

Appendix G: Town of Union Mitigation Strategies

The primary outcome the Town of Union intends to accomplish by the development of this plan is to reduce and/or eliminate the effects of pertinent natural hazards on life and property within the planning area. The outcome of this plan is to consider hazard mitigation as it relates to the general classifications of prevention, property protection, public education, natural resource protection, emergency services and structural strategies.

The mitigation strategy, as described herein, attempts to outline the procedures the Town of Union will follow to reduce the vulnerability of the planning area to the hazards with the greatest impact potential as indicated by the findings of the risk assessment. The development process for the mitigation strategy included the Town's Multi – Hazard Mitigation Planning Committees' review of the risk assessment information for the characteristics of each hazard and the vulnerability of the planning area for each occurrence. Also, considered were the existing flood mitigation and emergency operations plans. The relevant information from these plans were reviewed and incorporated in this mitigation strategy.

The goals stated herein are intended as general statements of accomplishments the Town of Union intends to achieve to reduce the planning area's vulnerability to relevant natural hazards. The Town of Union intends to focus on the strategies that will provide the greatest benefit in reduction of the hazards with the greatest impact potential as indicated by the findings of this risk assessment. Information regarding mitigation techniques developed by Federal, State, and Local emergencies officials were considered to include a multitude of potential mitigation alternatives. Implementation methods proposed by the Town of Union are also included.

Several goals and objectives may apply to more than one hazard and area therefore presented under multi – hazard mitigation. More specific recommendations are made under that hazard's mitigation.

1. GOALS AND OBJECTIVES

1.1 MULTI – HAZARD MITIGATION

Goal: Increase the general public's hazard awareness and response.

Objectives:

- Utilize public outreach and education methods to inform residents regarding preparedness for natural hazards. Target specific at-risk groups, i.e. elderly young, vulnerable areas etc.
 - Actions 1,2,3,4,15
- Assist schools in hazard drills and educational programs on natural hazards.
 - Action 4
- Improve public awareness of emergency information and warnings by encouraging use of NOAA Weather Radios.
 - Action 5
- Participate in disaster preparedness seminars and other informative sessions sponsored by the local Chapter of the American Red Cross or similar organizations.
 - Actions 4,7
- Promote public awareness by the availability of plans, such as Multi – Hazard Mitigation, Floodplain Management, Emergency Operations, and Storm water Management at municipal offices, public libraries, and online.
 - Actions 1,2,3
- Utilize outreach efforts mandatory under the MS4 Regulations to include information regarding relevant natural hazards.
 - Actions 1,2,3

Goal: Perform emergency activities in the most efficient manner.

Objectives:

- Periodically review the Town's Floodplain Management and Emergency Operations Plans to keep current and verify consistency.
 - Action 6
- Periodically inventory emergency equipment for condition and availability.
 - Action 6
- Periodically test emergency equipment and repair or update as required.
 - Action 6
- Periodically review Emergency Operations Plan with personnel supplying integral duties for plan implementation.
 - Action 6

- Periodically attend emergency information meetings formulated by other community organizations regarding natural hazards.
 - Action 4

Goal: Maintain the accessibility of critical facilities.

Objectives:

- Periodically review and update list of critical facilities serving the planning area.
 - Action 6
- Provide assistance to ensure critical facilities continue to provide essential services during hazard occurrences.
 - Actions 12,18
- Periodically review and update Emergency Operations Plan as it pertains to critical facilities.
 - Action 6
- Identify and mitigate risks to critical facilities.
 - Actions 11,12,13

Goal: Maintain political support for hazard mitigation and emergency response.

Objectives:

- Periodically review the Floodplain Management and Emergency Operations Plans with the Town's elected officials as the plans are updated.
 - Actions 4,6
- Continued involvement of the Town's elected officials on the Multi – Hazard Mitigation Planning Committee.
 - Actions 4,6,8
- Periodically review the Multi – Hazard Mitigation Plan with the Town's elected officials as it is updated.
 - Action 6
- Train the Town's elected officials in hazard mitigation and response.
 - Actions 4,7

Goal: Nurture public/private partnerships.

Objectives:

- Develop and promote public/private cooperation through organizations involved in hazard reduction activities.
 - Actions 4,7,9,10,12
- Promote prioritization and implementation of mitigation activities with public and private organizations.
 - Actions 10,12,14

1.2 FLOOD MITIGATION

Goal: Facilitate public education concerning flood hazards, safety, and damage reduction.

Objectives:

- Periodically distribute flood information to residents in flood-prone sections of the planning area.
 - Actions 3,5,10,15
- Provide flood information by making it accessible to the general public by ensuring availability at municipal offices, public libraries and online.
 - Actions 1,2,5,10,15,16
- Utilize the requirements for public outreach under MS4 regulations to include information regarding flooding.
 - Actions 1,2

Goal: Protect new development within the planning area from flooding hazards.

Objectives:

- Develop and update existing building and development codes utilizing flood hazard assessment information.
 - Actions 6,8
- Periodically educate code enforcement officers and building inspectors on enforcement of existing flood regulations.
 - Actions 4,9
- Periodically train code enforcement officers and building inspectors regarding updates to flood information utilizing seminars and workshops.
 - Action 4
- Develop and enforce flood plain management plan standards that meet or exceed the National Flood Insurance Program requirements.
 - Actions 6,8,10,13,14,15,16
- Enforce code regulations ensuring that new construction meet or exceed the elevation requirements above the 100-year flood.
 - Actions 4,6,8,9
- Review plans for compliance with the MS4 Storm water requirements.
 - Actions 6,8

Goal: Protect existing and new development from stream bank erosion.

Objectives:

- Develop methodology to protect stream banks and structures within stream corridors from damage as a result of erosion.
 - Actions 6,8,9
- Utilize local soil and water division's program for stream bank stabilization.
 - Actions 12,14
- Review plans for compliance with the MS4 Storm water requirements.
 - Actions 6,8
- Periodically review and update Town's regulations controlling erosion and sediment control.
 - Actions 6,8,10,12,14
- Periodically review and update Town's land use regulations controlling erosion and sediment control.
 - Actions 6,8,10,12,14

Goal: Reduce increased flood risk due to new development and updated land use regulations.

Objectives:

- Develop and enforcement storm water management plan in accordance with MS4 requirements.
 - Actions 12,14
- Review proposals for compliance with MS4 requirements.
 - Actions 6,8
- Coordinate with other municipalities in developing storm water regulations and land use plans for consistency.
 - Actions 4,7,8,9,12
- Incorporate local and regional watershed strategies in the development of the Town's storm water management.
 - Actions 4,6,8

Goal: Mitigate vulnerability to flood damages.

Objectives:

- Review plans for compliance with the MS4 Storm water requirements.
 - Actions 6,8
- Periodically inspect bridges and culverts for sufficient capacity and replace if deemed undersized.
 - Actions 11,17
- Maintain and expand the Town's involvement in the National Flood Insurance Program.
 - Actions 13,16
- Promote involvement in the flood insurance program for those structures in the flood-prone areas.
 - Actions 1,2,3,13,16

- Promote implementation of protection measures such as structure elevation, flood proofing, property buy-out, etc.
 - Actions 1,2,3,4,13,16
- Ensure that post-development runoff is equal to or less than that of pre-development.
 - Actions 6,8,9,12

Goal: Participate in effect warnings for flood hazards.

Objectives:

- Support local warning systems provided by Broome County Emergency Services and National Weather Service.
 - Actions 5,6,7,9
- Promote use of weather radios by residents in flood-prone areas.
 - Action 5
- Periodically update municipal officials and emergency response personnel thru review of the Town’s Multi – Hazard Mitigation, Floodplain Management, Emergency Operations and Storm water Management Plans.
 - Actions 6,8,9

1.3 SEVERE WEATHER MITIGATION

The goals and objectives to follow apply to several hazards. The associated hazards are severe winter storm, severe summer storm, tornado and ice storm.

Goal: Minimize impact on infrastructure and development in locations where broken tree limbs could potentially result in damage.

