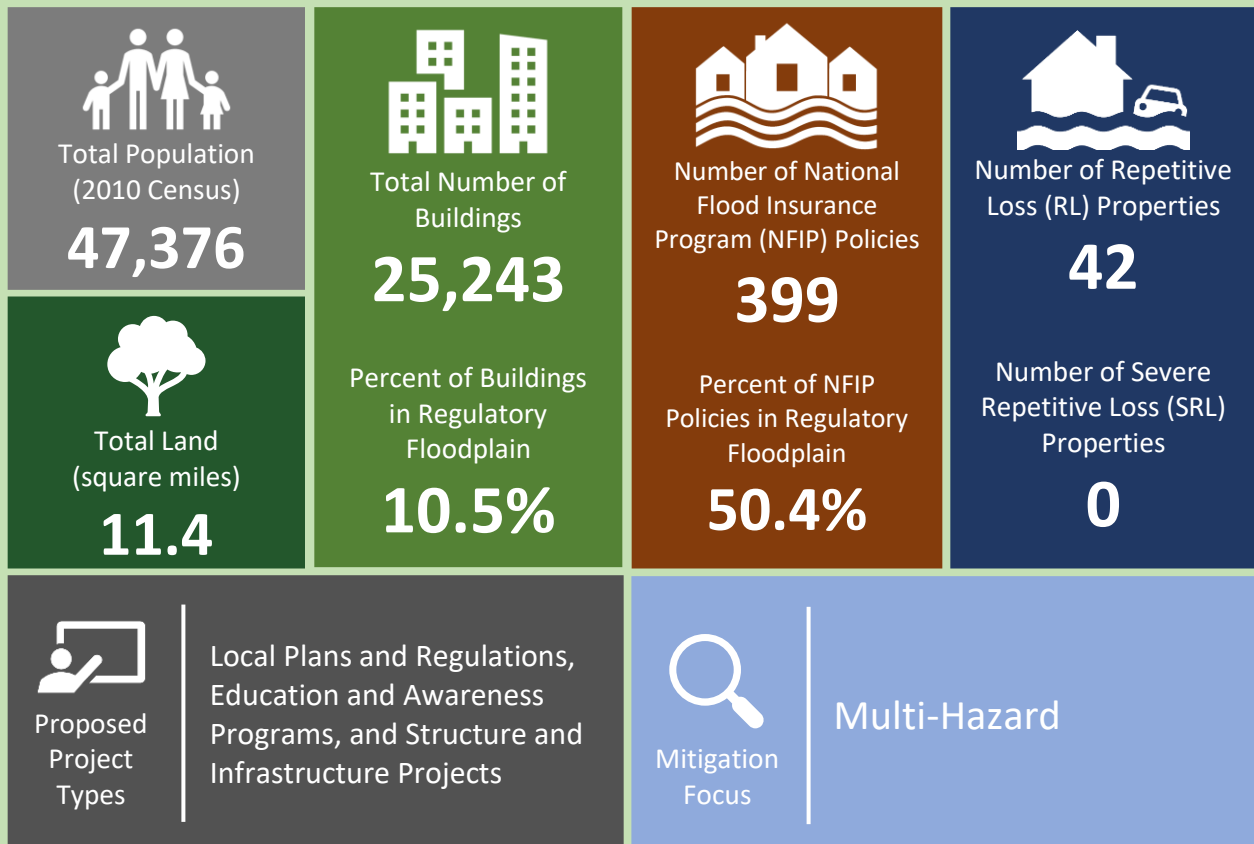




MUNICIPAL ANNEX | City of Binghamton





9.3 City of Binghamton

This section presents the jurisdictional annex for the City of Binghamton. 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 City participated in the planning process; an assessment of the City of Binghamton’s risk and vulnerability; the different capabilities utilized in the City; and an action plan that will be implemented to achieve a more resilient community.

9.3.1 Hazard Mitigation Planning Team

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

Primary Point of Contact	Alternate Point of Contact
Name: Juliet Berling Title: Planning Director Phone Number: 607-772-7028 Mailing Address: Binghamton City Hall, 38 Hawley St, Binghamton, NY 13901 Email: jmberling@cityofbinghamton.com	Name: Ray Standish Title: City Engineer Phone Number: 607-772-7055 Mailing Address: Binghamton City Hall, 38 Hawley St, Binghamton, NY 13901 Email: rlstandish@cityofbinghamton.com
Floodplain Administrator	
Name: Juliet Berling Title: Planning Director Phone Number: 607-772-7028 Mailing Address: Binghamton City Hall, 38 Hawley St, Binghamton, NY 13901 Email: jmberling@cityofbinghamton.com	

9.3.2 Municipal Profile

The City of Binghamton is in the southern tier of New York State and is the county seat of Broome County. The City of Binghamton has a total area of 11.4 square miles. Binghamton is located at the confluence of two rivers, in the middle of a long but relatively narrow valley. The north branch of the Susquehanna River passes south of downtown. This branch rises in eastern New York and receives a number of tributaries above Binghamton. In the center of the city, the Chenango River feeds into the Susquehanna from the north. The City is divided into seven neighborhoods; Downtown Binghamton, the North Side, the East Side, the West Side, the First Ward, Ely Park, and the Southside. The 2016 estimated population was 45,672, a 3.6% decrease from the 2010 Census (47,376).

The mayor and councilors are elected to four-year terms and are limited to serving only two. The Binghamton City Council is a unicameral body consisting of seven Council members whose districts are defined by geographic population boundaries.

Data from the 2016 U.S. Census American Community Survey estimates that 6.0% of the town population is five years of age or younger, and 16.6% is 65 years of age or older.

History and Cultural Resources

The City of Binghamton was named after William Bingham, a wealthy Philadelphian who bought the surrounding land in 1772. The first known settlers to the area were troops of the Sullivan Expedition in 1779, during the Revolutionary War. Binghamton was first incorporated in 1834 as a village and became a city in 1867.





Binghamton is the principal city and cultural center of the Binghamton metropolitan area. From the days of the railroad, Binghamton was a transportation crossroads and a manufacturing center, and has been known at different times for the production of cigars, shoes, and computers. IBM was founded nearby, and the flight simulator was invented in the city, leading to a notable concentration of electronics- and defense-oriented firms. This sustained economic prosperity earned Binghamton the moniker of the Valley of Opportunity. However, following cuts made by defense firms after the end of the Cold War, the region has lost a significant portion of its manufacturing industry.

Today, while there is a continued concentration of high-tech firms, Binghamton is emerging as a healthcare- and education-focused city, with the presence of Binghamton University acting as much of the driving force behind this revitalization.

The City has recently developed a large arts scene which includes many art galleries and shops centered in Downtown Binghamton. Several professional, semi-professional, and amateur orchestras and theaters can be found in the City. The City hosts various festivals and parades throughout the year and is home to the Binghamton Rumble Ponies baseball team, the Double-A affiliate of the New York Mets and the Binghamton Devils hockey team, the AHL affiliate of the New Jersey Devils. The City runs approximately 36 parks, fields and natural areas that include pools, ball fields, tennis and basketball courts, picnic areas, playgrounds, monuments, trails, forested areas and public gathering places.

Growth/Development Trends

Table 9.3-1 summarizes major residential/commercial development and any known or anticipated major residential/commercial development and major infrastructure development that is likely to occur within the municipality in the next five years (as of September 2018).

Table 9.3-1. 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					
2 Eldredge St	Comm./ Ind.	1 addition @ 7800 SF	2 Eldredge St/ 160.25-1-7, 1-12	Flooding (Prelim AE)	Completed
A&W	Comm.	1 @ 25700 SF	439 Court St/ 161.23-1-8	Flooding (Prelim AE)	Completed... now vacant
Thai Time	Comm.	1 addition @ 960 SF	96 Front St / 160.40-1-34	Flooding (AE)	Complete and in operation
Telecommunications tower	Comm.	150' free-standing tower	188 Hiner Rd 145.15-1-2	None	Complete and in operation
Gas station	Comm.	1 @ 2340 SF * 144.73-1-13 (+ 4 pumps)	198 Robinson St and 38 Moeller 160.77-3-16 and 17	Flooding (prelim AE) Explosive/ flammable	Complete and in operation
Southern Tier High Tech. Incubator	Comm.	1 @ 38500 SF	120 Hawley St 160.50-1-2	None	Complete and in operation
U-Save	Comm.	1 addition @ 3000 SF	351 Front St 144.73-1-13	Flooding (prelim AE)	Complete and in operation
Fairview Recovery	Res.	1 @ 27550 SF 18 beds	<u>110 Fairview Ave</u> 145.63-1-21	None	Complete and in operation



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
Telecommunications tower	Comm.	155' free-standing tower	494 Court Street 161.23-3-6	Flooding (AE)	Complete and in operation
Humane Society	Comm.	1 @ 11,909 SF	167 Conklin Ave 160.59-1-7	Flooding (AE)	Complete and in operation
50 Front St	Comm. / Res.	10,000 SF comm./ 118 units	50 Front St 160.48-1-16	Flooding (AE)	2019 opening
Known or Anticipated Development in the Next Five (5) Years					
7 Hawley St Mixed-use and parking garage	Comm./res.	6000 SF comm. 21 residential 6 story parking garage	7 Hawley St 160.48-2-19	None	Funded and approved.
72 Court St	Comm. / res.	3345 SF footprint / 16 residential units	72 Court St 160.41-4-14	None	Funded and approved.
Family Enrichment Network	Res.	12,369 SF two-story, 18-unit dwelling	27-31 Virgil St, 125-127, 128-130 Liberty St 144.75-2-11; 144.75-2-10; 144.75-2-9; 144.75-2-7; 144.75-2-6; 144.75-3-7; 144.75-3-6	None	Funded and approval in progress
Fairview Recovery	Comm.	1 @ 3210 SF	110 Fairview Ave 145.63-1-21	None	Funded and approval in progress
Human Service Agency	Comm. Ground floor / residential above	Ground floor Human Service Agency, a 12-unit Community Residence, and a 36-unit multi-unit dwelling	435 West State Street & 10-12 West State Street	None	Funded and approval in progress
Salvation army	Comm.	1 @ 14250 SF	530-532 State St 144.75-1-1; 144.75-1-2	None	Funded and approval in progress
SUNY Broome	Comm. / institutional	1 addition @ 7800 SF	78 Exchange St	Historic land mark building	Existing building being renovated

* Only location-specific hazard zones or vulnerabilities identified.

9.3.3 Hazard Event History Specific to the City of Binghamton

Broome County has a history of natural 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 City of Binghamton’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 9.3-2 provides details regarding municipal-specific loss and damages the City 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.

Table 9.3-2. 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	Localized road closures and damages, infrastructure damage, property damage, debris removal, structural damages
June 26 – July 10, 2013	Severe Storms and Flooding (DR-4129)	Yes	The County was impacted by a series of severe storms and flash flood events.	Localized road closures and damages due to washouts and minor mudslides; Prospect Street
June 14, 2015	Flash Flood	Yes	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.	Fairview Avenue and Hiner Road in Binghamton closed indefinitely.
March 14-15, 2017	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.	Emergency protective measures taken by the City before, during, and after the snow storm reduced the immediate threat to life, public health, safety and significant damage property at a cost of \$128,365
July 23-24, 2017	Flash Flood	Yes	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	Hiner Road roadway, ditches and driveway culvert damage as well as debris removal. Ball Avenue storm sewer debris removal. State Street debris removal from Ball Avenue to Bevier Street.



Dates of Event	Event Type (Disaster Declaration if applicable)	Broome County Designated?	Summary of Event	Municipal Summary of Damages and Losses
			creeks resulted in severe flash flooding.	

Notes:

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

9.3.4 Hazard Ranking and Jurisdiction-Specific Vulnerabilities

The hazard profiles in Section 5.0 of this plan have detailed information regarding each plan participant’s vulnerability to the identified hazards. This section provides a summary of exposure and impacts from significant hazards of concern as identified by the City of Binghamton. 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 City of Binghamton. The City of Binghamton 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 City indicated the following:

- Drought: The City changed the risk ranking for drought from high to medium.
- Earthquake: The City’s buildings are older and not built to handle earthquakes. Structures built on fluvial soils along the river are more vulnerable to heavy impacts during earthquake events.
- The City agreed with the remaining hazard rankings.

