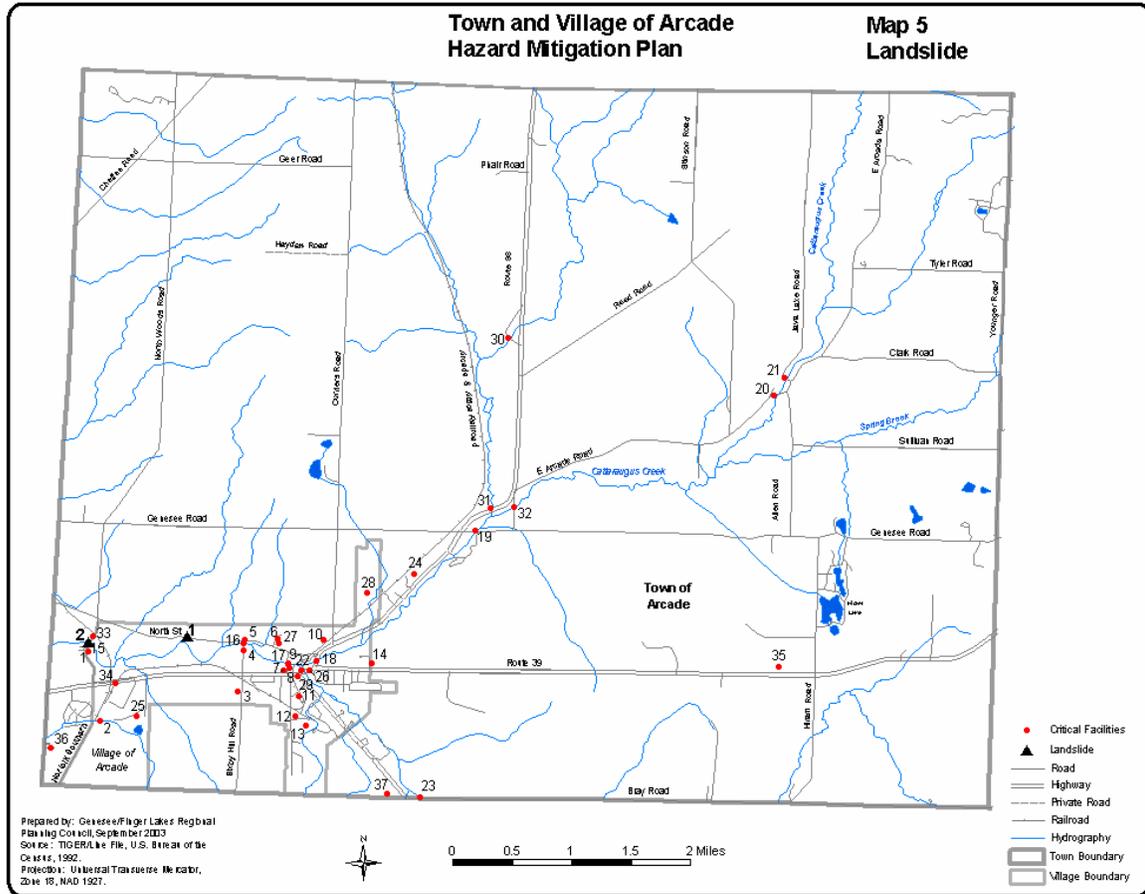
Water supply contamination would most likely be a cascade effect of flood, transportation accident, terrorism and hazardous materials in transit (contamination of ground and surface water). These areas are listed on [Table 9](#) and shown on [Map 4](#). Rather than effect a specific land use or critical facility, water supply contamination would most likely effect the entire Village and portions of the Town.

Number	NAME
1	Church Street Well
2	Sullivan Avenue Well
3	Lower Reservoir
4	Upper Reservoir



Landslide

Landslide areas in the Village and Town of Arcade were identified by the Planning Committee. They are North Street at Cramer Drive (1) and the Hurdville Bridge (2). Given the land uses in these areas this is not considered a serious situation. They are shown on **Map 5**. There are however, as shown on Map 5, two critical facilities located in or adjacent to the Landslide area (see Section II.B.1.e for additional information on Critical Facilities).



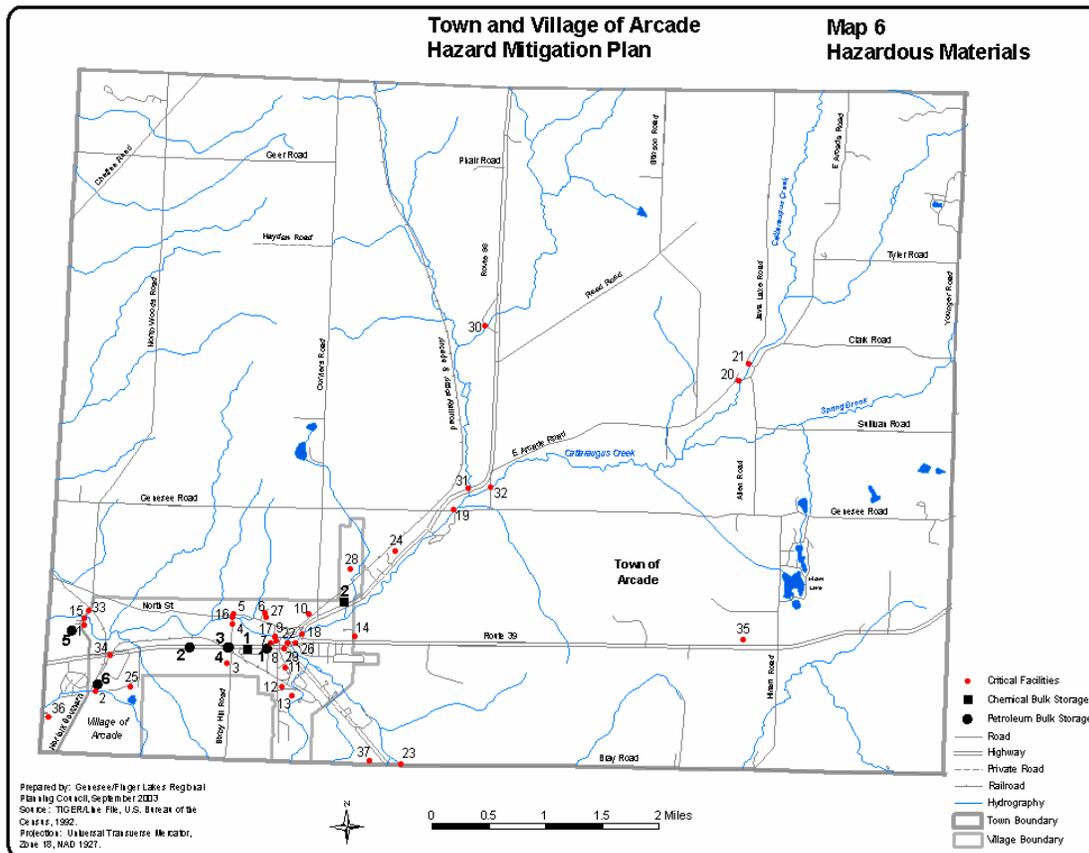
Civil Unrest

Civil unrest would likely only occur at the Village and Town Hall and schools. These are located in densely populated areas but are not seen as a major threat.

Hazardous Materials Fixed

Hazards related to Hazardous Materials Fixed would occur at chemical and petroleum bulk storage locations or explosion sites. Chemical and petroleum storage locations are listed in [Table 10](#) and shown on [Map 8](#). Potential explosion sites are shown on [Map 5](#). Most of these are located at or near the densely populated Village and could present major problems including loss of life, property and cascading effects. Additionally, as shown on Map 5, many critical facilities could be effected by this hazard (see Section II.B.1.e for additional information on Critical Facilities)

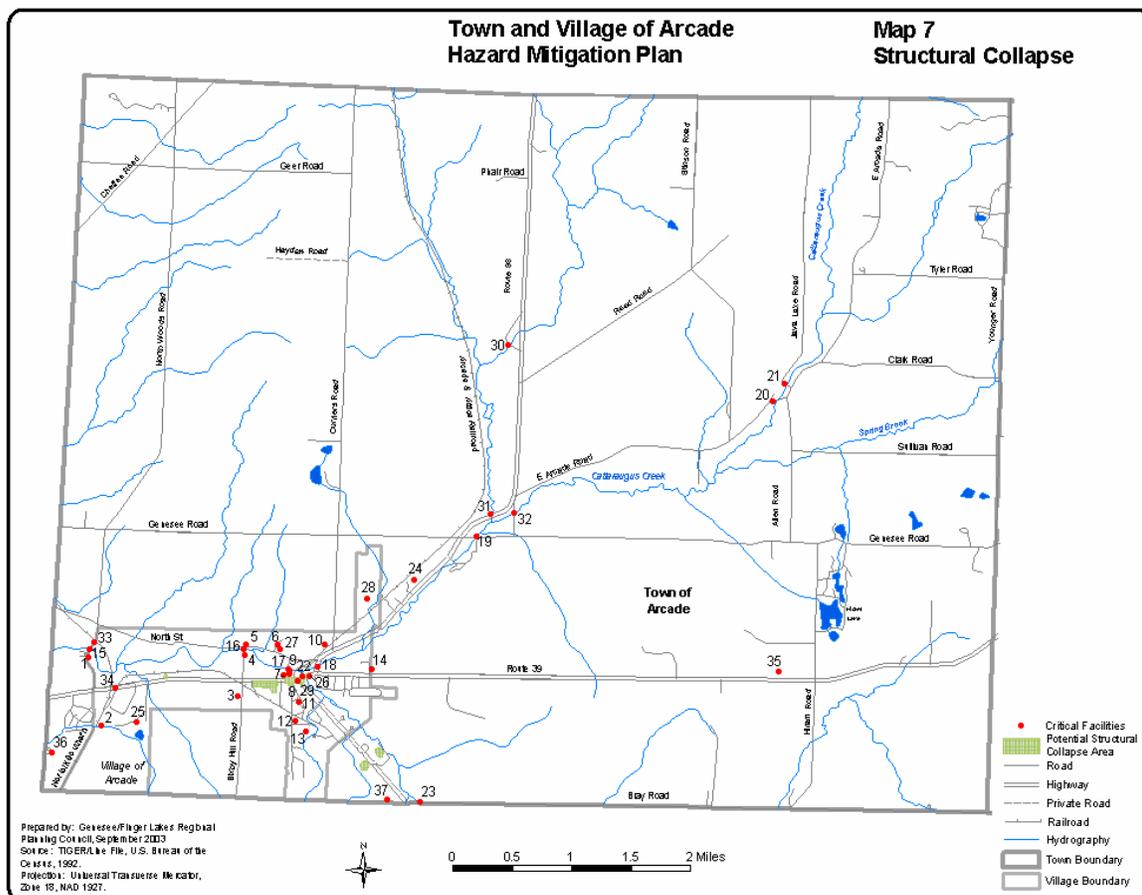
Table 10 - Chemical and Petroleum Bulk Storage		
Petroleum		
Number	NAME	TYPE
1	Uni Mart	Gas Station
2	Kwik Fill	Gas Station
3	Crabb Oil	Gas Station
4	E-Z Shop	Convenience Store
5	Ready Mix	Concrete Mix Plant
6	Blue Seal Feeds	Unknown
Chemical		
1	Prestolite	Manufacturing
2	American Precision Industries	Manufacturing