Objectives:

- Continue and expand existing maintenance program effecting trees along municipal rights of way.
 - Actions 11,17,19
- Coordinate with utility companies to maintain trees along electric and telephone lines.
 - Action 19
- Continue to provide brush pick-up or develop drop-off sites to encourage property owner tree maintenance.
 - Actions 1,2,19
- Promote public awareness by providing tree maintenance information by increasing availability to the general.
 - Actions 1,2,3

Goal: Reduce utility vulnerability to damage from wind and ice thru installation of underground utilities.

Objectives:

- Promote the use of underground utilities in new development thru the Town's codes and regulations.
 - Actions 6,8,20
- Encourage electric and telephone companies to utilize underground construction.
 - Actions 6,8,20

Goal: Promote public awareness regarding conditions of, response to and survival from severe weather.

Objectives:

- Provide severe weather information by making it accessible to the general public by ensuring availability at municipal offices, public libraries, and online.
 - Actions 1,2
- Utilize information developed by NYSEMO and National Weather Service pertaining to Severe Weather Awareness Week in March and Winter Weather Awareness Week in October.
 - Actions 1,2,3
- Support local warning systems provided by Broome County Emergency Services and National Weather Service.
 - Actions 1,2,3,5
- Improve public awareness of emergency information and warnings by encouraging use of NOAA Weather Radios.
 - Action 5
- Promote participation in defensive driving training, which includes information pertinent to severe weather.
 - Actions 1,2

Goal: Promote structural design standards sufficient to withstand high winds and heavy snow loads.

Objectives:

- Periodically train code enforcement officers and building inspectors regarding updates to the structural standards in the NYS Building Code utilizing seminars and workshops.
 - Actions 4,7,12
- Encourage the Town's elected officials to continue to fund the existing continuing education program for code enforcement officers and building inspectors.
 - Actions 4,7,9

- Promote the implementation of mitigation measures for existing development to reduce vulnerability to damage from severe weather.
 - Actions 6,8

Goal: Reestablish transportation activities to pre-event levels.

Objectives:

- Monitor forecasts and existing weather conditions to enable the Town’s Highway Department to respond quickly and efficiently to snow, ice, and high water events.
 - Action 5
- Review and update existing plowing routes, plowing schedules, and severe weather response procedures to provide quick and efficient restoration of the roadways.
 - Action 6
- Promote coordination with emergency services providers to ensure the transportation routes necessary to maintain emergency services.
 - Action 7
- Review and update the pre-event preparations to ensure the availability of manpower, equipment, and materials necessary to maintain adequate transportation throughout the Town.
 - Action 6

1.4 Landslide and Wild Fire Mitigation

Goal: Prevent unsuitable development activities in steep sloped areas.

Objectives:

- Protect steep slopes from erosion, dumping, and structures within close proximity. Protect forested slopes from insufficient wildland/urban interface.
 - Action 21

2. RANGE OF ACTIONS CONSIDERED

To achieve the goals and objectives identified previously, it is recommended that the measures included in this section be implemented. The measures include those that have been implemented in the past and those that can be accomplished within several years. In future years, the implementation of additional measures and the participation of community partners will be necessary to achieve all the goals and objectives identified previously. The implementation of the goals and objectives is to produce

positive results for hazard mitigation as they relate to the general classifications of prevention, property protection, public education, natural resource protection, emergency services, and structural activities.

The Town of Union is currently utilizing and enforcing regulations that address many of the mitigation goals and objectives already identified. The Town of Union will continue to support and fund these mitigation efforts at or above the current levels. Additional goals and objectives can be met, as additional measures are included into the existing municipal operations and local programs. The Town of Union intends to continue or implement mitigation measures utilizing existing or anticipated resources. However, the fiscal restraints limiting the staff and financial resources required to implement the proposed measures must be recognized. These restraints may delay or preclude full implementation of the mitigation efforts.

2.1 Actions Recommended for Implementation

Action 1

Provide hazard information at Town facilities: At various locations throughout the Town facility, information regarding natural hazards, emergency preparedness, flood plain management, hazard mitigation, and storm water management will be available to the general public for review. The information available shall be periodically reviewed and update to provide the most current data possible. The maps, detailing flood prone areas, as provided by the National Flood Insurance Program will also be available for review.

Priority:	High
Project Lead:	Town of Union Planning Department
Partners:	Town of Union Public Works Department
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 2

Provide hazard information on the Internet: The Town of Union shall continue to maintain a web site that will provide information regarding natural hazards, emergency preparedness, flood plain management, hazard mitigation, and storm water management that will be available to the general public for review. The information

available shall be periodically reviewed and updated to provide the most current data possible. The website shall provide links to the Town's Multi – Hazard Mitigation, Flood Plain Management, Emergency Operations, and Storm Water Management plans. A link to Broome County's website to provide access to the County emergency information. As additional information becomes available, the information will be made available by providing links to a variety of other sites.

Priority: High
Project Lead: Town of Union Data Processing Department
Partners: Town of Union Planning and Public Works Departments
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 3

Provide flooding information to residents in high-risk areas: Pamphlets will continue to be mailed to residents in flood prone areas affected by the Susquehanna River, Nanticoke Creek, and Little Choconut Creek. Each pamphlet is tailored in terms of the type of flood warning that residents of each area must be aware of. These pamphlets shall be periodically reviewed and updated to provide the most current data possible.

Priority: High
Project Lead: Town of Union Planning Department
Partners: Villages of Endicott and Johnson City
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 4

Encourage educational activities: The Town of Union will continue to support and promote educational programs as they become available thru Federal, State, Regional, or County activities regarding natural hazards, mitigation, emergency preparedness, storm water management, or other related topics. The Town of Union will continue to participate in and promote the Broome – Tioga Storm Water Coalition. The Town of Union Board shall continue supply funds and employee time to participate in these educational programs.

Priority: High
Project Lead: Town of Union Town Board
Partners: FEMA, SEMO and other governmental entities
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 5

Encourage the utilization of NOAA weather radios: The Town of Union will promote the increased use of NOAA weather radios to access broadcasts of weather forecasts; flood forecasts, warnings or watches and other hazard or post-event information. The Town of Union will investigate potential funding and/or discounting possibilities for acquisition of these radios. Pertinent information will be available to the public thru display, mailing and on the Internet.

Priority: Moderate
Project Lead: Town of Union Planning Department
Partners: Governmental agencies or local merchants
Potential Funding: Available grants or residents
Estimated Cost: To be determined
Estimated Timetable: As funding becomes available

Action 6

Review and update plans: The Town's Multi – Hazard Mitigation, Flood Plain Management, Emergency Operations, and Storm Water Management Plans will be periodically reviewed and updated to provide the most current data possible. The contact information within each plan will be reviewed and updated on an annual basis. This information will include municipal officials, emergency operations personnel, and utility personnel. A detailed review for each plan will be conducted every two years or after an occurrence initiating the activation of that plan.

The plan reviews shall be conducted with input from personnel associated with the Town of Union, Broome County Emergency Services, Broome County Sheriff Department, New York State Police, Endwell Fire Department, Union Volunteer

Emergency Squad, and other community organizations related to emergency response. The updated plans shall be presented to the Town Board and municipal staff.

The plan review process shall evaluate the following elements:

- Availability and usability of emergency equipment identified in the Town's Emergency Operations Plan.
- Emergency communication equipment shall be tested and repaired or upgraded as needed.
- Critical facilities list shall be reviewed and updated.
- Evaluate the potential vulnerability of critical facilities and provide assistance for mitigation by any means available.
- Verify the availability of sufficient shelters with the American Red Cross. Special consideration should be given to a regional event requiring mass evacuation.
- Review the emergency procedures as set forth by Broome County Emergency Services and update local emergency response procedures as needed.
- Review and update the emergency response procedures for maintaining the transportation system needs of emergency service providers.
- Review and update emergency and evacuation routes necessary to overcome various interruptions in service.
- Review and update training procedures for elected officials.
- Review and update cooperation activities with other entities both public and private.

Priority:	High
Project Lead:	Town of Union Planning and Public Works Departments
Partners:	NYS Police; Broome County Sheriff; UVES (ambulance); and Endwell, West Corners, West Endicott, Union Center and Choconut Center Fire Departments
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 7

Support and promote emergency services activities: The Town of Union will continue to support participation in emergency services activities, required by Federal, State, Regional, County, Local Agencies, or private entities and organizations, necessary to promote the review and update process for their emergency plans.

