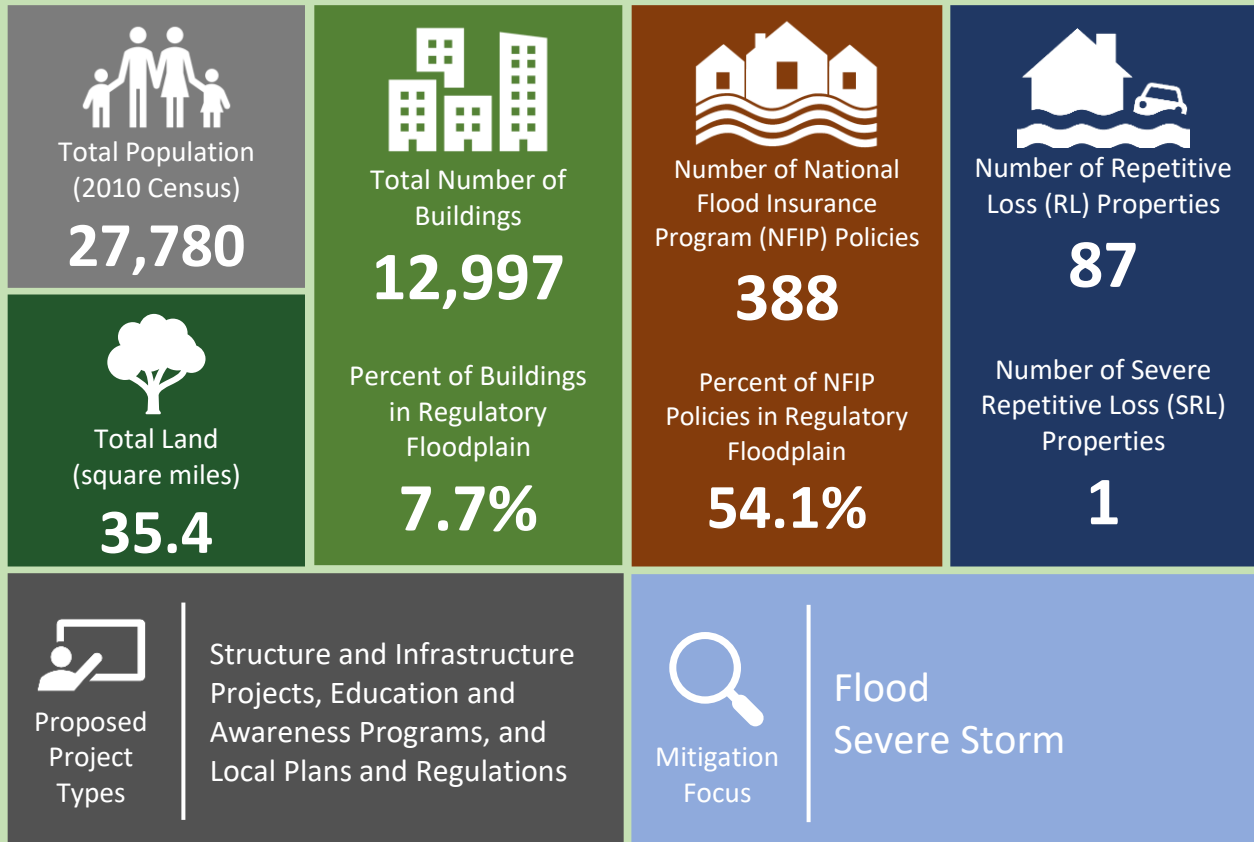




MUNICIPAL ANNEX | Town of Union





9.21 Town of Union

This section presents the jurisdictional annex for the Town of Union. It includes resources and information to assist public and private sectors to reduce losses from future hazard events. This annex is not guidance of what to do when a disaster occurs. Rather, this annex concentrates on actions that can be implemented prior to a disaster in order to reduce or eliminate damage to property and people. This annex includes a general overview of the municipality and who in the town participated in the planning process; an assessment of the Town of Union’s risk and vulnerability; the different capabilities utilized in the town; and an action plan that will be implemented to achieve a more resilient community.

9.21.1 Hazard Mitigation Planning Team

The following individuals have been identified as the Town of Union’s hazard mitigation plan primary and alternate points of contact.

Primary Point of Contact	Alternate Points of Contact	
Name: Daria Golazeski Title: DCPW-Codes & Ordinances Address: 3111 E. Main Street, Endwell, New York 13760 Phone Number: 607-786-2920;607-786-2921 Email: dgolazeski@townofunion.com	Name: Louis Caforio Title: Commissioner of Public Works Address: 3111 E. Main Street, Endwell, New York 13760 Phone Number: 607-786-2950;607-786-2952 Email: lcaforio@townofunion.com	Name: Sara Zubalsky-Peer Title: Director of Planning Address: 3111 E. Main Street, Endwell, New York 13760 Phone Number: 607-786-2985 Email: szubalsky@townofunion.com
NFIP Floodplain Administrator		
Name: Daria Golazeski Title: DCPW-Codes & Ordinances Address: 3111 E. Main Street, Endwell, New York 13760 Phone Number: 607-786-2920;607-786-2921 Email: dgolazeski@townofunion.com		

9.21.2 Municipal Profile

The Town of Union is located in the southwest part of Broome County, NY. The Town of Union has a total area of 35.4 square miles. The Town of Union is located in the south-central part of Broome County, NY. The town in on the north side of the Susquehanna River and communities of Union form the western suburbs of Binghamton.

New York State Route 17 crosses from the north to the south side of the Susquehanna in Union. New York State Route 26 and New York State Route 38B intersect by Union Center. NY-26 connects Union to the town of Vestal on the south side of the Susquehanna River. New York State Route 17C is an east-west highway in the south part of Union.

The town includes the hamlets of Choconut Center, Endwell, Union Center, West Corners, Westover, and West Endicott. The Village of Endicott and the Village of Johnson City are located within the Town of Union. For more information on the Village of Endicott, refer to Section 9.10. For more information on the Village of Johnson City, refer to Section 9.12. The 2016 estimated population was 27,387, a 1.4% decrease from the 2010 Census (27,780).

Home rule is strong in New York State and thus, each town and village has its own governing body. The Town of Union is governed by a Supervisor and a Town Council made up of four Council members.





Data from the 2016 U.S. Census American Community Survey estimates that 5.2% of the town population is five years of age or younger, and 21.2% is 65 years of age or older.

History and Cultural Resources

The Town of Union was established in 1791 while still part of Tioga County before the creation of Broome County. The name Union came about when General Poor and General Sullivan, each leading troops on separate fronts during the American Revolution re-united at the site of Union. Originally, Union township consisted of more than 700 square miles of territory before it was reduced to create other townships in the county, the last being the Town of Maine in 1848.

Growth/Development Trends

Table 9.21-1 summarizes major residential/commercial development that as of August 2018 and any known or anticipated major residential/commercial development and major infrastructure development that is likely to be occur within the municipality in the next five years. Refer to the map in 9.21.9 of this annex which illustrates the hazard areas along with the location of potential new development.

Table 9.21-1. Growth and Development

Property or Development Name	Type (e.g. Res., Comm.)	# of Units / Structures	Location (address and/or Parcel ID)	Known Hazard Zone(s)	Description/Status of Development
Recent Development from 2013 to present					
Cardinal Cove	Residential	50/26	397 Glendale Drive 156.33-1-44	X zone	Two family units with community bldg./completed
Known or Anticipated Development in the Next Five (5) Years					
National Pipe & Plastic	Commercial	1	1 N. page Ave 156.51-1-36	X zone	Potential office building

** Only location-specific hazard zones or vulnerabilities identified.*

9.21.3 Hazard Event History Specific to the Town of Union

Broome County has a history of natural hazard events as detailed in Volume I, Section 5.0 of this plan. A summary of historical events is provided in each of the hazard profiles and includes a chronology of events that have affected the County and its municipalities. The Town of Union’s history of federally-declared (as presented by FEMA) and significant hazard events (as presented in NOAA-NCEI) is consistent with that of Broome County. Table 9.21-2 provides details regarding municipal-specific loss and damages the town experienced during hazard events. Information provided in the table below is based on reference material or local sources. For details of these and additional events, refer to Volume I, Section 5.0 of this plan.

Figure 9.21-1. Tropical Storm Lee Flooding (2011) in the Town of Union





Table 9.21-2. Hazard Event History

Dates of Event	Event Type (Disaster Declaration if applicable)	Broome County Designated?	Summary of Event	Municipal Summary of Damages and Losses
October 27- November 8, 2012	Hurricane Sandy (EM-3351)	Yes	The remnants of Hurricane Sandy moved over the area bringing high winds and precipitation	While the County was impacted, the town did not report damages.
June 26- July 10, 2013	Severe Storms and Flooding (DR-4219)	Yes	The County was impacted by a series of severe storms and flash flood events.	While the County was impacted, the town did not report damages.
June 14, 2015	Flash Flood	No	A warm front stalled across New York and northern Pennsylvania, providing the focus for repeating clusters of thunderstorms in the Finger Lakes and Southern Tier NY regions. A tropical-like airmass was in place allowing for a stripe of 2-4 inches of very heavy rain to fall in a narrow band extending from near Watkins Glen to areas north of Binghamton. Severe flash flooding was encountered with numerous roads and culverts destroyed by raging water.	While the County was impacted, the town did not report damages.
March 14-15, 2015	Severe Winter Storm and Snowstorm (DR-4322)	Yes	A record snowfall of between 25 and 35 inches of snow fell. Snowfall rates reached up to 5 inches per hour especially during the onset of the storm. The Greater Binghamton Airport broke an all-time daily snowfall record with 32.4 inches and a 2-day snowfall record of 34.9 inches.	While the County was impacted, the town did not report damages.
July 23-24, 2017	Flash Flood	No	Heavy rain producing thunderstorms developed during the late afternoon and evening hours as an upper level jet stream punched into the area. Widespread thunderstorms produced swaths of 3 to 4 inches of rain in just a few hours' time during the late evening and overnight hours. Rapid rises of area streams and creeks resulted in severe flash flooding.	While the County was impacted, the town did not report damages.
August 2018	Severe Storms and Flooding (DR-4397)	Yes	A slow-moving storm tracked north from New Jersey to northern New York. This system triggered several rounds of heavy rain producing thunderstorms which caused severe flash flooding and major damages in several locations.	The town sustained damages to roadways, sanitary sewer lines, and several ballfields due to flooding. Total damages totaled roughly \$400,000.

Notes:

- EM Emergency Declaration (FEMA)
- FEMA Federal Emergency Management Agency
- DR Major Disaster Declaration (FEMA)
- N/A Not applicable

9.21.4 Hazard Ranking and Jurisdiction-Specific Vulnerabilities

The hazard profiles in Section 5.0 (Risk Assessment) of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. The following summarizes the hazards of greatest concern





and risk to the Town of Union. For additional vulnerability information relevant to this jurisdiction, refer to Section 5.0.

Hazard Risk Ranking

This section includes the community specific identification of the primary hazard concerns based on identified problems, impacts and the results of the risk assessment as presented in Section 5 of the plan. The ranking process involves an assessment of the likelihood of occurrence for each hazard, along with its potential impacts on people, property, and the economy as well as community capability and changing future climate conditions. This input supports the mitigation action development to target those hazards with highest level of concern.

As discussed in Section 5.3 (Hazard Ranking), each participating town or village may have differing degrees of risk exposure and vulnerability compared to Broome County as a whole. Therefore, each municipality ranked the degree of risk to each hazard as it pertains to their community. The table below summarizes the hazard risk/vulnerability rankings of potential natural hazards for the Town of Union. The Town of Union has reviewed the County hazard risk/vulnerability risk ranking table as well as its individual results to reflect the relative risk of the hazards of concern to the community.