Table 9.3-3. City of Binghamton Municipal Hazard Ranking Input

HAZARD	Drought	Earthquake	Extreme Temperature	Flood	Invasive Species	Severe Storm	Severe Winter Storm	Wildfire
RELATIVE RISK FACTOR	Medium	High	Medium	High	Low	High	High	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 event, 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 9.3-4. 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	
20 Hawley Street	Communications		X	-	-	-
38 Hawley Street	Communications		X	-	-	-
State Office Building Tower Site	Communications		X	-	-	-
Telecommunications Tower	Communications	X	X	-	-	C. Binghamton-24
City of Binghamton Engine 4	Fire	X	X	10.2	23.6	C. Binghamton-25
City of Binghamton Headquarter	Fire		X	-	-	-
BARRETT PAVING MATERIALS INC	Hazardous Materials		X	-	-	-
BARTHOLOMEW'S CAR CARE CENTER LLC	Hazardous Materials		X	-	-	-
BINGHAMTON QUICKWAY #9	Hazardous Materials	X	X	-	-	-
DOUBLETREE BY HILTON BINGHAMTON NY	Hazardous Materials		X	-	-	-
GOODYEAR 1120	Hazardous Materials	X	X	-	-	-
JACK SHERMAN TOYOTA	Hazardous Materials	X	X	-	-	-
JANACO INC	Hazardous Materials		X	-	-	-
JAY'S ONE STOP INC	Hazardous Materials	X	X	-	-	-
K & P STOP N SHOP INC	Hazardous Materials	X	X	-	-	-
KWIK FILL A0011-025	Hazardous Materials		X	-	-	-
MIRABITO #75	Hazardous Materials		X	-	-	-



Name	Type	Exposure		Potential Loss from 1% Flood Event		Addressed by Proposed Action
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	
MIRABITO #99	Hazardous Materials	X	X	-	-	-
MR TIRE 1319	Hazardous Materials	X	X	-	-	-
MR TIRE 1350	Hazardous Materials	X	X	-	-	-
MURRAY'S AUTO SERVICE INC	Hazardous Materials	X	X	-	-	-
NOYES ISLAND GARAGE - NYSEG	Hazardous Materials	X	X	-	-	-
ONE STOP GROCERIES INC	Hazardous Materials	X	X	-	-	-
OUR LADY OF LOURDES MEMORIAL HOSPITAL INC	Hazardous Materials		X	-	-	-
SPRINT POP	Hazardous Materials		X	-	-	-
U SAVE TOWING	Hazardous Materials	X	X	-	-	-
UNITED HEALTH SERVICES	Hazardous Materials		X	-	-	-
VACRI CONSTRUCTION CORP	Hazardous Materials		X	-	-	-
WATER TREATMENT PLANT	Hazardous Materials		X	-	-	-
WEITSMAN RECYCLING LLC - BINGHAMTON DIVISION	Hazardous Materials		X	-	-	-
Binghamton Co-Generation Plant	Hazardous Materials		X	-	-	-
Binghamton Facility	Hazardous Materials		X	-	-	-
Binghamton, NY POP	Hazardous Materials	X	X	-	-	-
Broome County Cold Storage	Hazardous Materials		X	-	-	-
OUR LADY OF LOURDES HOSPITAL	Medical		X	-	-	-
Binghamton Police Station	Police Station		X	-	-	-
Binghamton City Treatment Plant	Potable		X	-	-	-
EAST MS	School	X	X	0	0	C. Binghamton-26
MACARTHUR ES	School	X	X	0	0	C. Binghamton-27
20-24 South Washington Street	Hazardous Materials	X	X	-	-	-
20-24 South Washington Street	Hazardous Materials	X	X	-	-	-
20-24 South Washington Street	Hazardous Materials	X	X	-	-	-
20-24 South Washington Street	Hazardous Materials	X	X	-	-	-
20-24 South Washington Street	Hazardous Materials	X	X	-	-	-



Name	Type	Exposure		Potential Loss from 1% Flood Event		Addressed by Proposed Action
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	
295-305 Court Street (Former Ebonex Mfg.)	Hazardous Materials	X	X	-	-	-
295-305 Court Street (Former Ebonex Mfg.)	Hazardous Materials	X	X	-	-	-
336 Court Street, Hansmann's Mills	Hazardous Materials	X	X	-	-	-
Almy Brothers Site	Hazardous Materials	X	X	-	-	-
Anitec Image Corporation	Hazardous Materials		X	-	-	-
Former Stow Manufacturing	Hazardous Materials		X	-	-	-
Former Wehle Electric Site	Hazardous Materials	X	X	-	-	-
NYSEG - Binghamton Court St. MGP	Hazardous Materials		X	-	-	-
NYSEG - Binghamton Washington St MGP	Hazardous Materials		X	-	-	-
SUSQUEHANNA RIVER INTAKE	Potable Well	X	X	30	-	C. Binghamton-28
Bevier St Pump Station	WW Pump		X	-	-	-
Front Street Pump Station	WW Pump	X	X	-	-	C. Binghamton-29
Penn Ave Pump Station	WW Pump	X	X	-	-	C. Binghamton-30
Broome County Humane Society	Animal Shelter	X	X	-	-	-
County Office Building	County		X	-	-	-
Health Department	County		X	-	-	-
The Arena	County		X	-	-	-
Family Child Care	Daycare	X	X	31	45.57	-
Child Care Center	Daycare	X	X	0	0	-
Child Care Center	Daycare	X	X	0	0	-
Binghamton Fire Ambulance	EMS		X			-
Ross Park Carousel	Historic	X	X	0	0	-
South Washington Street Parabolic Bridge	Historic	X	X	70.57	100	-
Victorian	Historic	X	X	11	71.93	-
Queen Anne Dwightsville	Historic	X	X	0.56	6.14	-
Queen Anne Dwightsville	Historic	X	X	0	5.403	-
Queen Anne Dwightsville	Historic	X	X	0	0	-
Simple Queen Anne Dwightsville	Historic		X	-	-	-
Queen Anne	Historic	X	X	-	-	-
Hull-Grummand	Historic		X	-	-	-
Babcock Home	Historic		X	-	-	-
Lacey Home	Historic	X	X	-	-	-
Queen Anne	Historic		X	0	5.49	-
Queen Anne	Historic	X	X	1.49	6.37	-



Name	Type	Exposure		Potential Loss from 1% Flood Event		Addressed by Proposed Action
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	
Queen Anne	Historic	X	X	18.95	21.37	-
Dwightsville	Historic	X	X	0	0	-
Dwightsville	Historic	X	X	10.33	12.08	-
Dwightsville	Historic	X	X	11.04	13.33	-
Dwightsville Gothic	Historic	X	X	14.78	18.71	-
Dwightsville Gothic	Historic	X	X	19.61	13.26	-
Dwightsville Gothic	Historic	X	X	10.88	13.03	-
Dr. C.F. Millspaugh	Historic	X	X	10.11	11.69	-
Dwightsville	Historic	X	X	0	0	-
Dwightsville	Historic	X	X	22.13	14.34	-
Historic Storefront	Historic		X	0	0	-
Binghamton Ice Cream Factory	Historic	X	X	0	0	-
The Trolley Barn	Historic		X	-	-	-
Binghamton Inebriate Asylum	Historic	X	X	4.11	7.03	-
Dwightsville	Historic		X	-	-	-
Spring Forest Cemetery	Historic	X	X	0	9.87	-
Queen Anne	Historic		X	-	-	-
City of Binghamton South W	Historic	X	X	13.79	17.39	-
Ross Park Zoo Carousel	Historic	X	X	0	0	-
Eastlake Decorative Style	Historic		X	-	-	-
Four-story Commercial Italianate Style	Historic	X	X	50.41	100	-
Binghamton City Hall	Municipal Hall		X	-	-	-
Catholic Charities	Polling	X	X	10.47	66.41	-
American Legion Post 1645	Polling	X	X	0	0	-
Community Center	Polling	X	X	0	3.91	-
Southview Post Office	Post Office		X	-	-	-
East MS	Shelter (RC)	X	X	0	0	-
MacArthur School	Shelter (RC)	X	X	0	0	-
Binghamton Animal Clinic	Veterinarian		X	-	-	-
Southside Pet Hospital	Veterinarian	X	X	0.32	0	-
The Trolley Barn	Historic		X	-	-	-
Binghamton Inebriate Asylum	Historic	X	X	4.11	7.03	-
Dwightsville	Historic		X	-	-	-
Spring Forest Cemetery	Historic	X	X	0	9.87	-
Queen Anne	Historic		X	-	-	-
City of Binghamton South W	Historic	X	X	13.79	17.39	-
Ross Park Zoo Carousel	Historic	X	X	0	0	-
Eastlake Decorative Style	Historic		X	-	-	-
Four-story Commercial Italianate Style	Historic	X	X	50.41	100	-
Binghamton City Hall	Municipal Hall		X	-	-	-
Catholic Charities	Polling	X	X	10.47	66.41	-
American Legion Post 1645	Polling	X	X	0	0	-



Name	Type	Exposure		Potential Loss from 1% Flood Event		Addressed by Proposed Action
		1% Event	0.2% Event	Percent Structure Damage	Percent Content Damage	
Community Center	Polling	X	X	0	3.91	-
Southview Post Office	Post Office		X	-	-	-
East MS	Shelter (RC)	X	X	0	0	C. Binghamton-26
MacArthur School	Shelter (RC)	X	X	0	0	C. Binghamton-27
Binghamton Animal Clinic	Veterinarian		X	-	-	-
Southside Pet Hospital	Veterinarian	X	X	0.32	0	-

Source: Hazus 4.2

The City of Binghamton reviewed the list of critical facilities and determined that hazardous material facilities, day cares, historic facilities, veterinarians, animal shelters, and polling locations were not critical for the purpose of essential services. As a result, the City of Binghamton did not develop mitigation actions to protect those facilities to the 500-year flood level.

Identified Issues

The municipality has identified the following vulnerabilities within their community:

- There are 42 Repetitive Loss Properties (RLPs) within the City of Binghamton.
- Family Child Care on Louisa Street is an identified critical facility and located in the floodplain.
- City of Binghamton Engine 4 station is an identified critical facility and located in the floodplain.
- The Community Center on Exchange Street is an identified critical facility and located in the floodplain.
- The Susquehanna River Intake (potable well) is an identified critical facility and located in the floodplain.
- MacArthur Elementary School on Vestal Ave is an identified critical facility and shelter and located in the floodplain.
- East Middle School on E. Frederick St. is an identified critical facility and shelter and located in the floodplain.
- Penn Ave. Pump Station is an identified critical facility and located in the floodplain.
- Binghamton Interchange BD is an identified critical facility and located in the floodplain.
- Flooding events damage mechanics office at the fire department.
- Sullivan Fire Training Facility is prone to flooding. Flooding damages vehicles, classrooms, mechanics, etc.
- Upgrade West St Fire Station (currently closed) for Emergency Operations Center, Emergency Training Center & Emergency Mechanics Shop (facility was used for these purposes during 2011 flood)
- River Channel Flooding
- Certification of floodwalls and levees
- Localized pump stations-upgrading and adding
- Police/Fire stations collocated on basement/1st floor of City Hall in the SFHA. 2011 flooded with equipment in place.
- EMS is in SFH
- Need to elevate mechanicals at City Hall out of flood area.
- Low flow situation in Susquehanna-drinking water source.



Tetra Tech reviewed levee data available to integrate components of the levee accreditation process and identify ways the hazard mitigation process can help to establish a path forward for the levee accreditation process. Information was collected from a combination of the National Levee Database (NLD), FEMA Flood Mapping Products website, NYS DEC Region 7 project details and maps website and the United States Geological Survey (USGS) StreamStats website. The findings for the City of Binghamton showed three levee systems in the city, all non-accredited. Section 4 (County Profile) shows additional details about the levee system.

Based on this review, Tetra Tech developed a phased approach to levee certification for the City of Binghamton. This approach allows the village to understand data gaps and what improvements that may be needed to meet FEMA levee certification criteria. Phase 1 is a data needs and engineering assessment phase that is collection of data required to perform engineering analyses to determine if the levee meets design criteria. This phase is broken down into six tasks (Appendix H [Levee Data Summary and Checklist] provides details on each of these tasks):

- Task 1 – data collection and information management
- Task 2 – levee inspection and memorandum
- Task 3 – permitting
- Task 4 – survey and mapping
- Task 5 – engineering analyses and assessment
- Task 6 – prepare FEMA levee certification data needs report

The following table presents a planning level estimate for all three levee systems in the City of Binghamton, along with a fee breakdown to complete each task.

Table 9.3-5. Binghamton Levee Systems Phase 1 Study Estimate

Task Number	Task	Estimated Fee
1	Data Collection and Information Management	\$25,000
2	Levee Inspection and Memorandum	\$35,000
3	Permitting – 408 Process	\$55,000
4	Survey and Mapping	\$330,000
5	Engineering Analyses and Assessment	\$400,000
6	Prepare FEMA Levee Certification Data Needs Report	\$20,000
TOTAL		\$765,000

9.3.5 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 City of Binghamton.



