

6. – Flood Mitigation Action Steps

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 attempt to build upon efforts and projects previously undertaken or currently underway.

The action items were developed using a worksheet adapted from the one provided by the Southern Tier Central Regional Planning and Development Board. The action items are divided into six categories:

1. Public Awareness and Information
2. Preventive Measures
3. Natural Resource Protection
4. Property Protection
5. Structural Measures
6. Emergency Services

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.

6.1 – Public Awareness and Information

An important part of raising awareness of flood hazards is providing residents with a way of determining the potential risk they face during periods of heavy rainfall.

The availability of residents to view the FIRM and understand it is essential to informing them of flood hazards affecting them.

Revisions to the FIRM are documented by FEMA and confirmation is sent to the municipality.

A number of areas were at risk to flooding during the June 26, 1998 flood that are not shown on the FIRM.

Action Items:

- **Copies of the FIRM will be available at the Arcade Free Library, Village Hall, Town Hall, Wyoming County Office of Economic Development and Planning, and the Wyoming County SWCD by the Village Clerk.**
- **Copies of the Letters of Map Amendment (LOMA) will be made available at the same locations by the Town and Village Clerks.**

- **Copies of the Village and Town of Arcade Flood Mitigation Action Plan and map displaying additional flooded areas during the June 26, 1998 flood will be made available at the same locations and updated as future flooding occurs by the Village Clerk.**

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2000

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 prospective 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 Committee 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 Committee 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: 2000 – 2001

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 (many of those used in this report) and catalog them in the library's reference section.**

Overall Ranking: High

Required Expenditures: Minimal

Time Frame: 2000

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 Committee 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: 2000

6.2 – 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.**
- **Zoning officers will take advantage of training when it becomes available.**

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2000 – 2001

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.

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

Overall Ranking: High
Required Expenditures: Minimal
Time Frame: 2000 – 2001

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: 2000 – 2001

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: 2001 – 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:**
 1. **Dry Creek Area**
 2. **East Arcade Road**
 3. **Java Lake Road**
 4. **Clear Creek (near Freedom, NY)**
 5. **Cemetery Ditch on Park Street**

6. Deacon Drive Ditch

- **If feasible, facilities will be designed and constructed, as funding is available.**

Overall Ranking: High

Required Expenditures: Moderate to High

Time Frame: 2001 – 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 Board will consider providing additional funding in line items “Storm Sewers” and “Flood and Erosion Control” for drainage system maintenance.**
- **The Town Board will consider adding a line item in the town budget for drainage system maintenance.**
- **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: 2001 – 2002

6.3 – 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 and Town of Arcade during site plan and subdivision reviews.**
- **Educational workshops will be provided by the Wyoming County Office of Economic Development and Planning.**

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. **Koike-Aronson, Inc. – approximately 1100 feet of foot high rock rip-rap.**
 3. **Yansick Lumber Company (Cattaraugus Creek) – approximately 1000 feet of 10-foot high rock rip-rap.**
 4. **Agway (Cattaraugus Creek) – repair of approximately 1000 feet of 10-foot high rock rip-rap.**
 5. **Private Residence (Cattaraugus Creek) – approximately 200 feet of 10-foot high rock rip-rap.**
 6. **Other areas as identified.**

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

6.4 – 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 recently 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.**
- **The Village has determined that the acquisition and removal of certain residences is the most appropriate way to eliminate long-term risk of flood damage. Initially the Village will acquire and remove residences on Water Street (2), Main Street (1)**

and West Street (1) for green space. While not as high a priority, other residences on Main Street and Water Street will also be considered.

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:

- **The Committee will continue to encourage property owners to purchase NFIP coverages for their homes and businesses by maintaining a working relationship with local insurance agents.**

Overall Ranking: High

Required Expenditures: Minimal

Time Frame: Ongoing

FEMA provides for reductions in NFIP premiums in communities based on the completion and adoption of a flood mitigation plan. The NFIP's Community Rating System (CRS) serves as a standardized system for rewarding "communities that have developed viable mapping and regulatory standards for the special hazards in their jurisdictions."