During the review of the hazard/vulnerability risk ranking, the town indicated the following:

- The town changed the hazard ranking for Earthquake from high to medium.
- The town changed the hazard ranking for flood from low to medium.
- The town changed the hazard ranking for severe storm from high to medium.
- The town agreed with the remainder of the calculated rankings.

Table 9.21-3. Town of Union Municipal Hazard Ranking Input

HAZARD	Drought	Earthquake	Extreme Temperature	Invasive Species	Flood	Severe Storm	Severe Winter Storm	Wildfire
RELATIVE RISK FACTOR	Medium	Medium	Medium	Low	Medium	Medium	Medium	Medium

Notes: The scale is based on the following hazard rankings as established in Section 5.3.
 High = Total hazard priority risk ranking score of 5 and above
 Medium = Total hazard priority risk ranking of 3.9 – 4.9
 Low = Total hazard risk ranking below 3.8

*The municipality changed the initial ranking of this hazard based on event history, municipal experience, and feedback from the municipality

Critical Facilities Flood Risk

New York Department of Environmental Conservation (DEC) Statute 6 CRR-NY 502.4 sets forth floodplain management criteria for State projects located in flood hazard areas. The law states that no such projects related to critical facilities shall be undertaken in a Special Flood Hazard Area (SFHA) unless constructed according to specific mitigation specifications, including being raised 2’ above the Base Flood Elevation (BFE). This statute is outlined at <http://tinyurl.com/6-CRR-NY-502-4>. While all vulnerabilities should be assessed and documented, the State places a high priority on exposure to flooding. Critical facilities located in an SFHA, or having ever sustained previous flooding, must be protected to the 500-year flood even, or worst damage scenario. For those that do not meet this criteria, the jurisdiction must identify an action to achieve this level of protection.(NYS DHSES 2017)



The table below identifies critical facilities in the community located in the 1-percent and 0.2-percent floodplain and presents Hazards United States (HAZUS) – Multi-Hazards (MH) estimates of the damage and loss of use to critical facilities as a result of a 1-percent annual chance flood event.

Table 9.21-4. Potential Flood Losses to Critical Facilities

Name	Type	Exposure		Potential Loss from 1% Flood Event		Addressed by Proposed Action
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	
Trugreen Lawn-care	Hazardous Materials	X	X	-	-	-
WELL #2, SOUTH OF PLANT	Potable Well		X	-	-	-
WELL #3, NORTH OF PLANT	Potable Well		X	-	-	-
WELL #5, FIFTH STREET	Potable Well	X	X	-	-	T. Union-4
Argonne Ave Pump Station	WW Pump	X	X	-	-	-
Watson Blvd Pump Station	WW Pump	X	X	-	-	T.Union-5
Family Child Care – Frederick St.	Daycare	X	X	46.37	25.12	-
Child Care Center	Daycare	X	X	48.1	58.74	-
Child Care Center	Daycare		X	-	-	-
Family Child Care – West Wendell	Daycare	X	X	2.71	3.27	-
Family Child Care – Riverside Dr.	Daycare		X	-	-	-
Washingtonian Hall	Historic	X	X	12.8	10.05	-
West Endicott Park Carousel	Historic	X	X	0.6	7.8	-
Patterson-Hooper Family Cemetery (elevated)	Historic	X	X	0	0	-
Johnson City YMCA	Polling	X	X	0	0	-
Ann G McGuinness School	Shelter	X	X	0	0	T.Union-6

Source: Hazus 4.2
 - No estimated damages calculated by HAZUS-MH

The Town of Union reviewed the list of critical facilities and determined that hazardous material facilities, day cares, historic facilities, and polling locations were not critical for the purpose of essential services. As a result, the Town of Union did not develop mitigation actions to protect those facilities to the 500-year flood level. The town noted that the Village of Endicott has completed flood protections on the Argonne Avenue pump station which is within the town’s boundaries.

Identified Issues

The municipality has identified the following vulnerabilities within their community:

- There are 87 Repetitive Loss Properties and 1 Severe Repetitive Loss Property within the Town of Union.
- Improvement to flood walls, additional stormwater detention facilities, backup generators including study and ear mark grant for a floodwall at Fairmont Park.
- Improve McKinley Ave –Pine St area storm drainage to eliminate roadway flooding at key intersection. This activity involves upgrades to the storm sewer system that follows the general line and grade of Brixius Creek. During the flood event of September 2011 sections of the roads along the storm sewer lines developed sink holes as a result of large volumes of high velocity storm runoff from Brixius Creek.
- Purchase land on Wayne Street to relocate Scarborough Drive Highway and Refuse facility that has been flooded 3 times over the last 8 years. Loss of equipment will be prevented, and it will allow department to be run out of facility during a disaster such as flooding. It will allow crews to be more





proactive in the town to events instead of having to dedicate crews to relocate equipment before the event.

- Stop Log Closure Project - The Town of Union has received requests from numerous property owners in the Fairmount Park 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.
- Taft Avenue Sewer upgrades. In September of 2011, many businesses suffered structural and /or damage to essential capital components of their buildings due to flooding, especially in portions of the Westover, Main Street Endwell, and West Corners business districts. Several property owners have reported that their homes were subject to the back flow of sewer water into their homes during the September 2011 flood event.
- 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.
- Evaluate and pursue funding for relocation of the Scarborough Drive public works facility out of the flood zone.
- Install backup power supply (generator) at the Town of Union Water Booster Station located on Fairview Street, Johnson City, which is utilized to supply water to the Broome County landfill and Greater Binghamton Airport.
- 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.
- WELL #5, FIFTH STREET is a critical facility located in the floodplain.
- Argonne Ave Pump Station is a critical facility located in the floodplain.
- Watson Blvd Pump Station is a critical facility located in the floodplain.

Specific areas of concern based on resident response to the Broome County Hazard Mitigation Citizen survey include:

- Flood vulnerable areas:
 - Westover
 - Riverside Drive
 - Route 17C
 - Fairmount Park
 - Parts of Endwell: By Main Street, Shady Drive, and streets near the river
 - Endwell
 - Glendale Drive
 - River Road
 - West Corners Union Center
 - Davis
 - Argonne
 - Verdun
 - Metz
 - Brookside
 - River Rd

9.21.5 Capability Assessment





This section identifies the following capabilities of the local jurisdiction:

- Planning and regulatory capability
- Administrative and technical capability
- Fiscal capability
- Community classification
- National Flood Insurance Program
- Integration of mitigation planning into existing and future planning mechanisms

Planning and Regulatory Capability

The table below summarizes the regulatory tools that are available to the Town of Union.

Table 9.21-5. Planning and Regulatory Tools

Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
Planning Capability				
Comprehensive Plan	Yes, 2010	Local	Planning Dept	Comprehensive Plan
Capital Improvements Plan	Yes	Local	Public Works	Capital Improvements Plan
Floodplain Management / Basin Plan	Yes, 1987	Local or Watershed	Planning/Code	Ch121
Stormwater Management Plan	Yes, 2007	Local	DPW	Ch171
Open Space Plan	No	-	-	-
Stream Corridor Management Plan	No	-	-	-
Watershed Management or Protection Plan	No	-	-	-
Economic Development Plan	No	-	-	-
Comprehensive Emergency Management Plan	No	-	-	-
Emergency Operation Plan	No	-	-	-
Evacuation Plan	No	-	-	-
Post-Disaster Recovery Plan	No	-	-	In process
Transportation Plan	Yes	Local	Planning Dept	Comprehensive plan 2010
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes, 12/31/10	State & Local	Code Enforcement	Ch 86
Zoning Ordinance	Yes, 6/1/11	Local	Code Enforcement	Ch300
Subdivision Ordinance	Yes, 1990	State	Code/Planning	Ch181



Tool / Program (code, ordinance, plan)	Do you have this? (Yes/No) If Yes, date of adoption or update	Authority (local, county, state, federal)	Dept. /Agency Responsible	Code Citation and Comments (Code Chapter, name of plan, explanation of authority, etc.)
NFIP Flood Damage Prevention Ordinance	Yes, 1987	Federal, State, Local	Code Enforcement	Ch121
NFIP: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Code Enforcement	State mandated BFE+2 for all construction, both residential and non-residential
Growth Management Ordinances	No	-	-	-
Site Plan Review Requirements	Yes, 6-1-12	Local	Planning Dept/Board	Ch300 art 63
Stormwater Management Ordinance	Yes, 3-2007	Local	Code Enforcement/Planning	Ch171
Municipal Separate Storm Sewer System (MS4)	Yes	Local	Code Enforcement	-
Natural Hazard Ordinance	No	-	-	-
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	-	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	Yes, 5-1987	Local	Code/Planning	Ch 125, Freshwater wetland ord.
Aquifer Recharge and Protection Zones	Yes, 7-1998	Local	Planning	CH74
Illicit Discharges, activities and connections to storm sewers	Yes, 8-2007	Local	Public Works/Code	CH134

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the Town of Union.

Table 9.21-6. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Once a month/as needed
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	As needed
Open Space Board/Committee	No	-
Economic Development Commission/Committee	Yes	LDC-once a month
Maintenance programs to reduce risk	No	-



Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Mutual aid agreements	Yes	Share equipment-DPW
Flood Committee	No	-
Technical/Staffing Capability		
Planner(s) or engineer(s) with knowledge of land development and land management practices	Yes	Planning Department
Engineer(s) or professional(s) trained in construction practices related to buildings and/or infrastructure	Yes	Engineering Building & Code Enforcement
Planners or engineers with an understanding of natural hazards	Yes	Planning Department
NFIP Floodplain Administrator (FPA)	Yes	Building and Code Enforcement
Surveyor(s)	Yes	-
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Planning Department
Scientist familiar with natural hazards	No	-
Warning systems/services	Yes	Broome County
Emergency Manager	Yes	Commissioner of Public Works
Grant writer(s)	Yes	Planning, Economic Development and Town Supervisors office
Staff with expertise or training in benefit/cost analysis	Yes	Comptroller
Professionals trained in conducting damage assessments	No	-

Fiscal Capability

The table below summarizes financial resources available to the Town of Union.

Table 9.21-7. Fiscal Capabilities

Financial Resources	Accessible or Eligible to Use (Yes/No)
Community development Block Grants (CDBG, CDBG-DR)	Yes
Capital improvements project funding	Yes
Authority to levy taxes for specific purposes	Yes
User fees for water, sewer, gas or electric service	Yes
Impact fees for homebuyers or developers of new development/homes	Yes
Stormwater utility fee	No
Incur debt through general obligation bonds	Yes
Incur debt through special tax bonds	Yes
Incur debt through private activity bonds	No
Withhold public expenditures in hazard-prone areas	Yes



Financial Resources	Accessible or Eligible to Use (Yes/No)
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	No
Other	No

Community Classifications

The table below summarizes classifications for community programs available to the Town of Union.

Table 9.21-8. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	Yes	8	10/1/2008, reverified 2018
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	4/5 res	7/12/11
Public Protection (ISO Fire Protection Classes 1 to 10)	No	State and County	6 fire depts. Serve town
NYSDEC Climate Smart Community	No	-	-
Storm Ready Certification	No	-	-
Firewise Communities classification	No	-	-
Natural disaster/safety programs in/for schools	No	-	-
Organizations with mitigation focus (advocacy group, non-government)	No	-	-
Public education program/outreach (through website, social media)	Yes	Local	Ongoing
Public-private partnership initiatives addressing disaster-related issues	No	-	-
Other	No	-	-

Note:

- N/A Not applicable
- NP Not participating
- Unavailable

The classifications listed above relate to the community’s ability to provide effective services to lessen its vulnerability to the hazards identified. These classifications can be viewed as a gauge of the community’s capabilities in all phases of emergency management (preparedness, response, recovery and mitigation) and are used as an underwriting parameter for determining the costs of various forms of insurance. The CRS class applies to flood insurance while the BCEGS and Public Protection classifications apply to standard property insurance. CRS classifications range on a scale of 1 to 10 with class 1 being the best possible classification, and class 10 representing no classification benefit. Firewise classifications include a higher classification when the subject property is located beyond 1000 feet of a creditable fire hydrant and is within 5 road miles of a recognized Fire Station.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule (<https://www.isomitigation.com/bcegs/>)





- The ISO Mitigation online ISO’s Public Protection website at <https://www.isomitigation.com/ppc/>
- New York State Climate Smart Communities (<http://www.dec.ny.gov/energy/56876.html>)
- The National Weather Service Storm Ready website at <https://www.weather.gov/stormready/communities>
- The National Firewise Communities website at <http://firewise.org/>

Self-Assessment of Capability

The table below provides an approximate measure of the Town of Union’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.21-9. Self-Assessment Capability for the Municipality

Area	Degree of Hazard Mitigation Capability		
	Limited (If limited, what are your obstacles?)	Moderate	High
Planning and regulatory capability		X	
Administrative and technical capability		X	
Fiscal capability		X	
Community political capability		X	
Community resiliency capability		X	
Capability to integrate mitigation into municipal processes and activities		X	

National Flood Insurance Program

This section provides specific information on the management and regulation of the regulatory floodplain.