Structural Collapse

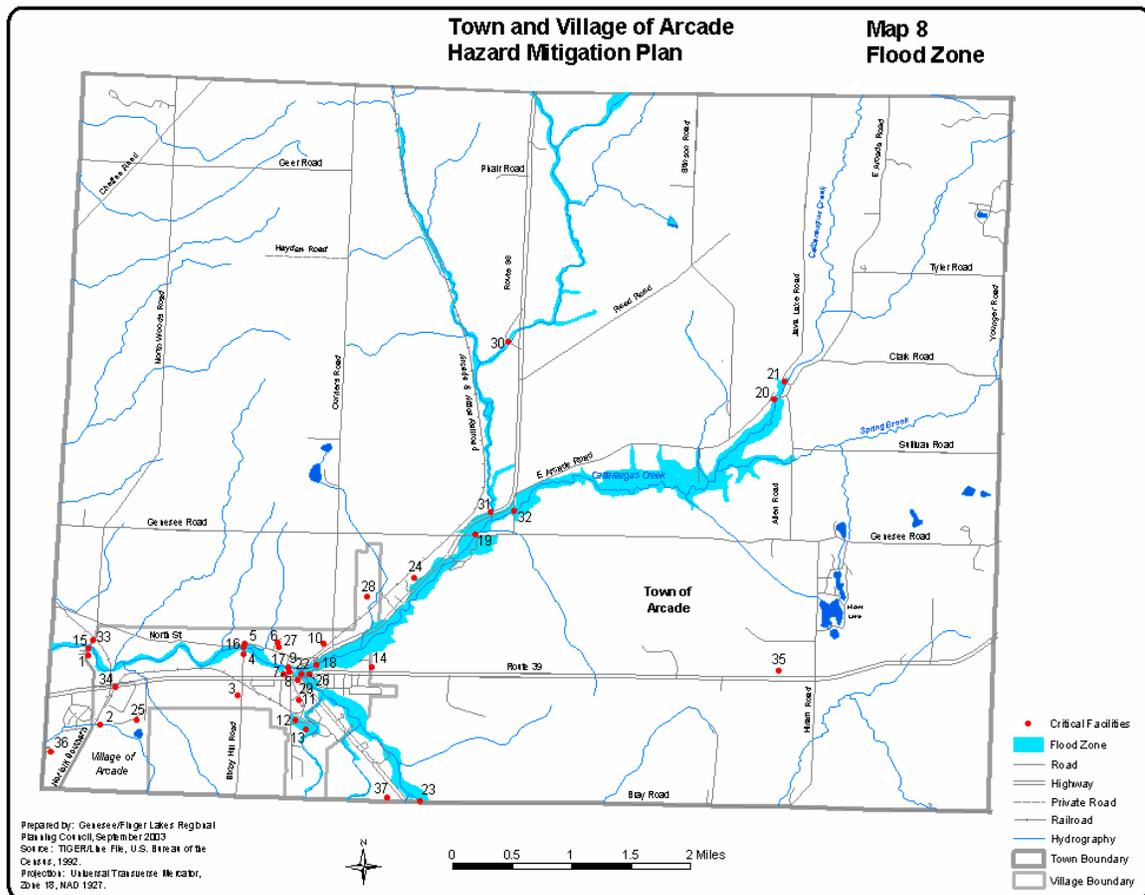
Structural collapse was delineated as areas with densely populated structures or specific buildings with roofs conducive to structural collapse mainly due to snow pack or fire. In either case serious injury or loss of life would occur if people were in the buildings at the time of collapse. The time of occurrence would be more of a factor with Site 2-5 given that they are places of employment. The Main Street area site would most like cause major damage, serious injury, and potentially loss of life no matter the time of occurrence. These structures are listed in [Table 11](#) and shown on [Map 7](#).

Table 11 - Potential Structural Collapse	
Number	NAME
1	Main Street Area
2	Foamex
3	Taylor Pullman (TPI)
4	Koike Aronson
5	Prestolite



Flood and Ice Jams

The following description of flood hazard areas provides an identification of areas in Arcade that will be affected by a 100-year flood (according to the FIRM) (see Map 8). The number of parcels affected by property type is provided for each street. The number of parcels listed represents those parcels that will have some area inundated with water whether or not buildings or other improvements on the parcels are affected during an intermediate regional flood.



North Woods Road/Hurdville Road: Few parcels fall within the 100-year floodplain in this area on the western border of the village and town. Half of the six parcels are vacant. Only two residential parcels are found here: one is a single-family residence and the other is a large rural residence of over fifteen acres. Three businesses operate along North Woods/Hurdville Road inside the 100-year floodplain. The Arcade sewage treatment plant is located on Hurdville Road in the village.

Main Street. The largest number of parcels within the floodplain are along Main Street within the village. A large number of the parcels and structures within the 100-year floodplain are located near the confluence of Cattaraugus and Clear Creeks. Of the parcels at risk, there are a nearly equal number of residences and businesses. Much of the village's downtown area of storefronts and shops are at risk from flooding.

As could be expected, many of these structures located in the downtown business district are quite old having been built in the late nineteenth or early twentieth century. Also located along Main Street are two churches. During flooding, water from Cattaraugus Creek over flows its banks on the north side of the street and water from the confluence of the two creeks also inundates the street.

Additional flooding of the street results from water carried down from streets connecting to Main Street. Park Street, and Bixby Hill Road all have higher elevations south of Main Street. As rainfall accumulates on properties along these roads, ponding occurs and the stormwater flows to the paved roads and downhill towards Main Street. During flooding this poses problems for emergency service personnel attempting to reach residences and businesses on Main Street.

North Street. The majority of parcels (53%) located along North Street (including the portion in the eastern end of the village that constitutes NYS Route 98) are single-family residences. Two businesses are located on the NYS Route 98 portion of North Street. The remaining seven parcels are vacant with one zoned for commercial use.

During the June 26, 1998 flood stormwater runoff from the apartment complex for seniors on Douglass Drive flowed onto North Street. The flooding was not severe enough to make the street unreachable by emergency vehicles.

West Street. Of the nine parcels on West Street within the floodplain, all but one is residential. Half of these residences are two-family homes and there is also a farm present. During heavy rainfall, flooding from Cattaraugus Creek inundates portions of West Street and joins with runoff from Main Street from overland flooding from the adjacent Bixby Hill Road making travel for emergency vehicles difficult.

Church Street. There are no residences located on Church Street that sustain damage due to flooding. In addition to flooding from Cattaraugus Creek, stormwater from Main Street flows down Church Street resulting in a hazard to Pioneer Elementary School, the village offices including the police station, and a backup public well that supplies water to the village.

Park Street. There are five residential parcels and one vacant parcel within the 100-year floodplain on Park Street. Of major concern is the slope of Park Street from the Arcade & Attica rail line north towards Main Street. This section of Park Street experiences ponding and large amounts of stormwater drain onto Main Street causing additional hazards on Church Street.

Sullivan Avenue: Flooding from Haskell Creek affects five residences and one vacant lot and causes runoff onto the street and ponding on properties located on Sullivan Avenue. The village's electric and water departments' garage is located here as well as the second backup well. Stormwater runoff from the Village Park erodes residential landscaping and carries debris that collects downstream causing further encroachment in the floodway.

Mount View Drive: According to the FIRM, only one single-family residence is affected by riverine flooding from Haskell Creek during a 100-year flood.

Jackson Avenue: A subdivision of fourteen lots with 4 structures. All of the lots fall within the 100-year floodplain based on the FIRM. A man-made pond is also present within the subdivision. The presence of this pond coupled with extensive rainfall may intensify flood hazards in the subdivision if new structures further impede the flow of water.

Glenwood Drive: Based on the FIRM, five residences are within the 100-year floodplain. While the FIRM assumes that this is riverine flooding from Haskell Creek, the hazards to these residences is a result of overland flooding due to stormwater runoff.

Because of the limitations of the 36-inch pipe under the abandoned railroad right-of-way and another pipe under Haskell Avenue, these residences receive runoff from the south as excess water flows northwesterly running parallel with Liberty Street and Glenwood Drive.

Liberty Street: The street begins at the convergence of Cattaraugus and Clear Creeks on Main Street and heads southeast running parallel with Clear Creek. Riverine flooding at the convergence of the two creeks is increased as additional riverine flooding from Clear Creek flows downstream across the back half of properties on the east side of the street.

There are 23 residences, 8 businesses, and 3 vacant parcels within the 100-year floodplain on Liberty Street. These parcels do not include those parcels outside of the village limits, which are discussed later.

Haskell Avenue: There are eleven single-family residences and a parcel occupied by the Arcade & Attica Railroad on Haskell Avenue within the 100-year floodplain of Haskell Creek. As with Glenwood Drive, stormwater runoff as a result of the limitations of the pipe under the abandoned railroad bed to the west of the eleven residences in combination with overland flooding from the diversion ditch at the south end of the street is responsible for the flood hazards.

Deacon Drive: Overland flooding is the main hazard to the ten single-family residences within the 100-year floodplain. But only the eastern portion of the lots and not the structures themselves are affected by the flood hazards.

Pearl Street: The main flood hazard on Pearl Street is the confluence of Cattaraugus and Clear Creeks. There are twelve residences that fall within the 100-year floodplain, with all but one being single-family homes.

Sanford Avenue: According to the FIRM, riverine flooding from Cattaraugus Creek would affect only one commercial property at the intersection of Main Street and Sanford Avenue during a base flood. While the property has a Main Street address, the FIRM delineated floodzone shows encroachment on the Sanford Avenue side of the parcel.

Water Street: A base flood would affect seven residences and one vacant parcel on Water Street. The bridge over Cattaraugus Creek is the only critical facility on the street and is discussed in the next section.

Maple Street: Riverine flooding from the convergence of Cattaraugus and Clear creeks would affect one single-family home during a 100-year flood. There does not appear to be any additional hazards due to stormwater runoff.

Grove Street: Given the proximity to Clear Creek, this area is not affected as heavily as streets to the west and south of it. According to the FIRM, only two parcels are at risk during a base flood: one is a residence and the other is vacant.

Curriers Road: As determined by the FIRM, there are three farms and a three-family residence within the 100-year floodplain. Monkey Run, a tributary of Cattaraugus Creek is the source of the riverine flooding on Curriers Road.

Clough Avenue: Of the parcels on Clough Avenue within the floodplain, one is a single-family residence and the other is vacant farmland. Flooding from Clear Creek and stormwater runoff from the village park during heavy rain falls account for the hazards to these two parcels.

Clearview Drive: There are two single-family residences within the 100-year floodplain of Clear Creek. There does not appear to be any hazards caused by stormwater runoff.

Stuart Avenue: There are three single-family homes and a church in the 100-year floodplain of Clear Creek. Like Clough Avenue, stormwater runoff and ponding result from the overflow from the village park.

Sherman Drive: There are seven single-family residences and a vacant residential parcel that are at risk of damage from riverine flooding from Cattaraugus Creek during a base flood. No ponding or unavailability of roads due to runoff has been reported during previous floods.

NYS Route 98 South: There is a mix of different uses of parcels within the 100-year floodplain of Clear Creek. This area of the floodplain includes residential, commercial,

agricultural, and community service uses and two vacant lots. Stormwater runoff from an old railroad bed flows across the rear of a medical center located on the west side of Liberty Street, which produces additional hazards to properties on Haskell Avenue.