Action Items:

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

Overall Ranking: High

Required Expenditures: Minimal

Time Frame: 2000

6.5 – 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:

- **Regular maintenance of Cattaraugus and Clear Creeks, including removal of trees, sediment, shoal, and other deposits, will be carried out by the Wyoming County SWCD, Village Department of Public Works, and Town Highway Department.**
- **Permits, where necessary, will be procured from the NYSDEC and labor from volunteer groups of residents, AmeriCorps, and Wyoming County Corrections programs may be used.**

Overall Ranking: High

Required Expenditures: Minimal to Moderate

Time Frame: Ongoing

Additional storm sewer capacity through construction of new facilities or upgrading of current ones will also lessen flood hazards and risks by reducing stormwater runoff and the heights of floodwaters due to riverine and overland flooding.

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**
 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**
- **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. **The new firehall on Route 98**
 3. **Church Street at the Village Hall and Pioneer Elementary School**

Overall Ranking: High

Required Expenditures: Moderate to High

Time Frame: 2000 – 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.

Action Items:

- **The Village Superintendent of Public Works will investigate the feasibility of creating a 60-foot berm west of Deacon Drive to help alleviate the runoff due to by the limited capacity of the pipe under the railroad tracks.**

Overall Ranking: Medium

Required Expenditures: Moderate

Time Frame: 2000 – 2002

6.6 – 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.**
- **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: 2000 – 2005

6.7 - 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.

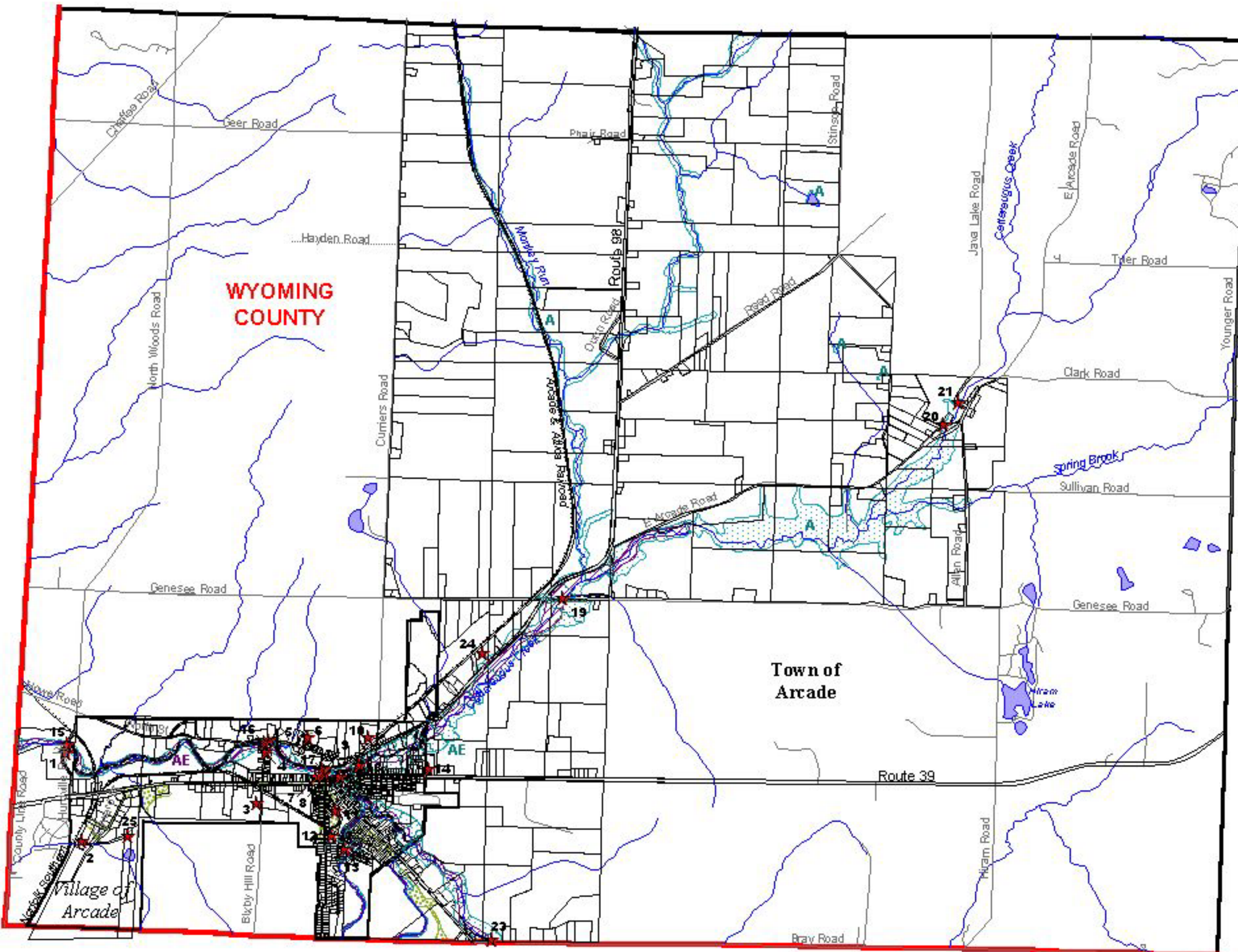
Reservoirs, levees, floodwalls, straightening of stream channels, and high flow diversion measures were all found to have too high of a cost in comparison with the return they would have in alleviating or reducing flood hazards and risks.