NFIP Floodplain Administrator (FPA)

Daria Golazeski, DCPW Codes & Ordinances

National Flood Insurance Program (NFIP) Summary

The Town of Union maintains lists/inventories of properties that have been flood damaged but does not identify property owners who are interested mitigation. The town recently had foundation collapses on vacant structure two years after a flood. Cinder block foundations are the most vulnerable to damage. The town estimates there are 25 -30 foundation issues in the town. The town makes Substantial Damage estimates and have declared 120 in the past. Of these 120, 114 were interested in mitigation. Two of these properties are currently in the process of mitigation using FEMA, CDBG-DR (acquisition for redevelopment), ICC, and State funding.

The following table summarizes the NFIP statistics for the Town of Union.

Table 9.21-10. NFIP Summary

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties	# SRL Properties	# Policies in the 1% Flood Boundary
Union (T)	388	578	\$24,241,637	87	1	210

Source: FEMA 2018

Notes: Policies, claims, repetitive loss, and severe repetitive loss statistics provided by FEMA Region 2, and current as of May 31, 2018. The total number of repetitive loss properties does not include severe repetitive loss properties





RL Repetitive Loss; SRL Severe Repetitive Loss

Resources

The FPA and other staff are responsible for floodplain administration in the Town of Union. The Town of Union provides outreach on flood hazard and risk based upon CRS standards. The town completes numerous CRS creditable activities such as maintaining elevation certificates, providing outreach and information on flood zones, offering one on one advice regarding property protection, preserving open space, maintaining flood maps, and past efforts buying out at risk properties in the floodplain. The town continues to assist repetitive loss property owners with acquisition, relocation, and elevation of structures in hazard prone areas.

The FPA noted that the town does not have access to resources to determine possible future flooding conditions from climate change and noted that old and inaccurate maps create a barrier to running an effective floodplain management program. The FPA feels adequately supported and trained but would still be interested in attending continuing education and/or certification training on floodplain management if it were offered in the County for all local floodplain administrators.

Compliance History

The Town of Union is in good standing in the NFIP. The most recent compliance audit [e.g. Community Assistance Visit (CAV)] took place in September of 2018. The town maintains compliance with and good-standing in the NFIP through the adoption and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community.

Regulatory

Flood Damage Prevention Ordinance: The Flood Damage Prevention Ordinance (Chapter 121 of the municipal code) was adopted to promote the public health, safety, and general welfare, and to minimize public and private losses due to flood conditions in specific areas by provisions designed to:

- Regulate uses which are dangerous to health, safety and property due to water or erosion hazards, or which result in damaging increases in erosion or in flood heights or velocities;
- Require that uses vulnerable to floods, including facilities which serve such uses, be protected against flood damage at the time of initial construction
- Control the alteration of natural floodplains, stream channels, and natural protective barriers which are involved in the accommodation of flood waters;
- Control filling, grading, dredging and other development which may increase erosion or flood damages;
- Regulate the construction of flood barriers which will unnaturally divert flood waters, or which may increase flood hazards to other lands, and;
- Qualify and maintain for participation in the National Flood Insurance Program.

The objectives of the ordinance are:

- To protect human life and health
- To minimize expenditure of public money for costly flood control projects;
- To minimize the need for rescue and relief efforts associated with flooding and generally undertaken at the expense of the general public;
- To minimize prolonged business interruptions;
- To minimize damage to public facilities and utilities such as water and gas mains, electric, telephone, sewer lines, streets and bridges located in areas of special flood hazard;



- To help maintain a stable tax base by providing for the sound use and development of areas of special flood hazard so as to minimize future flood blight areas
- To provide that developers are notified that property is in an area of special flood hazard; and,
- To ensure that those who occupy the area of special flood hazard assume responsibility for their actions.

Floodplain management regulations/ordinances meet the FEMA and State minimum requirements. Special permits for development in Special Flood Hazard Areas and Floodway assist in floodplain management. The Town of Union is a Community Rating System (CRS) program member and has a Class 8 ranking. The town supports the updating of Flood Insurance Rate Maps to ensure that flood information and mapping is as accurate as possible.

Integration of Hazard Mitigation into Existing and Future Planning Mechanisms

For a community to succeed in reducing long-term risk, hazard mitigation must be integrated into the day-to-day local government operations. As part of this planning effort, each community was surveyed to obtain a better understanding of their community's progress in plan integration. A summary is provided below. In addition, the community identified specific integration activities that will be incorporated into municipal procedures, which is also indicated below.

Planning

Existing Integration

Comprehensive Plan: The Town of Union has a Comprehensive Plan. The Plan considers steep slopes and flood zones. The Plan does not refer to the Countywide Hazard Mitigation Plan. Comprehensive Plan and land use regulations: 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.

Broome Hazard Mitigation Plan: The Town of Union continues to support the implementation, monitoring, maintenance, and updating of this Plan.



Stormwater Management Plan: The Town of Union is an MS4 Regulated Community and has a formal Stormwater Management Plan.

Comprehensive Emergency Management Plan: The Town of Union has a Comprehensive Emergency Management Plan. The Plan does not refer to the Hazard Mitigation Plan. The town completes ongoing updates to the Plan as necessary.

Long-Term Community Recovery Strategy: The Town of Union's Long-Term Community Recovery Strategy refers to the Hazard Mitigation Plan and includes specific mitigation projects and activities.

NYRCR Broome (March 2014): The Town of Union was included in the NY Rising Community Reconstruction Program (NYRCR) Plan for Broome County. The plan presented projects to increase resiliency in future flood events. During the HMP planning process, the village reviewed the list of projects included in the NYRCR Plan and identified projects they have completed (see Table 9.21-11) and are currently working on (see below). Projects not yet started are included in Table 9.21-12.

- The town is currently working on Phase I and II on the installation of a floodwall in the Fairmont Park area
- Some repairs have been done on the Valleyview Drive drainage improvements projects
- Stream bank restoration has been done on Paterson Creek and West Creek

Broome County has a Local Waterfront Revitalization Plan. The town also has a Comprehensive Long-Term Recovery Plan, Comprehensive Drainage Plan, Floodplain Management Plan, and a Comprehensive Sewer Infiltration Study in progress. The town does not have a Growth Plan, Open Space Plan, or Watershed/Stream Corridor Management Plan. The town has a resilience plan/strategy but does not have a Climate Adaptation Plan/strategy.

Opportunities for Future Integration

The town will review and update plans: The town's annex to the Broome County Multi-Jurisdiction; 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 town plans to update the Comprehensive Plan in the next five years. Updates to plans and new plans could include resilience and discussion of hazard mitigation. 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.

Regulatory and Enforcement (Ordinances)

Existing Integration

Zoning Ordinance: The Zoning Ordinance for the Town of Union (Chapter 65 of the municipal code) is a comprehensive Zoning Ordinance for the Town of Union and the Villages of Johnson City and Endicott. The Zoning Ordinance is adopted to promote and protect the public health, safety and general welfare and provide for solar access. The Zoning Ordinance implements the goals and objectives of the 2008 Unified Comprehensive Plan, which include:

- Providing a wide variety of living environments for all socioeconomic groups in the population and a diversity of housing densities and types, ranging from rural low density to urban high density.
- Providing a sound commercial base, offering convenience, choice and a wide variety of goods and services.



- Improving the economy by promoting new and expanded industrial enterprises, retaining existing enterprises and redeveloping existing industrial facilities in order to further diversify the economic base and to provide for increased employment on a permanent basis.
- Providing a transportation network which is capable of moving people and goods efficiently and safely.
- Maintaining the infrastructure at a level needed to continue adequate services to Town and Village residents.
- Enriching the lives of all citizens by striving to improve the quality of the environment.
- Accommodating solar energy systems, equipment and access to sunlight.

Subdivision of Land Ordinance: The Subdivision of Land Ordinance (Chapter 181 of the municipal code) was adopted so the subdivision of land and the subsequent development of the subdivided land shall be subject to the control of the Town of Union and in accordance with the Future Land Use and Transportation Plan to assure the orderly, planned, efficient and economical development of the town. The Ordinance includes requirements to install buried utilities for new development.

Erosion and Sediment Control Ordinance: The Erosion and Sediment Control Ordinance (Chapter 171 of the municipal code) was adopted to establish minimum stormwater management requirements and controls to protect and safeguard the general health, safety, and welfare of the public residing within this jurisdiction. This chapter seeks to meet those purposes by achieving the following objectives:

- Meet the requirements of Minimum Measures 4 and 5 of the SPDES General Permit for Stormwater Discharges from Municipal Separate Stormwater Sewer Systems (MS4s), Permit no. GP-02-02 or as amended or revised;
- Require land development activities to conform to the substantive requirements of the NYS Department of Environmental Conservation State Pollutant Discharge Elimination System (SPDES) General Permit for Construction Activities GP-02-01 or as amended or revised;
- Minimize increases in stormwater runoff from land development activities in order to reduce flooding, siltation, increases in stream temperature, and stream bank erosion and maintain the integrity of stream channels;
- Minimize increases in pollution caused by stormwater runoff from land development activities, which would otherwise degrade local water quality;
- Minimize the total annual volume of stormwater runoff which flows from any specific site during and following development to the maximum extent practicable; and
- Reduce stormwater runoff rates and volumes, soil erosion and nonpoint source pollution, wherever possible, through stormwater management practices and to ensure that these management practices are properly maintained and eliminate threats to public safety.

The Town of Union's subdivision regulations and site plan review process consider natural hazard risk and require developers to take additional actions to mitigate natural hazard risk. The Planning Board is also able to ask for engineering studies to show that projects will not affect the floodplain.

Opportunities for Future Integration

The town will consider building setbacks along streams or other minor waterways through local ordinances. The town will consider updating the zoning ordinance to include prohibition of certain activities in steep slope areas.



Operational and Administration

Existing Integration

Planning Board: The Planning Board for the Town of Union is made up of seven members. The Planning Board is empowered to review and approve, approve with conditions or disapprove plats showing lots, blocks or sites, with or without new streets, and to approve, approve with conditions or disapprove preliminary plans within the Town of Union, outside the corporate limits of the Village of Johnson City and Endicott. The Planning Board issues special permits for floodplain development. The Town of Union holds periodic discussions with the members of the Planning Board 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 are also addressed.

Zoning Board of Appeals: The Zoning Board of Appeals is a seven Member "Quasi-Judicial" Board comprised of Town of Union residents appointed by the Town of Union Town Board. It is the function of the Board of Appeals to give applicants permission to do something contrary to the Zoning Regulations, provided the Applicant provides sufficient evidence to justify the variance. The Board of Appeals has the legal power to issue area and use variances, and also resolve issues concerning disagreements with the decision/interpretation of the Building Inspector. The Zoning Board reviews appeals of floodplain requirements.

Broome – Tioga Stormwater Coalition: The town continues to support and participate in the Broome – Tioga Stormwater Coalition.