Table 9.3-6. 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	Local	Planning	City of Binghamton Comprehensive Plan 2014
Capital Improvements Plan	Yes	Local	DPW, Engineering, Finance	Annual Capital Improvements Budget City of Binghamton Comprehensive Plan 2014 Section 6 Infrastructure
Floodplain Management / Basin Plan	Yes	Local	Planning Code	Chapter 240 Flood Damage Prevention amended 6/2012 Chapter 410 Zoning 410-23. Floodplain management.
Stormwater Management Plan	Yes	Local	Planning Engineering Code	City of Binghamton Storm Water Management Program Plan 2/2015 Chapter 227 Erosion Control amended 12/2011
Open Space Plan	Yes	Local	Planning	Comprehensive Plan 2014– Section 7 Environment and Open Space Section 8 Land Use and Zoning
Stream Corridor Management Plan	No	Local	Planning Engineering Code	No separate plan. Chapter 227 Erosions Control has impact provisions
Watershed Management or Protection Plan	Yes	County	Planning Engineering	Watershed Flood Hazard Mitigation Plan 5/2016
Economic Development Plan	Yes	Local	Planning Economic Development	City of Binghamton Comprehensive Plan 2014 Section 3 Economic Development
Comprehensive Emergency Management Plan	Yes	Local	Mayor’s Office Planning Engineering	Broome County Hazard Mitigation Plan Section 9.3 City of Binghamton
Emergency Operation Plan	Yes	Local	Local Fire Department	City complies with NIMS.
Evacuation Plan	-	-	-	-
Post-Disaster Recovery Plan	No	-	-	-
Transportation Plan	Yes	Local	Planning Engineering	City of Binghamton Comprehensive Plan 2014 Section 5 Transportation
Strategic Recovery Planning Report	No	-	-	-
Other Plans:	No	-	-	-
Regulatory Capability				
Building Code	Yes	State & Local	Code	NYS Code Update, 2010
Zoning Ordinance	Yes	Local	Planning	Chapter 410 Zoning 410-55. Design and maintenance D. Urban runoff reduction plan
Subdivision Ordinance	Yes	Local	Planning	Chapter 360 Subdivision of Land
NFIP Flood Damage Prevention Ordinance	Yes	Federal, State, Local	Planning Commission	Chapter 240 Flood Damage Prevention



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: Cumulative Substantial Damages	No	-	-	-
NFIP: Freeboard	Yes	State, Local	Planning Commission	State mandated BFE+2 for all construction, both residential and non-residential
Growth Management Ordinances	No	-	-	The City does not anticipate growth.
Site Plan Review Requirements	Yes	Local	Planning	Chapter 410 Zoning Article VIII, Special Use Permit/Series A Site Plan Review Requirements
Stormwater Management Ordinance	Yes	Local	Engineering & Planning	Chapter 227 – Erosion Control Article III. Storm water Control
Municipal Separate Storm Sewer System (MS4)	Yes	State	Engineering Planning	Chapter 227 – Erosion Control 227-9. Storm water Pollution Prevention Plans
Natural Hazard Ordinance	Yes	Local	Planning	City of Binghamton Comprehensive Plan 2014 Section 6 Infrastructure Chapter 410 Zoning 410-23. Floodplain management.
Post-Disaster Recovery Ordinance	No	-	-	-
Real Estate Disclosure Requirement	Yes	State	NYS Department of State, Real Estate Agent	NYS mandate, Property Condition Disclosure Act, NY Code - Article 14 §460-467
Other (Special Purpose Ordinances [i.e., sensitive areas, steep slope])	No	-	-	-

Administrative and Technical Capability

The table below summarizes potential staff and personnel resources available to the City of Binghamton.

Table 9.3-7. Administrative and Technical Capabilities

Resources	Is this in place? (Yes or No)	Department/ Agency/Position
Administrative Capability		
Planning Board	Yes	Planning Commission Meets Monthly Planning Department
Mitigation Planning Committee	No	-
Environmental Board/Commission	Yes	Shade Tree Commission Meets Monthly Planning Department
Open Space Board/Committee	Yes	Committee on Architecture and Urban Design Meets Monthly Planning Department
Economic Development Commission/Committee	Yes	Binghamton Local Development Corporation



Resources	Is this in place? (Yes or No)	Department/ Agency/Position
		Meets Monthly Economic Development Department
Maintenance programs to reduce risk	Yes	Department of Public Works Parks and Recreation Department
Mutual aid agreements	Yes	Agreements with Broome municipal and County law enforcement agencies and fire departments.
Other	Yes	Flood Committee: Planning Commission acts as Floodplain Manager Meets Monthly Planning Department
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 Department Code
Planners or engineers with an understanding of natural hazards	Yes	Engineering Department Police Department Fire Department Department of Public Works Planning Department Code
NFIP Floodplain Administrator (FPA)	Yes	Planning Commission Planning Director
Surveyor(s)	Yes	Engineering Department
Personnel skilled or trained in GIS and/or Hazards United States (HAZUS) – Multi-Hazards (MH) applications	Yes	Planning Department. Engineering Department. City also has shared services agreement with Broome County GIS
Scientist familiar with natural hazards	No	-
Warning systems/services	Yes	Reverse 911 Audio Alert signal Television, Cable, Radio
Emergency Manager	Yes	Mayor
Grant writer(s)	Yes	Planning Department Contracted Services
Staff with expertise or training in benefit/cost analysis	No	-
Professionals trained in conducting damage assessments	Yes	Code Engineering Department NYS CEDARs

Fiscal Capability

The table below summarizes financial resources available to the City of Binghamton.

Table 9.3-8. 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



Financial Resources	Accessible or Eligible to Use (Yes/No)
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	Yes
Withhold public expenditures in hazard-prone areas	Yes
Other federal or state Funding Programs	Yes
Open Space Acquisition funding programs	Yes
Other	No

Community Classifications

The table below summarizes classifications for community programs available to the City of Binghamton.

Table 9.3-9. Community Classifications

Program	Do you have this? (Yes/No)	Classification (if applicable)	Date Classified (if applicable)
Community Rating System (CRS)	NP	NP	-
Building Code Effectiveness Grading Schedule (BCEGS)	Yes	4	2012
Public Protection (ISO Fire Protection Classes 1 to 10)	Yes	1	2017
NYSDEC Climate Smart Community	No	-	-
Storm Ready Certification	NP	NP	-
Firewise Communities classification	NP	NP	-
Natural disaster/safety programs in/for schools	Yes	N/A	N/A
Organizations with mitigation focus (advocacy group, non-government)	Yes	N/A	N/A
Public education program/outreach (through website, social media)	Yes	N/A	N/A
Public-private partnership initiatives addressing disaster-related issues	Yes	N/A	N/A
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 City of Binghamton’s capability to work in a hazard-mitigation capacity and/or effectively implement hazard mitigation strategies to reduce hazard vulnerabilities.

Table 9.3-10. 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)

Juliet Berling, Planning Director

National Flood Insurance Program (NFIP) Summary

The City of Binghamton maintains lists/inventories of properties that have been flood damaged through CodePal and Economic Development. Economic Development also identifies property owners who are interested in mitigation. As of December 2018, the City has inspected 1,712 structures of which 585 had minor damage, 815 had moderate damage, and 312 had major damage. The City conducts substantial damage estimate through two steps. The Codes department performs initial damage assessments (CEDAR program). Technical Assessment are then performed by design professionals on a case by case basis. Approximately 10 structures have been declared substantially damaged per event. Approximately 25 properties are interested in elevation and 25 properties are interested in acquisition. 15 structures are currently in the City’s buyout program and are being funded by FEMA Hazard Mitigation Grants.



The following table summarizes the NFIP statistics for the City of Binghamton.

Table 9.3-11. NFIP Summary

Municipality	# Policies	# Claims (Losses)	Total Loss Payments	# RL Properties	# SRL Properties	# Policies in the 1% Flood Boundary
Binghamton (C)	399	299	\$16,591,799	42	0	201

Source: FEMA Region 2, 2018

(1) Policies, claims, repetitive loss and severe repetitive loss statistics provided by FEMA Region 2 and are current as of 05/31/2018.

The total number of repetitive loss properties does not include the severe repetitive loss properties. The number of claims represents claims closed by 05/31/2018.

(2) Total building and content losses from the claims file provided by FEMA Region 2.

(3) The policies inside and outside of the flood zones is based on the latitude and longitude provided by FEMA Region 2 in the policy file.

Notes: RL: Repetitive Loss

SRL: Severe Repetitive Loss

Resources

The Planning Commission is responsible for floodplain administration and is supported by the Planning Director and staff. NFIP administration services include permit review and approval, building inspections, initial damage assessments (major, moderate, minor), and a shared responsibility of record keeping (economic development, comptroller, and department of public works). The City provides education and outreach regarding flood hazards/risk and flood reduction in conjunction with Broome County. The City has access to the Broome County Flood SOP, the Broome County GIS portal, and a review of previous flooding events to help determine possible future flooding conditions from climate change.

The Planning Commission noted that the lack of a City GIS system as well as a lack of Certified Floodplain Administrator on staff present barriers to running an effective floodplain management program. While the Planning Commission feels supported, the addition of these two features would help ensure the floodplain administration program is fully supported. The Planning Commission would consider attending continuing education and/or certification training on floodplain management if it were offered in the County.

Compliance History

The City of Binghamton is in good-standing in the NFIP. According to data from NYSDEC, the most recent compliance audit (community assistance visit [CAV]) took place on October 26, 2011. The City continues to participate in the National Flood Insurance Program (NFIP) and plans to apply for participation in the Community Rating System (CRS) program. The City maintains compliance with and good-standing in the NFIP through 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 City of Binghamton Flood Damage Prevention Ordinance (Chapter 240 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 floodwaters;
- Control filling, grading, dredging and other development which may increase erosion or flood damages;
- Regulate the construction of flood barriers which will unnaturally divert floodwaters or which may increase flood hazards to other lands; and
- Qualify for and maintain participation in the National Flood Insurance Program.

The Ordinance aims:

- 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, and 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 areas of special flood hazard assume responsibility for their actions.

The City of Binghamton’s Flood Damage Prevention Ordinance meets minimum State and Federal standards. Chapter 410 Zoning of the City of Binghamton Charter and Code of Ordinances codifies additional flood mitigation measures as applicable to land uses within the City limits. Chapter 227 Erosion Control of the City of Binghamton Charter and Code of Ordinances codifies additional flood mitigation measures as applicable to land uses within the City limits in terms of construction and erosion prevention. The Planning Commission acts in the capacity of Floodplain Administrator and oversees development within the Special Flood Hazard Area (SFHA) as allowed by Flood Plain Development Permitting. Variances issued by the ZBA take into consideration impact to runoff and Stormwater management. The City has previously considered joining the Community Rating System (CRS) program and would attend a seminar if offered locally.

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

City of Binghamton Comprehensive Plan 2014: The City of Binghamton’s Comprehensive Plan considers areas of natural hazard risk in Section 6: Infrastructure, Section 7: Environment and Open Space, and Section 8: Land Use and Zoning. The Plan refers to the Countywide Hazard Mitigation Plan in Section 6: Infrastructure under Goal 1.

Stormwater Management Plan: The City of Binghamton is an MS4 Regulated Community and has a formal Stormwater Management Plan. The Plan is located in Chapter 227: Erosion of the municipal code. The Plan



specifies projects/actions/initiaives to reduce the volume of stormwater, or otherwise mitigate stormwater flooding.

Comprehensive Emergency Plans: The City of Binghamton works to complete ongoing updates of Comprehensive Emergency Management Plans to keep them up to date.

Broome County Hazard Mitigation Plan: The City continues to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0. The City supports the Local Emergency Planning Committee (LEPC) and coordinates the hazard mitigation plan update with efforts of the LEPC.

The City of Binghamton has an Economic Development Plan, Open Space Plan, Watershed/Stream Corridor Management Plan, Local Waterfront Revitalization Plan, Continuity of Operations/Continuity of Government (COOP/COG) plan(s). The City works to reduce the impact of development through the Urban Runoff Reduction Plan. The City does not have a Post-Disaster Recovery Plan, Post-Disaster Redevelopment Plan, or Strategic Recovery Plan. The City Comprehensive Plan 2014's Section 3: Economic Development includes the City's resilience plan/strategy. The City also has a Climate Action Plan. Resilience is incorporated in the City Comprehensive Plan 2014 and Local Waterfront Revitalization Plan.

Opportunities for Future Integration

Updates to the City of Binghamton's planning documents and new plans could include discussion of natural hazards and resilience while referring to the Countywide Hazard Mitigation Plan.

Regulatory and Enforcement (Ordinances)

Existing Integration

Zoning Ordinance: The City of Binghamton Zoning Ordinance (Chapter 410 of the municipal code) was established to implement the policies of the City of Binghamton as expressed in the Comprehensive Plan adopted by City Council on May 5, 2003. It is intended that the provisions of this chapter shall be held to be the minimum requirements adopted for, among others, the following purposes:

- To promote the public health, safety and general welfare of the citizens.
- To provide adequate light, air, and privacy, and to secure safety from fire and other dangers.
- To prevent the overcrowding of land and the undue concentration of population.
- To protect natural features such as forested areas and water and drainage courses, and to minimize the hazards to persons and damage to property resulting from the accumulation or runoff of storm and flood waters.
- To protect and conserve the existing or planned character of all parts of the City and, thereby, aid in maintaining their stability and value, and to encourage the beneficial development of all parts of the City.
- To provide a guide for public policy and action that will facilitate the economical provision of public facilities and services, and for private enterprise in building development, investment and other economic activity relating to use of land and buildings throughout the City.
- To minimize conflict among uses of land and buildings, and to bring about the gradual conformity of uses of land and buildings throughout the City to the concepts of a well-considered plan.
- To divide the City into districts and to prescribe for each such district the trades, industries and land use activities that shall be permitted, excluded or subjected to special regulations before buildings are altered or erected, or land is used.



- Pursuant to and in accordance with the provisions of § 20(24) of the General City Law, to regulate and limit the height, bulk and location of buildings hereafter erected, to regulate and determine the area of yards, courts and other open spaces, and to regulate the density of population in any given area.
- To safeguard the heritage of the City of Binghamton by preserving significant districts and landmarks which reflect periods of its cultural, social, economic, political, artistic and architectural history.
- To promote the preservation, rehabilitation, restoration and use of historic landmarks and buildings for the education, pleasure and general welfare of City residents.
- Subdivision of Land Ordinance: The City of Binghamton Subdivision of Land Ordinance (Chapter 360 of the municipal code) was adopted to provide for the harmonious development of the City by:
 - Providing for harmonious residential development consistent with rational City planning principles.
 - Facilitating expedient review of all subdivision plans by providing uniform standards and procedures.

