

City of Bethlehem, Northampton County Annex

Hazard Mitigation Plan Points-of-Contact

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Municipal Profile

Bethlehem City is unique in that it is located within both Lehigh and Northampton Counties. It has a total population of 74,982 (2010 Census), making it the second most populous of the Lehigh Valley's three cities. Bethlehem City is located in the south-central portion of the Lehigh Valley, bridging Lehigh County's east-central region with Northampton County's southwest. The city has an area of 19.4 square miles. The City is bordered by Bethlehem Township to the east and north; Hanover Township to the north; Hanover Township (Lehigh County) to the northwest; the City of Allentown (Lehigh County) to the west; Fountain Hill Borough (Lehigh County) and Salisbury Township (Lehigh County) to the southwest; Hellertown Borough to the south; Lower Saucon Township to the south and east; and Freemansburg Borough to the east.

The Lehigh River runs east-west through the middle of the city. In the area of the Northampton County section of the city north of the Lehigh River, the Monocacy Creek flows south from the city's northern border and forms the western border of the northern section of the city until just north of Schoenersville Road. In the area of the Northampton County section of the city south of the Lehigh River, the Saucon Creek flows northward from Lower Saucon Township, briefly forming the southeast border of the city with Hellertown Borough. There are no major waters through the Lehigh County section of the city.

Several major roadways serve Bethlehem City. Interstate 78 travels east-west through the southern section of the city. US Route 22 travels east-west through and adjoining the northern section of the city. Other major east-west routes include Easton Avenue through the center of the city, Freemansburg Avenue just south of and parallel to Easton Avenue, Macada Road in the north, Broad Street just north of the Lehigh River, and 4th Street just south of the Lehigh River. PA Route 412 travels north from Hellertown into the section of the city south of the Lehigh River, and turns west onto E. 4th Street, Daley Avenue, and 3rd Street, then south on Brodhead Avenue and southeast on Broadway, before terminating at PA Route 378. PA Route 378 comes north into the city from Lower Saucon Township, crosses the Lehigh River, and meanders north to US Route 22 in the northwest section of the city, where it terminates with its interchange to US Route 22. Other major north-south roadways include 8th Avenue in the southwest section of the city, and Center Street and Linden Street in the central section. Lehigh Valley International Airport, the city's primary airport, is located just to the northwest of the city, in Hanover Township.

Municipal Participation

1. Identify municipal stakeholders to be involved in the planning process such as, floodplain administrator, public works, emergency management, engineers, planners, etc., and include their specific role in the process.

Craig Peiffer, Floodplain Manager
Role: Floodplain Administrator

Mike Al-Kahl, Director of Public Works
Role: Public Works

Bob Novatnack, Director of Emergency Management
Role: EMA

Greg Cryde, Radio Shop Supervisor
Role: Radio / Technology

Ed Boscola, Director of Water and Sewer
Role: Water

Kristen Wenrich, Director of Health
Role: Health

2. Identify community stakeholders such as; neighborhood groups, religious groups, major employers / businesses, etc., that will be informed and / or involved in the planning process and describe how they will be involved.

Wind Creek Casino, Lehigh University, neighborhoods and churches

3. Describe how the public **will be engaged** in the current planning process examples, newsletters, social media, etc., **and how they were engaged** since the 2013 Hazard Mitigation Plan.

Email
Newsletters
Social Media

Compliance with the National Flood Insurance Program (NFIP)

Topic	Identify source of information, if different from the one listed.	Additional Comments
1. Staff Resources		
Is the Community Floodplain Administrator (FPA) or NFIP Coordinator certified?	Community FPA	No
Is floodplain management an auxiliary function?	Community FPA	Yes
Provide an explanation of NFIP administration services (e.g., permit review, GGIS, education or outreach, inspections, engineering capability)	Community FPA	Permit Review, GIS, inspections
What are the barriers to running an effective NFIP program in the community, if any?	Community FPA	Funds for community education.