Emergency Services: The Town of Union continues 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. The town will continue to encourage residents to register for NY-Alert.

Stream Gauges: The town advocates for the continued maintenance and use of federal and state stream gauges. The existence of these gauges helps to provide additional advanced warnings in the event of a high-water occurrence.

Drainage System: The town conducts a 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 are reviewed, updated, and documented to ensure the efficiency and effectiveness of the town's program. The Town of Union continues to 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 is made to mitigate the flooding problem through increased capacity or system efficiency.

Sanitary Sewer System: The town conducts field surveys to determine areas of potential infiltration of ground water and/or stormwater into the sewer pipe network during peak storm events.

CERT Program: 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 is a 24-hour course, delivered one evening per week over a 7-week period.

Mutual Aid Agreements: The Town of Union works to create/enhance/maintain Mutual Aid agreements with neighboring communities for continuity of operations.



Post Disaster Capabilities: The Town of Union works to identify and develop agreements with entities that can provide support with FEMA/SOEM paperwork after disasters. The town works with regional agencies (i.e. County and SOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).

Structural and Facility Datasets: The Town of Union participates in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA's Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including:

Structure/Facility Datasets: The Town of Union participates in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA's Comprehensive Data Management System (CDMS) which could be used for various planning and emergency management purposes including:

- Support the performance of enhanced risk and vulnerability assessments for hazards of concern.
- Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use.

Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 "Rapid Visual Screening of Buildings for Potential Seismic Hazards" methodologies).

NFIP Floodplain Management functions in the town are performed by the Code Enforcement Officer. The town uses the Comptroller to develop Benefit-Cost Analysis. The town also has staff/contracts with firms who can perform Substantial Damage Estimates and have experience in preparing grant applications for mitigation projects. Staff do not receive training but would benefit from training in floodproofing. No staff have job descriptions that specifically include identifying and/or implementing mitigation projects/actions or other efforts to reduce natural hazard risk, but staff take part in the Broome County Flood Task Force. The town also has a program to clean catch basins.

Opportunities for Future Integration

The town could train staff on the topic of floodproofing.

Funding

Existing Integration

The Town of Union's municipal budget and Capital Improvements budget do not include line items for mitigation projects. The town has been awarded grant funding for mitigation related projects in the past including a \$3,660,947 GOSR grant through NY Rising. The town is also able to use bonding in order to fiscally support hazard mitigation projects.

Opportunities for Future Integration

The town could continue to apply for grant funding and allocate municipal budget to support hazard mitigation.



Education and Outreach

Existing Integration

The Town of Union operates a municipal website (<http://www.townofunion.com/>) which has community news and information. The website includes a flood information page. The website provides information regarding natural hazards, emergency preparedness, flood plain management, hazard mitigation, and storm water management. The information is periodically reviewed and updated to provide the most current data possible. The website provides links to the Broome County Multi-Jurisdictional Hazard Mitigation Plan, Flood Plain Management, Emergency Operations, and Storm Water Management plans. A link to Broome County's website provides access to the County's emergency services department and NY Alert. The town encourages residents to sign up for NY Alert.

The town provides hazard information at Town facilities including 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 is periodically reviewed and updated to provide the most current data possible. The maps, detailing flood prone areas, as provided by the National Flood Insurance Program are also available for review.

The Town of Union continues 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 continues to support the education of residents on floodproofing activities.

Opportunities for Future Integration

The town could create outreach programs to educate the public on hazards other than flooding.

Sheltering, Evacuation, and Temporary Housing

Temporary housing, evacuation routes, and sheltering measures must be in place and available for public awareness to protect residents, mitigate risk, and relocate residents, if necessary, to maintain post-disaster social and economic stability.

Refer to Section 4.6.5 of Volume 1 of this plan for a description of resources identified by the county to support municipalities with the identification of evacuation, sheltering, and temporary and permanent housing.

Temporary and Permanent Housing

The Town of Union has identified the following potential site for the placement of temporary housing for residents displaced by a disaster:

- Patterson Creek LLC: 593 Hooper Road. The site has a capacity for 25 and would require installation of sewer, water, and electric hookups.

The town has noted that various Town-wide vacant lots could be used as potential sites suitable for relocating houses of the floodplain and/or building new homes once properties in the floodplain are acquired.

Evacuation and Sheltering Needs

The Town of Union has designated the following emergency shelters:



- Main Endwell School District: The High School and Middle School can house several hundred people. The site does not have backup power.
- Red Cross Shelters

9.21.6 Mitigation Strategy and Prioritization

This section discusses past mitigations actions and status, describes proposed hazard mitigation initiatives, and their prioritization.

Past Mitigation Initiative Status

The following table indicates progress on the community’s mitigation strategy identified in the 2013 Plan. Actions that are carried forward as part of this plan update are included in the following subsection in its own table with prioritization. Previous actions that are now on-going programs and capabilities are indicated as such in the following table and may also be found under ‘Capability Assessment’ presented previously in this annex.



Table 9.21-11. Status of Previous Mitigation Actions

Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	
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.	All		Town of Union Planning Department; Town of Union Public Works Department	Ongoing capability			1. Discontinue 2. 3. Ongoing capability
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	All		Town of Union Planning Department; Town of Union Public Works Department	Ongoing capability			1. Discontinue 2. 3. Ongoing capability-link on website homepage





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	Broome County Multi-Jurisdictional Hazard Mitigation Plan, Flood Plain Management, Emergency Operations, and Storm Water Management plans. A link to Broome County's website to provide access to the County's emergency services department and NY Alert. As additional information becomes available, the information will be made available by providing links to a variety of other sites.							
3.	Provide flooding information to residents in high-risk areas and encourage residents to sign up for NY Alert: 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.	Flood		Town of Union Planning Department; Villages of Endicott and Johnson City	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
4.	Encourage educational activities: The Town of Union will continue to support and promote educational programs as	Flood		Town of Union Board; FEMA, SEMO, and other	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided;		3. Ongoing capability





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	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.			governmental entities		Evidence of Success		
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.	Flood, Severe Storm		Town of Union Planning Department; Government agencies of local merchants	No Progress	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. No longer a priority
6.	Review and update plans: The town’s annex to the Broome County Multi-Jurisdiction; Hazard Mitigation, Flood Plain Management, Emergency Operations, and Storm	All		Town of Union Planning and Public Works Departments;	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	Water Management Plans will be periodically reviewed and updated to provide the most current data possible.							
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.	All		Town of Union Town Board; FEMA, SEMO, and Broome County Emergency Service	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
8.	Comprehensive Plan and land use regulations: The Town of Union adopted a new Comprehensive Plan. 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.	Flood		Town of Union Planning Department; Town of Union Town Board	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability -



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	<ul style="list-style-type: none"> • 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. 							
9.		All				Cost		1. Discontinue





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Level of Protection	Damages Avoided; Evidence of Success	
	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.			Town of Union Town Board; FEMA, SEMO and other governmental entities	Ongoing capability	Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
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.	Flood		Town of Union Planning Department	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability: Town advocates for continued use of federal and state river gauges
11.	Inspect and maintain drainage system: The Town of Union will continue and expand its existing storm sewer	Flood		Town of Union Highway Department; Town of Union	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided;		3. Ongoing capability





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success		
	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.			Sewer Department		Evidence of Success		
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.	All		Town of Union Town Board; FEMA, SEMO and other governmental entities	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
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	Flood		Town of Union Planning Department; FEMA's FIRM Program	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	information and mapping possible.							
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 through its review and update of existing plans and regulations will consider building setbacks along streams or other minor waterways.	Flooding, Subsidence		Town of Union Planning, Code Enforcement, and Public Works Departments; Broome County Soil and Water Conservation District	Ongoing capability	Cost		1. Discontinue 2. 3. CDBG to improve three of the creeks. West Creek & Patterson Creek done in sections
					Level of Protection			
					Damages Avoided; Evidence of Success			
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	Flood		Town of Union Planning Department; Governmental agencies or public	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
					Level of Protection			
					Damages Avoided; Evidence of Success			





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	town will continue its efforts to supply financial assistance to the extent it is available.							
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.	Flood		Town of Union Planning Department; FEMA's FIRM Program	Ongoing capability	Cost		1. Discontinue 2. Town's rating is 8 3. Ongoing capability
					Level of Protection			
					Damages Avoided; Evidence of Success			
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. Areas include those areas identified in the town-wide Comprehensive drainage study :	Flood		Town of Union Highway Department; Public Works Department	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
					Level of Protection			
					Damages Avoided; Evidence of Success			
18.	Support and promote interaction with emergency service providers:	All		Town of Union Town Board; NYS Police;	Ongoing capability	Cost		1. Discontinue 2.
					Level of Protection			



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
				Broome County Sheriff; UVES (ambulance); and Endwell, West Corners, West Endicott, Union Center and Choconut Center Fire Departments		Damages Avoided; Evidence of Success		3. Ongoing capability
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.	Severe Storm		Town of Union Highway Department; NYSEG	No Progress	Damages Avoided; Evidence of Success	Cost Level of Protection	1. Discontinue 2. 3. No longer a priority. Enforce landscaping requirements.
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	Severe Storm		Town of Union Planning and Public Works Departments; NYSEG and developers	Ongoing capability	Damages Avoided; Evidence of Success	Cost Level of Protection	1. Discontinue 2. 3. Ongoing capability: Subdivision regulations





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	facilities to those that are underground at the time replacement becomes necessary.							
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.	Flood		Town of Union Planning Department; Town of Union Planning Board	No progress	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Future integration opportunity
22.	Improvement to flood walls, additional stormwater detention facilities, backup generators including study and ear mark grant for a floodwall at Fairmont Park.	Flood		Town of Union DPW	In Progress	Cost	\$800,000	1. Include in 2019 HMP Build sectional gate on flood control structure to supplement existing flood protection system to the East
						Level of Protection		2. Design complete, expected to go out for bid in 2016
						Damages Avoided; Evidence of Success		3.
23.	Provide funding to re-establish a uniform elevation for the existing Westover Levee that was overtopped due to settlement in numerous sections. Permission to further elevate the structure to provide at least two feet of free board will be requested from	Flood		Town of Union P&CD; DPW	No Progress	Cost		1. Include in 2019 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Need to raise and extend the levee.