Priority:	High
Project Lead:	Town of Union Town Board
Partners:	FEMA, SEMO, and Broome County Emergency Service
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 8

Comprehensive Plan and land use regulations: The Town of Union is in the final stages of developing a new Comprehensive Plan. The plan's completion is anticipated for the spring of 2006. The Town's existing land use regulations are periodically reviewed and updated as needed.

The process for future reviews of the Comprehensive Plan and land use regulations shall evaluate the following elements:

- Adequacy of existing storm water management and erosion control to protect increased flood damages.
- Adequacy of flood plain management to protect new development in flood prone areas.
- Adequacy of construction standards or regulations to provide protection in areas not designated on existing or revised Flood Insurance Program Maps and evaluate the necessity for additional standards or regulations.
- Adequacy of storm water management to regulate and enforce requirements under the MS4 storm water program.
- Adequacy of regulations to promote the use of underground utilities.
- Adequacy of storm water management to protect buildings and other structures from damage due to stream erosion.
- Adequacy of regulations to encourage development of major transportation corridors and industrial complexes remote from population centers and environmentally sensitive areas.
- Adequacy of standards to support controllable traffic patterns promoting limited access, traffic calming, subdivision interconnection etc.
- Adequacy of regulations to support and promote hazard mitigation and damage reduction in general.

Priority:	High
Project Lead:	Town of Union Planning Department

Partners: Town of Union Town Board
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 9

Education and Training: The Town of Union will ensure periodic discussions with the members of the Town's Zoning and Planning Boards regarding natural hazards and their relation to site planning, traffic patterns and development standards. Storm water management, National Flood Insurance Program, and flood plain development regulations shall also be addressed.

Priority: High
Project Lead: Town of Union Town Board
Partners: FEMA, SEMO and other governmental entities
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 10

Support and promote network of creek and stream gauges: The Town of Union will explore avenues by which a system of rain gauges could be installed and maintained, possibly by volunteers living in the area of the gauges, along the creeks and streams within and around the planning area. The Town of Union will assist and coordinate similar efforts by Federal, State, Regional, Local agencies, or private organizations. The existence of these gauges could provide additional advanced warnings in the event of a high water occurrence.

Priority: Low
Project Lead: Town of Union Planning Department
Partners: To be determined
Potential Funding: To be determined
Estimated cost: To be determined
Estimated Timetable: As funding becomes available

Action 11

Inspect and maintain drainage system: The Town of Union will continue and expand its existing storm sewer inspection and maintenance program. The current procedures for the inspection and maintenance of closed storm systems, culverts, bridges, ditches, streams, and other drainage features will be reviewed, updated, and documented to ensure the efficiency and effectiveness of the Town's program.

Priority:	High
Project Lead:	Town of Union Highway Department
Partners:	Town of Union Sewer Department
Potential Funding:	Town of Union Town Budget
Estimated cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 12

Support and promote preventive activities: The Town of Union will continue to support participation in preventive measure activities initiated by Federal, State, Regional, County, Local Agencies, or private entities and organizations, necessary to promote the review and update process for their emergency plans.

Priority:	High
Project Lead:	Town of Union Town Board
Partners:	FEMA, SEMO and other governmental entities
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 13

Support and promote updating of the Flood Insurance Rate Maps: Effective implementation of the Town of Union Floodplain Management Plan requires the existence of accurate, up to date maps delineating the flood prone sections of the planning area. The Town will continue to cooperate with the necessary Federal, State,

Regional, or Local agencies to achieve the most accurate flood information and mapping possible.

Priority: Moderate
Project Lead: Town of Union Planning Department
Partners: FEMA's FIRM Program
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 14

Support and promote erosion protection along waterways: The Town of Union, thru its various plans and regulations, will continue to encourage waterway protection thru setback restrictions and required vegetative areas. The Town thru its review and update of existing plans and regulations will consider building setbacks along streams or other minor waterways.

Priority: High
Project Lead: Town of Union Planning, Code Enforcement, and Public Works Departments
Partners: Broome County Soil and Water Conservation District
Potential Funding: Available grants and Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 15

Support and promote property owner flood proofing activities: The Town of Union will continue to fund research and technical assistance to residents participating in efforts to flood proof their property. The Town will continue to support staff education, as it pertains to flood proofing, by utilizing available funds and employee time to attend programs instituted by Federal, State, Regional, County, Local Agencies, or private entities and organizations. Should property owners express interest in flood proofing activities beyond their financial means, such as elevation above flood level or property acquisition, the Town will continue its efforts to supply financial assistance to the extent it is available.

Priority: Low
Project Lead: Town of Union Planning Department
Partners: Governmental agencies or public
Potential Funding: Available grants or residents
Estimated Cost: To be determined
Estimated Timetable: As funding becomes available

Action 16

Support and promote Community Rating System: The Town of Union will continue achieve lower cost for flood insurance thru its annual re-certification process. The Town will continue to encourage the acquisition and continuance of sufficient flood insurance coverage by residents in flood prone areas.

Priority: High
Project Lead: Town of Union Planning Department
Partners: FEMA's FIRM Program
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Action 17

Improve existing drainage facilities: The Town of Union will continue improve the existing storm system by repairing or replacing existing roads, ditches, culverts, etc. which become damaged due to drainage or flooding problems. Every effort shall continue to be made to mitigate the flooding problem thru increased capacity or system efficiency.

Priority: High
Project Lead: Town of Union Highway Department
Partners: Public Works Department
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined

Estimated Timetable: Ongoing, expand as funding allows

Action 18

Support and promote interaction with emergency service providers: The Town of Union will continue communicate with various agencies providing emergency services to the planning area regarding their needs and concerns related to maintaining the transportation system in the event of a severe weather occurrence.

Priority: High

Project Lead: Town of Union Town Board

Partners: NYS Police; Broome County Sheriff; UVES (ambulance); and Endwell, West Corners, West Endicott, Union Center and Choconut Center Fire Departments

Potential Funding: Town of Union Town Budget

Estimated Cost: To be determined

Estimated Timetable: Ongoing, expand as funding allows

Action 19

Support and promote tree maintenance programs: The Town of Union will continue its maintenance program for trees along Town rights of ways. The Town will continue to assist the utility companies in the performance of their maintenance programs. The Town will continue its program of problem area identification and report to utility companies the location requiring maintenance. The Town will continue to provide residential brush pick-up or develop drop-off areas to encourage property maintenance by owners.

Priority: High

Project Lead: Town of Union Highway Department

Partners: NYSEG

Potential Funding: NYSEG and Town of Union Town Budget

Estimated Cost: To be determined

Estimated Timetable: Ongoing, expand as funding allows

Action 20

Support and promote underground utilities: The Town of Union will continue to require the installation of buried utilities for new development. The Town will continue to encourage the utility companies to convert existing overhead facilities to those that are underground at the time replacement becomes necessary.

Priority:	Moderate
Project Lead:	Town of Union Planning and Public Works Departments
Partners:	NYSEG and developers
Potential Funding:	NYSEG, developers and Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Action 21

Review and update Zoning Ordinance to ensure suitable development in steep sloped areas: The Town of Union will review existing regulations and suggest changes to prohibit certain activities in the steeply sloped areas of the town. For instance, the town does not currently have a forestry management ordinance or any prohibition against dumping on steep slopes. Slope and interface setbacks should be considered.

Priority:	Moderate
Project Lead:	Town of Union Planning Department
Partners:	Town of Union Planning Board
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	12-18 months from plan implementation.

2.2 CRITICAL FACILITIES AND OPERATIONS SERVING THE TOWN OF UNION

A *critical facility* is any facility that is an integral part of emergency response operations or one that requires special emergency response due to the potential of the site for triggering an additional hazardous incident.