NYS Route 39: The only parcels on NYS Route 39 in the town that lie within the 100-year floodplain are two vacant parcels of productive farmland. Riverine flooding from Cattaraugus Creek combined with ponding across the road produces a risk to residences and businesses to the east of the ponding when emergency service vehicles cannot reach them.

Bray Road: A single-family residence and one lot of abandoned agricultural land are the only parcels within the 100-year floodplain along the southern boundary of the town. In addition to hazards created by riverine flooding from Clear Creek, there is overland flooding due to runoff from a farm just outside the southeast boundary of Arcade in the Town of Freedom.

NYS Route 98 North: The portion of NYS Route 98 that is part of Cattaraugus Road has ten agricultural parcels within the 100-year floodplain of Monkey Run Creek. All of the farms are used for the production of field crops. Seven of the eighteen residences present in the floodplain are rural residences with ten or more acres. There are 11 single-family residences. The remaining parcels are vacant.

There has been no record of additional hazards resulting from stormwater runoff or riverine flooding. However, farming practices play a large part in determining the extent of stormwater runoff. The Wyoming County SWCD currently works with farmers to aid in planning the most efficient use of land and minimize risks to public safety. There are also two businesses that operate in the floodplain along with the town's Department of Highways garage.

Phair Road: There is one farm that falls within the 100-year floodplain of Monkey Run Creek. No stormwater runoff from NYS Route 98 has been reported during or after past floods.

Reed Road: The Monkey Run Creek 100-year floodplain involves only three parcels and has experienced no additional hazards as a result of stormwater runoff. Of the three parcels there is a livestock farm, a rural residence with over 10 acres, and a vacant residential parcel.

East Arcade Road: Only one single-family residence lies within the 100-year floodplain of Cattaraugus Creek. The other two residences are seasonal and there are five farms that would be affected by a base flood. To date, there have been no reports of drainage problems resulting in ponding on the road itself.

Genesee Road: A small number of residences (2) are located within the 100-year floodplain. However, during the June 26, 1998 flood stormwater runoff inundated

Genesee Road at numerous locations. A large amount of sediment was washed across the road by the floodwaters. At one location, the water was five feet over the road.

Stinson Road: There is a single mobile home that lies within the 100-year floodplain of Stinson Road. No additional hazards as a result of ponding or stormwater runoff have been reported.

Allen Road: There is a rural residence of over ten acres and a seasonal dwelling that lie within the floodplain. During the June 26, 1998 flood, a 143-foot stretch of Allen Road near Sullivan Road was one foot under water as a result of ponding and insufficient drainage.

i. Additional Flooded Areas of June 26, 1998

The flood hazard areas described below were determined based on the residential/agricultural and commercial/industrial survey and discussions of the Committee and the subcommittees, primarily the FSDS.

The purpose of investigating areas outside the FIRM designated floodplain is to gain a better understanding of areas at risk due to riverine flooding, overland flooding/stormwater runoff, and ponding during periods of heavy rainfall based on the June 26, 1998 flood.

The western side of Park Street is not included in the 100-year floodplain on the FIRM. However, conversations between the public and the NYSDEC and the Committee have shown that floodwater from Haskell Creek does not flow around the railroad tracks to the east but instead goes over the tracks and continues north.

Residences on Mill Street sustained damage to structures and landscaping due to riverine flooding. Floodwaters also reached the backyards of residences on the east side of Prospect Street but did not extend to the structures.

Residences on Deacon Drive not within the FIRM's 100-year floodplain were also affected as stormwater runoff from the overflowing diversion ditch on Haskell Avenue damaged landscaping and lawns.

In the eastern end of the village, there was flooding on Main Street that reached the Tops Supermarket loading docks and affected properties on William Street, Edward Street, Steele Avenue, and Rule Drive.

In the town, flooding from Monkey Run Creek damaged one farm on Dunn Road in the town and overland flooding damaged farms on Genesee Road.

c. Streambank Erosion

Streambank erosion along Cattaraugus and Clear Creeks and their tributaries is accelerated during flooding due to higher than normal water velocities within the streams. The increased erosion is not limited to streambanks.

As floodwaters overflow their banks, they carry sediment and debris from residential lawns, agricultural land, and other sources further downstream and eventually into the channels of the creeks and their tributaries. This has an adverse effect on aquatic and riparian habitats in not just Arcade but the entire Cattaraugus Creek Watershed.

Both streambank and property erosion results in accumulation of sediment and debris within and along the channel of streams. This accumulation occurs as sediment and debris settles in the channel simultaneously lowering the elevation of the stream banks and raising the elevation of the streambed. The subsequent result is a reduction in the carrying capacity of the streams, which causes higher water elevations during future floods.

The bridges in Arcade act as collection sites for this debris causing blockages of the floodway that raise flood elevations further downstream and also threaten evacuation routes during extreme flood emergencies.

The Wyoming County Soil Survey was used to determine what areas along Cattaraugus and Clear Creeks are likely to be susceptible to streambank erosion. Erodibility is based on the “k-factor” for the various soil types present along the banks of Cattaraugus and Clear Creeks and their tributaries. Erodibility based on the “k-factor” is split into three categories:

- Low - $k = 0.17$ to 0.2
- Medium - $k = 0.24$ to 0.28
- High - $k = 0.32$ to 0.49

For the most part, highly erodible soils are found along the entire streambanks of both Cattaraugus and Clear Creeks, as well as their tributaries. In certain areas, high erodibility soils are present further inland from the streambanks than in other areas.

The soils along Monkey Run Creek near the northern town boundary are mostly medium erodibility soils with lower erodibility soils present behind those. Further south near the point where Monkey Run breaks off from Cattaraugus Creek there is a high proportion of high erodibility soils.

The soils located east of Cattaraugus Road between East Arcade and Genesee Roads along Cattaraugus Creek are highly erodible. Heading further south near the eastern village boundary the soils are mainly of high erodibility along the streambanks, but have with medium erodible soils just off the banks of the creek.

From the eastern border to the western border of the village, there is a mix of moderately and highly erodible soils along Cattaraugus Creek. The proportion of medium erodible soils increases along Cattaraugus Creek from the eastern to the western border of the village. Along Clear Creek within the village limits, the soils are mainly of moderate erodibility with lower erodibility soils directly behind them. Table 12 lists the soils commonly found along the creeks of Arcade and their K-factor

Table 12

Prominent Soil Types and Corresponding K-factor along Cattaraugus and Clear Creeks and their Tributaries (ranked by K-factor, not volume)	
Soil Type (map symbol[s])	K-factor
Allard silt loam (AIA)	0.49
Papakating mucky silt loam (Pm)	0.49
Papakating silt loam (Pk)	0.49
Scio silt loam (ScA)	0.49
Alden mucky silt loam (Ad)	0.37
Tioga silt loam (Tg)	0.37
Walkill silt loam (Wk)	0.37
Ellery silt loam (Ee)	0.32
Red Hook gravelly loam (Rh)	0.32
Castile gravelly loam (CgA, CgC)	0.24
Chenango gravelly loam (CiA, CiC)	0.24
Erie channery silt loam (EsB, EsC)	0.24
Halsey loam (Ha)	0.24
Langford channery silt loam (LaB, Lac)	0.20
Lansing gravelly silt loam (LaD)	0.20

Source: Wyoming County SWCD, 1999.

d. Floodplain Development

Development within the 100-year floodplain raises flood elevations by obstructing the natural flow of water and increases risk to property and safety. Development in the Village of Arcade is extensive within the floodplain. There is substantial residential development within the 100-year floodplain.

The village’s commercial district is located along Main Street to the south of Cattaraugus Creek extending to the confluence of Cattaraugus and Clear Creeks between Water and Pearl Streets to the east and West Street and Bixby Hill Road to the west. This area also includes industrial and community service establishments.

The Village of Arcade has a floodplain development ordinance, but at present this ordinance does not totally restrict development within the floodplain. An approved 14-lot subdivision on Jackson Avenue falls partially within the floodplain. The development of these lots (currently only one has a structure) will need to be monitored to ensure that future improvements do not increase flood problems.

Further development to the north of Main Street is limited by streambank erosion and steep slopes as result of the close proximity to Cattaraugus Creek.

The primary land uses within the floodplain in the Town of Arcade are agricultural and rural residences with lot sizes greater than ten acres. There are also single-family residences and some mobile homes located in hazard areas, but the majority of parcels within the floodplain are larger lots. This is not the case along NYS Route 98 adjoining the village. To both the north and south of the village there is highway commercial and storage/distribution facilities along with scattered residential development.

There has been little new commercial or industrial development within the town over the past twenty years. However, there has been substantial residential development during the same period.

e. Critical Facilities

Critical facilities are structures or sites that warrant identification because they are of special importance to the community or have special needs that need to be met during emergencies. The Committee identified 25 critical facilities in the village and town (see [Map 9 and Table 13](#)). Additionally, there are eight vehicular bridges and two railroad bridges that traverse Cattaraugus Creek and one vehicular bridge that crosses Clear Creek.