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
	NYSDEC. During the flood event of September 2011, the earthen levee surrounding the Westover neighborhood was overtopped in many locations causing substantial devastation to homes and the adjoining Main Street business district. One of the town's largest employers, BAE systems was forced to permanently abandon its 27-acre site.							<ol style="list-style-type: none"> Project to be included in 2019 HMP or Discontinue If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). If discontinue, explain why.
24.	Purchase land on Seward Avenue and Wayne to relocate Scarborough Drive Highway and Refuse facility that has been flooded 3 times over the last 8 years. Loss of equipment will be prevented, and it will allow department to be run out of facility during a disaster such as flooding. It will allow crews to be more proactive in the town to events instead of having to dedicate crews to relocate equipment before the event.	Flood		Town of Union DPW; BCOEM	In Progress	Cost		<ol style="list-style-type: none"> Include in 2019 HMP Land purchased, RFQ out for design of facility (NY Rising 2014) Refuse facility under construction. Aggregate storage and secure area for material storage on N. Seward lot.
						Level of Protection		
						Damages Avoided; Evidence of Success		
25.	Improve McKinley Ave – Pine St area storm drainage to eliminate roadway flooding at key intersection. This activity involves upgrades to the storm sewer system that follows the general line and grade of Brixius Creek. During the flood	Flood		Town of Union DPW; BCOEM	In Progress	Cost	\$2.2 Million	<ol style="list-style-type: none"> Include in 2019 HMP "Drainage repair and improvement of storm sewer system; rerouting of drainage to mitigate centralized flooding events" Design complete, out to bid in 2016
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Damages Avoided; Evidence of Success	
	event of September 2011 sections of the roads along the storm sewer lines developed sink holes as a result of large volumes of high velocity storm runoff from Brixius Creek.							
26.	Funds are being allocated to conduct an analysis of reported sewer back-up issues at Wayne Street and to install back-flow prevention devices in the utility strip if they are deemed to be necessary and appropriate by the Town of Union. Several property owners have reported that their homes were subject to the back flow of sewer water into their homes during the September 2011 flood event. This issue may also be further addressed by another proposed project that will replace the pumping station on Deitrich Ave.	Flood		Town of Union DPW	In progress	Cost	\$3.5 million	1. Include in 2019 HMP 2. Backflow prevention installed on S. Seward Avenue, Robins Street and Watson Blvd 3.
						Level of Protection	Installed backflow devices.	
						Damages Avoided; Evidence of Success		
27.	Funding will be used to replace the pump station on Deitrich Ave. The pump station is undersized for the volume it was required to handle during the flooding in September of 2011, which likely contributed to sewage backups that occurred in the adjacent residential neighborhood.	Flood		Town of Union P&CD; DPW	Complete	Cost	\$15,000	1. Discontinue 2. Replaced pump station and increased capacity 3. Complete
						Level of Protection		
						Damages Avoided; Evidence of Success		
28.		Flood		Town of Union		Cost		1. Include in 2019 HMP





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						Level of Protection	Damages Avoided; Evidence of Success	
	Taft Avenue Sewer upgrades			P&CD; DPW	No Progress	Level of Protection		2. Study has been completed and upgrades needed to correct situation. 3.
29.	Provide funds to prepare a town wide drainage study and Comprehensive Drainage Plan. The study will include a hydrologic analysis of the major watershed areas of the town and make recommendations for repairs and future capital improvement projects to minimize flood damage due to excessive runoff during significant storms.	Flood		Town of Union P&CD; DPW	In Progress	Cost	\$75,000	1. Include in 2019 HMP Hydrologic analysis of major watersheds and recommendations for future drainage improvements Three neighborhoods within Endicott: Pine St, North Loder Avenue, Robble Avenue 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
30.	Provide funding to complete an extensive field survey of the existing sanitary sewer system to determine areas of potential infiltration of ground water and/or storm water into the sewer pipe network during peak storm events, and to create a Town-wide Comprehensive Sewer Infiltration Study.	Flood		Town of Union P&CD; BJCJSTP, VOESTP, DPW	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
31.	Provide funding to supplement a grant from New York State to prepare a Long-Term Community Recovery Plan for the Town of Union, including the Villages of Endicott and Johnson City. The purpose of the Long-Term	Flood		Town of Union P&CD; DPW	Complete	Cost		1. Discontinue 2. 3. Complete
						Level of Protection		
						Damages Avoided; Evidence of Success		





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	Community Recovery Plan is to provide a much more in-depth analysis of the impacts of the September 2011 flood event on the town's housing and commercial industrial inventory and markets. The plan will also identify potential adaptive re-uses of properties and investigate potential funding sources for catalytic redevelopment activities.							
32.	Provide funds to update the town's Floodplain Management Plan and incorporate the Villages of Endicott and Johnson City into the new plan. Neither of the two villages currently have plans. The floodplain development ordinance will also be revised as part of this project. The flood event of September 2011 impacted several areas throughout the town that have not historically been flooded and are not currently addressed in the town's Floodplain Management Plan. The new plan will also make recommendations for improving the town's Floodplain Development Ordinance.	Flood		Town of Union P&CD; DPW	No progress	Cost		1. Include in 2019 HMP 2. CDBG funds available 3.
33.		Flood		Town of Union		Cost		1. Discontinue



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Level of Protection		
	Provides funding to hire an engineering consultant to perform field surveys of flood damaged non-residential buildings for a Town-wide Floodproofing Feasibility Analysis to determine if there are cost efficient measures that can be taken to make the structures reasonably defensible from flooding. During the flood event of September 2011, a significant number of businesses and neighborhood facilities were impacted by floods, and shut down for weeks or months, causing severe disruption to the local economy.			P&CD; CE, ED, BCDP, BCIDA	No progress	Damages Avoided; Evidence of Success		2. 3. No longer a priority
34.	Provide a portion of the required 25% local match for the FEMA buyout program as well as costs for pre-demolition asbestos surveys, asbestos removal if required, demolition costs, and soft costs for a Town-wide acquisition of open space. In September of 2011, many homes in the Fairmont Park, Westover, West Corners, and South Endwell neighborhoods were flooded. 172 owners have been approved for the FEMA buyout program.	Flood		Town of Union P&CD; TB	Complete	Damages Avoided; Evidence of Success	Cost Over 100 properties bought out	1. Discontinue 2. 3. Complete
35.		Flood		Town of Union	Complete		Cost	1. Discontinue



Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps 1. Project to be included in 2019 HMP or Discontinue 2. If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Level of Protection	Over 100 properties bought out	
	Conduct a Town-wide acquisition for redevelopment, involving the voluntary sale of flood damaged homes in the Westover and Fairmount Park neighborhood to the town. Once acquired, the structures will be demolished. The vacant lots will be made available for future development in a more flood resistant manner.			P&CD; TOUED				2. 3. Complete
36.	Fund a Town-wide owner-occupied housing rehabilitation program for income eligible owners of single and two-family homes to undertake structural and major capital component repairs and/or replacement. Based upon an analysis of unmet housing needs the town has determined that there remains a need for funding to restore homes to habitable condition.	Flood		Town of Union P&CD; CEO	In Progress	Cost	\$751,000	1. Include in 2019 HMP Seek/ provide funding of rehabilitation programs for owner-occupied units 2. A total of 8 applications received; engineer hired to inspect foundation issues, provide plans and costs for repairs (CDBG_DR Worksheet) 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
37.	Conduct a Town-wide multi-family rehabilitation program to provide funding on a 50% match basis for owners of flooded rental properties who undertake structural repairs or repairs to major capital building components. At least 51% of the units rehabilitated must be occupied by persons or households meeting HUD's low and moderate-	Flood		Town of Union P&CD; CEO	No Progress	Cost		1. Discontinue 2. 3. No longer a priority
						Level of Protection		
						Damages Avoided; Evidence of Success		



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	income requirements and where the rent is determined to be reasonable, according HUD guidelines, to the household income. The flood event of September 2011 substantially damaged a number of rental units thereby reducing the availability of affordable housing.							
38.	Conduct a town-wide small business program for Structural/Capital Repairs provide grants of up to \$2,000 to eligible non-residential commercial/industrial property owners for repairs necessitated by the impacts of the flood in September 2011.	Flood		CP&CD; TOUED	No progress	Cost		1. Discontinue 2. 3. No longer a priority
39.	Conduct a Town-wide Non-Residential Floodproofing Program to provide matching grants of up to \$15,000 to eligible non-residential commercial/industrial property owners for floodproofing measures designed to protect repairs that have been made to the structures. This program will be coordinated with the proposed town wide floodproofing feasibility study that will identify which buildings are reasonably defensible from flooding.	Flood		Town of Union CD	Complete	Cost		1. Discontinue 2. 3. Complete
40.					Complete	Cost		1. Discontinue





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						Level of Protection	Damages Avoided; Evidence of Success	
	Stop Log Closure Project - The Town of Union has received requests from numerous property owners in the Fairmont Park 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.	Protection for 72 residential properties, portions of 7 streets and 12 acres of commercial property, 2 acres of which are currently developed.		Town of Union Public Works Department: NYSOEM and FEMA				2. 3. Complete
41.	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 proposed project consists of a voluntary buyout program located in the 100-year flood plain in the south Endwell area.	Flood		Town of Union Planning/CD NYSOEM and FEMA	Complete	Cost	\$2.1 million	1. Discontinue "Argonne Neighborhood, South Endwell, Fairmount Park, Westover, West Corners" 149 Total Buyouts 3. Complete
42.	Local Waterfront Revitalization Program- Tow Rivers Greenway. The Town of Union will explore the revitalization of the waterfront within	Flood		Town of Union Planning Department; Various governmental agencies	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability





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						Evidence of Success		
	the planning area. The potential exists develop land along the Susquehanna River into a community recreational facility.					Evidence of Success		
43.	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.	Flood		Town of Union Highway and Engineering Departments; Broome-Tioga Storm Water Coalition	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
44.	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.	All		Town of Union Data Processing Department; Town of Union Planning and Public Works Departments	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
45.	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		Town Board	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
46.	CERT Program - The Town of Union CERT Training Program is a community outreach program intended to provide fundamental Disaster Preparedness	All		Town of Union Town Board; FEMA's CERT Program Team	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		





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	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 is a 24-hour course, delivered one evening per week over a 7-week period.							
47.	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.	All		Town of Union Highway and Public Works Departments	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
48	Evaluate and pursue funding for relocation of the Scarborough Drive public works facility out of the flood zone.	Flood, Severe Storm		Town of Union Highway and Public Works Departments	Complete	Cost		1. Discontinue 2. 3. Complete. Project beginning.
49 (Village of Johnson City action #11.)	Install backup power supply (generator) at the Town of Union Water Booster Station located on Fairview Street, Johnson City, which is utilized to supply water to the Broome County Landfill and Airport.	All		Water District Broome County	Complete	Cost	\$175,000	1. Discontinue 2. 3. Complete
50		Flood		YMCA	Complete	Cost	\$203,000	1. Discontinue





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						Level of Protection	Damages Avoided; Evidence of Success	
	Install Door dams in Johnson City YMCA to prevent ingress of flood waters.	Severe Storm		CD		Level of Protection		2. Installed door jamb and back flow device; made repairs caused by flooding (2016)
						Damages Avoided; Evidence of Success		3. Complete
51	Evaluate feasibility of County/Town Airforce Plan 59 redevelopment project (former BAE facility) which included a 12-acre wood frame structure and a 27-acre site vulnerable to flooding (floodwall overtopped in 2011).	Flood, Severe Storm		Town of Union Planning BCIDA	Complete	Cost	\$20 million demolition	1. Discontinue
						Level of Protection	Air Force demolished building.	2. Looking at elevated building to replace.
						Damages Avoided; Evidence of Success		3. Complete
Flood-1	Purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates based on cost-effectiveness versus retrofitting. Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Flood		Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from BCPD, NYSOEM, FEMA	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3. Ongoing capability
Flood-2	Maintain compliance with and good-standing in the NFIP including adoption	Flood		Municipality (via Municipal Engineer/NFIP	Ongoing capability	Cost		1. Discontinue
						Level of Protection		2.





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	and enforcement of floodplain management requirements (e.g. regulating all new and substantially improved construction in Special Hazard Flood Areas), floodplain identification and mapping, and flood insurance outreach to the community. Further, continue to meet and/or exceed the minimum NFIP standards and criteria through the following NFIP-related continued compliance actions identified as Initiatives below.			Floodplain Administrator) with support from NYSOEM, FEMA		Damages Avoided; Evidence of Success		3. Ongoing capability
Flood-3	Conduct and facilitate community and public education and outreach for residents and businesses to include, but not be limited to, the following to promote and effect natural hazard risk reduction: <ul style="list-style-type: none"> Provide and maintain links to the HMP website, and regularly post notices on the County/municipal homepage(s) referencing the HMP webpages. Prepare and distribute informational letters to flood vulnerable property owners and neighborhood associations, explaining the availability of mitigation grant funding to mitigate their properties, and instructing them on 	Flood		Municipality with support from Planning Partners, BCPD, NYSOEM, FEMA	Ongoing	Damages Avoided; Evidence of Success	Cost Level of Protection	1. Discontinue 2. 3. Ongoing capability



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	how they can learn more and implement mitigation. <ul style="list-style-type: none"> Use email notification systems and newsletters to better educate the public on flood insurance, the availability of mitigation grant funding, and personal natural hazard risk reduction measures. Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.							
Flood-4	Obtain and archive elevation certificates	Flood		NFIP Floodplain Administrator	Ongoing capability	Cost		1. Discontinue 2. Digital file 3. Ongoing capability
Flood-5	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	Flood		Municipality with support from Planning Partners, BCPD, NYSOEM, FEMA	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
Flood-6	Complete ongoing updates of Comprehensive Emergency Management Plans	Flood		Municipality with support from NYSOEM	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
Flood-7	Create/Enhance/Maintain Mutual Aid agreements with neighboring	All Hazards		Municipality with support from County,	Ongoing capability	Cost		1. Discontinue 2.