Compliance with the National Flood Insurance Program (NFIP) – *continued*

Topic	Identify source of information, if different from the one listed.	Additional Comments
2. Compliance History		
Is the community in good standing with the NFIP?	State NFIP Coordinator, FEMA NFIP Specialist, or community records	Yes
Are there any outstanding compliance issues (i.e., current violations)?		No
When was the most recent Community Assistance Visits (CAV) or Community Assistance Contact (CAC)?		2016
Is a CAV or CAC scheduled or needed?		No
3. Regulation		
When did the community enter the NFIP?	NFIP Community Status Book	??
Are the Flood Insurance Rate Maps (FIRMs) digital or paper? How are residents assisted with mapping?	Community FPA	Both
Do floodplain regulations meet or exceed FEMA or State minimum requirements? If so, in what ways?	Community FPA	Exceed
Describe the permitting process	Community FPA, State, FEMA NFIP	Application completion, engineering review, inspections.
4. Insurance Summary		
How many NFIP policies are in the community? What is the total premium and coverage?	State NFIP Coordinator or FEMA NFIP Specialist	?
How many claims have been paid in the community? What is the total amount of paid claims? How many substantial damage claims have there been?	FEMA NFIP or Insurance Specialist	Unknown
How many structures are exposed to flood risk within the community?	Community FPA or GIS Analyst	Unknown
Describe any areas of flood risk with limited NFIP policy coverage	Community FPA or FEMA Insurance Specialist	None
5. Community Rating System (CRS)		
Does the community participate in CRS?	Community FPA, State, or FEMA NFIP	No
If so, what is the community's CRS Class Ranking?	Flood Insurance Manual (http://www.fema.gov/floodinsurancemanual.gov)	N/A
What categories and activities provide CRS points and how can the Class be improved?		N/A
Does the plan include CRS planning requirements?	Community FPA, FEMA CRS Coordinator, or ISO representative	N/A

Community Assets

Community assets are defined to include anything that is important to the character as well as the function of a community, and can be described in four categories, they are; people, economy, natural environment and built environment. Please identify the community assets and location under each category.

1. People

- Concentrations of vulnerable populations such as the elderly, physically or mentally disabled, non-English speaking, and the medically or chemically dependent.
 - Students (K through College)
 - Assisted Living Facilities
 - Group Homes
 - Three Bethlehem Housing Authority (BHA) Communities
- Types of visiting populations where large numbers of people are concentrated such as visitors for special events and students.
 - Wind Creek Casino guests
 - College visitors
 - Artsquest
 - Historic Bethlehem

2. Economy

Major employers, primary economic sectors such as agriculture and commercial centers where losses would have a severe impact on the community.

LVIP PARK, Wind Creek Casino, Just Born, Lehigh University, LVHC Muhlenberg

3. Natural Environment

Those areas / features that can provide protective functions that reduce the magnitude of hazard events such as, wetlands or riparian areas, and other environmental features important to protect.

None

Community Assets – *continued*

4. Built Environment

- Existing structures such as, concentrations of buildings that may be more vulnerable to hazards based on location, age, construction type and / or condition of use.

 - Historic Moravian Industrial Quarter
 - Older residential neighborhoods
 - South Bethlehem

- Infrastructure systems such as water and wastewater facilities, power utilities, transportation systems, communication systems, energy pipelines and storage.

Wastewater Treatment Plant	SCADA System
Water Treatment Facilities	Radio System
Railroad Network	Water Authority properties outside of the city

- High potential loss facilities such as, dams, locations that house hazardous materials, military and / or civilian defense installations.

 - Several facilities throughout the city with hazmat

- Critical facilities such as, hospitals, medical facilities, police and fires stations, emergency operations centers, shelters, schools and airports / heliports.

 - 1 major hospital (Lehigh Valley Health Network – Muhlenberg)
 - Police, Fire, EMS facilities
 - Schools
 - Numerous doctors’ offices throughout the city affiliated with Lehigh Valley Health Network and St. Luke’s Health Network
 - Radio facilities

- Cultural / historical resources such as, museums, parks, stadiums, etc.