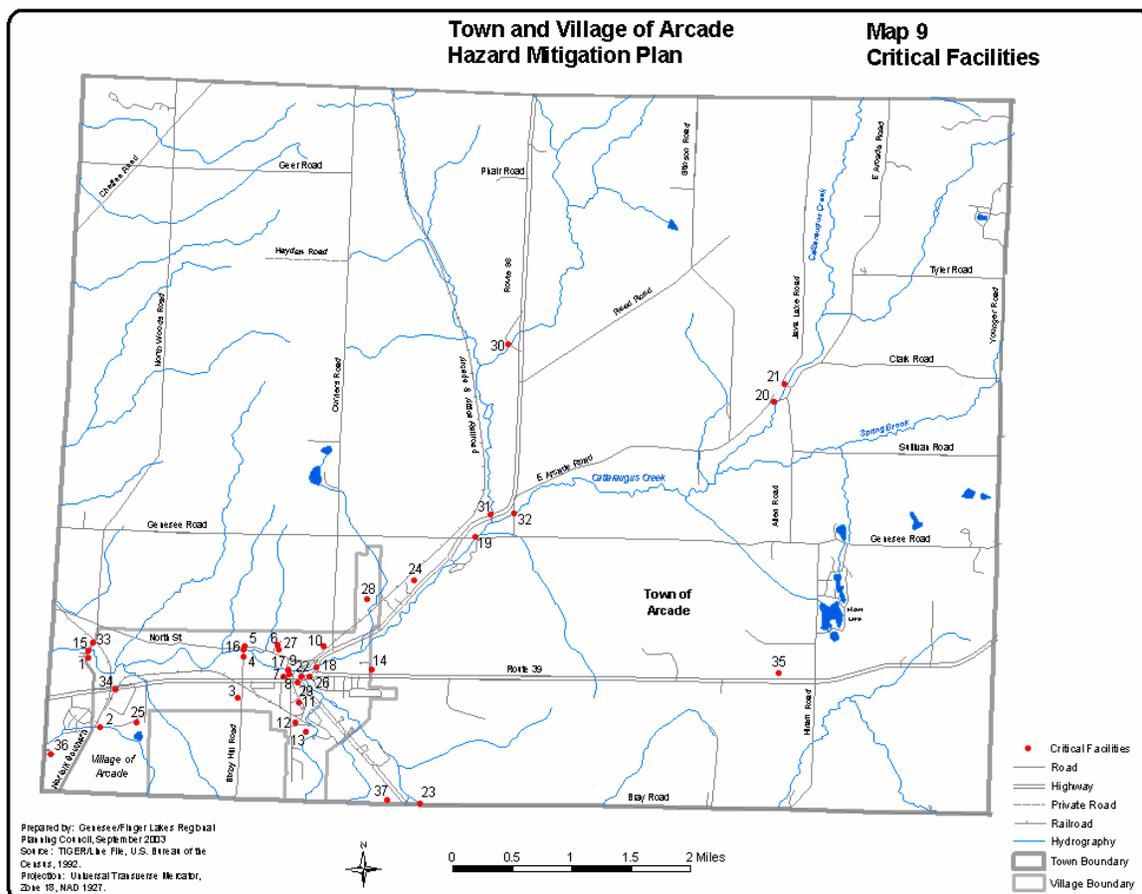


Table 13 - Critical Facilities Index

Number	Critical Facility	Type
1	Wastewater Treatment Plant	Sewer Treatment
2	Industrial Park Substation	Substation
3	Bixby Hill Substation	Substation
4	West Street Sewage Pumping Station	Sewer Treatment
5	North Street Sewage Pumping Station	Sewer Treatment
6	Adult Living Apartments	Care Facility
7	Pioneer Elementary School	School
8	Village Offices and Police Station	Police/Offices
10	Village Fire Station	Fire Station/Ambulance
11	Streets & Parks Department Garage	Communications/ Garage
12	Electric & Water Department Garage	Communications/ Garage
13	Sullivan Avenue Well	Well
14	Adult Living Apartments	Care Facility
9	Church Street Well	Well
15	North Woods Road Bridge	Bridge
16	West Street Bridge	Bridge
17	Church Street Bridge	Bridge
18	Water Street Bridge	Bridge
19	Genesee Road Bridge	Bridge
20	East Arcade Road Bridge	Bridge
21	Java Lake Road Bridge	Bridge
22	Main Street Bridge	Bridge
23	Bray Road Bridge	Bridge
24	Town Highway Department Garage	Garage
25	Rainbow's End	Child Care
26	Early Bird	Child Care
27	Pioneer Phone Answering	Communications
28	API Lift Station	Sewer Treatment
29	Town Offices	Town Hall
30	Dunn Road Bridge	Bridge
31	Route 98 Bridge	Bridge
32	East Arcade Road Bridge	Bridge
33	NS RR and North Woods Bridge	Bridge
34	W Main and Attica RR Bridge	Bridge
35	Wyoming County Tower	Communication
36	County Line Substation	Substation
37	Freedom Substation	Substation

f. Loss Estimation

i. Methodology

Loss has been estimated two ways. First, Based on FEMA document 386-2 entitled “Understanding Your Risks: Identifying Hazards and Estimating Losses,” (Section 4) we conducted an abbreviated inventory assessment (Table 14). That is, because of time and budgetary limitations, we have not conducted a detailed assessment of damage for each asset. Rather, we estimated a level of damage from each hazard for the entire hazard area (in this case, the Town and Village of Arcade) based on historical evidence.

Information on the past hazards were gathered from various sources, including the town and village historian, the Arcade Herald, the 1999 Flood Mitigation Action Plan, the town highway superintendent, the village public works director, and the village police chief.

Cost estimates for these past events were converted to 2002 dollars (the most recent year available) using a Consumer Price Index conversion factor formula from G/FLRPC staff that ultimately came from Oregon State University. This was then rounded and given a cost range to accommodate disasters of differing magnitudes.

These estimates are very general and should be used to get a broad sense of “order of magnitude” costs. Further analysis would be necessary to refine these estimates.

Hazard	Year of Past Event	Location of Event	Damage Estimate	Property Type
Explosion	2002	Dry Creek Products	\$390,000	private
Fire	1993	Yansick Lumber	\$400,000	private
Flood	1989	Clear and Cattaraugus Cr.	\$645,000	private/public
Hazardous Material (Mobile)	no past events			
Terrorism	1988	Motorola Bomb Threat	\$1,000-\$1,500	public
Transportation Accident	1986	Main St./Bixby Hill Rd. truck spill	\$800-\$1,200	public
Winter Storm	2001	lake effect snow	\$32,000	Public

Source: Consumer Price Index

The second method used for loss estimation is by real property value within the hazard areas shown in Section B.2 and the critical facilities described in Section B.2.e.

Hazard	Total Land Value	Total Property Value
Fire Hazard Area	\$579,700	\$7,904,800
Hazardous Materials in Transit	\$10,214,725	\$71,658,230
Explosion Hazard Area	\$1,848,900	\$13,781,800
Landslide	\$9,900	\$9,900
Chemical Bulk Storage	\$66,000	\$66,000
Petroleum Bulk Storage	\$34,130,000	\$71,658,230
Structural Collapse Area	\$789,800	\$10,038,000
Flood Zone	\$1,657,800	\$12,209,400
Critical Facilities	\$905,000	\$7,650,800

Source: Wyoming County Real Property Service

g. Land Use and Development Trends

The Village and Town of Arcade are located in the southwest corner of Wyoming County in western New York with Erie County to the west and Cattaraugus County to the south. The Holland Land Company purchased the land on which the Village and Town of Arcade now rest in 1792.

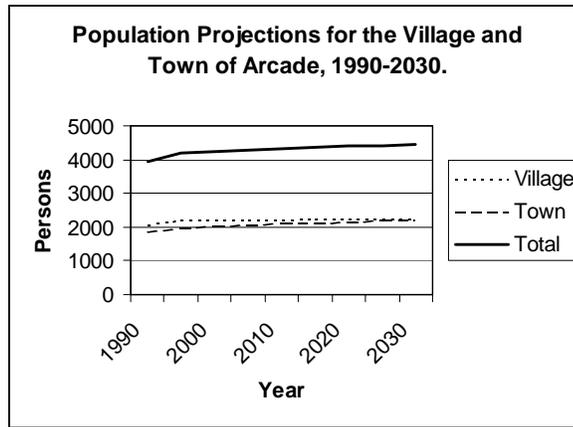
Originally part of the Town of Batavia in Genesee County, the area underwent three separate name changes until it was renamed Arcade in 1866. In 1871 the Village was incorporated. Presently, the Town covers an area of approximately 47.1 square miles of which the Village occupies 2.5 square miles.

The 1990 census showed that 2,082 people lived within the village limits with an additional 1,857 people living in the Town of Arcade. Therefore, the total population for the study area was 3,938 in 1990. The 2000 census showed that 2,026 people lived within the village limits with an additional 2,158 people living in the Town of Arcade. That is a population increase of 6.25%, or 246 people in the Town over the 10-year period.

As a community, the Village and Town of Arcade are experiencing steady growth making them one of the faster growing communities in Wyoming County. According to population projections done by the Genesee/Finger Lakes Regional Planning Council, the population of the town and village is expected to increase to 4,449 by the year 2030.

According to these projections, both the village and town are expected to experience a steady, albeit slight, increase in population over the next 30 years. **Graph 1** shows the population projections for the village and town from 1990 to 2030. Future hazard and emergency planning will need to consider both the increase in total population and the increase in population in the Town of Arcade.

Graph 1

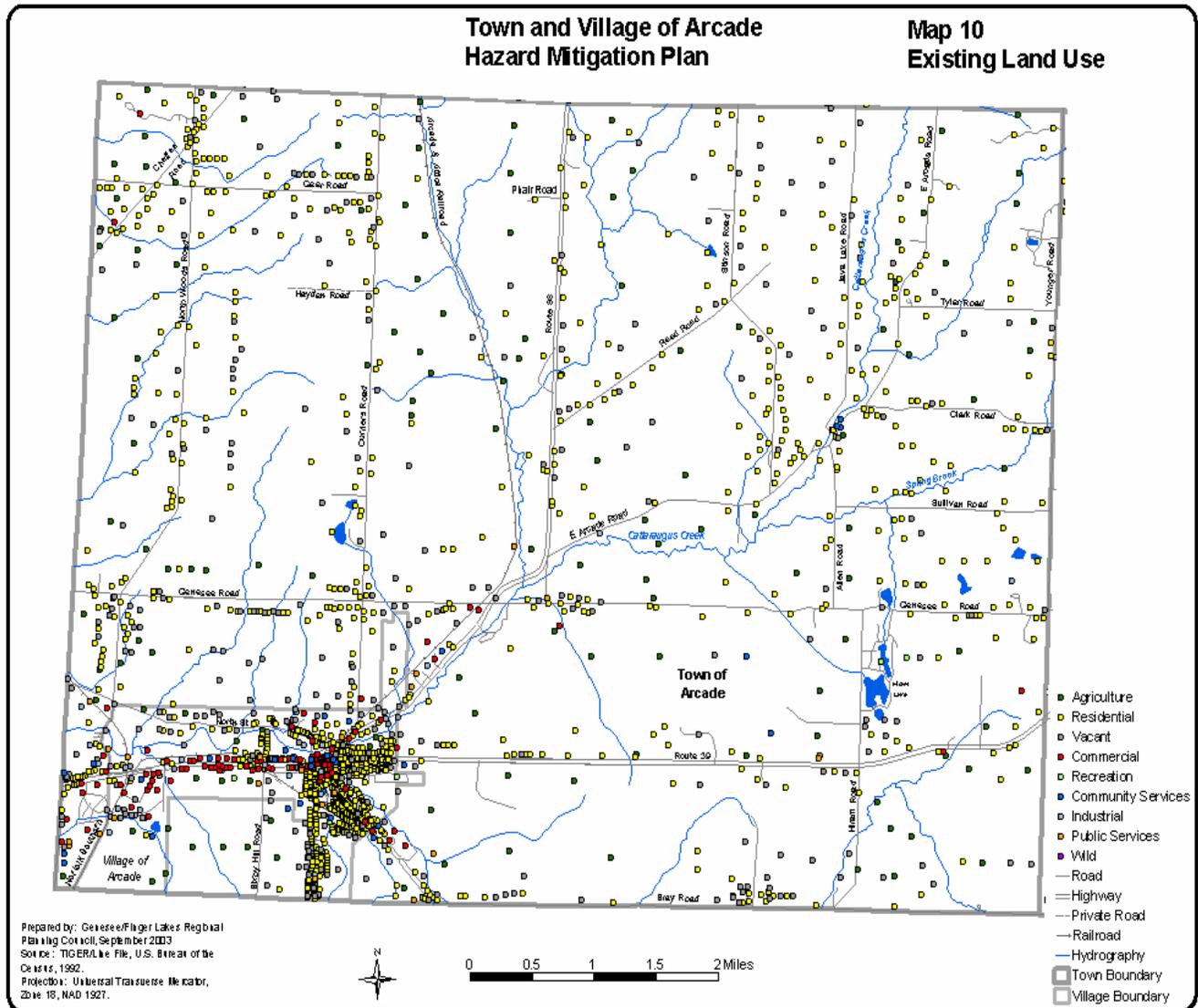


Source: New York State Association of Regional Councils, 1997.

In 1990, there were 817 housing units in the village and 780 housing units in the town. In 2000 there were 873 housing units in the village and 981 housing units in the town. Of the 1597 total housing units in 1990, the majority (62%) are single-family homes. In 2000, the percent of single family homes was 61%. Mobile homes and apartments made up an additional 28% of the housing stock.

In 1990, 62% of all occupied units were owner-occupied. In 2000, 70% of all occupied units were own-occupied. The median value of owner-occupied units in 1990 was \$55,400. In 2000 the median value of owner-occupied united was \$79,100. During the 1990's the Town of Arcade was one of the two communities with the highest number of permits issued for new homes in Wyoming County.