Erosion Control Ordinance: The City of Binghamton Erosion Control Ordinance (Chapter 227 of the municipal code) establishes minimum erosion and 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.
- 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.
- Promote an urban landscape with more green infrastructure in order to manage stormwater more effectively, and to use trees to minimize the urban heat island effect, create more sustainable plant and animal habitat, and improve the overall quality of life.
- Make the connection between green infrastructure, aesthetically pleasing landscaping and increase property values.
- Promote the reestablishment of vegetation in urban areas to improve aesthetics, health, and biodiversity.

Municipal zoning (Chapter 410, Chapter 227, and Chapter 240), subdivision regulations (Chapter 360 and Chapter 410), and the site plan review process (Chapter 410 Article VIII and IX) consider natural hazard risk and require developers to take additional actions to mitigate natural hazard risk. The Planning Board and ZBA are provided with Staff Reports identify and incorporate SEQRA documents, FEMA flood maps; SFHA regulations, Floodplain Development Application, Urban Runoff Reduction Plan, and SWPP requirements to guide their decisions with respect to natural hazard risk management. The City maintains and enforces an alternate side of the street parking ordinance to facilitate snow removal.



Opportunities for Future Integration

Additional staff could assist in providing the Planning Board/ZBA with information to guide their decisions with respect to natural hazard risk management.

Operational and Administration

Existing Integration

Binghamton Urban Renewal Agency (BURA): The mission of the Binghamton Urban Renewal Agency (BURA) is to alleviate blight, provide for urban renewal, and stimulate sustainable community and economic redevelopment in designated brownfield areas of the City of Binghamton (adopted by the BURA Board of Directors March 23, 2012).

Binghamton-Johnson City Joint Sewage Board: The Binghamton-Johnson City Joint Sewage Board was established by the municipal cooperation agreement between the City of Binghamton and the Village of Johnson City dated July 14, 1965 for the operation of a joint wastewater treatment facility. The Joint Sewage Board consists of six members, three appointed by the Mayor of the City of Binghamton and three appointed by the Mayor of the Village of Johnson City. The Joint Sewage Treatment Plant (JSTP) is owned by the City of Binghamton and the Village of Johnson City.

Board of Contract & Supply: Except as otherwise provided by law, it shall be the duty of the Board of Contract and Supply, after public notice and in accordance with regulations prescribed by general ordinance of the City Council, to award to the lowest responsible bidder, who will give adequate security therefore, all contracts for public work involving an expenditure of more than \$20,000 and all purchase contracts involving an expenditure of more than \$10,000. In the case of a public emergency arising out of an accident or other unforeseen circumstances affecting public buildings, public property or the life, health, safety or property of the inhabitants of the City of Binghamton therein, or any public property requiring immediate action which cannot wait competitive bidding, contracts of public work or the purchase of supplies, materials or equipment may be let by the appropriate officer of board without a letting by contract and filing with the Board of Contract and Supply a certificate setting forth the reasons of said emergency.

Commission on Architecture and Urban Design (CAUD): The Commission on Architecture and Urban Design (CAUD) was established in 1964 to prevent the deterioration of property belonging to the City or property in which any City funds are involved and to advise builders or designers in regard to the use of space and the design of structures and to encourage protection of economic values and proper and appropriate use of surrounding areas. The Commission on Architecture and Urban Design is responsible for reviewing and approving any project which alters the exterior appearance of any designated Local Landmark historic building and all buildings within the boundaries of designed Historic Districts (maps of the Historic Districts and a list of the Local Landmark properties are available in the sidebar). Any person seeking to carry out such a project must complete a Design Review Application. The Commission is also responsible for determining the historic significance of buildings in the City of Binghamton. Per City Code, any project seeking to demolish a building more than 40 years old must obtain a Determination of No Historical Significance before a demolition permit can be issued.

Community Development Advisory Committee (CDAC): Established by City Council in 1984, the Community Development Advisory Committee is the official citizen participation body that is involved in each year's planning process to represent the needs and interests of City of Binghamton residents. The Committee's composition includes 11 members – one member appointed from each Council District, one member appointed by the Council body, and three members appointed by the Mayor.



Planning Commission: The Planning Commission for the City of Binghamton is a seven-member commission comprised of residents of the city. Four members constitute a quorum. Planning Commission meetings are held the SECOND MONDAY of the month, unless otherwise posted. Planning Commission meetings are held in the City Council Chambers at 5:15pm, unless otherwise posted. The Planning Commission is responsible for the review and approval/denial of site plans and project applications based on compliance with Local Ordinance and State requirements, Comprehensive Plan, Stormwater Management Plans, and Local Waterfront Revitalization Plans.

Shade Tree Commission: The Shade Tree Commission is an advisory board for the City of Binghamton made up of seven members, who are charged with studying the problems and determining the needs of the City of Binghamton in connection with its tree planting programs. The Commission is also responsible for helping the Parks and Recreation Department decide what type of trees will be planted in the City each year, and for assisting with the dissemination of news and information regarding selection, planting, and maintenance of trees within the City limits. In addition, the Commission serves as an advisory body to the Planning Commission, Zoning Board of Appeals, and City departments providing reviews and recommendations on private development projects and for public projects. The Shade Tree Commission typically meets the third Tuesday of each month. Meetings are at 4:45PM and are held in the conference room of the Department of Planning, Housing, and Community Development (4th Floor of City Hall).

Waterfront Advisory Committee: The Local Waterfront Revitalization Program calls for an advisory body to review and make recommendations to the Planning Commission on all development that falls within the “Local Waterfront Revitalization Plan.” City Council authorized the BRTC to establish the Waterfront Advisory Committee from its membership. Each division selects three members to serve as the official advisory entity to the Planning Commission.

Zoning Board of Appeals: The Zoning Board of Appeals for the City of Binghamton is a five-member board comprised of local community members. Three members constitute a quorum. Zoning Board of Appeals meetings are held the first Monday of the month, unless otherwise posted. Zoning Board of Appeals meetings are located in the City Council Chambers at 5:15pm, unless otherwise posted. The Zoning Board of Appeals is responsible for the review and approval/denial of site plans and project applications based on compliance with Local Ordinance and State requirements, Comprehensive Plan, Stormwater Management Plans, and Local Waterfront Revitalization Plans.

Mutual Aid Agreements: The City maintains and updates mutual aid agreements with the surrounding communities.

National Incident Management System (NIMS): The City conducts training in the National Incident Command System (ICS), under the National Incident Management System (NIMS).

HUD Housing: The City works to research and secure funding to conduct feasibility studies involving mitigating all three low-income HUD housing in center city neighborhood (Binghamton Housing Authority (BHA), Woodburn Court I, and Woodburn Court II). by moving critical facility systems and utilities to roof or building safe rooms.

BCA analysis: The City works to conduct Benefit-Cost Analysis (BCA) for mitigation projects. If the BCA analysis and the project is feasible, the City works with appropriate agencies to secure funds and implement the project.



Hydrant Mapping: The City works with the Broome County Planning Department to maintain GIS mapping of existing fire hydrants and water resources throughout the City, to identify needs for enhancements of critical infrastructure.

Repetitive Loss Properties: The City works to purchase, relocate, or elevate structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss property as priority. The City identifies appropriate candidates based of cost-effectiveness versus retrofitting. Where determined to be a viable option, the City works with property owners toward implementation of the determined action based on available funding from FEMA and local match availability.

Post-Disaster Procedures: The City works to identify and develop agreements with entities that can provide support with FEMA/SOME paperwork after disasters. The City works with regional agencies (i.e. County and SOEM) to help develop damage assessment capabilities at the local level.

Structure/Facility Inventories/Datasets: The City participates in regional, 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 including flooding, earthquake, wind, and land failure.
- Support state, county and local planning efforts including mitigation (including updates to the State HMP), comprehensive emergency management, debris management, and land use.

The City of Binghamton has City Planners (Director and Assistant Director). The Planners are responsible for identifying and applying Zoning Code requirements to development, identifying amendemnts and updates to Zoning code as need is identified, and identifying and adminstering hazard mitigation grant opportunities. Stormwater Management functions are performed by the Planning Department: City Planner Tim Konetchy; Assistant Director Tito Martinez; Engineering Department: City Engineer Ray Standish; and Planning Commission: Chariman Nick Corcoran. The Engineering Department has experience with developing Benefit-Cost Analysis. The Code Department can perform Substantial Damage Estimates. The Planning Department, Engineering Department, and Mayor’s Office have experience in preparing grant applications for mitigation projects and the City can also contract support as needed. Training on natural hazard risk reduction is available to code and fire officials, including CEDAR training for Code Enforcement Officials. No staff have job descriptions that specifically include identifying and/or implementing mitigation projects/actions or other efforts to reduce natural hazard risk. The City’s DPW has plans in place to stage equipment prior to emergencies. The City has other hazard management programs in place.

Opportunities for Future Integration

The Planning and Engineering Departments would benefit from additional training/certification with respect to natural hazard risk management and have a Certified Floodplain Manager(s) on staff. The City would benefit from have a GIS system on hand.

Funding

Existing Integration

The City of Binghamton’s municipal budget includes line items for mitigation projects. The Capital Improvements Plan also includes budget for mitigation-related projects. The City has pursued Hazard Mitigation



Grants in the past and uses the general fund, bonding, development fees, and other grant opportunities to support hazard mitigation projects.

Opportunities for Future Integration

The City could continue to allocate municipal funding and apply for grant funding to support mitigation-related projects.

Education and Outreach

Existing Integration

The City of Binghamton operates a City website (<http://www.binghamton-ny.gov/>) which includes educational information and news regarding hazards. The Planning, Fire, Engineering, and Code Departments also conduct public outreach. The City's Community Outreach Programs including development and distribution of fact sheets in municipal mailings and at public events.

Opportunities for Future Integration

Additional staff for outreach and education would be beneficial.

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 Long-Term Housing

The City has identified the following locations for the placement of temporary housing for residents displaced by a disaster:

- Charles Street Business Park: 30 Charles Street Binghamton, NY 13905. The Business Park has capacity for 200 units at 1 acre each. Each unit would require utilities to be installed.

The City has identified the following potential site suitable for relocating houses of the floodplain and/or building new homes once properties in the floodplain are acquired.

- Gates Subdivision: Vicinity of 121 Gates Street Binghamton, NY 13905. The Subdivision has capacity for 5-10 units with a standard size of 75' x 125'. Subdivision, site map design, and construction would be required to ensure conformance with the NYS Uniform Fire Prevention and Building Code.

Evacuation and Sheltering Needs

The City has designated the following shelters:

- Binghamton High School: 31 Main Street Binghamton, NY 13905. The High School is ADA compliant.
- East Middle School: 167 E. Frederick Binghamton, NY 13905. The Middle School is ADA compliant.
- West Middle School: West Middle Avenue Binghamton, NY 13905. The Middle School is ADA compliant.

The City has designated the following evacuation procedures:





- Residents are notified to shelter in place during emergency events where practicable. In the event of an evacuation, the City will follow the Broome County Emergency Services Plan. Roads and bridges will be closed as needed during an event for emergency operations.

9.3.6 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 9.3-12. 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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	
Example-1* (action to be transferred to municipal capability and not included on list)	Maintain and update mutual aid agreements with the surrounding communities.	All	Ensuring mutual aid agreements remain up-to-date for changing hazard vulnerabilities.	BCOES. Local and Regional FD, PD and EMS	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
1.	Continue training in the National Incident Command System (ICS), under the National Incident Management System (NIMS).	All		Required of Police, Fire, DPW, and Code.	In Progress	Cost	Moderate	1. Discontinue 2. High 3. Ongoing capability
						Level of Protection	High	
						Damages Avoided; Evidence of Success	Properly coordinated and effective emergency response across all participating departments	
2.	Continue support of the Local Emergency Planning Committee (LEPC) and coordinate the hazard mitigation plan update with efforts of the LEPC.	Flood, Drought, Severe Storm		Police, Fire, DPW, and Code.	No Progress	Cost	Low	1. Discontinue 2. High 3. Ongoing capability
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
3.	Assist in the update of flood plain (FIRM) maps - Jurisdictional Level. Specific assistance can be provided in the area of attending map update meetings held by FEMA, NYDEC and USGS; and identification of flood-prone areas outside of	Flood	Existing maps are outdated	Working with Broome County.	In Progress	Cost	Moderate	1. Include in 2018 HMP 2. 3.
						Level of Protection	Moderate	
						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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Level of Protection	
	currently designated areas							
4.	Continue participation in the National Flood Insurance Program (NFIP).	Flood		City Planning, Code Enforcement	In Progress	Cost	Low	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success	Robust CRS program with Rating improved annually due to program implementation and corresponding legislation	
5.	Evaluate participation in the CRS.	Flood	Flood insurance premiums will rise, and more properties will require insurance once new FIRMS are adopted. CRS offers an opportunity to reduce premiums for City residents.	Floodplain Manager; Town Engineer; Town Planner/ NYSDEC, NYSFSMA, FEMA / NYSOEM	No Progress	Cost	Low	1. Include in 2018 HMP 2. Change to "Initiate participation in the CRS" 3.
						Level of Protection	Moderate to High	
						Damages Avoided; Evidence of Success	Lower flood insurance rates, lower level of flood risk	
6.	Upgrade flood protection infrastructure in First Ward neighborhood including upgrading McDonald Avenue pump station, piping changes and increased drain lines.	Flood	Localized flooding in First Ward largely the result of infrastructure failure.	City	In Progress	Cost	High	1. Include in 2018 HMP Pump Station and sewer separation in progress or complete. Change to "including increased drain lines and obtaining flood wall certification." 2. 3.
						Level of Protection	High	
						Damages Avoided; Evidence of Success		
7.	Continue and enhance ongoing storm sewer and sanitary sewer separation to assist with peak storm water flows; currently	Flood	Storm and sanitary lines must be separated where possible to prevent overflow.	City	Ongoing Capability	Cost	High	1. Include in 2018 HMP 2. 3.
						Level of Protection	High	
						Damages Avoided;		