Town Hall –

Town of Union Office Building
3111 E. Main Street
Endwell NY 13760

Alternative Emergency Operations Center for the Town –

Intentionally left blank

Fire Departments –

Endwell Fire Department
Village of Endicott Fire Department
Mutual Aid from Neighboring Fire Departments

Police Departments –

New York State Police-Sub Station
Village of Endicott Police
Broome County Sheriff

Broome County Emergency Management Office –

Broome County Sheriff's Office
Binghamton NY

Town of Union Basin Flood Warning Service –

Broome County Sheriff's Office
Binghamton NY

911 Dispatch Center –

Broome County Sheriff's Office
Binghamton NY

Emergency Medical and Ambulance Services –

Union Volunteer Emergency Services
Village of Endicott Fire Department

Hospitals –

Binghamton General Hospital-United Health Services Hospital
Lourdes Hospital

Wilson Medical Center-United Health Services Hospital

Highway Departments –

Town of Union Highway Garage
3111 E. Main Street
Endwell NY 13760

Public Schools–

Maine-Endwell Central School District
District Office
712 Farm to Market Road
Endwell NY 13760

Union-Endicott Central School District
Administration Offices
1100 E. Main Street
Endicott NY 13760

Emergency Shelters

Southern Tier American Red Cross Shelters within the Town of Union and Neighboring Communities:

ENDICOTT

George F. Johnson Elementary School – 999 Taft Avenue
St. Paul’s Episcopal Church - 200 Jefferson Avenue
T. J. Watson Elementary School – Watson Drive
Union-Endicott High School - 1200 E. Main Street

ENDWELL

Endwell Fire Station - 3508 Country Club Road
Homer Brink Elementary School - 3618 Briar Lane
Maine-Endwell High School - 750 Farm to Market Road
Maine-Endwell Middle School - 1119 Farm to Market Road
Our Lady of Angels Church - 3600 Phyllis Street

JOHNSON CITY

All Saints Episcopal Church - 475 Main Street
Blessed Sacrament School - Cenacle Plaza (JC Traffic Circle)
Johnson City High School - 666 Reynolds Road
Davis College - 400 Riverside Drive

UNION

Central United Methodist Church - 17 Nanticoke Avenue
Charles F. Johnson School - 715 Paden Street
Jennie F. Snapp Middle School - 101 Loder Avenue
Holy Nativity Lutheran Church - 312 East Main Street

VESTAL

African Road Elementary School - 600 South Benita Boulevard
American Legion Post #89 - Jenson Road
Calvary Baptist Tabernacle - 729 Main Street
Glenwood Elementary School - 401 Jones Road
Memorial Park Baptist Church - 1013 Front Street
South Hills Presbyterian Church - 901 Murray Hill Road
Valleyview Alliance Church - 11 Foster Road & Route 26
Vestal Hills Elementary School - 709 Country Club Road
Vestal Senior High School - 205 Woodlawn Drive
Vestal United Methodist Church - 328 Main Street

WEST CORNERS

Ann G. McGuinness School – 1301 Union Center – Main Highway
Linnaeus W. West Primary School – 1201 Union Center – Maine Hwy.

Utilities –

New York State Electric and Gas
Village of Endicott Water Department
Verizon (telephone service)
Time Warner Cable

Southern Tier Chapter of the American Red Cross –

620 E. Main Street
Endicott NY 13760
785-7207

Broadcast Media –

Local Television

WBNG TV 12
FOX TV 40
WIVT TV 34/WBGH

Radio

WNBF 1290 AM
STAR 105.7 FM
WINR 680 AM

WSKG TV 46 WEBO 1330 AM
WPEL 96.5 FM
Newspaper

Press & Sun Bulletin

Major Transportation Routes –

State Route 17 (future Interstate 86)
State Route 17C (Main Street)
State Route 26 North

Facilities with Significant Amounts of Hazardous Materials –
Intentionally left blank

3. ANALYSIS OF MITIGATION ACTIONS

The process for providing information used to determine goals, objectives, and actions pertaining to the pertinent natural hazards addressed in the Multi-Hazard Mitigation Plan will be described in the following paragraphs.

The purpose of the Town of Union's Multi-Hazard Mitigation Plan is to develop and promote sound public policy directed towards protecting residents, critical facilities, private property, infrastructure, and the environment from the results of a natural hazard occurrence.

Although detailed economic and social analyses for each mitigation action is beyond the scope and intent of this plan, consideration was given to the potential costs incurred and benefits derived from each proposal based in part on the personal and professional experiences of the members of the planning committee.

The initial consideration in the process was to develop a number of actions that, if implemented, would have the potential of mitigating a natural hazard. Those actions were then associated with the pertinent natural hazards previously identified. Initially, no suggested action was dismissed without due consideration.

The process then described the proposed actions. This included considering each action for evaluation, technical feasibility, and level of mitigation potential. This discussion included the potential reduction in hazard damages, the relationship of each to other actions being proposed and implementing so that the desired result is achieved.

The process then involved discussing the implementing entity or entities necessary to accomplish each action. The discussion included Federal, State, Regional, County or Local governmental agencies and private organizations.

The process then considered whether or not estimating a feasible dollar value could be associated with each action at this time. In instances where reasonable costs could not be associated with an action, estimates would be developed as sufficient information becomes available.

The process then involved identifying all sources of potential funding to support the implementation of each action. The discussion included Federal, State, Regional, County or Local governmental agencies and private organizations.

The process then involved the discussion of whether or not each proposed action resulted in consequences that negatively impacted the planning area. This included considering each action for environmental soundness and public support. The negative impact would be considered detrimental if the environmental effect is extremely adverse and public support against the action. Conversely, the negative impact would be considered desirable if the environmental effect is minimal and the public support in favor of the action. It was determined that future evaluations would consider using STAPLEE as the accepted criteria for determining negative impact. STAPLEE is an acronym for S-social, T-technical, A-administrative, P-political, L-legal, E-economic and E-environmental. STAPLEE is an accepted evaluation process for providing a systematic approach to identifying opportunities and challenges of a proposed action.

The process then discussed the prioritization of the proposed actions. The elements considered in prioritizing each action included the mitigation effectiveness, the necessity or immediacy and the associated cost. High priority was determined to be an action that produce results which would largely reduce vulnerability to damage, eliminate eminent danger, be technically and environmentally sound, be easily implemented, affordable, and supported both publicly and politically. Moderate priority was determined to be an action that would produce a portion of these results or create obstacles that would delay implementation, while also considering the criteria previously stated. Low priority was determined to be an action that would provide minimal results or create obstacles that would dramatically delay implementation, while also considering the criteria previously stated.

The final step in the process involved determining an implementation timetable for each of the proposed actions. Those actions previously implemented and continuing were considered as ongoing. Those actions whose implementation was decided to be in the relatively near future were considered as short term. Those actions whose implementation was decided to be in the distant future were considered as long term.

4. IMPLEMENTATION PLAN

MITIGATION PROJECTS OR ACTIVITIES PREVIOUSLY IMPLEMENTED

River Road/Argonne Avenue Buyout Program

From 1988 to 1993, the Town purchased flood prone properties along Argonne Avenue and River Road in the Endwell area through the River Road/Argonne Avenue Buyout Program. Most of the houses are 50 years old and considered structurally unsound. The only option was to provide residents with an opportunity to relocate. For a five-year period, the Town used Community Development Block grant (CDBG) funds to purchase properties, demolish homes, and restore the area to its natural state. The Town demolished 35 houses on Argonne Avenue and River Road and purchased 4 parcels of vacant land. The Town will preserve the area as open space. The Town received credit under Activity 520 – Acquisition and Relocation. Since the flood events of 2004 and 2005, the Town is investigating the possibility of purchasing additional properties in the floodplain.

Open Space

Over the years, the Town of Union and Villages of Endicott and Johnson City have considered constructing a walking path along the Susquehanna River. One portion of the trail was actually built by the Endicott Rotary Club. The Binghamton Metropolitan Transportation Study recently completed a “Greenways” study. The study proposes the construction of a pedestrian/bikeway trail along the Susquehanna and Chenango Rivers. A portion of the trail was constructed on a former rail bed in Vestal with transportation enhancement grants.

Watershed Management Plan

The Town of Union will continue to work with the Towns of Maine and Chenango and the Village of Johnson City to discuss appropriate land uses for the Little Choconut Creek watershed.