 - Smithsonian Museum of Industrial History
 - Historic Moravian area
 - Artsquest Steelstacks Campus
 - Wind Creek Casino & Resort

Capability Assessment

Capability	✓ Regulatory ✓ Tools ✓ Programs	Status			Department / Agency Responsible	Effect on Hazard Loss Reduction: -Supports -Neutral -Hinders	Change since 2013 Plan? + Positive - Negative	Has the 2013 Plan been integrated into the Regulatory Tool/Program ? If so, how?	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		In Place	Date Adopted or Updated	Under Development						
1. Planning & Regulatory	Comprehensive Plan	X								
	Capital Improvement Plan	X								
	Economic Development Plan	X								
	Continuity of Operations Plan			X	Emergency Management Agency	S	+		Create and adopt plan.	
	Stormwater Management Plan / Ordinance	X								
	Open Space Management Plan (or Parks/Rec., Greenways Plan)	X								
	Natural Resource Protection Plan			X			+		Create and adopt plan.	
	Transportation Plan			X	Emergency Management Agency	S	+		Create and adopt plan.	
	Historic Preservation Plan	X								
	Floodplain Management Plan	X								
	Farmland Preservation									
	Evacuation Plan			X	Emergency Management Agency	S	+		Create and adopt plan.	
Disaster Recovery Plan			X	Emergency Management Agency	S	+		Create and adopt plan.		

Capability Assessment – continued

Capability	✓ Regulatory ✓ Tools ✓ Programs	Status			Department / Agency Responsible	Effect on Hazard Loss Reduction: -Supports -Neutral -Hinders	Change since 2013 Plan? + Positive - Negative	Has the 2013 Plan been integrated into the Regulatory Tool/Program ? If so, how?	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		In Place	Date Adopted or Updated	Under Development						
1. Planning & Regulatory	Hazard Mitigation Plan	X	11/2018		Emergency Management Agency	S	+		Create and adopt plan.	
	Emergency Operations Plan	X	1/2019							
	Zoning Regulations	X								
	Floodplain Regulations	X								
	NFIP Participation	X								
	Building Code	X								
	Fire Code	X								
	Other									

Capability Assessment – continued

Capability	✓ Staff ✓ Personnel ✓ Resources			Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
		Yes	No				
2. Administrative & Technology	Planners (with land use / land development knowledge)	X		Community & Economic Development	No	Additional Training	
	Planners or engineers (with natural and / or human-caused hazards knowledge)	X		Engineering	No	Additional Training	
	Engineers or professionals trained in building and / or infrastructure construction practices (including building inspectors)	X		Engineering	No	Additional Training	
	Emergency Manager	X		Emergency Management Agency	No	Additional Training	
	Floodplain administrator / manager	X		Community & Economic Development	No	Additional Training	
	Land surveyors	X		Community & Economic Development	No	Additional Training	
	Staff familiar with the hazards of the community	X		All Departments	No	Additional Training	
	Personnel skilled in Geographical Information Systems (GIS) and / or FEMA's HAZUS program	X		Community & Economic Development, Engineering	No	Additional Training	
	Grant writers or fiscal staff to handle large / complex grants	X		Various Departments	No	Additional Training	
	Other						

Capability Assessment – continued

Capability		Yes	No	Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
3. Financial Resources	Capital improvement programming	X					
	Community Development Block Grants (CDBG)	X		Community & Economic Development			
	Special purposes taxes	X		Financial Services			
	Gas / Electricity utility fees	X		Financial Services			
	Water / Sewer fees	X		Financial Services			
	Stormwater utility fees	X		Financial Services			
	Development impact fees	X		Financial Services			
	General obligation, revenue, and / or special tax bonds	X		Financial Services			
	Partnering arrangements or intergovernmental agreements	X		Legal Bureau			
	Other						

Capability Assessment – continued

Capability	✓ Program ✓ Organization	Yes	No	Department / Agency	Change since 2013 Plan? + Positive - Negative	How can these capabilities be expanded and improved to reduce risk?	Additional Comments
4. Education & Outreach	Firewise Communities Certification	X		Fire Department, HazMat and Bomb Squad			
	StormReady Certification		X		No	Obtain StormReady certification	
	Natural disaster or safety-related school programs	X		School District, Fire, Police and Health Depts.	No		
	Ongoing public education or information programs such as, responsible water use, fire safety, household preparedness, and environmental education.	X		Fire, Health and Police Depts.	No		
	Public-private partnership initiatives addressing disaster related issues.	X		Multiple	No	Continue to engage with businesses	
	Local citizen groups or non-profit organizations focused on environmental protection, emergency preparedness, access and functional needs populations, etc.	X		Multiple	No	Continue to engage with community groups.	
	Other						