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.

Town & Village of Arcade Flood Mitigation Action Plan

Town and Village of Arcade



- ★ Critical Facilities
- FIRM Designated
 - Basic Flood Elevation Line
 - 100-Year Floodplain
 - Floodway Area
- Additional Flooded Areas July 26, 1998
- Tax Parcel
- Highway
- Road
- Private Road
- Railroad
- Hydrography
- Village Boundary
- Town Boundary
- County Boundary

0 0.5 1 Miles

Source: TIGER Line File, U.S. Bureau of the Census, 1992

Flood Insurance Rate Map, Federal Emergency Management Agency, 1992

Wyoming County Economic Development and Planning, 1999

Douglas C. Myers, Professional Land Surveyor, 1999

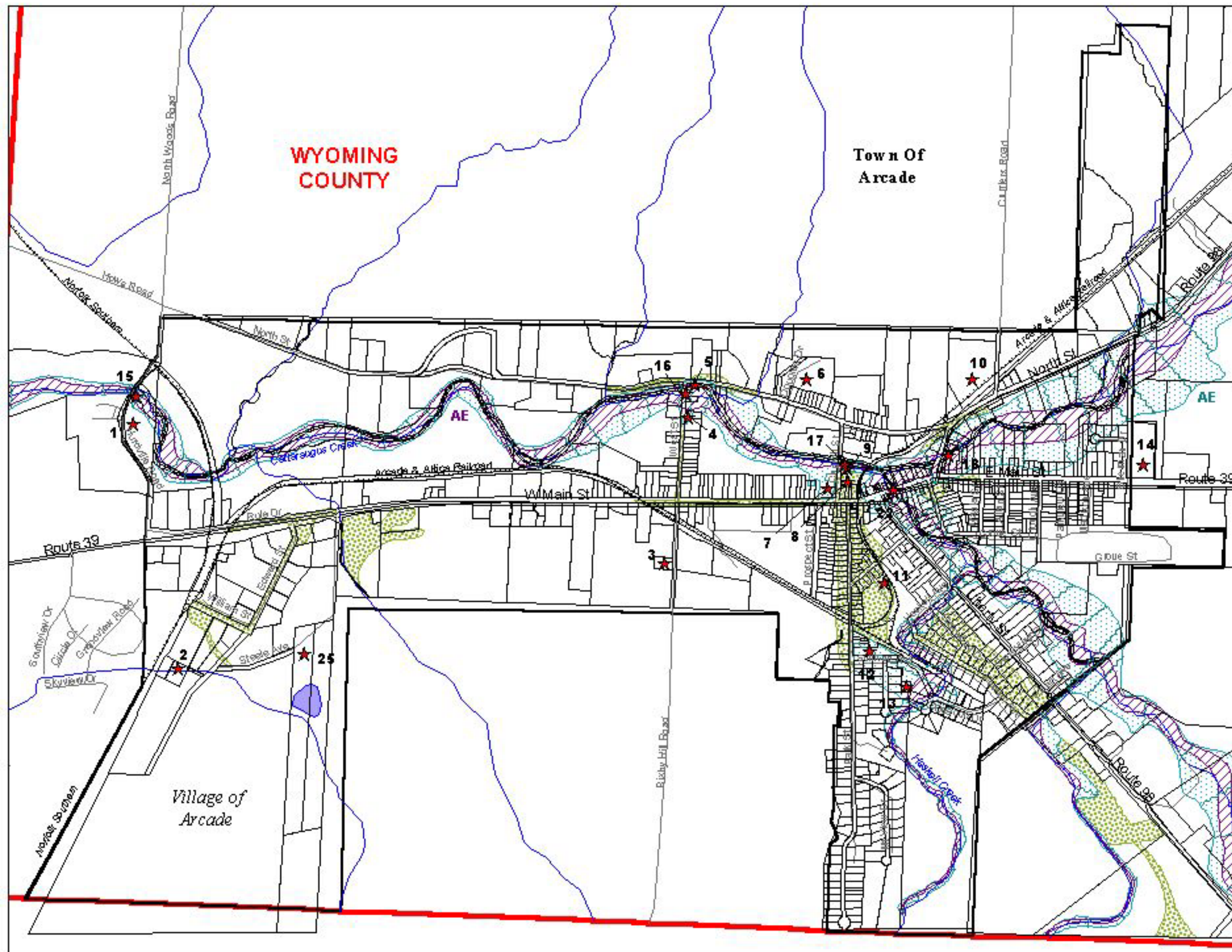
Arcade Flood Mitigation Planning Committee, 1999