Flood Warning Dissemination System

The National Weather Service issues flood warnings for major rivers and small streams. The information is shared with the Broome County Office of Emergency Service via the communications link. If there is a prediction for the Susquehanna River reaching a flood stage of 18 feet, the National Weather Service will issue a warning over the communications network with Broome County Office of Emergency Services (BOES) and the New York State Department of Environmental Conservation (NYSDEC). The New York State Department of Environmental Conservation, Broome County, and the

Town of Union will maintain and repair levee systems in the Town and initiate a flood alert procedure.

An action chart has been prepared by Broome County Office of Emergency Services, National Weather Service, and NYSDEC to initiate contacts for the closing of floodgates, the operation of pump stations, the contacting of utilities, and the evacuating of residents.

The National Weather Service, U.S. Army Corps of Engineers, and U.S. Geologic Survey own a system of river stage gauges on the Chenango River and Susquehanna River (Conklin and Vestal). For the Vestal Gauge, the flood stage is 18 feet. There are no gauges on Nanticoke Creek or Little Choconut Creek. The flood warning system also lacks gauges on streams.

The Town shall continue to work with the Broome County Office of Emergency Services and New York State Department of Environmental Conservation to acquire funding to expand this system.

The National Weather Service can provide 12 to 18 hours warning to residents in the Endwell area affected by the Susquehanna River. The Town will assist in the effort to warn residents by the use of Flood Forecast Profiles on U.S.G.S. Maps (Scale is 1 inch equals 200 feet). The maps show contours representing various flood stages of the Susquehanna River. The National Weather Service will issue a flood warning when the Susquehanna River is predicted to reach a flood stage of 18 feet or above (Vestal Gauge). This means any properties located within the 18 feet contour will be flooded. Residents should be prepared to evacuate prior to reaching the river reaching that stage. The Flood Forecast profiles were developed by the Susquehanna River Basin Commission dated March 4, 1985.

The Flood Forecast Maps shall be used by the Town to assist residents, in the flood prone area, to safely evacuate prior to the river reaching flood stage. Each year the Town will acquaint residents with the flood warning system. This will be achieved by mailing a pamphlet that advises residents at what river stage their property will be flooded. The pamphlet will advise residents to prepare to evacuate prior to that stage being reached. The pamphlet shall also notify residents which radio stations to tune to and what emergency precautions to be taken. This activity is being carried out under Activity 310 – Outreach Project.

Since 1993, an effort is ongoing within the National Weather Service to modernize and make improvements to its weather and hydrologic forecasting capabilities. In addition to rainfall gauges in the Susquehanna River watershed area, the new Doppler weather radar system is a technological advance that will assist in estimating real time rainfall rates and amounts. This Doppler weather radar has the capability to estimate and display one hour, three hour, and storm total precipitation amounts. The National Weather Service Office in Binghamton, together with improved guidance and river forecasts from the Middle Atlantic River Forecast Center at State College Pennsylvania,

will be able to issue more accurate river stage forecasts for the Chenango and Susquehanna Rivers.

During the recent flood events on January 19th and 20th, 1996, the National Weather Service accurately predicted the river stage level for the Susquehanna River. A flash flood watch was issued for small streams and creeks. The Town had a 12-hour notice to evacuate residents from flood prone areas.

Residents can also listen to National Oceanic and Atmospheric Administration (NOAA) Weather radio, which provides continuous broadcasts on the latest information directly from the National Weather Service offices.

Special flood statements including watches and warnings are also broadcast over the Weather Service radio.

The National Weather Service also issues a flood warning for streams. In the Town of Union, Nanticoke Creek and Little Choconut Creek are classified as streams. The National Weather Service cannot predict the elevation of the stream without gauges. However, the National Weather Service can forecast the magnitude of the flooding problem by classifying it as being minor, moderate, or severe. Residents in the flood prone areas can be alerted to the fact that their property may be affected. A system of stream gauges should be developed for all streams in the Town and Broome County. In the Town of Union stream monitoring includes Nanticoke Creek and Little Choconut Creek.

The Town shall continue to work with Broome County Office of Emergency Services and the National Weather Service in acquiring monies for additional stream gauges.

In the areas affected by flooding, the Broome County Office of Emergency Services will alert local fire department personnel that a severe thunderstorm warning is being issued. This way the fire departments are aware that residents may have to be evacuated or that flooded basements will need to be pumped. The Town will raise residents' awareness about flood safety by mailing them a pamphlet discussing the flood warning system and what to do during a flood event. The pamphlet will also tell residents that other resource material is available on flood insurance, flood proofing a building, and other topics at their local library. The Town under Activity 330 –Outreach Project and Activity 350 – Flood Protection Library will continue to carry out these activities.

Property Owner Protection Measures

One of the ways to reduce flood losses is to make residents aware of flood hazards. As mentioned previously, residents in flood areas will continue to receive a pamphlet (Activity 310-Outreach Project) acquainting residents with the flood warning system, how much warning time is allowed, which radio stations to tune to, and what emergency precautions to take. Flood insurance will continue to be recommended since flood damage is not usually covered by normal homeowner's insurance. Pamphlets will

continue to be sent to residents in flood prone areas affected by the Susquehanna River, Nanticoke Creek, and Little Choconut Creek. Each pamphlet is tailored in terms of the type of flood warning that residents should listen for. For example, since the Fairmont Park area is now protected by a levee system, residents shall be made aware of when the stop log structure is being placed across Watson Boulevard so that they will not try to use it as an access to and from their place of residence.

Included in the pamphlet to be sent to residents in flood prone areas will be a list of reference sources that residents can use from their local library including the following; how to read a FIRM map, guidelines on flood damage reduction, flood proofing nonresidential structures, purchasing flood insurance, retrofitting flood prone buildings, and flood proofing regulations. There is also a list of names, addresses, and telephone numbers of agencies that can assist in learning about flood insurance, flood proofing, and floodplain management. This activity is included under Activity 350- Flood Protection Library. Both the George F. Johnson Memorial Library in Endicott and Your Home Library in Johnson City will continue to have these references available for the public.

Drainage System Maintenance

Smaller storms can cause over bank flooding because debris, silt, and vegetation are allowed to accumulate in drainage structures. Each spring, the Town of Union checks all closed and open storm drainage systems to see if debris has hindered water flow. Before and after any storm, the Town's Highway crews will inspect certain drainage structures.

Town crews will clear debris clogging of all small streams affecting the Town's drainage system. Broome County clears all debris from the pond areas around the dam structures on the Nanticoke Creek, Little Choconut Creek, Brixius Creek, and Patterson Creek in the spring. Broome County personnel periodically check dam structures and pond areas before and after each storm occurrence.

NYSDEC will inspect and clear open channels, ditches, and outlets in the Westover area that may impact the flood protection works. The time periods for inspection of these structures are listed in an agreement signed between the U.S. Army Corps of Engineers and NYSDEC.

Storm Water Management

Any new residential, commercial, or industrial development shall be designed so that the storm water discharge from the subdivision does not exceed the discharge that emanated from the property when it was undeveloped. Storm water runoff from new developments shall not be permitted to increase into inadequate downstream storm sewers during the time of peak runoff. The design and size of the facilities shall be based upon anticipated runoff for a ten-year storm.

Soil erosion is controlled in two ways. Under the Town's Subdivision Regulations, a developer is required to expose the smallest area of land that is practical to prevent soil

erosion. Erosion and sedimentation controls must be in place if grading or construction is taking place.

Under the Town's Soil Erosion Law, no person can simply clear his land of vegetation without first submitting a grading and drainage plan to the Planning Board for approval. The Soil Erosion Law also pertains to any land disturbance activity such as excavating or grading.

New York State Department of Environmental Conservation issued new storm water discharge regulations in compliance with new federal regulations issued in 1990 for National Pollutant Discharge Elimination System (NPDES) Program. (Refer to 40 CFR Part 122, 123, and 124, 11/16/90). The NPDES program regulates point discharges of any pollutants into the water of the United States. These new comprehensive regulations were needed after nation-wide water quality studies show that storm water runoff from various land uses such as light industrial, commercial, and residential activities have a significant impact on the water quality of receiving waters. Some of the studies showed that illicit connections of sanitary, commercial, and industrial discharges to storm water systems had particularly large amounts of wastes, in particular used oils, improperly disposed of. Intense construction activities may also result in severe localized impact on water quality because of high unit load of pollutants, primarily of sediments, phosphorous and nitrogen from fertilizer, pesticides, petroleum products, and solid wastes.