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						Damages Avoided; Evidence of Success	Cost	
	communities for continuity of operations			NYSOEM, FEMA and surrounding communities		Damages Avoided; Evidence of Success		3. Ongoing capability
Flood-8	Identify and develop agreements with entities that can provide support with FEMA/SOEM paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/SOEM paperwork compilation, submissions, record-keeping	Flood		Municipality with support from County, NYSOEM and FEMA	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
Flood-9	Work with regional agencies (i.e. County and SOEM) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	Flood		Municipality with support from County, NYSOEM and FEMA	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
Flood-10	Participate in local, county and/or state level projects and programs to develop improved structure and facility inventories and hazard datasets to support enhanced risk assessment efforts. Such programs may include developing a detailed inventory of critical facilities based upon FEMA's Comprehensive Data Management System (CDMS) which could be	Flood		Hazard Mitigation Plan Coordinator	Ongoing capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		





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	used for various planning and emergency management purposes including: <ul style="list-style-type: none"> • Support the performance of enhanced risk and vulnerability assessments for hazards of concern. • Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use. Improved structural and facility inventories could incorporate flood, wind and seismic-specific parameters (e.g. first floor elevations, roof types, structure types based on FEMA-154 “Rapid Visual Screening of Buildings for Potential Seismic Hazards” methodologies). It is recognized that these programs will need to be initiated and supported at the County and/or State level, and will require training, tools and funding provided at the county, state and/or federal level. 							
Severe Storm-1	Enhance the County/community resilience to severe storms (incl. severe winter storms) by joining the NOAA “Storm Ready” program and supporting	Severe Storm		Municipality with support from County, NYSOEM and FEMA	No progress	Cost		1. Discontinue 2. 3. Would want the county to complete the action. No longer a municipal priority.
						Level of Protection		
						Damages Avoided; Evidence of Success		





Project #	Project	Hazard(s) Addressed	Brief Summary of the Original Problem	Responsible Party	Status (In Progress, Ongoing, No Progress, Complete)	Evaluation of Success (if project status is complete)		Next Steps
	communities in joining the program. "StormReady" communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education and awareness. Participation in the NOAA "StormReady" program shall include providing information on the "StormReady" program, facilitating public outreach and awareness programs, and supporting community storm risk reduction activities as appropriate. Specific actions addressed by "StormReady" participation include establishing a 24-hour Warning Point, increase number of ways EOC receives NWS warnings, increase number of ways to disseminate warnings, monitoring hydrometeorological data, providing annual weather safety talks, train weather spotters, create a formal hazardous weather plan, host annual visits by NWS to communities, etc.							<ol style="list-style-type: none"> Project to be included in 2019 HMP or Discontinue If including action in the 2019 HMP, revise/reword to be more specific (as appropriate). If discontinue, explain why.
Earthquake-1	Obtain training and conduct rapid screening assessment of critical facilities for earthquake vulnerability.	Earthquake		Municipal Emergency Management, Fire, PD with support from County, NYSOEM	No progress	Cost		<ol style="list-style-type: none"> Include in 2019 HMP Would need structural engineer hired.
		Earthquake				Level of Protection		
						Damages Avoided; Evidence of Success		
						Cost		<ol style="list-style-type: none"> Include in 2019 HMP





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						Level of Protection	Damages Avoided; Evidence of Success	
Earthquake-2	Develop a post-earthquake management plan to address building safety inspections, gas leaks, and other elements to protect public safety.			Municipal Emergency Management, Fire, PD with support from County, NYSOEM	No progress			2. 3.



Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The Town of Union has identified the following mitigation projects/activities that have also been completed but were not identified in the previous mitigation strategy in the 2013 Plan:

- The town completed Phase 1 of the installation of a removable flood wall system. This included the construction of the system to install the flood walls. Phase 2 will include an extension and elevation of an existing levee system on Barton Avenue. Some funding has been received and the design of the extension has been completed.
- The Village of Endicott completed flood protections on the Argonne Avenue pump station which is within the town's boundaries.
- The Town of Union was included in the NY Rising Community Reconstruction Program (NYRCR) plan for Broome County in March 2014. During the NY Rising process, the village identified mitigation projects that would make the village more resilient to future storms. During the plan update process, the town identified the following completed projects:
 - Purchased land at 2900 Wayne Street and constructed a new refuse garage building outside of the floodplain
 - Conducted sanitary sewer flow metering to isolate sewer line segments that contributed to infiltration and inflow
- **Building Resiliency (2016):** The Broome County Department of Planning prepared *Building Resiliency* to document resiliency projects municipalities have completed. The Town of Union identified the following completed projects (as of 2016):
 - Acquired 149 properties, primarily in the areas of Argonne Avenue, South Endwell, Fairmont Park, Westover and West Corners.
 - Using CDBG-DR funds, the Town of Union completed the following:
 - Floodproofed the YMCA on Main Street in the Town of Union
 - Repaired flood damages at the Boys and Girls Club in the Village of Endicott and installed new submarine doors and concrete walls to protect the facility from future flood damage; replaced electrical and boiler systems
 - New bathroom facilities at Glendale Park; built to FEMA standards and carry flood insurance
 - The town is developing a backflow preventer valve installation program
 - Rehabilitate eight flood-damaged homes

Proposed Hazard Mitigation Initiatives for the Plan Update

The Town of Union participated in a mitigation action workshop on October 17, 2018 and was provided the following FEMA publications to use as a resource as part of their comprehensive review of all possible activities and mitigation measures to address their hazards: FEMA 551 'Selecting Appropriate Mitigation Measures for Floodprone Structures' (March 2007) and FEMA 'Mitigation Ideas – A Resource for Reducing Risk to Natural Hazards' (January 2013).

Table 9.21-12 summarizes the comprehensive-range of specific mitigation initiatives the Town of Union would like to pursue in the future to reduce the effects of hazards. Some of these initiatives may be previous actions carried forward for this plan update. These initiatives are dependent upon available funding (grants and local match availability) and may be modified or omitted at any time based on the occurrence of new hazard events and changes in municipal priorities. Both the four FEMA mitigation action categories and the six CRS mitigation action categories are listed in the table below to further demonstrate the wide-range of activities and mitigation measures selected.

As discussed in Section 6, 14 evaluation/prioritization criteria are used to complete the prioritization of mitigation initiatives. For each new mitigation action, a numeric rank is assigned (-1, 0, or 1) for each of the 14



evaluation criteria to assist with prioritizing your actions as ‘High’, ‘Medium’, or ‘Low.’ The table below summarizes the evaluation of each mitigation initiative, listed by Action Number.

Table 9.21-13 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.21-12. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
T. Union-1	Repetitive Loss Property Mitigation	1, 5	Flood, Severe Storm	<p>Problem: The Town of Union has 87 homes that filed flood damage claims to the extent that they qualify as repetitive loss structures under the NFIP.</p> <p>Solution: The town will work with property owners to identify appropriate mitigation actions for each property. Actions will involve either acquisition and relocation or elevation of the structure to appropriate elevation above the 100-year flood, include freeboard. This will include the Argonne neighborhood.</p>	No	None	Within 6 months	Property Owners with support from the Town of Union	Roughly \$15 million	Properties will either be removed from the floodplain or elevated above likely flood elevations	FEMA FMA, PDM	High	SIP	PP
T. Union-2 (former 24)	Scarborough Drive Highway and Refuse Facility Relocation	1, 5	Flood, Severe Storm	<p>Problem: The Scarborough Drive Highway and Refuse facility is located within the floodplain and has had a history of repetitive flood damage.</p> <p>Solution: Designed to house all the employees and equipment of the Refuse Department. Project design has been ongoing the past two years and ground breaking to begin in October 2018. Moving out of the floodplain. Facility will be located on Wayne Street. Facility will contain a backup generator to power the 1,200 square foot facility.</p>	Yes	None	1 year	Town of Union Highway Department with support from the Town of Union	\$3.3 million	Relocation of these facilities outside of the floodplain would free up employees to help serve the town instead of having to dedicate resources to prevent equipment damage.	\$2.5 million GOSR; balance from CDBG-DR	High	SIP	PP



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
T. Union-3	Taft Avenue Sewer Upgrades	1, 5	Flood, Severe Storm	<p>Problem: During heavy rain, high rain events, and flooding events, the lines surcharge and the town needs to pump the sewer and discharge in a non-environmentally friendly way. This affects the I & I of the system. Several property owners along Taft Avenue have reported that their homes were subject to the back flow of sewer water into their homes.</p> <p>Solution: Study has been completed showing inflow and infiltration (I&I) issues. Need to prevent I & I. The town has installed one backflow valve at a residential home. However, the town needs to reduce the I&I but needs to identify how to do that.</p>	No	None	5 years	Town of Union Water Department with support from the Town of Union	\$5 million plus	No more backflow, systems won't be inundated; protect residents health; protect the environment	USDA Rural Development, Water and Environmental Program, HUD, CDBG, FEMA HMGP	High	SIP	PP, PR
T. Union-4	Protect Well #5, Fifth Street to the 500-year flood level	1, 2, 3, 5	Flood	<p>Problem: The Well is located in the 100-year floodplain. The town does not have jurisdiction over the facility (Johnson City water wells) and cannot mitigate themselves.</p> <p>Solution: The town will contact the facilities manager and discuss options for protecting the facility to the 500-year flood level</p>	Yes 💧	None	Within 6 months	Town Floodplain Administrator working with facility operators / owners	<\$100	Provide outreach to the property owner and informing them of potential flood damage and possible solutions	Municipal budget	Medium	EAP	PI
T. Union-5	Protect the Watson Boulevard Pump Station to the 500-year flood level	1, 3, 5	Flood	<p>Problem: The Pump Station is located in the 100-year floodplain</p> <p>Solution: The town will rebuild the station to be elevated to the 500-year flood level</p>	Yes 💧	None	Within 2 years	Facility manager, Town	\$550,000	The pump station will be protected to the 500-year flood level.	HMGP	High	SIP	PP
T. Union-6	Protect access to the Ann G McGuinness	1, 2, 3, 5	Flood	<p>Problem: The School is a shelter. Access to the school is through the floodplain. The</p>	Yes 💧	None	Within 6 months	Town Floodplain Administrator	<\$100	Provide outreach to the property owner and	Municipal budget	Medium	EAP	PI



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
	School to the 500-year flood level			town does not have jurisdiction over the facility and cannot mitigate themselves. Solution: The town will contact the facilities manager and discuss options for protecting the facility to the 500-year flood level				working with facility operators / owners		informing them of potential flooding impacts and possible solutions				
T. Union-7 (former 22)	Fairmont Park flood protection.	1, 3, 5	Flood	Problem: Fairmont Park is vulnerable to flooding Solution: Build sectional gate on flood control structure to supplement existing flood protection system to the East Design complete, expected to go out for bid in 2016	Yes	None	Within 2 years	Town of Union DPW	\$800,000	Fairmont Park protected from flooding	Municipal budget	High	SIP	SP
T. Union-8 (former 23)	Provide funding to re-establish a uniform elevation for the existing Westover Levee.	1, 3, 5	Flood	Problem: During the flood event of September 2011, the earthen levee surrounding the Westover neighborhood was overtopped in many locations causing substantial devastation to homes and the adjoining Main Street business district. One of the town's largest employers, BAE systems was forced to permanently abandon its 27-acre site. Solution: Elevate and extend the levee. Permission to further elevate the structure to provide at least two feet of freeboard will be requested from NYS DEC.	Yes	Possible permitting in areas of extension or if expanded footprint necessary.	Within 5 years	Town of Union P&CD; DPW	Dependent on areas of elevation and expansion.	Protection of Westover neighborhood.	HMGP, CDBG	High	SIP	SP
T. Union-9 (former 25)	Drainage repair and improvement of storm sewer	1, 3, 5	Flood	Problem: During the flood event of September 2011 sections of the roads along the storm sewer lines developed	Yes	None	Design complete, project has	Town of Union DPW; BCOEM	\$2.2 million	Prevention of roadway flooding.	Municipal budget.	High	SIP	SP