Flood Hazard Assessment Subcommittee, 1999

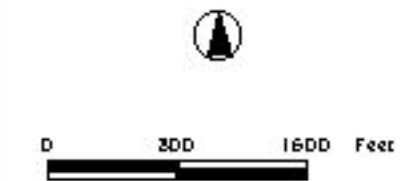
Public Outreach/Promotional Subcommittee, 1999

Town & Village of Arcade Flood Mitigation Action Plan

Village of Arcade Detail



- ★ Critical Facilities
- FIRM Designated
 - Basic Flood Elevation Line
 - 100-Year Floodplain
 - Floodway Area
- Additional Flooded Areas June 26, 1993
- Tax Parcel
- Highway
- Road
- Railroad
- Hydrography
- Village Boundary
- Town Boundary
- County Boundary



Source: TIGER/Line File, U.S. Bureau of the Census, 1992

Flood Insurance Rate Map, Federal Emergency Management Agency, 1992

Wyoming County Economic Development and Planning, 1999

Douglas C. Myers, Professional Land Surveyor, 1999

Arcade Flood Mitigation Planning Committee, 1999

Flood Hazard Assessment Subcommittee, 1999

Public Outreach/Panoply Subcommittee, 1999

Town and Village of Arcade Flood Mitigation Action Plan

Key of Critical Facilities

<u>ID</u>	<u>Facility</u>
1	Wastewater Treatment Plant
2	Industrial Park Substation
3	Bixby Hill Substation
4	West Street Sewage Pumping Station
5	North Street Sewage Pumping Station
6	Adult Living Apartments
7	Pioneer Elementary School
8	Village Offices and Police Station
9	Church Street Well
10	Village Fire Station
11	Streets & Parks Department Garage
12	Electric & Water Department Garage
13	Sullivan Avenue Well
14	Adult Living Apartments
15	North Woods Road Bridge
16	West Street Bridge
17	Church Street Bridge
18	Water Street Bridge
19	Genesee Road Bridge
20	East Arcade Road Bridge
21	Java Lake Road Bridge
22	Main Street Bridge
23	Bray Road Bridge
24	Town Highway Department Garage
25	Child Care Facility