For any residential or commercial development that disturbs 1 or more acres, the developer must provide a Storm Water Pollution Prevention Plan (SWPPP) that will reduce the rate of runoff from new land development to prevent increases in flooding provide infiltration practices to capture contaminants from the storm water runoff by controlling first ½ inch of runoff for all development phases including grading and construction. The Town of Union is a regulated MS4 under general permit GP-02-02 in accordance with Phase II regulations.

Summary of CRS Ongoing Activities Recommended for Continuation

The activities listed below refer to those of FEMA's National Flood Insurance Program Community Rating System (CRS). The CRS has 18 floodplain management activities available for credit divided into four categories as follows:

Public Information (Series 300)

This series credits programs that advise people about flood hazard, flood insurance, and ways to reduce flood damage. These activities also provide data needed by insurance agents for accurate flood insurance rating. These activities generally serve all residents of the community and relate to all three goals of the CRS, damage reduction, accurate insurance rating, and hazard awareness. .

Mapping and Regulations (Series 400)

This series credits programs that provide increased protection to new development. These activities include mapping areas not shown on FIRM, preserving open space, enforcing higher regulatory standards and managing storm water. These activities relate to the first and second goals of the CRS, damage reduction and accurate insurance rating.

Flood Damage Reduction (Series 500)

This series credits programs for areas in which existing development is at risk. Credit is provided for a comprehensive floodplain management plan, relocating or retrofitting flood prone structures, and maintaining drainage systems. These activities relate to the first goal of the CRS, damage reduction.

Flood Preparedness (Series 600)

This series credits programs for flood warning, levee safety, and dam safety procedures. These activities relate to the first and third goals of the CRS, damage reduction, and hazard awareness.

1. Activity 240

Floodplain Management Plan: The Floodplain Management Plan has been most recently revised and activities updated in 2005. The Town of Union Planning Department will perform periodic updates under this activity. The Planning and Codes Departments and the Floodplain Manager will ensure compliance with this activity during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning Department
Partners: Town of Union Codes Department
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

2. Activity 310

Elevation Certificate: The Town of Union Building Official will use the elevation certificate published by the Federal Emergency Management Agency. The Building Official/ Floodplain Manager and Codes Departments will ensure compliance with this activity during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Codes Department

Partners: FEMA
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

3. Activity 320

Map Determination: The Town and the Villages of Endicott and Johnson City publicize a service whereby banks, insurance companies, or real estate agents can request any floodplain information on particular property. The service is publicized through an annual mailing to mortgage lenders and insurance agents, most recently in September 2005. The Town of Union Planning Department and Building Official respond to any verbal or written inquiries for map determinations for properties within the floodplain. The information includes the community number, panel number, FIRM zone, FIRM suffix, date of FIRM index, and base flood elevation datum system used on the FIRM. Compliance with this activity will be ensured by the Planning and Codes Departments during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning and Codes Departments
Partners: FEMA FIRM Program
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

4. Activity 330

Outreach Project: The Town of Union Planning Department sends out a pamphlet to residents in flood prone areas on flood hazards and flood safety. The pamphlet also lists some references on flood proofing a building, flood insurance, etc. that residents can borrow at their local library. This activity was carried out in September 2005. The Town of Union Planning Department will perform periodic updates relating to this activity. The Planning Department will also ensure availability of related information at local libraries, Town facilities, and on the Internet. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning Department
Partners: Villages of Endicott and Johnson City
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined

Estimated Timetable: Ongoing, expand as funding allows

5. Activity 350

Flood Protection Library: The Town of Union Planning Department maintains references on various topics relating to flood proofing and flood insurance at the George F. Johnson Memorial Library in Endicott and Your Home Library in Johnson City. The Town contacts the libraries annually to update any references. This activity was most recently performed in September 2005. The Town of Union Planning Department will perform periodic updates relating to this activity. The Planning Department will also ensure availability of related information at local libraries, Town facilities, and on the Internet. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning Department
Partners: Villages of Endicott and Johnson City
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

6. Activity 420

Open Space Preservation: From 1988 to 1993, the Town of Union purchased 7.98 acres of private property under the River Road/Argonne Avenue Buyout Program. The area is subject to frequent flooding from the Susquehanna River. The purpose of the program was to remove homes from the floodplain and return the area to its natural state. The Planning and Codes Departments and the Floodplain Manager will ensure compliance with this activity during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning and Codes Departments
Partners: FEMA
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

7. Activity 450

Storm Water Management: The Town's Subdivision Regulations require the developer to design a storm drainage system for ten (10) year storm. The developer must show that storm water discharge does not exceed the discharge that emanated from the property when it was undeveloped. The regulations promote the use of detention ponds

as a means of controlling post development runoff but do not preclude the use of alternative detention methods to achieve the desired result. The Town initiated compliance with the Storm Water Phase II requirements. The Southern Tier East Regional Planning and Development Board has implemented informational workshops this past year for government officials and contractors. The Town of Union maintains a storm sewer outfall map and submits an annual report to New York State Department of Environmental Conservation. The Town is developing a model storm water management and erosion control ordinance to incorporate into its site plan review and subdivision approval process. The Town of Union Engineering Department will perform periodic updates under this activity. The Planning, Codes, and Engineering Departments and the Floodplain Manager will ensure compliance with this activity during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning, Engineering, and Codes Departments
Partners: Broome-Tioga Storm Water Coalition
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

8. Activity 510

Repetitive Loss Plan: Repetitive loss properties are addressed in the Town's Floodplain Management Plan. Some of the properties on Argonne Avenue and Verdun Avenue were flooded in February 28, 2000 and again in April 2005. The sections of the planning area that flood repeatedly and the properties receiving damage are compiled and updated after each hazard occurrence. This compilation is then referenced when considering properties for inclusion in Activity 520 and when a request is made for new construction, Activities 240 and 310. The Town of Union Planning Department will perform periodic updates under this activity. The Planning and Codes Departments and the Floodplain Manager will ensure compliance with this activity during the review and inspection processes for proposed development projects. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning and Codes Departments
Partners: To be determined
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

9. Activity 520

Acquisition and Relocation: The Town of Union used federal Community Development Block Grant funds to purchase flood prone properties, demolish the houses, and return the land to its natural state. The River Road/Argonne Avenue Buyout Program ended in 1993. The Town of Union Planning Department will periodically investigate potential funding sources to further implement this activity. Implementation will be determined as information on extent and funding opportunities becomes available.

Priority: Moderate
Project Lead: Town of Union Planning Department
Partners: FEMA
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: As funding becomes available

10. Activity 540

Drainage System Maintenance: The Town of Union Highway Superintendent or his designee conducts an inspection and debris removal program for catch basins, man-made channels, ditches, and natural drainage ways. The Town of Union Highway Department will periodically perform operations under this activity. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Highway Department
Partners: Town of Union Sewer Department
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

11. Activity 610

Flood Warning Program: The Town's flood warning dissemination system is described in its Floodplain Management Plan. The Town of Union Planning Department will perform periodic updates under this activity. Implementation will be included in the Town's Annual Budgets.

Priority: High
Project Lead: Town of Union Planning Department
Partners: Broome County Emergency and National Weather Services

Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

12. Activity 630

Dam Safety: Broome County owns and maintains several dams along Nanticoke Creek, Patterson Creek, and Little Choconut Creek. New York State Department of Environmental Conservation inspects the dams annually. These dams meet safety standards developed by the Association of State Dam Safety Officials (ASDSO). Broome County and New York State are responsible for this activity. Implementation is believed to be included in the respective annual budgets for these governmental agencies.