Capability		Degree of Capability			Change since the 2013 Hazard Mitigation Plan? If so, how?	Additional Comments
		Limited	Moderate	High		
5. Self – Assessment	Planning and Regulatory			X		
	Administrative and Technical			X		
	Financial			X		
	Education and Outreach			X		

Known or Anticipated Future Development / Redevelopment

Development / Property Name	Type of Development	Number of Structures	Location	Known Hazard Zone	Description / Status
Former Bethlehem Steel Property	Commercial	Many	I-78 area		
Casino Expansion	Commercial		77 Wind Creek Boulevard		Under Construction
Royal Farms Market / Gas Station	Commercial		2355 Avenue A		Plans Submitted
Wawa Gas Station / Convenience Store	Commercial		774-784 Hellertown Road		Plans Approved
Autozone	Commercial		505 Wyandotte Street		Plans Approved
Wilbur Mansion Hotel & Event Center	Commercial		202 Wyandotte Street		Under Construction
Westgate Mall Public Improvements	Commercial				Plans Approved
2011 City Line Road Hotel	Commercial				Plans Approved
Martin Tower	Mixed Use		8 th Avenue		
Former Bethlehem Steel Blast Furnaces	Mixed Use	Many	1 st & 2 nd Streets		Brownfield
Former National Guard Armory	Residential	1	2 nd Avenue		Under Construction
Overlook at Saucon Creek	Residential				Under Construction / Portions Complete
Park View Commons	Residential				Under Construction / Portions Complete
Riverview Heights – Edward Street	Residential				Under Construction
Saucon Square Condominiums	Residential				Under Construction / Portions Complete
Silk Mill Apartments (Phase 1 & 2)	Residential				Phase 1 Complete / Phase 2 Plans Pending
Stever Mills on Creek Road	Residential				Under Construction / Portions Complete
Villas at Saucon Valley	Residential				Under Construction / Portions Complete
802-804 Atlantic Street Subdivision	Residential				Plans Approved
565 Lehigh Street Apartments	Residential				Under Construction

Known or Anticipated Future Development / Redevelopment – *continued*

Development / Property Name	Type of Development	Number of Structures	Location	Known Hazard Zone	Description / Status
2321 Linford St. Apartments	Residential				Under Construction
1535 Butztown Road Townhouses	Residential				Under Construction
Selfridge & Jackson Streets Townhouses	Residential				Plans Submitted
Church Apartments	Residential		938 E. 4 th Street		Under Construction
10-16 W. Goepp Street Apartments	Residential				Under Renovation
Cottages @ Monocacy Manor	Residential / Senior				Under Construction / Portions Complete
Turnberry Mews	Residential / Senior				Under Construction / Portions Complete
Moravian Village Memory Care Facility	Institutional				Plans Approved
NMIH	Institutional				Under Construction / Portions Complete
Terrace Homes at Northwood Gardens (Kirkland Village)	Institutional				Construction Complete 2021
Lehigh University – Rauch Addition	Institutional		461 Webster Street		Under Construction
Lehigh University – Bridge West North	Institutional				Under Construction
Lehigh HST	Institutional		124 E. Morton Street		Under Construction
Terrace Homes at Northwood Gardens	Institutional		2365 Madison Avenue		Under Construction / Portions Completed
Greenway Commons Ph. 1,2,3	Mixed Use	3	422-630 E. 3 rd St.		Under Construction / Phase 1 Complete
James Best Residential – Taylor Court	Mixed Use				Under Construction
Polk Street Parking Garage	Mixed Use	1			Plans Approved
3 rd & New Street Office Building	Mixed Use	1			Under Construction / Portions Complete
267 Cherokee Street (Wilbur Mansion)	Mixed Use				Under Construction
1338 E. Fourth Street	Mixed Use	1			Under Construction
Benner	Mixed Use		548 N. New Street		Plans Approved