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	focusing on Westside Sewer Separation project – Bennett Ave, Laurel, Lathrop, Johnson, Millard.					Evidence of Success		
8 (8.)	Research funding and consider replacing interceptor/trunk sewer line from the Conklin town line to Jackson Street to assist in managing peak storm water flows.	Flood	Existing line is inadequate.	City	In Progress	Cost	High	1. Include in 2018 HMP 2. Change to “Pursue funding to continue replacing interceptor/trunk sewer line from Conklin town line to Jackson St, focusing on the section between Duke St and Tompkins St, to assist in managing peak storm water flows. 3.
8	Research and secure funding to conduct feasibility study of mitigating all three low-income HUD housing in center city neighborhood (Binghamton Housing Authority (BHA), Woodburn Court I, and Woodburn Court II). by moving critical facility systems and utilities to roof or building safe rooms.	Flood		City of Binghamton, BHA, HUD	In Progress	Cost	High	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	High	
						Damages Avoided; Evidence of Success		
8a	If BCA analysis is favorable, and project is feasible, work with appropriate agencies to secure funds and implement.	Flood		City of Binghamton, BHA, HUD	In Progress	Cost	High	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	High	
						Damages Avoided; Evidence of Success		
9		Flood				Cost	Low	1. Include in 2018 HMP





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Level of Protection	Cost	
	Develop and implement the City's Stormwater Green Infrastructure 50/50 Fund, which will cover a portion of eligible installation costs on private property of green infrastructure that assists with stormwater management goals.		Excessive amounts of impervious surface throughout the City contribute to localized flooding.	City of Binghamton	In Progress	Moderate	Moderate	2. Change to "pursue additional funding to continue and expand City's Stormwater...." A residential and commercial program was completed but ran out of funding.
10	Conduct engineering feasibility study to explore mitigation efforts for State Street Neighborhood off Brandywine Highway	Flood		City; NYS DOT; County; Town of Dickinson; Village of Port Dickinson	No Progress	Moderate	Moderate	1. Include in 2018 HMP 2. 3.
11	Integrate Hazard Mitigation Plan Goals and vulnerability mapping into Comprehensive Plan update and Implement Comp Plan Recommendations	ALL		City	Complete	Moderate	Moderate	1. Discontinue- noted throughout comp plan 2. 3. Included in Comp Plan
12	Community Outreach Programs including development and distribution of Fact sheets in municipal mailings and at public events.	Flood; Fire; Earthquake		City; County; State	Ongoing Capability	Low	Low	1. Discontinue Information released as available. Pamphlets throughout city hall, but not addressing all hazards. 2. 3. Ongoing capability
13 (9.)	Enhance stream flow capacity utilizing feasible techniques that include, but are not limited to, channel shaping/resizing,	Flood	Flooding around City creeks during heavy rainfall is a persistent problem.	City; BC Soil & Water Conservation	No Progress	High	Moderate	1. Include in 2018 HMP 2. 3.





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success	Cost	
	rip rap, grubbing, stream channel relocation.					Evidence of Success		
14 (10.)	Work with Army Corps to ensure regular maintenance and inspections on the local flood control structures that currently protect downtown Binghamton, the First Ward, the south side and east side neighborhoods.	Flood		City; ACOE; DEC	Ongoing Capability	Cost	Low	1. Include in 2018 HMP Replace "Work with" to "Create official liaison between City and..." 2. 3.
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
15 (11.)	Maintain and enforce alternate side of the street parking ordinance to facilitate snow removal.	Winter storm		City	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
16 (12.)	Pursue funding to retrofit vulnerable critical facilities, including sewer lift stations and storm water pumping stations, to include backup and redundant power sources to maintain facility operations during hazard events for which they are exposed.	ALL	At risk infrastructure must be protected to prevent compounding problems during hazard events.	City	In Progress	Cost		1. Include in 2018 HMP 2. Ongoing program, but additional funding is needed. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		
17 (13.)	Work with Broome County Planning to maintain GIS mapping of existing fire hydrants and water resources throughout the City, to identify needs for enhancements of critical infrastructure.	ALL including Drought		City; County	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing Capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
		ALL		City		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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Level of Protection	Damages Avoided; Evidence of Success	
18* (13.1)	Cartographic Implementation				Ongoing Capability	Level of Protection		2. 3. Ongoing Capability
19 (14.)	Consider non-structural flood hazard mitigation alternatives for at risk properties within the floodplain, including those that have been identified as repetitive loss properties, such as acquisition/relocation, or elevation depending on feasibility. The parameters for feasibility for this initiative would be: funding, benefits versus costs and willing participation of property owners.	Flood, Severe Storm	Repetitive loss properties should be removed or mitigated to prevent harm to property owners, limit strain on emergency responders during events, and remove/prevent blight.	City; NY OES; FEMA, (via Municipal Engineer/NFIP Floodplain Administrator) with support from BCPD, NYSOEM, FEMA	In Progress	Cost	High	1. Discontinue 2. 3. Combine to new Action #1.
						Level of Protection	High	
						Damages Avoided; Evidence of Success		
20 (17.)	Change Floodplain Administrator from Planning Commission to Director of Planning, Housing, and Community Development	Flood		City	In Progress	Cost		1. Discontinue 2. 3. Will be addressed in 2018
						Level of Protection		
						Damages Avoided; Evidence of Success		
21 (18.)	Collaborate with JSTP on implementation of I/I offset program.	Flood		City/JC/JSTP	In Progress	Cost	Low	1. Include in 2018 HMP 2. 3.
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
22 (19.)	Continue and enhance ongoing storm sewer and sanitary sewer separation	Flood	CSS's must be separated to prevent overflow.	City	In Progress	Cost	High	1. Include in 2018 HMP 2. Remove Riverside, Euclid, Genesee
						Level of Protection	Moderate	





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Damages Avoided; Evidence of Success	Cost	
	to assist with peak storm water flows; currently focusing on Conklin Avenue, North Street, Genesee Street, Euclid Avenue, Riverside Drive					Damages Avoided; Evidence of Success		3.
23 (20)	Continue to repair flood control structures, currently focusing on Park Creek Channel, Phase I	Flood	Flooding around City creeks during heavy rainfall is a persistent problem.	City; DEC; ACOE	In Progress	Cost	High	1. Include in 2018 HMP 2. Change "Phase I" to "Phase 2". 3.
						Level of Protection	High	
						Damages Avoided; Evidence of Success	Reduced flash flooding adjacent to city creeks	
24 (21)	DPW Emergency Equipment Staging Planning	Flood		City	In Progress	Cost	Low	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
25 (22)	CEDAR training for Code Enforcement officials	ALL		City, NYS	Ongoing Capability	Cost		1. Discontinue 2. 3. Ongoing capability
						Level of Protection		
						Damages Avoided; Evidence of Success		
26 (23)	Install emergency generators in four Fire Stations	Flood, Severe Winter storm, Earthquake, Severe storm	Power failure at fire stations during hazard events would greatly compound problems. Currently, FD is using portable generators, which may be insufficient.	City	No Progress	Cost	Moderate	1. Include in 2018 HMP 2. 3.
						Level of Protection	High	
						Damages Avoided; Evidence of Success		
27 (24)	Upgrade West St Fire Station (currently closed) for Emergency Operations Center, Emergency Training Center & Emergency Mechanics	Flood		City	No Progress	Cost		1. Discontinue 2. 3. No longer under the control of FD
						Level of Protection		
						Damages Avoided;		





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success		
	Shop (facility was used for these purposes during 2011 flood)					Evidence of Success		
28	Install one-way valve in the floor drain of mechanics shop to prevent floor water from entering shop and damaging equipment and vehicles at Sullivan Fire Training Facility	Flood		City	No Progress	Cost	Moderate	1. Include in 2018 HMP 2. 3.
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
29	Purchase two door dams to minimize flood water entry to F.D. classroom preventing damage to classroom contents at Sullivan Fire Training Facility	Flood		City	No Progress	Cost	Low	1. Include in 2018 HMP 2. 3.
						Level of Protection	Moderate	
						Damages Avoided; Evidence of Success		
30	Relocate Fire Dept. Mechanic's office to second floor. This will prevent future flooding events from damaging mechanics office.	Flood		City	Complete	Cost	NEED	1. Discontinue 2. 3.
						Level of Protection	NEED	
						Damages Avoided; Evidence of Success	NEED	
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 property as priority. Phase 1: Identify appropriate candidates based of cost-effectiveness versus retrofitting.	Flood		Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from BCPD, NYSOEM, FEMA	Ongoing capability	Cost		1. Discontinue 2. Redundant, already included in #19. 3. Ongoing capability and redundant
						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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
	Phase 2: Where determined to be a viable option, work with property owners toward implementation of the determined action based on available funding from FEMA and local match availability							
Flood-2	Maintain compliance with and good-standing in the NFIP including 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. 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.	Flood		Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from NYSOEM, FEMA	Ongoing Capability	Cost		1. Discontinue
						Level of Protection		2.
						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:	Flood	Public must be made better aware of risks and resources.	Municipality with support from Planning Partners, BCPD, NYSOEM, FEMA	In Progress	Cost		1. Include in 2018 HMP
						Level of Protection		2.
						Damages Avoided; Evidence of Success		3.



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
	<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 how they can learn more and implement mitigation. 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. 							<ol style="list-style-type: none"> Project to be included in 2018 HMP or Discontinue If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). If discontinue, explain why.
Flood-4	Obtain and archive elevation certificates	Flood	No central database of elevation certificates.	NFIP Floodplain Administrator	No Progress	Cost		1. Include in 2018 HMP
						Level of Protection		2.
						Damages Avoided;		3.





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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success	Cost	
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	In Progress	Level of Protection		1. Discontinue 2. 3. Ongoing capability
Flood-6	Complete ongoing updates of Comprehensive Emergency Management Plans	Flood		Municipality with support from NYSOEM	Ongoing capability	Level of Protection		1. Discontinue 2. 3. Ongoing capability
Flood-7	Create/Enhance/Maintain Mutual Aid agreements with neighboring communities for continuity of operations	All Hazards		Municipality with support from County, NYSOEM, FEMA and surrounding communities	In Progress	Level of Protection		1. Discontinue 2. 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	City staff would benefit from additional resources/manpower to improve post-disaster capabilities.	Municipality with support from County, NYSOEM and FEMA	Ongoing capability	Level of Protection		1. Discontinue 2. 3. Ongoing capability
Flood-9	Work with regional agencies (i.e. County and SOEM) to help develop damage assessment capabilities at the local	Flood		Municipality with support from County, NYSOEM and FEMA	Ongoing capability	Level of Protection		1. Discontinue 2. 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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Evidence of Success		
	level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).					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 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. 	Flood		Hazard Mitigation Plan Coordinator	Ongoing capability	Cost	Moderate	1. Discontinue 2. 3. Ongoing capability
						Level of Protection	Moderate	
						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
	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.							<ol style="list-style-type: none"> Project to be included in 2018 HMP or Discontinue If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). If discontinue, explain why.
Severe Storm-1	Enhance the County/community resilience to severe storms (incl. severe winter storms) by joining the NOAA "Storm Ready" program and supporting 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,	Severe Storm		Municipality with support from County, NYSOEM and FEMA	No Progress	Cost	Level of Protection	<ol style="list-style-type: none"> Include in 2018 HMP <i>Remove the following from project description:</i> "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



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 2018 HMP or Discontinue 2. If including action in the 2018 HMP, revise/reword to be more specific (as appropriate). 3. If discontinue, explain why.
						Cost	Damages Avoided; Evidence of Success	
	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.							3. <i>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.</i>
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		1. Include in 2018 HMP 2. 3.
						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.	Earthquake	No plan in place.	Municipal Emergency Management, Fire, PD with support from County, NYSOEM	No Progress	Cost		1. Include in 2018 HMP 2. 3.
						Level of Protection		
						Damages Avoided; Evidence of Success		



Completed Mitigation Initiatives Not Identified in the Previous Mitigation Strategy

The City of Binghamton 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 City of Binghamton has performed ongoing maintenance projects to reduce the impact of flooding but has not identified specific mitigation projects/activities that have been completed but were not identified in the previous mitigation strategy in the 2013 Plan.

Proposed Hazard Mitigation Initiatives for the Plan Update

The City of Binghamton 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 9.3-13 summarizes the comprehensive-range of specific mitigation initiatives the City of Binghamton 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 9.3-143 provides a summary of the prioritization of all proposed mitigation initiatives for the Plan update.