Priority: High
Project Lead: Broome County and New York State
Partners: Town of Union
Potential Funding: Broome County and New York State Budgets
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

PROPOSED MITIGATION PROJECTS OR ACTIVITIES REQUIRING ADDITIONAL RESOURCES

Introduction

In order to achieve the goals and objectives set forth in the Town's hazard mitigation plan, the following actions are recommended but will not be accomplished with current funds and resource levels. The Town of Union will continue to verify availability of funds and resources to accomplish the recommended actions. The recommended actions were reviewed considering the cost to implement and the benefit derived to determine which warranted high priority. The implementation of these actions will occur as the Town acquires the necessary funds and resources.

Stop Log Closure Project

The Town of Union has received requests from numerous property owners in the Fairmont Park section of the planning area regarding the construction of the final portion of the Flood Protection System previously installed. This would require a stop log closure across Watson Boulevard to the East of the existing closure. The existing closure provides protection from floodwaters approaching from the West but the area remains vulnerable during extremely high floodwater occurrences from the East. The

proposed project will provide protection for 72 residential properties, portions of 7 streets and 12 acres of commercial property, 2 acres of which are currently developed. The project would include the construction of approximately 180 feet of concrete floodwall and 50 feet of closure structure across Watson Boulevard. This alternative is one of three considered for the mitigation process. The comparison of costs and benefits for all three alternatives revealed the floodwall/closure project to be the most logical selection to recommend. This would provide protection from backwater entering the Fairmont Park area from the East for a 100-year event. The estimated cost of the project is \$265,000. The Town of Union, acting as lead agency, has already applied for project funding thru the Hazard Mitigation Grant and Flood Mitigation Assistance Programs. The Town Board has agreed to provide any matching funds required by these programs thru the municipal budget. The estimated timetable for completion is 30 weeks, once the funding is available.

Priority:	High
Project Lead:	Town of Union Public Works Department
Partners:	SEMO and FEMA
Potential Funding:	SEMO and FEMA Mitigation Programs and Town of Union Town Budget
Estimated Cost:	\$265,000
Estimated Timetable:	30 weeks, after funding available

Property Buyout Program

The Town of Union has received requests from numerous residents, in the flood prone section of the planning area, regarding the possibility of another buyout program. The Town has initiated the application process to acquire funds for this purpose. The majority of these residences have previously attempted to mitigate flood damage by elevating furnaces, water heaters, living areas, etc. The proposed project consists of a voluntary buyout program located in the 100-year flood plain in the south Endwell section of the planning area. The proposal will eliminate housing units in the 100-year floodplain reducing structural and personal property damages, including repetitive losses for many of the properties located in the project area. The structures, if purchased, will be demolished and existing grades would be established and vegetation established immediately. The Town received 3 buyout grants that accounted for the acquisition of 48 parcels of land, with a total of 88 residential living units and one commercial property. The total cost of the projects was \$3,895,287.20. All but one property was located in the South Endwell area. Additional alternatives considered included floodwall construction and property elevation. The proposed project was selected after a review of the project costs and the benefits derived. The proposed project would provide permanent protection for a 100-year event. The estimated cost of the project is \$1,500,000. The Town of Union, acting as lead agency, has already applied for project funding thru the Hazard Mitigation Grant and Flood Mitigation

Assistance programs. The Town Board has agreed to provide any matching funds required by these programs thru the municipal budget. The estimated timetable for completion is 24 weeks per property, once the funding is available.

Priority: High
Project Lead: Town of Union Planning Department
Partners: SEMO and FEMA
Potential Funding: SEMO and FEMA Mitigation Programs and Town of Union Town Budget
Estimated Cost: \$1.5 million
Estimated Timetable: 24 weeks per property, after funding available

Local Waterfront Revitalization Program

The Town of Union will explore the revitalization of the waterfront within the planning area. The potential exists develop land along the Susquehanna River into a community recreational facility. The Town's past buyout program produced land that was developed into a neighborhood park and community gardens. Although direct access to the river is not available from these properties, it is hopeful that future buyouts will provide direct access to encourage community use of the river. The Town will continue to explore potential funding sources developed by Federal, State, Regional, County, and Local agencies as they become available for waterfront revitalization. The costs involved will be determined as more information regarding the project extent becomes available. Considering the current state of municipal budgets, funding will most likely be thru available grants. Municipal budgets will probably be looked to for matching local funds that may be required. The Town will act as lead agency in the initial planning stages. The project timetable will depend upon conditions warranting action and funds becoming available.

Priority: Moderate
Project Lead: Town of Union Planning Department
Partners: Various governmental agencies
Potential Funding: Available grants and Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: As funding becomes available

Storm Drainage System Improvements

The Town of Union will continue to improve its storm sewer system by increasing capacity for portions of the system that experience problems during or immediately following hazard events. The Town will continue to encourage culvert replacement projects such as the one on Town Line Road. The culvert under the road was replaced with a larger one and the channel was re-graded, upstream and downstream, to improve capacity and efficiency. As problem areas are identified, a priority will be assigned, considering the cost and benefit, for each. The Town will continue to be a member of the Broome – Tioga Storm Water Coalition. The Town's storm sewer maintenance program will continue and grow thru the purchase of additional equipment and staffing increases. The estimated costs will be determined as more information regarding each individual project becomes available. The funding source for such activities will be the municipal budget. The lead for these projects will be the Town's Highway and Engineering Departments. The estimated timetable will be developed as conditions warrant implementation and funds become available.

Priority:	High
Project Lead:	Town of Union Highway and Engineering Departments
Partners:	Broome-Tioga Storm Water Coalition
Potential Funding:	Town of Union Town Budget and available grants
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

Municipal Website Improvements

The Town of Union will continue to support and promote a more powerful Internet site with the ability to enhance its information accessibility to the general public. This will be accomplished by posting additional information or links related to natural hazards, mitigation, and emergency response. The ability to provide notices and minutes for meetings along with pertinent, related documents will be explored. This will provide for and improve public involvement for future updates of the Town's Multi – Hazard Mitigation, Flood Plain Management, Emergency Operations, and Storm Water Management Plans. The estimated cost is \$5,000 for the setup and \$1,000 annually for update and maintenance. The funding source for this activity will be the municipal budget. The lead for these improvements will be the Town's Data Processing Department, specifically the Computer Operations Supervisor. The estimated timetable will be an ongoing program as funding becomes available.

Priority:	High
Project Lead:	Town of Union Data Processing Department

Partners: Town of Union Planning and Public Works Departments
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Staff and Financial Resources

The Town of Union administrative staff indicates that the time needed for tasks related to hazard mitigation, emergency preparedness, storm water management, flood plain management, public outreach, etc. is on the increase. All of the related programs would benefit from additional staff and resources to fully implement and expand the existing programs. Municipal budgets are becoming increasingly tighter and the predictability of additional funding impossible. The estimated cost of additional staff and resources will need to be determined, as the extent of each becomes known. The funding source for this activity will be the municipal budget. The lead for this recommendation will be the Town Board. The estimated timetable for this will become apparent as conditions warrant and the funding is made available.

Priority: Moderate
Project Lead: Town Board
Partners: To be determined
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

CERT Program

Community Emergency Response Team (CERT) training is a FEMA program that educates citizens about the hazards they face in their community and trains them in basic lifesaving skills.

The Town of Union CERT Training Program is a community outreach program intended to provide fundamental Disaster Preparedness skills to area residents, at no cost to them, so they can better protect themselves, their families, and potentially their neighbors until “first responder” help arrives. This training program is a 24 hour course, delivered one evening per week over a 7-week period. This course combines both academic and hands-on instruction; and includes the following topics: Disaster

Preparedness, Fire Safety, Disaster Medical Ops, Light Search & Rescue, Team Organization, Disaster Psychology, Terrorism, and a final Exercise/Simulation.

All the instructors are highly qualified first responders from the Union Volunteer Emergency Squad, Town of Union Fire Departments, and Law Enforcement. These instructors have volunteered their time to provide this education/training.

The Town of Union CERT Training Program was proposed in June 2005. The preliminary plan, including cost analysis, identification of required training materials, instructor availability, facility requirements/location, etc., was completed mid August 2005. The implementation plan, which began soon after that, culminated in the delivery of the initial (pilot) class that was held from October 20, 2005 thru December 8, 2005, with a Disaster Simulation, on December 10, 2005. This was a highly successful class with student representation from all facets of the community, for example, industry, retailing, and education. The attendees were evenly divided between male and female, comprised of both professional and non-professional occupational backgrounds, and spanned the age spectrum from young adult to senior citizen.