Existing land use used real property parcel centroids can be seen on Map 10. Residential, commercial, and industrial are the dominant land use types in the Village of Arcade. Residential and agricultural are the dominant land use types in the Town of Arcade.



The manufacturing/industrial base in Arcade is the strongest in Wyoming County. Arcade’s major industrial employers include Prestolite Electric, American Precision, and Koike Aronson, which combined employ over 850 people. This continues to have a potential impact on hazards such as transportation accidents, terrorism, fire, hazardous materials in transit, explosion, oil spill, and hazardous materials at fixed sites.

As noted above, agriculture is a significant industry in the town and the village has a number of agribusinesses. This continues to have a potential impact on hazards such as transportation accidents, hazardous materials in transit, water supply contamination, blight, hazardous materials at a fixed site, and infestation.

There is a cargo rail line that goes through the Town and Village of Arcade and the locally operated Arcade & Attica Railroad is the second largest tourist attraction in Wyoming County (after Letchworth State Park) with an estimated 27,000 riders per year. This continues to have a potential impact on hazards such as transportation accidents, hazardous materials in transit, terrorism, fire, explosion, water supply contamination, hazardous materials at a fixed site, and radiological (in transit).

The best areas for future industrial and commercial development in the Town and Village of Arcade are the north side of NYS Route 98 north from the existing Village limits to Genesee Road, the North side of NYS Route 39 at Sawmill Drive, and south of Steele Avenue and east of Edward Street (marginally developable). These areas are currently zoned commercial and industrial (HC/LI) and are consistent with current land use planning goals.

The best areas for future residential development in the Town and Village of Arcade are north of existing Village limits, south of Genesee Road and west of Curriers Road, the south side of NYS Route 39, east of County Line Road, both sides of North Street from Northwoods Road to West Street, and the south side of NYS Route 39, west of Bixby Hill Road. These are consistent with current land use planning goals.

II. MITIGATION STRATEGY

The goals and objectives were developed by the Planning Committee and reviewed at public meetings based on the risk assessment and the hazard profile. The flood hazard mitigation goals were originally developed December 1998 and revised through the flood mitigation plan process, including input from the subcommittees, the public meetings, and the flood survey. All other goals were developed in December, 2002 by the Planning Committee and then further refined during the All-Hazard Mitigation Plan development process, including input from the January 2003 public meeting.

A. Goal

Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the moderately high hazards.

B. Objectives

- Continue to identify capital for structural solutions based on funding priorities
- Involve the public and create awareness and understanding of hazards and risks that will lead to support for actions to mitigate those risks.
- Involve emergency management personnel in risk reduction
- Build partnerships and develop a more systematic approach to hazard prevention

- Revise emergency management plan based on All-Hazard Mitigation Plan
- Revised local land use controls based on All-Hazard Mitigation Plan

C. Legislation, Regulations and Programs

1. Federal Pre-Disaster Mitigation Program

The Pre-Disaster Mitigation (PDM) Program was authorized by §203 of the Robert T. Stafford Disaster Assistance and Emergency Relief Act (Stafford Act), 42 USC, as amended by §102 of the Disaster Mitigation Act of 2000. Funding for the program is provided through the National Pre-Disaster Mitigation Fund to assist States and local governments (to include Indian Tribal governments) in implementing cost-effective hazard mitigation activities that complement a comprehensive mitigation program. All applicants must be participating in the National Flood Insurance Program (NFIP) if they have been identified through the NFIP as having a Special Flood Hazard Area (a Flood Hazard Boundary Map (FHBM) or Flood Insurance Rate Map (FIRM) has been issued). In addition, the community must not be suspended or on probation from the NFIP.

44 CFR Part 201, Hazard Mitigation Planning, establishes criteria for State and local hazard mitigation planning authorized by §322 of the Stafford Act, as amended by §104 of the DMA. After November 1, 2003, local governments and Indian Tribal governments applying for PDM funds through the States will need to have an approved local mitigation plan prior to the approval of local mitigation project grants. States will also be required to have an approved Standard State mitigation plan in order to receive PDM funds for State or local mitigation projects after November 1, 2004. Therefore, the development of State and local multi-hazard mitigation plans is key to maintaining eligibility for future PDM funding.

2. New York State Hazard Mitigation Grant Program

The Hazard Mitigation Grant Program (HMGP) is a Post Disaster Program designed with the intent to reduce future disaster damages, public expenditure, private losses and a community's vulnerability to natural hazards.

The Hazard Mitigation Grant Program was established by the Robert T. Stafford Disaster Relief and Emergency Assistance Act (The Stafford Act), Public Law 93-288, as amended. Authorized under Section 404 of the Stafford Act, regulations implementing the program are found in the Code of Federal Regulations (CFR) at 44 CFR Part 206, Subpart N--ATTACHMENT A.

In conjunction with other hazard mitigation plans and programs, the 404 HMGP provides an opportunity for a community to develop a comprehensive hazard mitigation program, which can be its best insurance against the impacts and costs of future disasters.

a. New York State Responsibilities

State Government Program Administration: Under the 404 HMGP, the state, as grantee, is responsible for processing subgrants to eligible applicants. The Governor's Authorized Representative (GAR) serves as the grant administrator for all authorized HMGP funds. On behalf of the GAR, the Mitigation and Disaster Administration Branches in the New York State Emergency Management Office (SEMO) handles the day to day activities of the 404 HMGP. Among other things, the Hazard Mitigation Branch provides technical advice and assistance to eligible subgrantees, informs them of the availability of the program, and assists in the preparation and review of project applications. The financial management component of the program such as disbursements and financial reports to FEMA are administered by the Disaster Administration Branch.

It is the state's responsibility to identify and select hazard mitigation projects and forward them to the Federal Emergency Management Agency (FEMA) for review and approval.

The state is responsible for establishing procedures and priorities for selecting mitigation measures. In addition to the consideration of the minimum program criteria outlined above, project selection will consider the following:

- measures which best fit the overall plan for development and/or hazard mitigation in the community, disaster area, or state;
- measures that, if not taken will have a severe detrimental impact on the applicant, such as the potential for loss of life, loss of essential services, damage to critical facilities, or economic hardship on the community;
- measures that have the greatest potential impact on reducing future disaster losses;
- measures that are designed to accomplish multiple objectives such as damage reduction, environmental enhancement and economic recovery.

The Hazard Mitigation Policy Committee, of the State Disaster Preparedness Commission, and its subcommittees provide specialized assistance to the mitigation Branch, where necessary, for the purposes of administering the HMGP. An example of such assistance in the formation of a Project Review Board to review and prioritize projects.

A Project Review Board will be convened in order to select and/or prioritize the projects, which will be forwarded to FEMA for funding approval. If available funding is sufficient to fund all of the projects for which funding is requested, all completed project applications received will be ranked and forwarded to FEMA for funding. If there are insufficient funds, SEMO will transmit to FEMA prioritized list of projects whose funding equals the amount available. This prioritized project listing will be developed with the assistance of the Project Review Board. All additional projects will be prioritized and submitted to FEMA as alternatives to the first group of prioritized projects.

If during the review and ranking process additional information is required for a project, such supplementary information will be requested by the Mitigation Branch of SEMO.

Based upon the list of selected projects submitted by the Review Board, the GAR will notify all subgrantees of the decision regarding their application.

SEMO will transmit to FEMA the application package containing all required documentation.

b. Local Government Responsibilities

Local governments and other eligible local entities will assist the state in identifying appropriate mitigation measures. The Chief Elected Official (CEO) of each jurisdiction or non-profit organizations applying for 404 HMGP funding assistance is ultimately responsible for the satisfaction of all local requirements under Sections 404 and 409, P.L. 93-288.

SEMO strongly recommends that the CEO of each County that is applying for 404 HMGP funding, or that contains jurisdictions or non-profit organizations which are applying, appoints a Local Hazard Mitigation Officer (LHMO) who will serve as the point of contact with the State Hazard Mitigation Section. This appointee will also assist in the coordination of all local hazard mitigation activities taking place in all jurisdictions in the county.

The Chief Executive, or his designee, from each eligible entity that applies for 404 HMGP funding must sign the Project Application Form, the State-local Disaster Assistance Agreement, and all required attachments to the application. Each applicant for 404 funding must designate a point of contact for each project.

c. Federal Government Responsibility

The Federal Emergency Management Agency (FEMA) reviews the prioritized list of state submitted applications and decides which to approve or reject based on program guidelines. FEMA has final approval authority for funding all projects. Upon approval of a project application, the FEMA Region II Director will notify the Governor's Authorized Representative (GAR). FEMA will also notify the GAR when funding for approved projects is available for disbursement to subgrantees.

3. Wyoming County

a. Emergency Management Plan

The Wyoming County Comprehensive Emergency Management Plan outlines “a general all-hazards management guidance, using existing organizations and lines of authority to allow the county to meet its responsibilities before, during, and after an emergency occurs. (*Wyoming County Emergency Management Plan*, ii) The plan stipulates that specific annexes such as this flood mitigation action plan can be attached as a “hazard-specific” annex.

Flooding was determined to possess a significant potential for the creation of hazards within the county. While the plan makes no specific mention of the Village or Town of Arcade, flood-related risks received a high ranking for concern in the county's hazard analysis.

The plan defines the chain of command and hierarchy under which emergency management operations in Wyoming County take place. The primary responsibility to prevent, respond, and aid in recovery during an emergency rests with the municipality. The local jurisdiction must fully utilize all of its own resources before requesting the aid and services of the County Emergency Management Department.

b. Hazard Analysis Report

On April 18, 2002, Wyoming County, in conjunction with the New York State Emergency Management Office, conducted a hazard analysis using the automated program HAZNY. The group analyzed 25 hazards potentially affecting Wyoming County. The analysis rated the 25 hazards in the following order: hazards materials in transit, fire, flood, ice storm, winter storm (severe), water supply contamination, severe storm, terrorism, tornado, hazardous materials fixed site, epidemic, utility failure, oil spill, transportation accident, blight, civil unrest, drought, explosion, earthquake, radiological fixed site, extreme temperatures, fuel shortage, air contamination, infestation, landslide, ice jam. These are approximately the same as the hazard analysis ranking for the Town and Village of Arcade.

4. Town and Village of Arcade

a. Village of Arcade Emergency Management Plan

A Disaster/Emergency Plan for the Village of Arcade was completed in 1991 and revised in 2000. Based on the development of this Hazard Mitigation Plan it is recommended that the Emergency Management Plan be revised in 2003.

The Disaster/Emergency Plan was established for the Village of Arcade to respond rapidly and effectively to assure the coordinated activities of all participating agencies in the event of a natural or man-made disaster or in the event of reasonable apprehension of immediate danger.

b. Review of Existing Legislation

Generally, there are three pieces of legislation, which are all related to land use and development, and complement and reinforce the goals and objectives of the Hazard Mitigation Plan. They are the Town and Village Comprehensive Plan (1996), Village Subdivision Regulations (1988), and the Village Zoning (1991).