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
	system; rerouting of drainage to mitigate centralized flooding events			sink holes as a result of large volumes of high velocity storm runoff from Brixius Creek. Solution: This activity involves upgrades to the storm sewer system that follows the general line and grade of Brixius Creek.			been out to bid.							
T. Union-10 (former 26)	Address Wayne Street Sewer back-up issues.	1, 3, 5	Flood	Problem: Several property owners have reported that their homes were subject to the back flow of sewer water into their homes during the September 2011 flood event. Solution: Install back-flow prevention devices in the utility strip if they are deemed to be necessary and appropriate by the Town of Union. This issue may also be further addressed by another proposed project that will replace the pumping station on Deitrich Ave.	No	None	Within 3 years	Town of Union DPW	\$3.5 million	Prevention of future backups	CDBG, HMGP, municipal budget	High	SIP	SP
T. Union-11 (former 29)	Town wide drainage study and Comprehensive Drainage Plan	1, 3, 5	Flood	Problem: Flood damage due to excessive runoff has occurred during significant storms. Solution: The study will include a hydrologic analysis of the major watershed areas of the town and make recommendations for repairs and future capital improvement projects to minimize flood damage due to excessive runoff during significant storms.	No	None	In progress	Town of Union P&CD; DPW	\$75,000	Hydrologic analysis of major watersheds and recommendations for future drainage improvements	Municipal budget	High	LPR	PR
T. Union-12 (former 32)	Update the Town's Floodplain Management Plan, and	1, 3, 5	Flood	Problem: Neither of the two villages currently have plans. The flood event of September 2011 impacted several areas throughout the town that have	No	None	Within 3 years	Town of Union P&CD; DPW	\$30,000	Coordinated floodplain management planning.	CDBG	High	LPR	PR



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
	incorporate the Villages of Endicott and Johnson City into the new plan			not historically been flooded and are not currently addressed in the town's Floodplain Management Plan. Solution: Update the Floodplain Management Plan. The new plan will also make recommendations for improving the town's Floodplain Development Ordinance.										
T. Union-13 (former 36)	Seek/ provide funding of rehabilitation programs for owner-occupied units	1, 3, 5	Flood	Problem: Based upon an analysis of unmet housing needs the town has determined that there remains a need for funding to restore homes to habitable condition. Solution: A total of 8 applications received; engineer hired to inspect foundation issues, provide plans and costs for repairs	No	None	Within 3 years	Town of Union P&CD; CEO	\$750,000	Rehabilitation of rental units and protection from future flooding	CDBG	High	SIP	PR
T. Union-14 (former Earthquake-1)	Assessment of critical facilities for earthquake vulnerability	1, 3, 5	Earthquake	Problem: Critical facilities could be impacted by earthquakes. Solution: Would need to hire structural engineer to obtain training and conduct rapid screening assessment of critical facilities for earthquake vulnerability.	No	None	Within 5 years	Municipal Emergency Management, Fire, PD with support from County, NYSOEM	\$100,000	Ability to conduct rapid screening assessment of critical facilities for earthquake vulnerability.	Municipal budget for position.	Low	LPR	PR
T. Union-15 (former Earthquake-2)	Develop a post-earthquake management plan.	1, 3, 5	Earthquake	Problem: Earthquakes could impact the town. Solution: Develop plan to address building safety inspections, gas leaks, and other elements to protect public safety.	No	None	Within 5 years	Municipal Emergency Management, Fire, PD with support from County, NYSOEM	\$15,000	Post-Earthquake response procedures in place.	Municipal budget	Low	LPR	ES



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
T. Union-16	Scatter Site Stream Bank Restoration	1	Flood, Severe Storm	<p>Problem: During Tropical Storm Lee, flash flooding caused the banks of several creeks in the Town of Union to erode. Properties along West Creek and Patterson Creek were particularly affected.</p> <p>Solution: This project would protect a 4,500-foot segment of West Creek located north of Day Hollow Road and a 6,400-foot segment of Patterson Creek located west of Hooper Road. Heavy stacked stone would be placed at selected locations to mitigate soil erosion.</p>	No	None	12 months	Town Engineer, Town DPW	\$300,000	Reduce flood risk to residents located along the stream banks; reduced soil erosion and sediment loads in West Creek and Patterson Creek.	NY Rising, CDBG, FEMA HMGP and PDM	Medium	SIP, NSP	PP, NR
T. Union-17	Stormwater Outflow Pipe Backflow Prevention	1	Flood, Severe Storm	<p>Problem: During storm events, the Susquehanna River backs up into the stormwater outfall system, causing flooding throughout the Town of Union.</p> <p>Solution: This project would install flap valves on stormwater outflows and create temporary stormwater storage areas on municipally-owned properties along Argonne Avenue. The flap valves would reduce the risk of backflow and the stormwater storage areas would reduce flood risk by containing additional stormwater volume. In addition to the flap valves and storage areas, the project would install approximately one mile of 42-inch HDPE pipe with pumps.</p>	No	None	12 months	Town Engineer, Town Sewer, Town DPW	\$950,000	Reduce the risk of backflow; stormwater storage areas will reduce flood risk	NY Rising, CDBG, FEMA HMGP and PDM	Medium	SIP, NSP	PP, NR



Project Number	Project Name	Goals Met	Hazard(s) to be Mitigated	Description of Problem and Solution	Critical Facility (Yes/No)	Environmental and Historic Preservation (EHP) Issues	Estimated Timeline	Lead Agency	Estimated Costs	Estimated Benefits	Potential Funding Sources	Priority	Mitigation Category	CRS Category
T. Union-18	Valleyview Drive Drainage Improvements	1, 3, 5	Flood, Severe Storm	<p>Problem: During periods of heavy rainfall, areas within the 196-acre Valleyview Drive neighborhood experience shallow depth flooding. The ponding of stormwater within the travel lanes of public roadways creates a public safety hazard for residents and students accessing the Homer Brink Middle School.</p> <p>Solution: This project would upgrade the stormwater drainage system along Valleyview Drive to mitigate flooding in the Town of Union. The improvements would focus on the main trunk stormwater sewer line by increasing its diameter and replacing sections of corrugated metal pipe with high density polyethylene pipe or reinforced concrete elliptical pipe. In addition, a debris basin at the inlet of the system would trap and accumulate debris and bed material before it reaches the inlet.</p>	No	None	12 months	Town Engineer, Town Sewer, Town DPW	\$1.2 million	Reduce flooding threats to surrounding residences and Homer Brink Middle School; enhance protection of the middle school to ensure operations can continue unimpeded during severe weather events	NY Rising, CDBG, FEMA HMGP and PDM	Medium	SIP, NSP	PP, NR

Notes:
 Not all acronyms and abbreviations defined below are included in the table.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency

Potential FEMA HMA Funding Sources:

- FMA Flood Mitigation Assistance Grant Program
- HMGP Hazard Mitigation Grant Program
- PDM Pre-Disaster Mitigation Grant Program

Timeline:

The time required for completion of the project upon implementation

Cost:

The estimated cost for implementation.





FPA	Floodplain Administrator
HMA	Hazard Mitigation Assistance
N/A	Not applicable
NFIP	National Flood Insurance Program
OEM	Office of Emergency Management

Benefits:

A description of the estimated benefits, either quantitative and/or qualitative.

Mitigation Category:

- *Local Plans and Regulations (LPR)* – These actions include government authorities, policies or codes that influence the way land and buildings are being developed and built.
- *Structure and Infrastructure Project (SIP)* - These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. This could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct manmade structures to reduce the impact of hazards.
- *Natural Systems Protection (NSP)* – These are actions that minimize damage and losses, and also preserve or restore the functions of natural systems.
- *Education and Awareness Programs (EAP)* – These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. These actions may also include participation in national programs, such as StormReady and Firewise Communities

CRS Category:

- *Preventative Measures (PR)* - Government, administrative or regulatory actions, or processes that influence the way land and buildings are developed and built. Examples include planning and zoning, floodplain local laws, capital improvement programs, open space preservation, and storm water management regulations.
- *Property Protection (PP)* - These actions include public activities to reduce hazard losses or actions that involve (1) modification of existing buildings or structures to protect them from a hazard or (2) removal of the structures from the hazard area. Examples include acquisition, elevation, relocation, structural retrofits, storm shutters, and shatter-resistant glass.
- *Public Information (PI)* - Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Such actions include outreach projects, real estate disclosure, hazard information centers, and educational programs for school-age children and adults.
- *Natural Resource Protection (NR)* - Actions that minimize hazard loss and also preserve or restore the functions of natural systems. These actions include sediment and erosion control, stream corridor restoration, watershed management, forest and vegetation management, and wetland restoration and preservation.
- *Structural Flood Control Projects (SP)* - Actions that involve the construction of structures to reduce the impact of a hazard. Such structures include dams, setback levees, floodwalls, retaining walls, and safe rooms.
- *Emergency Services (ES)* - Actions that protect people and property during and immediately following a disaster or hazard event. Services include warning systems, emergency response services, and the protection of essential facilities

Critical Facility:


- Yes  - Critical Facility located in 1% floodplain



Table 9.21-13. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
T. Union-1	Repetitive Loss Property Mitigation	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
T. Union-2	Scarborough Drive Highway and Refuse Facility Relocation	0	1	1	1	1	1	0	1	1	1	1	1	1	1	12	High
T. Union-3	Taft Avenue Sewer Upgrades	0	1	1	0	1	1	0	1	1	1	1	1	1	1	11	High
T. Union-4	Protect Well #5, Fifth Street to the 500-year flood level	0	1	1	1	1	1	1	1	1	0	0	1	1	1	11	High
T. Union-5	Protect the Watson Boulevard Pump Station to the 500-year flood level	0	1	1	1	1	1	1	1	1	0	0	1	1	1	11	High
T. Union-6	Protect the Ann G McGuinness School to the 500-year flood level	0	1	0	1	1	0	1	1	1	0	0	0	1	1	8	Medium
T. Union-7 (former 22)	Fairmont Park flood protection.	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
T. Union-8 (former 23)	Provide funding to re-establish a uniform elevation for the existing Westover Levee.	1	1	1	1	1	0	0	0	1	1	0	1	1	1	10	High
T. Union-9 (former 25)	Drainage repair and improvement of storm sewer system; rerouting of drainage to mitigate centralized flooding events	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
T. Union-10 (former 26)	Address Wayne Street Sewer back-up issues.	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High
T. Union-11 (former 29)	Town wide drainage study and Comprehensive Drainage Plan	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High
T. Union-12 (former 32)	Update the Town's Floodplain Management Plan, and incorporate the	1	1	1	1	1	1	1	1	1	1	0	1	1	1	13	High





Table 9.21-13. Summary of Prioritization of Actions

Project Number	Project Name	Life Safety	Property Protection	Cost-Effectiveness	Technical	Political	Legal	Fiscal	Environmental	Social	Administrative	Multi-Hazard	Timeline	Agency Champion	Other Community Objectives	Total	High / Medium / Low
	Villages of Endicott and Johnson City into the new plan																
T. Union-13 (former 36)	Seek/ provide funding of rehabilitation programs for owner-occupied units	11	1	1	1	1	1	0	1	1	1	0	0	1	1	11	High
T. Union-14 (former Earthquake-1)	Obtain training and conduct rapid screening assessment of critical facilities for earthquake vulnerability.	1	0	0	0	1	1	0	1	1	0	0	0	1	1	7	Medium
T. Union-15 (former Earthquake-2)	Develop a post-earthquake management plan.	1	0	0	0	1	1	0	1	1	0	0	0	1	1	7	Medium
T. Union-16	Scatter Site Stream Bank Restoration	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Union-17	Stormwater Outflow Pipe Backflow Prevention	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium
T. Union-18	Valleyview Drive Drainage Improvements	1	1	1	1	0	0	0	1	0	1	1	1	0	0	8	Medium

Note: Refer to Section 6, which conveys guidance on prioritizing mitigation actions. Low (0-4), Medium (5-8), High (9-14).