Table 9.3-13. Proposed Hazard Mitigation Initiatives

Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
C. Binghamton-1 (Former 16)	Repetitive Loss Properties in City	<p>Problem: The City of Binghamton has a total of 42 homes that filed flood damage claims to the extent that they qualify as repetitive loss structures under the NFIP.</p> <p>Solution: Continue working with homeowners to acquire or elevate their homes.</p>	Flood	1, 2, 5	No	None	City Floodplain Administrator working with property owners	\$8.4 million	Homes no longer flooding and becoming damaged	Long-Term (more than 5 years)	FEMA HMGP, FEMA FMA	High	SIP/ PP
C. Binghamton-2 (Former 23)	Park Creek Channel and Chamberlain Creek improvements	<p>Park Creek Channel and Chamberlain Creek banks have been damaged by recent flooding events and would cause flooding if it fails.</p> <p>Chamberlain Creek - Increase culverts along Court Street, I-86, Robinson Street, and Woodcock Street.</p> <p>Park Creek – increase culverts along Cross Street, Vestal Avenue, Park Avenue, Morris Street, and Hotchkiss Street. In addition, extend the concrete channel by increasing the height or adding additional earthen berms.</p> <p>Install a storage/retaining pond upstream from both creeks. One would be located by Chamberlain Creek and Park Creek.</p>	Flood	1, 5	No	Yes, permitting required for creeks	City of Binghamton Highway and Engineer	\$10 million	Decrease risk of overflow of channels and culverts; reduce flood risk to residential and commercial properties; and reduce flood risk to critical facilities including Binghamton General Hospital	10 years	FEMA FMA and HMGP	Medium	SIP/SP
C. Binghamton-3 (Former 22)	Scatter Site Stormwater Infrastructure	<p>During Tropical Storm Lee, the extent of the</p> <p>This project would provide design and construction services to introduce flood resistance and resiliency for the</p>	Flood, Severe Storm	1, 5	Yes	No	City of Binghamton Highway and Engineer	\$1.1 million	Protect utility infrastructure to prevent failure, improve and ensure continued	1.5 years	NY Rising	High	SIP/SP





Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		flooding overwhelmed and inundated stormwater management infrastructure that had flooded in the past. Electrical equipment required for continuous operation of the system was flooded and damaged. The Emma Street and Glenwood Avenue pump stations, which are located at a railroad underpass, proved to be extremely vulnerable to localized flooding.	power supply, operational equipment, primary structure, and physical access at the Rush Avenue, Moeller Street, Emma Street, and Glenwood Avenue pump stations. Depending on site-specific conditions, the project could include elevating equipment and other components above the base flood elevation, waterproofing electrical panels to withstand being fully submerged, or relocating the panels and other equipment out of the floodplain. The pump station buildings would be flood-proofed to minimize floodwater infiltration and damage to components inside							emergency service operations				
C. Binghamton-4	Front Street Stormwater Separation Project	During storm events, the amount of stormwater entering the City's combined system has	This project would include planning, design, and construction services to remove existing combined sewer infrastructure and replace it with	Flood, Severe Storm	1, 5	Yes	No	City of Binghamton Highway and Engineer	\$5 million	Reduce or eliminate the pump station damages and reduce/eliminate the untreated sewage from entering the	One year	NY Rising, GOSR	High	LPR, SIP/ SP





Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		overwhelmed the regional sewage treatment system and caused the release of untreated or minimally treated effluent into the Susquehanna River.	separated storm and sanitary sewer systems. This project would be integrated with the Front Street Gateway project, a City-led effort to reconstruct Front Street, including new curbs, sidewalks, and landscaping, that is designed to identify Front Street as one of the gateways into Binghamton. Although the Front Street Gateway project is being funded by the U.S. Federal Highway Administration, the separation of the combined sewers is not eligible for this funding source. The City anticipates that this project will be bid in mid-2014, with construction starting and ending in 2015. As of April 2014, the project's design was 75% complete.							Susquehanna River				
C. Binghamton-5	Critical Facilities in Floodplain	The City's police, fire, EMS, and city hall (38	Separate the police and fire/EMS into individual buildings outside of the	Flood	1, 4, 5	Yes	No	City Floodplain Administrator with support	\$5 million for police	Allow for continuity of operations for the city	Within one year of receiving funding	HMGP	High	SIP/PP





Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		Hawley St) are located in the floodplain and susceptible to flood damage. These departments are all critical in the event of an emergency or natural hazard event.	floodplain. City government departments will remain in 38 Hawley St facility. Remove mechanicals and electrical equipment from basement to first floor or roof. Multiple vacant properties throughout the City that would be sufficient to relocate police and fire/EMS.					from facility operators	\$5 million for fire/EMS \$10 million for mechanical and electrical	government; police and fire/EMS will have their own facilities; reduce/eliminate flood damage of critical facilities in the city				
C. Binghamton-6	Generators for Fire Stations	Four of the City Fire Stations do not have back-up power to run the facilities in the event of a power outage. A generator is needed to power the facilities and allow continuity of operations for the fire station.	Engineering design and procurement of stationary generators to be install at the fire stations to provide and uninterrupted power supply.	All Hazards	1, 4	Yes	No	City Fire Department	\$11,000 per generator	Continuity of emergency services	1 year	HMPG, PDM, matching funds from City capital improvement plan.	High	SIP/PP
C. Binghamton-7	Exchange Street Housing Flood Resistance	During Tropical Storm Lee, vulnerable populations were displaced from their	This project will provide feasibility study, design, and construction services for resilient and	Flood, Severe Storm	1, 2, 5	No	No	Binghamton Housing Authority.	\$2 million	Protect building utilities, reduce or eliminate need for evacuations, reduce risk exposure of social services	8 months	NY Rising	High	SIP/PP





Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		homes for extended periods of time due to the failure of utility systems serving the buildings in which they resided. This negatively affected the residents themselves and the health and social service providers who assist them.	flood-resistant infrastructure within existing high-rise and multi-story housing structures (three publicly subsidized housing complexes and a women's homeless shelter). The project would relocate critical systems (e.g., standard power, emergency power, heating, ventilation and air conditioning, and potable water) above flood elevation.							provided to vulnerable populations				
C. Binghamton-8 (former 3)	Assist in the update of flood plain (FIRM) maps - Jurisdictional Level.	Existing maps are outdated.	Specific assistance can be provided in the area of attending map update meetings held by FEMA, NYDEC and USGS; and identification of flood-prone areas outside of currently designated areas	Flood	1, 2	No	None	City working with Broome County	<\$100	FIRMs will be up to date allowing for proper development and building decisions.	Waiting on FEMA approval for the FIRMs	Municipal General Fund, County General Fund	High	LPR, EAP/ PR
C. Binghamton-9 (former 5)	Initiate participation in the CRS	Flood insurance premiums will rise, and more properties will require insurance once new FIRMS are adopted. CRS offers an opportunity to	City will go through the process to enroll in the Community Rating System.	Flood	1, 2, 3, 5	No	None	Floodplain Manager; Town Engineer; Town Planner/ NYSDEC, NYSFSMA, FEMA / NYSOEM	\$15,000	City will be better protected from flooding and policy holders will see a reduction in NFIP premiums.	Within 1 year	City Budget	High	LPR/PR





Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		reduce premiums for City residents.											
C. Binghamton-10 (former 6)	Upgrade flood protection infrastructure in low elevation areas including increased drain lines and obtaining flood wall certification	Localized flooding in low elevation locations largely the result of infrastructure failure.	Flood	1, 5	No	None	City DPW, USACE	If entire floodwall needs to be rebuilt: \$10 million	Increased drainage and flood protection.	1-2 years	User Fees, HMGP	High	SIP/PP
C. Binghamton-11 (former 7)	Continue and enhance ongoing storm sewer and sanitary sewer separation to assist with peak storm water flows.	Storm and sanitary lines must be separated where possible to prevent overflow.	Flood	1, 4	No	None	City DPW	\$3 million per year	Reduction of risk of overflow.	Within 6 months but ongoing. 15 miles of improvement	User Fees	High	SIP/SP
C. Binghamton-12 (former 8)	Pursue funding to continue replacing interceptor/trunk sewer line from Conklin town line to Jackson St, focusing on the section between Duke St and Tompkins St, to assist in managing peak storm water flows.	Existing line is inadequate	Flood	1, 4	No	None	City DPW	\$3 million	Sewer line upgraded to handle peak Stormwater flows.	18 months	Multiple HMA Sources, HUD	High	SIP/SP
C. Binghamton-13 (former 9)	Pursue additional funding to continue and expand City's Stormwater Green Infrastructure 50/50 Fund, which will cover a portion of eligible installation costs on private property of green infrastructure that	Excessive amounts of impervious surface throughout the City contribute to localized flooding. A residential and commercial	Flood	1, 2, 3	No	None	City of Binghamton	\$500,000 - \$1 million	Stormwater fund will allow for increased installation of green infrastructure.	Within 6 months and then ongoing.	Chesapeake Bay Foundation, NYS EFC, NYS DEC, US EPA	High	LPR, SIP/SP





Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
	assists with stormwater management goals.	program was completed but ran out of funding.											
C. Binghamton-14 (former 10)	Conduct engineering feasibility study to explore mitigation efforts for State Street Neighborhood off Brandywine Highway	Storm sewer outfall on Ball Ave was prevented from any further discharge into Chenango River. The drainage area from the Town of Dickinson and the Town of Kirkwood aggravated the storm water damage along State Street.	Flood	1, 4	No	None	City; NYS DOT; County; Town of Dickinson; Village of Port Dickinson	\$200,000 for feasibility with a construction estimate of around \$3 million	Removal of highest risk properties and increased protection from flooding.	5 years	County	High	LPR/ SP, PR
C. Binghamton-15 (former 14)	Create official liaison between City and Army Corps to ensure regular maintenance and inspections on the local flood control structures that currently protect downtown Binghamton, the First Ward, the south side and east side neighborhoods.	Local flood control structures require maintenance	Winter storm	1, 3	No	None	City DPW	No cost	Flood control structures maintained.	Within 1 year	Local budget	High	LPR/PR





Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category	
C. Binghamton-16 (former 21)	Collaborate with JSTP on implementation of I/I offset program.	Joint sewage treatment plant requires flood protection	Flood wall will be improved	Flood	3	No	None	City/JC/JSTP	\$11 million	Flood wall protection JSTP will be improved	Ongoing	User Fees	High	LPR/PR
C. Binghamton-17 (former 28)	Install one-way valve in the floor drain of mechanics shop to prevent floor water from entering shop and damaging equipment and vehicles at Sullivan Fire Training Facility	Sullivan Fire Training Facility is prone to flooding.	Install one-way valve in the floor drain of mechanics shop	Flood	1, 4	No	None	City	\$1,000	Training facility will be protected from flooding.	Within 6 months	FEMA HMA, NYS	High	SIP/PP
C. Binghamton-18 (former 29)	Purchase two door dams to minimize flood water entry to F.D. classroom preventing damage to classroom contents at Sullivan Fire Training Facility	Sullivan Fire Training Facility is prone to flooding.	Purchase two door dams to minimize flood water entry to F.D. classroom preventing damage to classroom contents at Sullivan Fire Training Facility	Flood	1, 4	No	None	City	\$2,000	Training facility will be protected from flooding.	Within 6 months	FEMA HMA, NYS	High	SIP/PP
C. Binghamton-19 (former Flood-3)	Conduct and facilitate community and public education and outreach for residents and businesses.	Public must be made better aware of risks and resources.	Outreach to include, but not be limited to, the following to promote and effect natural hazard risk reduction: •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	Flood	1, 2, 3, 4	No	None	Municipality with support from Planning Partners, BCPD, NYSOEM, FEMA	\$15,000	Public will be better educated about flooding hazards.	Within 6 months	Municipal Budget, HMA programs with local or county match	High	EAP/PI





Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category	
		<p>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 how they can learn more and implement mitigation.</p> <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. <p>Work with neighborhood associations, civic and business groups to disseminate information on flood insurance and the availability of mitigation grant funding.</p>												
C. Binghamton-20 (former Flood-4)	Obtain and archive elevation certificates	No central database of elevation certificates	Obtain and archive elevation certificates	Flood	1, 4	No	None	NFIP Floodplain Administrator	\$35,000	Database available for planning purposes. CRS credit.	6 months – 1 year	Municipal budget	High	LPR/PR



Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
C. Binghamton-21 (former Severe Storm-1)	Enhance the County/community resilience to severe storms (incl. severe winter storms) by joining the NOAA "Storm Ready" program and supporting communities in joining the program.	The City currently does not participate in the program. 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.	Severe Storm	1, 2	Yes	None	Municipality with support from County, NYSOEM and FEMA	<\$1,000	Public better educated and notified of severe weather	6 months-1 year	Municipal budget	Medium	LPR, EAP/ES, PI
C. Binghamton-22 (former Earthquake-1)	Obtain training and conduct rapid screening assessment of critical facilities for earthquake vulnerability.	Staff need training	Train staff to conduct rapid screening assessment of critical facilities.	Earthquake	1, 4	Yes	None	Municipal Emergency Management, Fire, PD with support from County, NYSOEM	\$2,000	Staff better trained to handle earthquake events.	Within 2 years	Municipal Budget, State and County grant opportunities	Low	LPR/PR
C. Binghamton-23 (former Earthquake-2)	Develop a post-earthquake management plan to address building safety inspections, gas leaks, and other	There is no current plan.	Develop post-earthquake management plan to allow staff to safely conduct inspections.	Earthquake	1, 4	No	None	Municipal Emergency Management, Fire, PD with support from County, NYSOEM	\$2,000	Plan in place for coordinated response to earthquake events.	Within 2 years	Municipal Budget, State and County grant opportunities	Low	LPR/ES