In particular, both the Comprehensive Plan and Subdivision Regulations specify new street design details, such as maximum allowable grades and curves, which help mitigate the effects of winter storms. Given the history of flooding in the community, it is encouraging to see the attention that the Comprehensive Plan and particularly the Zoning Ordinance pays to flood overlay districts and allowable uses within these. From a standpoint of fire protection, it is positive that the Comprehensive Plan outlines the construction of a new reservoir. Also, the Comprehensive Plan makes particular reference to supporting the Village Police, Fire Department, and Rescue Squad and maintaining these services at “appropriate” levels. Finally, the Comprehensive Plan notes the need for coordination between the village and the town. This joint hazard mitigation plan is a prime example of this positive and mutually beneficial municipal relationship.

However, there are a few instances in the legislation that might benefit from review and possible change in light of the new hazard mitigation plan.

- **Comprehensive Plan, Chapter 3, Section E. Potential industrial development sites identified in the Comprehensive Plan.** Two sites, one along Rt. 98 in the northeast corner of the Village and one along Rt. 98 southeast of the Village were identified as good sites for industrial development. From a hazard mitigation standpoint, these two sites, if developed, have the potential to add a significant amount of new commercial truck traffic to Routes 39 and 98 through the Village. This increases the possibility of a transportation accident or a hazardous materials in transit accident. This may be mitigated by the truck by-pass also called for in the Comprehensive Plan, but this is a long term solution for what may be a fairly near-term problem.
- **Comprehensive Plan, Chapter 4, Section F. Spring and well-head protection.** The Comprehensive Plan calls for the protection of the sources of Arcade’s drinking water. Given that the primary source is in the Town of Freedom, Cattaraugus County, this would require a new level of municipal cooperation in terms of regulating land use near the springs and in their recharge area.
- **Zoning Section 813. Prohibition of Toxic Substances.** This stipulates that the storage and processing of all toxic chemicals and wastes, as defined by the DEC, is prohibited. While an excellent idea from a hazard mitigation standpoint, this seems vague and ill-defined, as well as relatively unenforceable. This would seem to preclude most industrial activity, and even some commercial activity, from taking place in the village.
- **Comprehensive Plan, Chapter 4, Section F. Continued Support for Police, Fire, and Rescue.** As mentioned above, the Comprehensive Plan makes a point to support the continuation of these vital civic institutions. However, the Fire Department and Rescue Squad have indicated the difficulty in attracting new volunteers. It is likely this problem will get worse for the foreseeable future, and

any updates to the comprehensive plan might want to consider this crucial issue in more detail.

c. Town and Village of Arcade Agencies Responsible for Implementing Plans, Codes and Activity

Police Department - Responsibility for security and law related issues

Fire Department - Responsibility for accidents and fire safety

Department of Public Works - Responsibility for all other Village functions.

Zoning issues - Zoning Officer

Planning Board - Review of certain development projects

Zoning Board of Appeals (issues that can not be resolved by Planning Board)

Wyoming County Building Department - Responsibility for building and fire code enforcement

Village Board of Trustees - Local laws

Town Council - Local Laws

d. Implementation Through Existing Programs

The Village zoning regulations include a specific section regarding construction in the flood plain; basically any project is reviewed and a special permit has to be issued to allow the project to proceed. In addition to the zoning review and permit, the Village has a Flood Damage Prevention local law that requires another very careful review and comparison to specific standards. Another, separate permit is required by this local law for any project proposed to be constructed in the flood plain.

The adoption of the All-Hazard Mitigation Plan will happen before the Comprehensive Plan and Zoning Ordinances are updated. There is a committee of the Village Board that is coordinating the update of the Town and Village Comprehensive Plan. The All-Hazard Mitigation Plan will be considered in the update of the Comprehensive Plan and any subsequent changes to the Zoning Ordinances and code enforcement. Additionally, the All-Hazard Mitigation Plan will be referenced by the various associated departments when considering capital repairs and associated annual budgets.

If there are changes to be made to the Flood Damage Prevention Plan these will be made once the All-Hazard Mitigation Plan is approved by FEMA. Additionally, the recommendations of the All-Hazard Mitigation Plan will be incorporated in to any Police of Fire (including Ambulance) policies if they have policies that need to be changed.

D. Action Plan

The action items presented here are measures that the Planning Committee has determined will meet the mitigation goals set forth by the Committee. All of the action items were prioritized by the Planning Committee and are based on the risk assessment. The action items attempt to build upon efforts and projects previously undertaken or currently underway.

The flood mitigation action items presented here are measures that the Flood Solutions Development Subcommittee (FSDS) has determined will meet the flood mitigation goals set forth by the Committee. The action items were developed using a worksheet adapted from the one provided by the Southern Tier Central Regional Planning and Development Board. Each of the activities on the worksheet were ranked low, medium, or high in three categories. These three categories were the interest in pursuing the action, the technical feasibility of the recommendation, and cost effectiveness of such measures. The FSDS then gave each action item an overall ranking of importance based on the three factors in combination. The action items presented here are those that received an overall ranking of high or medium.

Action items for rest of the moderately high hazards were developed by the Planning Committee. Actions were divided into the following six categories for the moderately high hazards:

- Public Awareness and Information
- Preventive Measures
- Natural Resource Protection
- Property Protection
- Structural Measures
- Emergency Services

After discussion of all potential actions, only those that received an overall ranking of high or medium were considered. All actions were then discussed with the public at the final public meeting. Input from that meet was used to revise the final action items. Actions are summarized on [Table 16](#).

WINTER STORM (SEVERE)

Goal: Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the effects of severe winter storms.

Both the Town and the Village will work toward these mitigation actions unless otherwise indicated.

Severe winter storms occur often in Western New York. These have had cascading effects such as transportation accidents, flood (spring melt-off in association with rain), utility failure (most commonly electric), and structural collapse (roofs). The actions determined by the Planning Committee to deal with Severe Winter Storm include a proactive education strategy, the development of a road closure system, and a system for emergency relocation.

Public Awareness and Information

Develop a proactive education strategy for severe winter storms that would include guidelines on a process for early release of school to avoid accidents and injury and clearance of snow from roofs to avoid structural damage.

Overall Ranking: High

Required Expenditures: \$1000

Cost Effectiveness: Good

Time Frame: By next winter

Potential Sources of Funds: Town and Village Budget

Lead and Supporting Agencies/Partners: Emergency services (Village Police and County Sheriff), Chamber of Commerce, Area businesses - contact personnel offices and target larger ones

Preventive Measures

Road Closure System

Develop a comprehensive road closure and detour system including a system to notify area schools and employees that work in the Town and Village of Arcade.

Overall Ranking: High

Required Expenditures: Less than \$1,000

Cost Effectiveness: Good

Time Frame: By November, 2003

Potential Funding Sources: Internal funding

Lead and Supporting Agencies/Partners: Town of Arcade Highway Department, Village of Arcade Police, Wyoming County Sheriff, Wyoming County Emergency Management Office

Roof Snow Removal

Develop a roof snow removal system and plan for the major public facilities with flat roofs including the Village Hall and Town Fire Hall

Overall Ranking: Moderately High

Required Expenditures: \$1,000

Cost Effectiveness: Excellent

Time Frame: As needed

Potential Funding Sources: Preventative - Internal, based on building, SEMO - if disaster

Lead and Supporting Agencies/Partners: Village of Arcade Public Works

Emergency Services

Emergency relocation (Village)

Develop an emergency relocation system that can be implemented for a severe winter storm. This will require revision of the Village of Arcade Emergency Management Plan. Consideration will be given to formal designation of sites such as the Prestolite cafeteria facility (available for any emergency purpose that does not require food preparation).

The system will have a plan for keeping children overnight in the schools. Additionally, the plan should include a system for use in the event of electronic failure and 911.

Overall Ranking: High

Required Expenditures: Minimal, internal funding, volunteers

Cost Effectiveness: Excellent

Time Frame: Have a plan by Fall, 2003

Potential Funding Sources: Internal

Lead and Supporting Agencies/Partners: Village of Arcade Public Works, Village of Arcade Police, and Town of Arcade

TRANSPORTATION ACCIDENT

Goal: Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the effects of transportation accidents.

Both the Town and the Village will work toward these mitigation actions unless otherwise indicated.

There is a significant amount of truck and rail traffic through the Town and Village of Arcade, mostly on the state routes. Transportation accidents involving trucks have occurred over the past few years, the latest of which was 1986.

Public Awareness and Information

Operation Lifesaver (from National Organization for Rail Safety)

Operation Lifesaver is a national, non-profit education and awareness program dedicated to ending tragic collisions, fatalities and injuries at highway-rail grade crossings and on railroad rights of way. To accomplish its mission, Operation Lifesaver promotes 3 Es:

- **Education:** Operation Lifesaver strives to increase public awareness about the dangers around the rails. The program seeks to educate both drivers and pedestrians to make safe decisions at crossings and around railroad tracks.
- **Enforcement:** Operation Lifesaver promotes active enforcement of traffic laws relating to crossing signs and signals and private property laws related to trespassing.
- **Engineering:** Operation Lifesaver encourages continued engineering research and innovation to improve the safety of railroad crossings.

For the Town and Village of Arcade sessions will be held with schools and emergency responders.

Overall Ranking: Moderately High

Required Expenditures: No cost

Cost Effectiveness: Excellent

Time Frame: schedule in 2003

Potential Funding Sources: National Organization for Rail Safety, NYS Division

Lead and Supporting Agencies/Partners: Railroad

Preventive Measures

Simulation

Simulation would allow for the execution of a plan that would include road hazards/transportation accidents and setting up a detour.

Overall Ranking: Moderately high

Required Expenditures: Less than \$1,000

Cost Effectiveness: Good

Time Frame: Summer 2003

Potential Funding Sources: Local, including volunteer.

Lead and Supporting Agencies/Partners: Neil Williams (Fire Chief)

Natural Resources Protection

Transportation accident with spill

This would include the use of sand and sawdust (large accident) and absorbent (small accident) during a transportation accident with a spill. It includes the use of the county hazmat team and the NYSDEC spill response team.

Overall Ranking: High

Required Expenditures: \$500 (\$50 to \$60 per ton for disposal)

Cost Effectiveness: Very Good

Time Frame: When needed

Potential Funding Sources: Private insurance

Lead and Supporting Agencies/Partners: Wyoming County Emergency Management, Arcade Police, County Sheriff, State Police, and NYSDEC

TERRORISM

Goal: Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the effects of terrorism.

These actions will be taken by the Village of Arcade only.

There is no history of terrorism in the Town and Village of Arcade. However, due to recent events there is now a regional homeland security terrorism team that is primarily handled at the County Level (Wyoming County Emergency Management Office) although the Village of Arcade Police Department has some responsibility. Additionally terrorism needs to be addressed in a Arcade Emergency Management Plan revision.

Preventive Measures

Water Supply

Arcade operates a water supply. The Village and Town needs to continue to deal with increased security including lighting, locks, and windows.

Overall Ranking: High
Required Expenditures: \$3,000 - \$4,000 per facility (12 facilities)
Cost Effectiveness: Very Good
Time Frame: By end of 2003
Potential Funding Sources: Local, state and federal funding
Lead and Supporting Agencies/Partners: Village of Arcade Public Works

Security

Anti-Terrorism School
The school is run by the State Division of Criminal Services and includes a task force. The program has supplied a computer to the Village of Arcade Police Department.

Overall Ranking: Moderately high
Required Expenditures: Internal cost
Cost Effectiveness: Very Good
Time Frame: 2003
Potential Funding Sources: Local
Lead and Supporting Agencies/Partners: Village of Arcade Police, County Sheriff

FLOOD

Goal: Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the effects of flood.