9.21.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.21.8 Staff and Local Stakeholder Involvement in Annex Development

The Town of Union followed the planning process described in Section 3 (Planning Process) in Volume I of this plan update. This annex was developed over the course of several months with input from many Village departments, including: Codes & Ordinances Department, Planning Department, and Public Works. The Code and Ordinances Department represented the community on the Broome County Hazard Mitigation Plan Planning Partnership and supported the local planning process requirements by securing input from persons with specific knowledge to enhance the plan. All departments were asked to contribute to the annex development through reviewing and contributing to the capability assessment, reporting on the status of previously identified actions, and participating in action identification and prioritization.

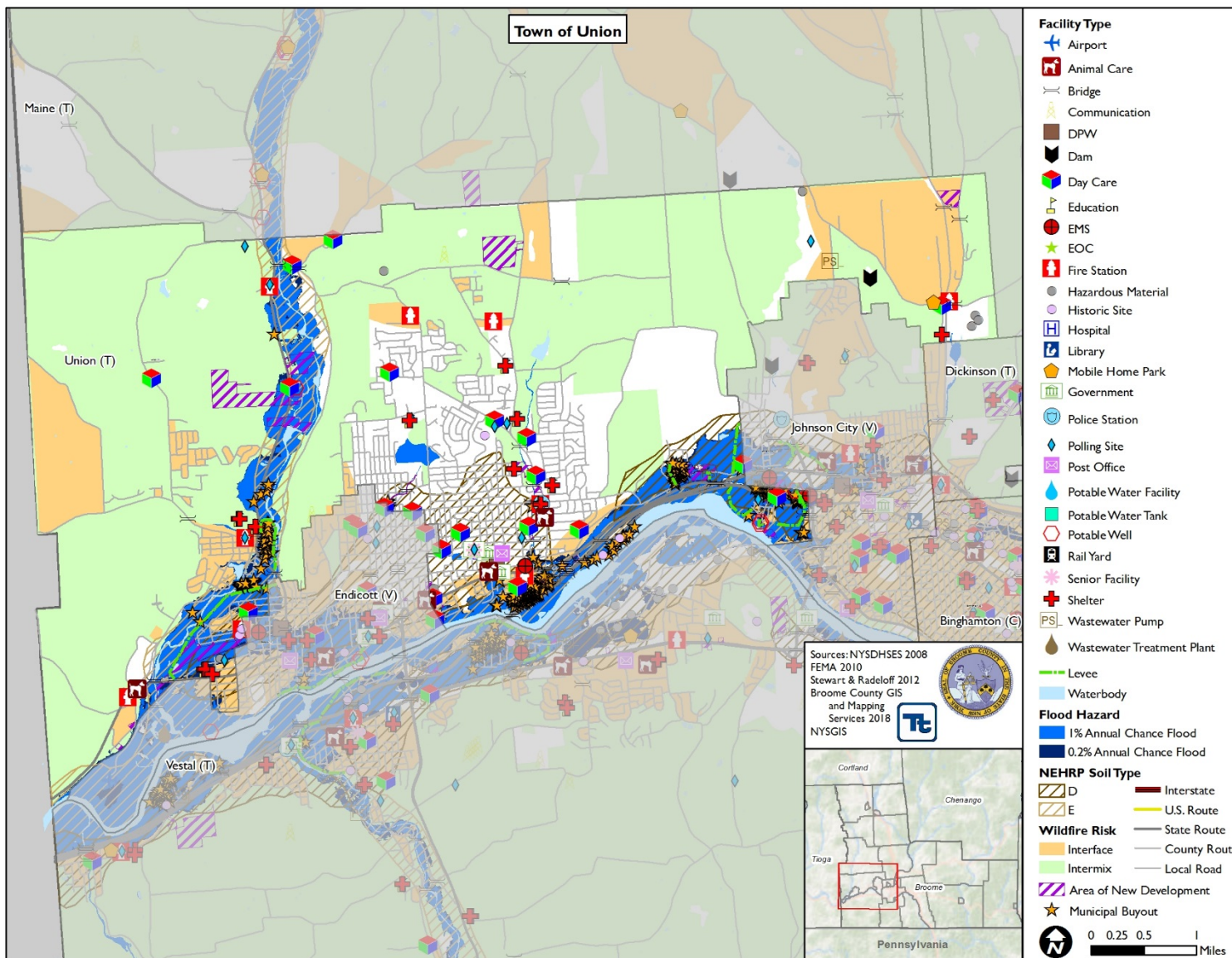
Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 3 (Planning Process) and Appendix C (Meeting Documentation).

9.21.9 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the Town of Union that illustrate the probable areas impacted within the municipality. These maps are based on the best available data at the time of the preparation of this plan and are considered to be adequate for planning purposes. Maps have only been generated for those hazards that can be clearly identified using mapping techniques and technologies, and for which the Town of Union has significant exposure. A map of the Town of Union hazard area extent and location is provided on the following page. This map indicates the location of the regulatory floodplain as well as identified critical facilities within the municipality.



Figure 9.21-2. Town of Union Hazard Area Extent and Location Map





Action Worksheet			
Project Name:	Repetitive Loss Property Mitigation		
Project Number:	T. Union 1		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Town of Union has 87 homes that filed flood damage claims to the extent that they qualify as repetitive loss structures under the NFIP. They also have 1 home that filed flood damage claims to the extent they qualify as a severe repetitive loss property under the NFIP. The causes of flooding in the areas include heavy rainfall, impacts from tropical cyclones, and snowmelt. These homeowners have endured the consequences of flooding repeatedly – disrupting their lives, damaging their personal belongings, and adding unexpected costs of rebuilding their homes. Until the properties are mitigated, the life and safety of these homeowners is at risk to flooding.		
Action or Project Intended for Implementation			
Description of the Solution:	The town will work with property owners to identify appropriate mitigation actions for each property. Actions will involve either acquisition and relocation or elevation of the structure to appropriate elevation above the 100-year flood, include freeboard.		
Is this project related to a Critical Facility?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
Is this project related to a Critical Facility located within the 100-year floodplain?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	Properties will either be removed from the floodplain or elevated above the 100-year flood elevation including freeboard.	Estimated Benefits (losses avoided):	Properties will either be removed from the floodplain or elevated above likely flood elevations
Useful Life:	30 years for elevation, 100 years for acquisition	Goals Met:	1, 5
Estimated Cost:	Roughly \$15 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	FEMA FMA, PDM
Responsible Organization:	Property Owners with support from the Town of Union Floodplain Administrator	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Properties remain exposed to flood hazard.
	Elevate all properties	\$150,000 per property depending on structure size and construction	Most high-risk properties will keep occupants in harm's way
	Buyout all properties	\$200,000 per property depending on property value	Negative social impact due to the number of properties, not necessary for all properties.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Repetitive Loss Property Mitigation	
Project Number:	T. Union 1	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Family homes remove from floodplain or elevated above likely flood elevations
Property Protection	1	Project removes structures from the floodplain or protects structures from flood exposure
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The town has the legal authority to complete the project
Fiscal	0	Project requires funding support from FEMA
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	Floodplain Administrator
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Scarborough Drive Highway and Refuse Facility Relocation		
Project Number:	T. Union 2		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	The Scarborough Drive Highway and Refuse facility is located within the floodplain and has had a history of repetitive flood damage. Relocation of these facilities outside of the floodplain would free up employees to help serve the town instead of having to dedicate resources to prevent equipment damage.		
Action or Project Intended for Implementation			
Description of the Solution:	Designed to house all the employees and equipment of the Refuse Department. Project design has been ongoing the past two years and ground breaking to begin in October 2018. Moving out of the floodplain. Facility will be located on Wayne Street. Facility will contain a backup generator to power the 1,200 square foot facility.		
Is this project related to a Critical Facility?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Is this project related to a Critical Facility located within the 100-year floodplain?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	500-year flood (moving building out of the floodplain)	Estimated Benefits (losses avoided):	Reduces / eliminates flood risk to building and equipment; no longer need to relocate equipment during severe weather events; ensures continuity of operations
Useful Life:	50 years	Goals Met:	1, 5
Estimated Cost:	\$3.3 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	\$2.5 million GOSR; balance from CDBG-DR
Responsible Organization:	Town of Union Highway Department with support from the Town of Union	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Elevate existing structure	\$2.5 million	While elevating would protect the actual building from flooding, but could not get equipment in and out of the facility
	Floodproofing structure	\$2.5 million	Not a viable solution to meet the needs of this facility
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Scarborough Drive Highway and Refuse Facility Relocation	
Project Number:	T. Union 2	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	The project will relocate the Highway and Refuse Facility out of the floodplain and include a generator to maintain critical function
Cost-Effectiveness	1	
Technical	1	
Political	1	There is public support for the project
Legal	1	The town has the legal authority to complete the project
Fiscal	0	The project requires funding support from FEMA.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	Town of Union Highway Department with support from the Town of Union
Other Community Objectives	1	The project will protect critical functions from interruption
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Taft Avenue Sewer Upgrades		
Project Number:	T. Union 3		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	During heavy rain, high rain events, and flooding events, the lines surcharge and the town needs to pump the sewer and discharge in a non-environmentally friendly way. This affects the I & I of the system. Several property owners along Taft Avenue have reported that their homes were subject to the back flow of sewer water into their homes. The town does pumping of the system – taking out of sewer main and putting it into the stormwater system – not ideal but it helps the system during heavy rain events.		
Action or Project Intended for Implementation			
Description of the Solution:	Study has been completed; but not an easy identified quick fix. The study proved what the town already knew – inflow and infiltration (I&I) issues. Now the town needs to identify another option to fix the problem. The main issue is getting the I & I out of the system. The town has installed one backflow valve at a residential home. However, the town needs to reduce the I&I but needs to identify how to do that.		
Is this project related to a Critical Facility?	Yes <input checked="" type="checkbox"/>	No <input type="checkbox"/>	
Is this project related to a Critical Facility located within the 100-year floodplain?	Yes <input type="checkbox"/>	No <input checked="" type="checkbox"/>	
(If yes, this project must intend to protect the 500-year flood event or the actual worse case damage scenario, whichever is greater)			
Level of Protection:	500-year	Estimated Benefits (losses avoided):	No more backflow, systems won't be inundated; protect residents health; protect the environment
Useful Life:	25 years	Goals Met:	1, 5
Estimated Cost:	\$5 million plus	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 6 months
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	USDA Rural Development, Water and Environmental Program, HUD, CDBG, FEMA HMGP
Responsible Organization:	Town of Union Water Department with support from the Town of Union	Local Planning Mechanisms to be Used in Implementation if any:	Hazard Mitigation
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Increase size of pipes in the town	\$1 million	Downstream areas will experience backflow issues
	Capture excess during events and then pump out of storage	\$5 million	Town would need to acquire land from property owners which would impact their tax records
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Taft Avenue Sewer Upgrades	
Project Number:	T. Union 3	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project will protect sewer from inflow and infiltration
Cost-Effectiveness	1	
Technical	0	The town will require technical assistance to determine how to prevent inflow and infiltration.
Political	1	
Legal	1	The town has the legal authority to complete the project
Fiscal	0	The town will require FEMA grant funding assistance
Environmental	1	The project will protect the environment from sewer spills.
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	Town of Union Water Department with support from the Town of Union
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	