Known or Anticipated Future Development / Redevelopment – *continued*

Development / Property Name	Type of Development	Number of Structures	Location	Known Hazard Zone	Description / Status
Laros Apartments	Mixed Use		601-699 E. Broad Street		Under Renovation
Pektor Mixed Use	Mixed Use		404 E. 3 rd Street		Plans Submitted
Skyline West	Mixed Use		143 W. Broad Street		Plans Submitted
S. New Street Apartments	Mixed Use				Plans Submitted
Third & Taylor	Mixed Use				Plans Submitted
4 th & Vine	Mixed Use				Plans Submitted
Boyd	Mixed Use				Plans Submitted
250 E. Broad Street	Mixed Use				Plans Submitted
Lofts at Linden	Mixed Use		2950-70 Linden Street		Plans Approved
14-36 W. 3 rd Street	Mixed Use				Plans Submitted
LVIP VII LPT Warehouse (Lots 3,4,5)	Industrial		10 Emery Street		Under Construction / Portions Complete
LVIP VII Lot 13	Industrial		Spillman Drive		Plans Approved
LVIP VII Lot 81	Industrial		1025 Feather Way		Plans Approved
LVIP VII – Ecopax	Industrial		1355 Easton Road		Under Construction
Patriot Distribution (LVIP VII, Lot 14)	Industrial		2120 Spillman Drive		Under Construction
835 E. North Street (Bethlehem Pre-cast)	Industrial				Plans Approved
3001 Commerce Center Blvd. (Lot 3, Majestic)	Industrial				Plans Approved
3633 Commerce Center Blvd. (Lot 4, Majestic)	Industrial				Plans Approved
1125 Easton Road – Project Mustang	Industrial				Plans Approved
3905 Commerce Center Blvd.	Industrial				Plans Approved
3955 Commerce Center Blvd.	Industrial				Plans Approved
Majestic Lots 6 & 7	Industrial		3905 Commerce Center Boulevard		Plans Approved
1405 Easton Road Expansion	Industrial				Under Construction
LVIP VII Lot #12 – Flex Manufacturing	Industrial		1920 Spillman Drive		Under Construction
LVIP VII Lot #81	Industrial		1025 Feather Way		Under Construction

Natural & Non-Natural Event History Specific to Bethlehem City

Type of Event and Date(s)	FEMA Disaster # (if applicable)	Local Damage(s) or Loss(es)
Winter Storm Jonas – 1/23/2016	DR-4267-PA	
Pennsylvania COVID-19 Pandemic – 1/2020	DR-4506-PA	Emergency Protective measures to combat COVID-19 Pandemic.
Remnants of Hurricane Ida	DR-4618-PA	Assistance to eligible individuals and families affected by this disaster.

2013 Municipal Action Plan Status

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)	Status					Additional Comments
	No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
1 Sand Island Flood Protection (100 W. River Street) - Restore/harden bank or install a levee along the creek in the park area. Park and recreation facilities are damaged by floodwaters from the Monocacy Creek. This area has flooded on numerous occasions in the last 10 years.		X	X			
2 Westmont, Dearborn, Norwood Acquisitions (1800 blk. Westmont, 1800 blk. Norwood, 800 blk. Dearborn) - Acquire properties and restrict land use. Six or more homes in this area flood when the Saucon Creek over flows its banks. This has happened on numerous occasions in the last 10 years. The water can be up to 3 feet deep from street level.		X	X			
3 Mauch Chunk Flood Protection and Acquisition (1200 – 1400 Mauch Chunk Road) - Restore/harden bank or install a levee along creek; acquire structures in area and restrict land use. Two businesses in this area sustain damage when the Monocacy Creek overflows its banks. This area has flooded on numerous occasions in the last 10 years. One business is retail and the second is a metal fabricator.		X	X			
4 Historic Bethlehem Industrial Area Flood Protection (459 Old York Road) - Restore/harden bank or install a levee along the creek in the historical area. Historical buildings and grounds dating to the late seventeen hundreds are damaged by floodwaters from the Monocacy Creek. This area has flooded on numerous occasions in the last 10 years.				X		Removed X in "In Progress" column per Wade Haubert. Action not carried through to the 2018 Action Plan.