Both the Town and the Village will continue work toward these mitigation actions unless otherwise indicated.

The flood mitigation action items presented here are measures that the Flood Solutions Development Subcommittee (FSDS) of the Town and Village of Arcade Flood Mitigation Action Plan (1999) determined would meet the flood mitigation goals set forth by the Flood Mitigation Action Plan Technical Committee. These were later reviewed and revised accordingly by the Planning Committee. Therefore action items attempt to build upon efforts and projects previously undertaken or currently underway.

Each of the activities listed below were originally ranked low, medium, or high in three categories. These three categories were the interest in pursuing the action, the technical feasibility of the recommendation, and cost effectiveness of such measures. The FSDS then gave each action item an overall ranking of importance based on the three factors in combination. The action items presented here are those that received an overall ranking of high or medium.

Public Awareness and Information

Disclosure of flood hazards to potential property owners in Arcade is another important aspect of informing those at risk to flood hazards.

The Wyoming County SWCD currently handles requests from perspective homebuyers regarding the location of the proposed property in relation to the FIRM designated floodzones.

Real estate agents are another important resource in disseminating flood hazards to potential property owners.

Action Items:

- The Town and Village will work with SWCD staff to advise people of the SWCD services regarding requests by property owners concerning the location of their property in relation to the FIRM.
- The Town and Village will prepare a package for real estate agents that outlines the risks inherent in purchasing a property that lies in a floodzone and a description of the NFIP and who to contact for further information.

Overall Ranking: Medium
Required Expenditures: Minimal
Time Frame: 2003 – 2004

Beyond providing information on the location of properties in relation to the FIRM-designated floodzones, it is important to develop a central clearinghouse of information pertaining to flooding, floodplain management, floodplains as viable natural resources, and techniques for protecting structures from flooding.

FEMA publishes a number of resources related to the topics listed above and makes them available at a minimal, if any, charge to municipalities.

Articles from the *Arcade Herald* and other periodicals detailing past flooding are another important resource in raising public awareness of flooding and floodplain management.

Action Items:

- The Village Clerk will use the Arcade Free Library as a clearinghouse for resources related to flooding and floodplain management and property protection techniques.
- Collect the resources available from FEMA and other sources and catalog them in the library's reference section.

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2003

The provision of technical assistance to property owners is an important component of providing the public with information on reducing flood damages.

The Wyoming County SWCD currently does site visits to review the extent of damage done by flooding. The Village of Arcade Department of Public Works and Town of Arcade Highway Department do site visits to handle drainage and sewer issues. All three agencies provide this service at the request of property owners.

Action Items:

- The Village Superintendent of Public works will provide information about floodproofing techniques, how to pick a qualified contractor, and the recourse available to them if they are not satisfied with the work as part of the clearinghouse at the Arcade Free Library and in locations where the FIRM is available.
- The Town and Village will inform property owners of the services available from the village, town, and SWCD regarding assessment of damage due to flooding and drainage issues.

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2003

Preventive Measures

Floodplain regulations for the village and town are currently in place, but do not completely limit development in the floodplain nor do they require that new structures be built at heights above the base flood elevation.

There are areas in Arcade not shown on the FIRM that are susceptible to flooding during periods of heavy rainfall. The village and town have contacted FEMA regarding revisions to the FIRM and the process is currently underway.

Training for zoning officers and planning board members is provided periodically by the NYSDEC in cooperation with Wyoming County.

Action Items:

- The Village and Town Boards will review and update the Floodplain Local Laws that were previously adopted.
- The Village and Town Boards will consider setting the elevation of new structures (if permitted) at two feet above the base flood elevation.

Overall Ranking: High
Required Expenditures: Minimal

Time Frame: 2003 – 2004

Zoning plays an important role in reducing flood damages to property and risks to the safety of residents and others by mitigating the adverse effects of properties on adjoining properties. The following action items are in process:

Action Items:

- The Village and Town will complete a joint update and create a uniform zoning law for both the Village and Town of Arcade to ensure consistency of development and consideration of floodplain management including:
 - ❑ Low density zoning
 - ❑ The model stormwater management regulations developed by the NYSDEC
 - ❑ Standards for private bridges
 - ❑ Setback requirements along streambanks
 - ❑ Standards for driveways and corresponding culverts
 - ❑ Limit lot sizes for impervious surfaces
 - ❑ Dams and ponds

- The Committee and Planning Board will make recommendations to the Village and Town Boards.

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: In progress

As with zoning, subdivision regulations are another land use control that can be used to prevent increased flood damages.

Action Items:

- The Village and Town will complete a joint update and create uniform subdivision regulations including the consideration of:
 - ❑ A “safe building site” above the base flood elevation on each lot
 - ❑ The placement of roads with respect to base flood elevations
 - ❑ Require public utilities to be placed above base flood elevations
 - ❑ Exclude development or encroachment in the floodway
 - ❑ Include stormwater management regulations to provide for adequate drainage
 - ❑ Mandate that flood hazard areas be shown on the plat

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2003 – 2004

Preservation of open spaces in flood prone areas offers another preventive action that helps in reducing flood damages by serving as detention areas for floodwaters, particularly where proper vegetation is placed. The costs for projects of this type can often be defrayed, in part, through existing Natural Resource Conservation Service (NRCS) and SWCD sediment and erosion control programs.

Action Items:

- The Committee will investigate the feasibility of placing vegetative buffers along Cattaraugus Creek, Monkey Run, Spring Brook, Clear Creek and Haskell Creek. Implementation options will be determined.

Overall Ranking: High
Required Expenditures: Moderate
Time Frame: 2003 – 2010

In addition to stormwater management regulations, the consideration of additional area-wide stormwater management facilities can reduce the long-term risk of flood damage to certain areas of the Village and Town.

Action Items:

- The Village Superintendent of Public Works and the Town Highway Superintendent will evaluate the feasibility of constructing stormwater management facilities in the following six areas of Arcade:
 - Dry Creek Area
 - East Arcade Road
 - Java Lake Road
 - Clear Creek (near Freedom, NY)
 - Cemetery Ditch on Park Street (*design underway*)
 - Deacon Drive Ditch (*under consideration*)
- If feasible, facilities will be designed and constructed, as funding is available.

Overall Ranking: High
Required Expenditures: Moderate to High
Time Frame: 2003 – 2010

Better-maintained drainage systems can reduce flood hazards and risks by reducing the amount of floodwaters that cause damage by riverine and overland flooding and runoff that affects properties.

Action Items:

- The Village Department of Public Works will prepare a drainage system maintenance plan that specifies needs and outlines responsibilities including temporary and permanent easements.

Overall Ranking: High
Required Expenditures: Moderate
Time Frame: 2003 – 2004

Natural Resource Protection

Wetlands serve numerous functions and are useful in detaining water from riverine and overland flooding because of their permeable soils and vegetation that require and hold larger amounts of moisture than other riparian habitats.

Action Items:

- The Planning Board will evaluate the feasibility of protecting wetlands in the Village of Arcade during site plan and subdivision reviews.

Overall Ranking: High
Required Expenditures: Low
Time Frame: Ongoing

Erosion and sediment control serves the dual purpose of protecting natural resources and mitigating flood hazards and risks. Erosion and sediment loss as a result of new development needs to not only be regulated but also enforced.

Action Items:

- The Village Superintendent of Public Works and the Town Board will implement erosion and sediment control projects as funding allows (i.e. the Environmental Bond Act) at the following sites:
 1. Clear Creek retaining wall – approximately 250 feet of pre-cast cantilever wall with concrete footer and grade control sills.
 2. Yansick Lumber Company (Cattaraugus Creek) – approximately 1000 feet of 10-foot high rock rip-rap.
 3. Agway (Cattaraugus Creek) – repair of approximately 1000 feet of 10-foot high rock rip-rap.
 4. Private Residence (Cattaraugus Creek) – approximately 200 feet of 10-foot high rock rip-rap.
 5. Other areas as identified.

Overall Ranking: High
Required Expenditures: Moderate

Time Frame: Ongoing

Property Protection

Many of the structures in the village are older having been built in the late 19th and early 20th centuries. Many of these were built without considering flood elevations. The placement and construction of these buildings makes elevation of the structures impossible.

Flood proofing is appropriate for some residences, while acquisition and removal of structures in certain areas would reduce the height of floodwaters and reduce flood risks to nearby properties. The Village of Arcade and Wyoming County have applied for funding to remove structures in frequently flooded areas.

Action Items:

- The Town and Village Boards will encourage property owners to consider floodproofing their properties and attempt to procure funding to defray the costs. Floodproofing would be most appropriate for property owners on Pearl Street, Mill Street, and Park Street.

Overall Ranking: High

Required Expenditures: Dependent on funding

Time Frame: As soon as possible for targeted acquisitions and removals

Throughout the planning process, the Committee (and the POPS in particular) has attempted to educate property owners about the benefits of NFIP coverage for residences and businesses. The most effective means the town and village have for receiving assistance from FEMA is to increase participation in the NFIP. The work of a local insurance agency has been vital in raising awareness.

Action Items:

- After formally adopting the all hazard mitigation plan, the Village and Town Boards will submit the plan for CRS credit and subsequent reductions in NFIP premiums.

Overall Ranking: High

Required Expenditures: Minimal

Time Frame: 2003

Structural Measures

Over time debris and settlement build up throughout stream channels resulting in heightened stream elevations that increase the likelihood of riverine flooding, and intensifying its effects when it does occur.

Permits have been received from the NYSDEC by the SWCD for debris removal in Clear Creek. No permits are required if machinery is not used and there are no significant alterations to fish and wildlife habitats.

Action Items:

- The Village Superintendent of Public Works will work with appropriate parties to ensure that storm sewers are installed at the following locations where stormwater runoff produces hazards and risks during flooding (ranked in order of importance):
 1. Mill Street from Park Street to Clear Creek (*partially done*)
 2. Culverts on Liberty Street
 3. Route 98 South near Bray Road on town's southern border
 4. Park Street from Mill Street to Sullivan Avenue (*cleaned only*)

- The Village Superintendent of Public Works will increase the capacity of the following storm sewers (ranked in order of importance):
 1. The old post office on Main Street
 2. Church Street at the Village Hall and Pioneer Elementary School (*cleaned only*)

Overall Ranking: High

Required Expenditures: Moderate to High

Time Frame: 2003 – 2010

As stated earlier, the limited capacity of the pipe under the railroad tracks in the Glenwood Avenue/Haskell Avenue/Deacon Drive area results in overland flooding during heavy rainfall.

Emergency Services

At present, the National Weather Service does not provide specific reports for Arcade. It is clear that alternative measures need to be found to warn residents of impending flooding to take a more proactive response to flood emergencies.

The current emergency plan for the village and town provides for a command structure, operations center, and other protocol for emergency service providers.

Action Items:

- The Committee will develop a flood warning system in Arcade with the cooperation of the Wyoming County Office of Emergency Management Services that includes installation of a rain gauge at the Village of Arcade Police Station and possibly marking bridges with critical flood elevations (the Main Street bridge has been marked).

- Village and Town Board will update the local emergency plan to more thoroughly address flood hazards and risks especially in regards to critical facilities.

Overall Ranking: Medium
Required Expenditures: Minimal
Time Frame: 2003 – 2005

Other Considered Mitigation Activities

In addition to the action items discussed above, other flood mitigation measures were also considered by the FSDS. However, for reasons particular to each one, they were not included in the plan. The list below illustrates other mitigation activities that were considered as action items for the Village and Town of Arcade.