There are two classes scheduled for 2006. The Spring session will be held from March 23, 2006 thru May 6, 2006. The Fall session will begin on September 28, 2006 and run through November 11, 2006. The plan is to conduct two sessions annually.

Although the current program is intended to reach out and train 'individuals', it can also be used to train 'teams'; for example, the Union-Endicott Central School District has requested training sessions for their faculty Disaster Teams. Planning meetings to explore options to satisfy this request are in process.

The Town of Union will continue to support and promote the efforts of the CERT program and will consider the sponsorship of a CERT 'team', which would be CERT trained volunteers that would be activated in the event of a large-scale emergency.

Cert personnel have been and will continue to pursue exploratory discussions with the Southern Tier Chapter of the American Red Cross relative to their creation of a Red Cross CERT 'team' comprised of students from the CERT Training Program interested in 'team' development.

Priority:	High
Project Lead:	Town of Union Town Board
Partners:	FEMA's CERT Program Team
Potential Funding:	Town of Union Town Budget and available grants
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding allows

NOAA Weather Radios

The Town of Union will continue to support and promote the use of weather radios. The Town will consider a survey to identify those locations where public safety would be improved if the NOAA weather radio alarm system were utilized. These could alert staff of emergency or severe weather warnings in schools, parks, municipal buildings, and other locations where the public assembles. Individual residences could also benefit from use of these products. The survey results would indicate the number of facilities currently without the use of such equipment. The estimated cost would be determined, as information becomes available regarding the quantity needed. The funding sources for this activity could potentially be local industries, insurance agencies, lending institutions, or governmental grants. The lead for this recommendation would be the Town Planning Department. The estimated timetable would be determined as the extent becomes known and the funding is made available.

Priority:	Moderate
Project Lead:	Town of Union Planning Department
Partners:	Governmental agencies or local merchants
Potential Funding:	Available grants or residents
Estimated Cost:	To be determined
Estimated Timetable:	As funding becomes available

Natural Resource Protection

Storm water management program: The Town of Union will continue to develop and implement its storm water management program consistent with the requirements of the MS4 permit. The full implementation of the requirements under the storm water management program may require additional staffing levels. The Town of Union will continue to investigate the feasibility of sharing services with neighboring municipalities to reduce costs, increase cooperation, and expand coordination in order to facilitate meeting the needs for implementation. The estimated cost will be determined by the extent of staff and expertise needed. The funding sources for this recommendation are governmental grants and municipal budgets. The lead for this activity would be the Town's Code Enforcement and Public Works Departments. The estimated timetable would be the result of ongoing programs with full implementation by March 2008.

Stream stabilization: The Town of Union will continue utilize the Broome County Soil and Water Conservation District's stabilization program. Problem areas will be identified and funds will be sought to mitigate the situation. The Town will initiate the application process to acquire the monies available for stabilization projects. The

estimated cost of these activities will be determined by the extent of each individual project. The funding source for this recommendation would be governmental grants. The lead for these activities would be the Broome County Soil and Water Conservation District. The estimated timetable would be determined as the extent for each becomes known and the funding is made available.

Priority: High
Project Lead: Town of Union Codes and Public Works Departments
Partners: Broome County Soil and Water Conservation District
Potential Funding: Town of Union Budget and available grants
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Critical Facility Protection

The Town of Union will continue to maintain a list of critical facilities, in and around the planning area, related to hazard mitigation, emergency preparedness, or emergency response. The Town will seek to provide or improve protection of these facilities by all means available. The purchase of additional emergency generators would ensure a source of electricity for these facilities. The installation of generators on trailers would facilitate the ability to relocate from one location to another as the need arises. The estimated cost of this activity would be determined by the number and type required. The funding sources for this recommendation would be governmental grants and municipal budgets. The lead for this activity would be the Town's Highway and Public Works Departments. The estimated timetable would be determined as the extent becomes known and the funding is made available.

Priority: High
Project Lead: Town of Union Highway and Public Works Departments
Partners: To be Determined
Potential Funding: Town of Union Town Budget
Estimated Cost: To be determined
Estimated Timetable: Ongoing, expand as funding allows

Mitigation Implementation

The SEMO Mitigation Section has been actively working with local governments to identify measures effective for Mitigation purposes. New York State is a 'home-rule' state and therefore, much of the impetus for mitigation needs to come from the local level. Through a variety of outreach methods, SEMO has been actively encouraging the local governments to incorporate mitigation into their daily activities. Additionally, between 1991 and 2003, SEMO has awarded more than \$50 million in mitigation grants to implement a variety of mitigation projects across the State. As a result, support for mitigation policies has increased considerably across the State.

Through SEMO's work with communities currently developing a Multi-Hazard Mitigation Plan and communities who have previously developed Flood Mitigation Plans, SEMO has encouraged the local governments to review policies that are currently in place to determine their effectiveness for hazard mitigation. SEMO actively encourages the use of building codes, zoning ordinances, land use plans (current and potential future land use), revitalization plans, economic development plans, subdivision regulations, and capital improvement plans for the mitigation process. SEMO staff provides technical assistance for incorporating these and other planning tools into the mitigation process. A list of mitigation implementation tools for local governments is included in **Table 4-1**.

Table 4-1 - Mitigation Implementation Tools for Local Governments

Policy	Description	Applicability	Effectiveness
Building Codes	The State has adopted the IBC building code and local governments adopt and enforce this code.	The adoption and enforcement of building codes relates the design and construction of structures to standards established for withstanding a variety of forces.	All structures built after 2002 must comply with the IBC code, which includes special provisions for building in the floodplain.
Zoning	Laws and ordinances regulate development by dividing the community into zones and by setting development criteria for each zone. Zoning decisions are delegated to local governments in New York State	Zoning can keep inappropriate development out of hazard-prone areas and can designate certain areas for such things as conservation, public use, or agriculture.	Many communities in NYS have designated areas in their community as "open space" thereby reducing the effect of flooding on the community.

Land Use Planning	Comprehensive land use planning provides a mechanism to prevent development in hazardous areas or allows development in a manner that minimizes damage from hazards.	Local governments can use land use planning to identify those areas subject to damage from hazards and work to keep inappropriate development out of these areas. Land use planning can also be used for a more regional approach when local governments work together.	Many communities are incorporating a mitigation review into the land use planning process, thereby potentially minimizing development in identified hazard areas.
Subdivision Regulations	Sets construction and location standards for subdivision layout and infrastructure.	Contains standards for such things as storm water management and erosion control, subdivision size.	Urban flooding is often a result of building residential or commercial developments without consideration for stormwater drainage issues. These regulations have the potential to reduce the impact of urban flooding on a community.
Capital Improvements Planning	Identifies where major public expenditures will be made over the next five to ten years.	Capital Improvement Plans can secure hazard-prone areas for low risk uses, identify roads or utilities that need strengthening, replacement, or realignment, and can prescribe standards for the design and construction of new facilities.	May reduce the amount of public dollars spent on construction in hazard prone areas.

As part of the Multi-Hazard Mitigation Plan development, local communities identify programs and policies within their community that can contribute to mitigation activities. Additionally, the local communities identify methods to incorporate the Mitigation Plan into the routine activities in their community, thereby ensuring the Mitigation Plan continues to play an active role in the community.

To assist in expanding the capabilities of local officials and to facilitate learning and thus enhance disaster preparedness, SEMO offers a variety of courses. The SEMO Training Section offers training opportunities developed by FEMA and the Emergency Management Institute as well as those created by SEMO and our DPC partners in response to needs specific to emergency management in New York State. In addition to the Training Section's efforts, the SEMO Mitigation and Planning Sections each provide training opportunities for local officials endeavoring to expand their knowledge of mitigation and planning.

Priority:	High
Project Lead:	Town of Union
Partners:	FEMA and SEMO
Potential Funding:	Town of Union Town Budget
Estimated Cost:	To be determined
Estimated Timetable:	Ongoing, expand as funding