Project Number	Project Name	Description of the Problem and Solution	Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
	elements to protect public safety.												
C. Binghamton-24	Protect the Telecommunications Tower to the 500-year flood level.	The facility is in the 100-year floodplain. The City does not have jurisdiction over the facility and cannot mitigate themselves	Flood	1, 3, 5	Yes ♦	None	City floodplain administrator, facilities manager	<\$100	Provide outreach to the property owner and informing them of potential flood damage and possible solutions	Within 6 months	Municipal budget	Medium	EAP/PI
C. Binghamton-25	Protect the City of Binghamton Engine 4 to the 500-year flood level.	The facility is in the 100-year floodplain.	Flood	1, 3, 5	Yes ♦	None	Fire Department	\$1 million	Reduce or eliminate flood damages	1-2 years	HMGP	High	SIP/PP
C. Binghamton-26	Protect East Middle School to the 500-year level.	The facility serves as a school and shelter and is in the 100-year floodplain. The City does not have jurisdiction over the facility and cannot mitigate themselves.	Flood	1, 3, 5	Yes ♦	None	City floodplain administrator, facilities manager	<\$100	Provide outreach to the property owner and informing them of potential flood damage and possible solutions	Within 6 months	Municipal budget	Medium	SIP, EAP/PP,PI
C. Binghamton-27	Protect Macarthur Elementary School to the 500-year level.	The facility serves as a school and a shelter and is in the 100-year floodplain.	Flood	1, 3, 5	Yes ♦	None	City floodplain administrator, facilities manager	<\$100	Provide outreach to the property owner and informing them of potential flood damage and	Within 6 months	Municipal budget	Medium	EAP/PI





Project Number	Project Name	Description of the Problem and Solution		Hazard(s) Mitigated	Goals Met	Critical Facility?	EHP Issues?	Lead and Support Agencies	Estimated Cost	Estimated Benefits	Estimated Timeline	Potential Funding Sources	Priority	Mitigation Category / CRS Category
		The school is not under City jurisdiction.								possible solutions				
C. Binghamton-28	Protect Susquehanna River Intake to the 500-year level.	The facility is in the 100-year floodplain.	The City will contact the facilities manager and discuss options for protecting the facility to the 500-year level	Flood	1, 3, 5	Yes ●	None	City floodplain administrator, facilities manager	\$500,000-\$1 million.	The intake will be protected to the 500-year flood level.	1 to 2 years	HMGP	High	SIP/PP
C. Binghamton-29	Protect Front Street Pump Station to the 500-year level.	The facility is in the 100-year floodplain.	Raise all electrical system controls above the 500-year flood level.	Flood	1, 3, 5	Yes ●	None	City floodplain administrator, facilities manager	\$500,000	The pump station will be protected to the 500-year flood level.	Within 3 years	HMGP	High	SIP/PP
C. Binghamton-30	Protect Pennsylvania Ave Pump Station to the 500-year level.	The facility is in the 100-year floodplain.	Raise all electrical system controls above the 500-year flood level.	Flood	1, 3, 5	Yes ●	None	City floodplain administrator, facilities manager	\$500,000	The pump station will be protected to the 500-year flood level.	Within 3 years	HMGP	High	SIP/PP
C. Binghamton-31	Update the NFIP Flood Damage Prevention Ordinance	The current flood damage prevention ordinance (1987) does not include NYS freeboard requirements.	Flood Damage Prevention Ordinance will be updated to	Flood	1	No	None	Floodplain Administrator	<\$100	Higher building standards and lower flood exposure	Within 6 months	Municipal budget	High	LPR/PR

Notes:

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

*Does this mitigation initiative reduce the effects of hazards on new and/or existing buildings and/or infrastructure? Not applicable (N/A) is inserted if this does not apply.

Acronyms and Abbreviations:

- CAV Community Assistance Visit
- CRS Community Rating System
- DPW Department of Public Works
- FEMA Federal Emergency Management Agency
- FPA Floodplain Administrator
- HMA Hazard Mitigation Assistance
- N/A Not applicable

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.

Benefits:

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





NFIP National Flood Insurance Program
OEM Office of Emergency Management

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 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 9.3-14. 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	Total	High / Medium / Low
C. Binghamton-1 (Former 19)	Repetitive Loss Properties in City	0	1	1	1	1	1	0	1	1	1	1	1	1	1	12	High
C. Binghamton-2 (Former 23)	Park Creek Channel and Chamberlain Creek Improvements	0	1	0	1	1	1	0	1	1	1	1	1	1	1	11	High
C. Binghamton-3 (Former 22)	Scatter Site Stormwater Infrastructure	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
C. Binghamton-4	Front Street Stormwater Separation Project	0	1	1	1	1	1	0	1	1	1	1	1	1	1	12	High
C. Binghamton-5	Critical Facilities in Floodplain	1	1	1	1	1	1	0	1	1	1	0	1	1	1	12	High
C. Binghamton-6	Generators for Fire Stations:	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
C. Binghamton-7	Exchange Street Housing Flood Resistance	1	1	1	1	1	1	1	1	1	1		1	1	1	14	High
C. Binghamton-8 (former 3)	Assist in the update of flood plain (FIRM) maps - Jurisdictional Level.	0	1	1	1	1	1	1	1	1	0	0	0	1	1	10	High
C. Binghamton-9 (former 5)	Initiate participation in the CRS	1	1	1	1	1	1	1	1	1	1	1	0	1	1	13	High
C. Binghamton-10 (former 6)	Upgrade flood protection infrastructure in low elevation areas including increased drain lines and obtaining flood wall certification	1	1	0	0	1	1	1	1	1	1	1	1	1	1	12	High
C. Binghamton-11 (former 7)	Continue and enhance ongoing storm sewer and sanitary sewer separation to assist with peak storm water flows.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High





Table 9.3-14. 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	Total	High / Medium / Low
C. Binghamton-12 (former 8)	Pursue funding to continue replacing interceptor/trunk sewer line from Conklin town line to Jackson St, focusing on the section between Duke St and Tompkins St, to assist in managing peak storm water flows.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
C. Binghamton-13 (former 9)	Pursue additional funding to continue and expand City's Stormwater Green Infrastructure 50/50 Fund, which will cover a portion of eligible installation costs on private property of green infrastructure that assists with stormwater management goals.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
C. Binghamton-14 (former 10)	Conduct engineering feasibility study to explore mitigation efforts for State Street Neighborhood off Brandywine Highway	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
C. Binghamton-15 (former 14)	Create official liaison between City and Army Corps to ensure regular maintenance and inspections on the local flood control structures that currently protect downtown	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High



Table 9.3-14. 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	Total	High / Medium / Low
	Binghamton, the First Ward, the south side and east side neighborhoods.																
C. Binghamton-16 (former 21)	Collaborate with JSTP on implementation of I/I offset program.	1	1	1	1	1	1	0	1	1	1	1	1	1	1	13	High
C. Binghamton-17 (former 28)	Install one-way valve in the floor drain of mechanics shop to prevent floor water from entering shop and damaging equipment and vehicles at Sullivan Fire Training Facility	0	1	0	1	1	1	0	1	1	1	1	1	1	1	11	High
C. Binghamton-18 (former 29)	Purchase two door dams to minimize flood water entry to F.D. classroom preventing damage to classroom contents at Sullivan Fire Training Facility	0	1	0	1	1	1	0	1	1	1	1	1	1	1	11	High
C. Binghamton-19 (former Flood-3)	Conduct and facilitate community and public education and outreach for residents and businesses.	1	1	1	1	1	1	1	1	1	1	1	1	1	1	14	High
C. Binghamton-20 (former Flood-4)	Obtain and archive elevation certificates	0	1	1	1	1	1	1	1	1	1	1	1	1	1	13	High
C. Binghamton-21 (former Severe Storm-1)	Enhance the County/community resilience to severe storms (incl. severe winter storms) by joining the NOAA “Storm Ready” program and supporting	1	0	0	1	1	1	0	1	1	0	1	0	0	1	8	Medium



Table 9.3-14. 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	Total	High / Medium / Low
	communities in joining the program.																
C. Binghamton-22 (former Earthquake-1)	Obtain training and conduct rapid screening assessment of critical facilities for earthquake vulnerability.	0	0	1	0	1	1	0	1	1	0	0	0	0	0	4	Low
C. Binghamton-23 (former Earthquake-2)	Develop a post-earthquake management plan to address building safety inspections, gas leaks, and other elements to protect public safety.	0	0	1	0	1	1	0	1	1	0	0	0	0	0	4	Low
C. Binghamton-24	Protect the Telecommunications Tower to the 500-year flood level.	0	1	1	0	1	0	1	1	1	0	0	1	1	0	8	Medium
C. Binghamton-25	Protect the City of Binghamton Engine 4 to the 500-year flood level.	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	High
C. Binghamton-26	Protect East Middle School to the 500-year level.	0	1	1	0	1	0	1	1	1	0	0	1	1	0	8	Medium
C. Binghamton-27	Protect MacArthur Elementary School to the 500-year level.	0	1	1	0	1	0	1	1	1	0	0	1	1	0	8	Medium
C. Binghamton-28	Protect Susquehanna River Intake to the 500-year level.	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	High
C. Binghamton-29	Protect Front Street Pump Station to the 500-year level.	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	High
C. Binghamton-30	Protect Penn Ave Pump Station to the 500-year level.	1	1	0	1	1	1	0	1	1	1	0	0	1	1	10	High



Table 9.3-14. 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	Total	High / Medium / Low
C. Binghamton-31	Update the NFIP Flood Damage Prevention Ordinance	0	1	1	1	1	1	1	1	1	1	0	1	1	1	12	High

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



9.3.7 Future Needs To Better Understand Risk/Vulnerability

None at this time.

9.3.8 Staff and Local Stakeholder Involvement in Annex Development

The City of Binghamton 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 City departments, including: the Planning Department and Engineering Department. The Planning Director represented the community on the Broome County Hazard Mitigation Plan Planning Partnership, Steering Committee, 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.

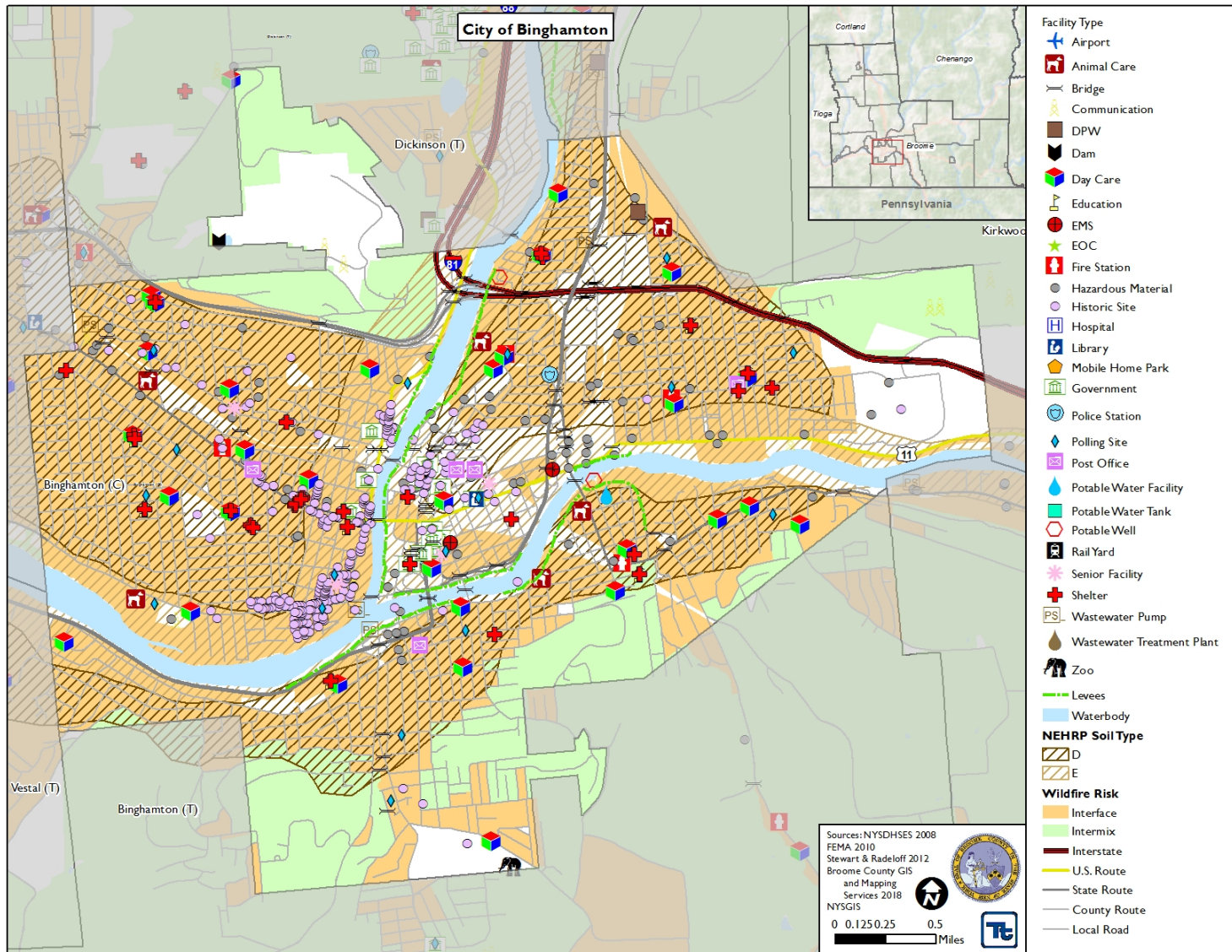
Additional documentation on the municipality's planning process through Planning Partnership meetings is included in Section 3 (Planning Process) and Appendix C (Meetings).