2013 Municipal Action Plan Status – continued

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)		Status					Additional Comments
		No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
5	Monocacy Park Flood Protection (130 Illicks Mill Road) - Restore\harden bank or install a levee along the creek in the park area. Park and recreation facilities are damaged by floodwaters from the Monocacy Creek. This area has flooded on numerous occasions in the last 10 years.		X				Removed X in "Completed" column per Wade Haubert.
6	Saucon Park Flood Protection (900 Millside Drive) – Restore\harden bank or install a levee along the Saucon Creek. Park and recreation facilities, including a public swimming pool are damaged by floodwater from the Saucon Creek. This area has flooded on numerous occasions in the last 10 years.				X		Removed X in "In Progress" column per Wade Haubert. Action not carried through to the 2018 Action Plan.
7	Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation. Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability	X					
8	Purchase, or relocate structures located in hazard- prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting. Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	X					
9	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 below.	X					

2013 Municipal Action Plan Status – continued

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)		Status					Additional Comments
		No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
10	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: 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.	X					
11	Begin the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements) and sinkhole risk (e.g. carbonate bedrock standards).	X					
12	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	X					
13	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM, and pursue relevant continuing education training such as FEMA Benefit Cost Analysis.	X					
14	Participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.	X					
15	Archive elevation certificates	X					
16	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	X					

2013 Municipal Action Plan Status – continued

Existing Mitigation Action (from 2013 Hazard Mitigation Plan)		Status					Additional Comments
		No Progress / Unknown	In Progress	Continuous	Completed	Discontinued	
17	Complete the ongoing updates of the Comprehensive Emergency Management Plans.	X					
18	Create/enhance/ maintain mutual aid agreements with neighboring communities for continuity of operations.	X					
19	Identify and develop agreements with entities that can provide support with FEMA/PEMA paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/PEMA paperwork compilation, submissions, recordkeeping	X					
20	Work with regional agencies (i.e. County and PEMA) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	X					

Notes:

1. Actions not carried through to the 2018 Action Plan are so noted.
2. To maintain National Flood Insurance Program (NFIP) compliance, actions related to the NFIP were carried through to the 2018 Action Plan even if identified by the municipality as completed.

2018 Mitigation Action Plan

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
1	Sand Island Flood Protection (100 W. River Street) –Restore \ harden bank or install a levee along the creek in the park area. Park and recreation facilities are damaged by floodwaters from the Monocacy Creek. This area has flooded on numerous occasions in the last 10 years.	Structure and Infrastructure	Flood	High	High	Mitigation Grant Funding with City of Bethlehem funds for local match	Dept. of Parks and Public Property	Long-Term (depending on funding)	Existing
2	Westmont, Dearborn, Norwood Acquisitions (1800 blk. Westmont, 1800 blk. Norwood, 800 blk. Dearborn) - Acquire properties and restrict land use. Six or more homes in this area flood when the Saucon Creek over flows its banks. This has happened on numerous occasions in the last 10 years. The water can be up to 3 feet deep from street level.	Structure and Infrastructure	Flood	High	High	Mitigation Grant Funding with City of Bethlehem funds for local match	Dept. of Parks and Public Property	Long-Term (depending on funding)	Existing
3	Mauch Chunk Flood Protection and Acquisition (1200 – 1400 Mauch Chunk Road) - Restore\harden bank or install a levee along creek; acquire structures in area and restrict land use. Two businesses in this area sustain damage when the Monocacy Creek overflows its banks. This area has flooded on numerous occasions in the last 10 years. One business is retail and the second is a metal fabricator.	Structure and Infrastructure	Flood	High	High	Mitigation Grant Funding; local match funds TBD	Dept. of Parks and Public Property	Long-Term (depending on funding)	Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
4	Monocacy Park Flood Protection (130 Illicks Mill Road) –Restore \ harden bank or install a levee along the creek in the park area. Park and recreation facilities are damaged by floodwaters from the Monocacy Creek. This area has flooded on numerous occasions in the last 10 years.	Structure and Infrastructure	Flood	High	High	Mitigation Grant Funding with City of Bethlehem funds for local match	Dept. of Parks and Public Property	Long-term (depending on funding)	Existing
5	Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for retrofitting based on cost-effectiveness versus relocation. Phase 2: Where retrofitting is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Structure and Infrastructure	Flood	High	High	Mitigation Grant Funding with City of Bethlehem funds for local match	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Long-term (depending on funding)	Existing
6	Purchase, or relocate structures located in hazard- prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting. Phase 2: Where relocation is determined to be a viable option, work with property owners toward implementation of that action based on available funding from FEMA and local match availability.	Structure and Infrastructure	Flood	Medium-High	High	FEMA Mitigation Grant Programs and local budget (or property owner) for cost share	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Long-term (depending on funding)	Existing