Flood Information Outreach Projects

The planning process utilized for the flood mitigation action plan was two-fold in that it allowed for participation while simultaneously raising residents' awareness of the flooding issues and related hazards and risks through the survey, public meetings, and newspaper coverage of the plan. It was felt that the return on further outreach projects would not be justified when compared with the costs involved.

Other options that were explored included direct mailings containing information concerning floods, inclusion of information in utility bills, and designing special outreach products. In addition, the mandatory disclosure of flood problems on properties by real estate agents was another measure that was considered. The regulation and enforcement of such a measure was viewed to be too costly compared with the benefits it would provide.

Other forms of environmental education programs for children and adults were considered, but it was determined that their effect would be minimal in comparison to the time and resources needed to organize and conduct such programs. The Wyoming County SWCD currently conducts conservation field days for elementary school students and is willing to include flood education.

Preventive Activities

The FSDS focused largely on preventive, non-structural measures to reduce the flood hazards and risks in the Village and Town of Arcade. Therefore, the majority of measures available for preventive activities to mitigate flood hazards were included as specific action items. The following are measures discussed but not determined to be appropriate for Arcade.

A preventive activity discussed was the elevation of existing structures throughout the village and town above base flood elevations. However, given the location and design

of the large majority of buildings in Arcade, this option was not found to be feasible or cost-effective.

The use of cluster development regulations in zoning and subdivision ordinances or as a separate ordinance was discussed. The FSDS decided that cluster development was not appropriate and would have little effect in reducing the flood hazards in the Arcade.

Natural Resource Protection

An additional natural resource protection measure discussed but not included as an action item was the inclusion of flood considerations in agricultural best management practices. The Wyoming County SWCD currently produces agriculture plans for local farmers and many of these do consider potential problems resulting from flooding. The FSDS ranked the measure as low in interest in implementing and cost-effectiveness, but high in technical feasibility.

Property Protection

The only measures not developed into specific action items in this category were the relocation and elevation of certain structures in the floodzone and acquisition of undeveloped floodzone property. Relocation and elevation were deemed not to be cost-effective. The acquisition of undeveloped properties in the floodplain was not possible due to the lack of undeveloped property in the floodplain, particularly in the village.

Structural Projects

As stated earlier, the FSDS attempted to focus on non-structural measures because of the benefits they produce in other facets of environmental protection and because of the high construction and maintenance costs involved with structural projects.

Reservoirs, levees, floodwalls, straightening of stream channels, and high flow diversion measures were all found to have too high of a cost in comparison with the return they would have in alleviating or reducing flood hazards and risks.

Emergency Services

Automated rain and stream level gauges were considered by the FSDS. However, the introduction and monitoring of manual gauges were considered more cost effective. Critical facilities were also examined for possible relocation or elevation, but the benefits of each were greatly outweighed by the costs.

FIRE

Goal: Use public awareness, preventive measures, natural resource protection, structural measures, and emergency services to mitigate the effects of fire.

Both the Town and the Village will work toward these mitigation actions unless otherwise indicated.

Major fires have occurred in the Town and Village of Arcade throughout the 1900's including the Main Street fire of 1902, and fires at industrial facilities in 1967 (Devere Plastics) and 1993 (Yansik Lumber). There was also a fire at the Elementary School in 1967. Fire could produce air contamination and will require additional education, fire safety training in the school, and a revision to the Arcade Emergency Management Plan.

Preventative Measures

Recruitment/Volunteers

With the current situation of decreased volunteers there needs to be consideration of a paid fire department, consideration of retirement benefits, and a need to document changes in number of volunteers.

Overall Ranking: High

Required Expenditures: \$100,000 per year

Cost Effectiveness: Good

Time Frame: Consideration and planning - 2003

Potential Funding Sources: Local

Lead and Supporting Agencies/Partners: Arcade Fire

Inspections

There needs to be increased resources for building inspections, especially industrial buildings. A formal recommendation such be made to Wyoming County to increase code enforcement staff.

Overall Ranking: High

Required Expenditures: \$1,000 per year

Cost Effectiveness: Very Good

Time Frame: as available

Potential Funding Sources: Local

Lead and Supporting Agencies/Partners: Wyoming County Code Enforcement and fire department

Natural Resources

Given some of the land use in the Town of Arcade there is the possibility of forest fire.

Overall Ranking: Medium

Required Expenditures: Less than \$1,000

Cost Effectiveness: Very Good

Time Frame: When needed

Potential Funding Sources: Local, county, state

Lead and Supporting Agencies/Partners: Wyoming County Emergency Management, Arcade Fire

Structural

Given the increase in population in the Town of Arcade there needs to be an increase in the number of dry hydrants. Locations should be investigated and 2-3 per year should be installed over the next few years.

Overall Ranking: Medium

Required Expenditures: Less than \$1,000

Cost Effectiveness: Good

Time Frame: 2-3 per year (especially with number of structures going into the Town)

Potential Funding Sources: Existing county program Wyoming County Soil & Water Conservation District, Arcade Fire, Wyoming County Emergency Management Office

Lead and Supporting Agencies/Partners: Wyoming County Soil & Water Conservation District, Arcade Fire, Wyoming County Emergency Management Office

HAZARDOUS MATERIALS IN TRANSIT

See Transportation Accidents

Table 16 - Action Summary						
Project	Location	Responsible Agency	Approx. Cost	Time to Complete Project (in months, weeks)	Potential Issues (env'tal, SHPO, permits, etc)	Potential Funding Sources
Public Awareness and Information on Severe Winter Storms	Town and Village of Arcade	Emergency Services (Village Police and County Sheriff), Chamber of Commerce	\$1000	1 year	none	Town and Village
Road Closure System	Town and Village	Town Highway Department, Village Police, County Sheriff, Wyoming County EMO	\$1000	1 year	coordination	Internal
Emergency Relocation	Town and Village	Village Public Works, Village Police, Town of Arcade	Minimal	1 year	none	Internal
Public Awareness and Information on Transportation Accidents	Town and Village	NORS	None	1 year	none	None
Simulation	Town and Village	Neil Williams (Fire Chief)	\$1000	1 year	coordination	Local and volunteer

Natural Resource Protection of Spill	Town and Village	Wyoming County EMO, Village Police, County Sheriff, NYSDEC	\$500	When needed	NYSDEC	Insurance
Water Supply Terrorism Preventive Measures	Village	Village Public Works	\$3000-\$4000	1 year	none	Local, state, federal
Anti-Terrorism School	Village	Village Police, County Sheriff	internal	1 year	coordination	NYS Division of Criminal Services
Flood Public Awareness	Town and Village	SWCD, Arcade Public Library	minimal	2 years	coordination	Local
<ul style="list-style-type: none"> • Handout to home buyers 						
<ul style="list-style-type: none"> • Use of Arcade Free Library 						
<ul style="list-style-type: none"> • Flood proofing techniques and picking a qualified contractor 						
Flood Preventative Measures						
<ul style="list-style-type: none"> • Review and update local laws • Elevation set 2 feet above flood level • Uniform zoning • Uniform subdivision regulation • Preservation of specific open spaces • Stormwater management feasibility study • Draining system maintenance plan 	Town and Village	Boards	Minimal to moderate	2 years	Coordination, SEQR, Zoning recodification	Town and Village
Flood Natural Resource Protection <ul style="list-style-type: none"> • Wetland 	Town and Village	PB, Public Works, Town Board	Moderate to high	Ongoing	Stormwater Phase II regulation, SEQR	Town and Village

protection • Erosion and sediment control projects						
Flood Property Protection • Flood proofing	Town and Village	Boards	Minimal	Ongoing	none	Property Owners
Flood Structural Measures • Storm sewers installation and increase capacity	Village	Public Works	Moderate to High	5 – 10 years	NYSDEC	Unknown
Flood Emergency Services • Flood Warning System • Emergency Plan	Town and Village	Boards	Minimal	2 – 5 years	none	Local
Fireman Recruitment	Town and Village	Arcade Fire	\$100,000 per year	Planning – 1 year	none	Unknown
Fire inspections	Town and Village of Arcade	Wyoming County Code Enforcement	\$1,000 per year	2 – 5 years	none	Local
Forest fire prevention	Town of Arcade	Wyoming County EMO, Arcade Fire	\$1,000	As needed	none	Local, county, state
Fire - Structural	Town and Village of Arcade	SWCD, Arcade Fire, Wyoming County EMO	\$1,000	2 – 3 per year	none	SWCD, Arcade Fire, Wyoming County EMO

III. PLAN MAINTENANCE

A. Maintenance System

1. Monitoring and Evaluation System

- The Plan will be reviewed and revised annually by the Planning Committee and the public and will be forwarded to the Town and Village Board for review and adoption every five years. Annual review will take place in March with Town and Village Board review and adoption of changes scheduled for April.
- Evaluation of the Plan will be done by comment of the general public. A notice will be put in the local newspaper announcing the annual review, the location of the Plan, and the solicitation of comments. The notice will be put in the local newspaper

in February and allow 30 days for public comment prior to Planning Committee review and revision. Comments will be used in review and revision.

- The review and re-evaluation of risks and hazards will be done at the annual Planning Committee review of the Plan.
- The review and evaluation of the relevance of goals and objectives will be done at the annual Planning Committee review of the Plan.
- Evaluation of the effectiveness and appropriateness of mitigation projects and actions will be done at the annual Planning Committee review of the Plan.
- Documentation of progress in accomplishing goals and objectives will be done at the annual Planning Committee review of the Plan.

2. Plan Update

The Plan will be updated every 5 years based on the annual review of the Planning Committee and the comments of the general public and adoption of the Town and Village Board and submitted to SEMO and FEMA for review. The five year cycle will commence with the initial approval of the plan by SEMO and FEMA.

IV. PLAN ADOPTION

A. Municipal Adoption

1. Adoption Process

The Village of Arcade Board of Trustees were presented with the draft Town & Village of Arcade All-Hazard Mitigation Plan. It was reviewed by the Village of Arcade Board of Trustees and voted on for adoption by resolution on May 17, 2005.

2. Resolutions

May 17, 2005 Village Board of Trustee meeting

HAZARD MITIGATION PLAN

The following resolution was offered by Mayor Doster and seconded by Trustee Reisdorf:

“RESOLUTION

WHEREAS, the Village of Arcade, with the assistance from the GFLRPC, has gathered information and prepared the Arcade Hazard Mitigation Plan; and

WHEREAS, the Arcade Hazard Mitigation Plan has been prepared in accordance with Disaster Mitigation Act of 2000; and

WHEREAS, the Village of Arcade is a local unit of government that has afforded the citizens an opportunity to comment and provide input in the Plan and the actions in the Plan; and

WHEREAS, the Board of Trustees has reviewed the Plan and affirms that the Plan will be updated n less than every five years;

NOW, THEREFORE, Be It Resolved, by the Board of Trustees that the Village of Arcade adopts the Arcade Hazard Mitigation Plan as this jurisdiction's All Hazard Mitigation Plan, and resolves to execute the actions in the Plan.

ADOPTED this 17th day of May, 2005 at the meeting of the Board of Trustees by the following vote:

Mayor Michael Doster	Aye
Deputy Mayor Richard Kosmerl	Absent
Trustee Paul Burkett	Aye
Trustee Hugh Ely	Aye
Trustee Daniel Reisdorf	Aye"