9.3.9 Hazard Area Extent and Location

Hazard area extent and location maps have been generated for the City of Binghamton 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 City of Binghamton has significant exposure. A map of the City of Binghamton 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 9.3-1. City of Binghamton Hazard Area Extent and Location Map 1





Action Worksheet			
Project Name:	Repetitive Loss Properties in City		
Project Number:	C. Binghamton-1		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The City of Binghamton has a total of 42 homes that filed flood damage claims to the extent that they qualify as repetitive loss structures under the NFIP. These properties are located in the vicinity of the Susquehanna River and Chenango River. Causes of flooding in these areas are associated with 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:	Continue working with homeowners to acquire or elevate their homes.		
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:	500-year	Estimated Benefits (losses avoided):	Homes no longer flooding and becoming damaged
Useful Life:	100+ years	Goals Met:	1, 2, 5
Estimated Cost:	\$8.4 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within 1 year
Estimated Time Required for Project Implementation:	Long-Term (more than 5 years)	Potential Funding Sources:	FEMA HMGP, FEMA FMA
Responsible Organization:	City Floodplain Administrator working with property owners	Local Planning Mechanisms to be Used in Implementation if any:	Structure and Infrastructure Project
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	
	Elevate homes	\$8.4 million	No interest in elevating homes
	Wet floodproof homes	N/A	Floodproofing not an option for repetitive loss 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 Properties in City	
Project Number:	C. Binghamton-1	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Repetitive loss properties will be elevated above likely flood elevations or removed from the hazard zone.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to undertake the project.
Fiscal	0	Project will require federal funding
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	City Floodplain Administrator
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Park Creek Channel and Chamberlain Creek Improvements		
Project Number:	C. Binghamton-2		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	<p>Park Creek is lined with concrete from Cross Street to Vestal Avenue and generally parallels Park Avenue. The City of Binghamton is responsible for the maintenance and repair of this concrete channel. The City has performed work in the past to maintain the channel and has made some repairs to the concrete to keep it serviceable. In addition, two of the bridges over the channel have been replaced. Recent inspections have revealed that flooding during Tropical Storm Lee caused damage to the concrete lining that had not been evident before. The City has concluded that if this concrete lining fails, it would block the channel and cause flooding of nearby residential neighborhoods and Binghamton General Hospital.</p> <p>Chamberlain Creek flows from its headwaters in the Town of Binghamton south under Route 81/17 and into the City of Binghamton. It generally flows from north to south through residential areas and crosses under Robinson Street in a culvert. Both the creek channel and culvert were functional before the 2011 flood; however, the flooding caused damage in the creek, including erosion of its banks near some residences. This erosion was caused by the inadequate capacity of the culvert on Robinson Street. The flood waters backed up behind the culvert and eventually overflowed the culvert onto Robinson Street. This overflow damaged a nearby commercial building and the downstream channel.</p>		
Action or Project Intended for Implementation			
Description of the Solution:	<p>Chamberlain Creek - Increase culverts along Court Street, I-86, Robinson Street, and Woodcock Street.</p> <p>Park Creek - increase culverts along Cross Street, Vestal Avenue, Park Avenue, Morris Street, and Hotchkiss Street. In addition, extend the concrete channel by increasing the height or adding additional earthen berms.</p> <p>Install a storage/retaining pond upstream from both creeks. One would be located by Chamberlain Creek and Park Creek.</p> <p>In order to expand the systems, the City will need to acquire residential and commercial properties.</p>		
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:	100-year flood	Estimated Benefits (losses avoided):	Decrease risk of overflow of channels and culverts; reduce flood risk to residential and commercial properties; and reduce flood risk to critical facilities including Binghamton General Hospital
Useful Life:	50 years	Goals Met:	1, 5
Estimated Cost:	\$10 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	Medium	Desired Timeframe for Implementation:	Within one year of receiving of funding
Estimated Time Required for Project Implementation:	10 years	Potential Funding Sources:	FEMA FMA and HMGP



Responsible Organization:	City of Binghamton Highway and Engineer	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Relocate homes along the channels of the creeks	\$10 million	Not feasible; relocating homes will not fix the overflow problems
	Re-channel creeks	\$4 million	While it would reduce the flow, it will still lead to repetitive losses of homes and businesses
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Park Creek Channel and Chamberlain Creek Improvements	
Project Number:	C. Binghamton-2	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Restoring the Park Creek Channel and Chamberlain Creek will result in greater carrying capacity and lower chance of stream bank failure that would result in flooding of neighboring properties.
Cost-Effectiveness	0	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to undertake the project.
Fiscal	0	Project will require federal funding assistance
Environmental	1	Project will improve Park Creek and Chamberlain Creek damages
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	City of Binghamton Highway and Engineer
Other Community Objectives	1	
Total	11	
Priority (High/Med/Low)	High	

Action Worksheet





Project Name:	Scatter Sites Stormwater Infrastructure		
Project Number:	C. Binghamton-3		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	During Tropical Storm Lee, the extent of the flooding overwhelmed and inundated stormwater management infrastructure that had flooded in the past. Electrical equipment required for continuous operation of the system was flooded and damaged. The Emma Street and Glenwood Avenue pump stations, which are located at a railroad underpass, proved to be extremely vulnerable to localized flooding. This project would provide design and construction services to introduce flood resistance and resiliency for the power supply, operational equipment, primary structure, and physical access at the Rush Avenue, Moeller Street, Emma Street, and Glenwood Avenue pump stations.		
Action or Project Intended for Implementation			
Description of the Solution:	Rush Avenue and Glenwood Avenue – projects are moving forward through funding from NY Rising Moeller Street – currently in a study phase; once study is complete, City will identify best project and complete project Emma Street – installation of pump station or upgrade of existing system		
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:	500-year	Estimated Benefits (losses avoided):	Reduce flooding of roadways and allow for emergency vehicle access to these areas of the city
Useful Life:	10 years	Goals Met:	1, 5
Estimated Cost:	\$2 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within one year of receiving funds
Estimated Time Required for Project Implementation:	One year	Potential Funding Sources:	FEMA HMGP, FEMA FMA
Responsible Organization:	City of Binghamton Highway and Engineer	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	Remove Stormwater pumps and create green space.	\$25,000 to remove each pump.	Stormwater flooding greatly increased.
	Relocate Stormwater pumps	N/A	Not feasible as pumps must be located in current locations.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Scatter Sites Stormwater Infrastructure	
Project Number:	C. Binghamton-3	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	
Property Protection	1	Project will reduce flooding impacts on properties
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to complete the project
Fiscal	0	The project will require grant funding
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	1	
Timeline	1	Project would take one year
Agency Champion	1	City of Binghamton Highway and Engineer
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Front Street Stormwater Separation Project		
Project Number:	C. Binghamton-4		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood, Severe Storm		
Description of the Problem:	During storm events, the amount of stormwater entering the City's combined system has overwhelmed the regional sewage treatment system and caused the release of untreated or minimally treated effluent into the Susquehanna River.		
Action or Project Intended for Implementation			
Description of the Solution:	Prospect Street to North McDonald Avenue is currently being upgraded. Areas just south of Main Street still need to be upgraded. These are areas that contribute to the combined systems. Protect the existing pump station at the end of the Front Street to the 500-year flood. This would include floodproofing, install structural flood wall, or elevating electrical equipment above the BFE.		
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:	500-year	Estimated Benefits (losses avoided):	Reduce or eliminate the pump station damages and reduce/eliminate the untreated sewage from entering the Susquehanna River
Useful Life:	50 years	Goals Met:	1, 5
Estimated Cost:	\$5 million	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	One year
Estimated Time Required for Project Implementation:	One year	Potential Funding Sources:	GOSR, FEMA HMGP
Responsible Organization:	City of Binghamton Highway and Engineer	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Current problem continues
	The municipalities that feed into this system will install their wastewater and stormwater treatment systems	\$20 million	Costly solution, not an immediate fix, municipalities do not have resources to complete or maintain this project
	Install rain gardens throughout the City to absorb Stormwater and reduce volume in combined system	\$5,000 per rain garden	Limited decrease in Stormwater volumes.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			



Update Evaluation of the Problem and/or Solution:	
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Action Worksheet		
Project Name:	Front Street Stormwater Separation Project	
Project Number:	C. Binghamton-4	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	0	
Property Protection	1	Project will reduce Stormwater flooding, protecting properties.
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to complete the project
Fiscal	0	
Environmental	1	Separation of sewer and Stormwater is environmentally beneficial and helps prevent overflow.
Social	1	
Administrative	1	
Multi-Hazard	1	Flood, Severe Storm
Timeline	1	
Agency Champion	1	City of Binghamton Highway and Engineer
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



Action Worksheet			
Project Name:	Critical Facilities in Floodplain		
Project Number:	C. Binghamton-5		
Risk / Vulnerability			
Hazard(s) of Concern:	Flood		
Description of the Problem:	The City's police, fire, EMS, and city hall (38 Hawley St) are located in the floodplain and susceptible to flood damage. These departments are all critical in the event of an emergency or natural hazard event. If they are not functioning, the life and safety of city's residents are at risk. It is essential to protect these structures from flood damage as they provide services to the community in the time of need.		
Action or Project Intended for Implementation			
Description of the Solution:	Separate the police and fire/EMS into individual buildings outside of the floodplain. City government departments will remain in 38 Hawley St facility. Remove mechanicals and electrical equipment from basement to first floor or roof. Multiple vacant properties throughout the City that would be sufficient to relocate police and fire/EMS.		
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 checked="" type="checkbox"/>	No <input 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):	Allow for continuity of operations for the city government; police and fire/EMS will have their own facilities; reduce/eliminate flood damage of critical facilities in the city
Useful Life:	50+ years	Goals Met:	1, 4, 5
Estimated Cost:	\$5 million for police \$5 million for fire/EMS \$10 million for mechanical and electrical	Mitigation Action Type:	Structure and Infrastructure Projects
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	Within one year of receiving funding
Estimated Time Required for Project Implementation:	5 years	Potential Funding Sources:	HMGP
Responsible Organization:	City Floodplain Administrator with support from facility operators	Local Planning Mechanisms to be Used in Implementation if any:	
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	
	Install flood wall around complex	\$5 million	While it would protect the building, police and fire/EMS are still located together and would not be able to rapidly respond to emergencies
	Build new city government complex	\$20 million	Would need to find a new area to construct the complex; identifying alternative usage existing space that is still flood prone; County and State offices still vulnerable to flood damages
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			





Action Worksheet		
Project Name:	Critical Facilities in Floodplain	
Project Number:	C. Binghamton-5	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Critical functions are maintained
Property Protection	1	Critical facilities are protected from flood damage
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has jurisdiction over its own critical facilities and can communicate with facility managers of non-City owned facilities.
Fiscal	0	The project will require outside funding assistance from grants.
Environmental	1	
Social	1	
Administrative	1	
Multi-Hazard	0	Flood
Timeline	1	
Agency Champion	1	City Floodplain Administrator
Other Community Objectives	1	
Total	12	
Priority (High/Med/Low)	High	



City of Binghamton Action Worksheet			
Project Name:	Generators for Fire Stations		
Project Number:	C. Binghamton-6		
Risk / Vulnerability			
Hazard(s) of Concern:	All hazards		
Description of the Problem:	<i>Four of the City Fire Stations do not have back-up power to run the facilities in the event of a power outage. A generator is needed to power the facilities and allow continuity of operations for the fire station.</i>		
Action or Project Intended for Implementation			
Description of the Solution:	Engineering design and procurement of stationary generators to be installed at the fire stations to provide and uninterrupted power supply.		
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:	Not applicable.	Estimated Benefits (losses avoided):	Continuity of emergency services.
Useful Life:	20 years	Goals Met:	1, 4
Estimated Cost:	\$11,000 per generator	Mitigation Action Type:	Structure and Infrastructure Project
Plan for Implementation			
Prioritization:	High	Desired Timeframe for Implementation:	1 year
Estimated Time Required for Project Implementation:	1 year	Potential Funding Sources:	HMPG, PDM, matching funds from City capital improvement plan.
Responsible Organization:	City Fire Department	Local Planning Mechanisms to be Used in Implementation if any:	Hazard mitigation plan, Capital Improvement Plan.
Three Alternatives Considered (including No Action)			
Alternatives:	Action	Estimated Cost	Evaluation
	No Action	\$0	Continued emergency and municipal services interruption.
	Mobile Generator-trailer mounted	\$15,000	Need quick wiring connection, may be difficult to deploy during emergency and unreliable fuel supply, not automatic start
	Install solar panels	\$50,000	Only functional if fair weather.
Progress Report (for plan maintenance)			
Date of Status Report:			
Report of Progress:			
Update Evaluation of the Problem and/or Solution:			



Action Worksheet		
Project Name:	Generators for Fire Stations	
Project Number:	C. Binghamton-6	
Criteria	Numeric Rank (-1, 0, 1)	Provide brief rationale for numeric rank when appropriate
Life Safety	1	Critical functions will be maintained, protecting life
Property Protection	1	Fire departments will remain functional and able to protect property
Cost-Effectiveness	1	
Technical	1	
Political	1	
Legal	1	The City has the legal authority to undertake the project
Fiscal	0	
Environmental	1	There will be no environmental impacts
Social	1	
Administrative	1	
Multi-Hazard	1	All hazards
Timeline	1	
Agency Champion	1	City Fire Department
Other Community Objectives	1	
Total	13	
Priority (High/Med/Low)	High	