2018 Mitigation Action Plan – continued

	Mitigation Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
7	<p>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 below.</p>	<p>Local Plans and Regulations</p>	<p>Flood</p>	<p>High</p>	<p>Low - Medium</p>	<p>Municipal Budget</p>	<p>Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, ISO FEMA</p>	<p>Ongoing</p>	<p>New & Existing</p>

2018 Mitigation Action Plan – continued

	Mitigation Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
8	<p>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: 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.</p>	Education and Awareness	All Hazards	High	Low - Medium	Municipal Budget	Municipality with support from Planning Partners, PEMA, FEMA	Short-term	N/A
9	<p>Begin and/or continue the process to adopt higher regulatory standards to manage flood risk (i.e. increased freeboard, cumulative substantial damage/improvements) and sinkhole risk (e.g. carbonate bedrock standards).</p>	Local Plans and Regulations	Flood; Subsidence/ Sinkholes	High	Low	Municipal Budget	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Short-term	New & Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
10	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	Local Plans and Regulations	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PADEP, PEMA, FEMA	Short-term	N/A
11	Have designated NFIP Floodplain Administrator (FPA) become a Certified Floodplain Manager through the ASFPM and/or pursue relevant continuing education training such as FEMA Benefit-Cost Analysis.	Local Plans and Regulations	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	Short-term (depending on funding)	N/A
12	Participate in the Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the submission to FEMA-DHS of a Letter of Intent to join CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.	Local Plans and Regulations	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PADEP, PEMA, FEMA	Short-term	N/A
13	Obtain and archive elevation certificates for NFIP compliance.	Local Plans and Regulations	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	Ongoing	N/A
14	Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in Section 7.0	All Categories	All Hazards	High	Low – High (for 5-year update)	Municipal Budget, possibly FEMA Mitigation Grant Funding for 5-year update	Municipality (via mitigation planning point of contacts) with support from Planning Partners, PEMA	Ongoing	New & Existing

2018 Mitigation Action Plan – continued

Mitigation Action		Mitigation Technique Category	Hazard(s) Addressed	Priority (H / M / L)	Estimated Cost	Potential Funding	Lead Agency / Department	Implementation Schedule	Applies to New and / or Existing Structures
15	Complete the ongoing updates of the Comprehensive Emergency Management Plans	Local Plans and Regulations	All Hazards	High	Low	Municipal Budget	Municipality with support from PEMA	Ongoing	New & Existing
16	Create/enhance/ maintain mutual aid agreements with neighboring communities for continuity of operations.	All categories	All Hazards	High	Low	Municipal Budget	Municipality w/ support from Surrounding municipalities and County	Ongoing	New & Existing
17	Develop and maintain capabilities to process FEMA/PEMA paperwork after disasters; qualified damage assessment personnel – Improve post-disaster capabilities – damage assessment; FEMA/PEMA paperwork compilation, submissions, record keeping.	Education and Awareness	All Hazards	Medium	Medium	Municipal Budget	Municipality with support from County, PEMA, FEMA	Short-term	N/A
18	Work with regional agencies (i.e. County and PEMA) to help develop damage assessment capabilities at the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	Education and Awareness	All Hazards	Medium	Medium	Municipal budget, FEMA HMA grant programs	Municipality with support from County, PEMA	Short-term (depending on funding)	N/A

Notes:

Estimated Costs:

- Where actual project costs have been reasonable estimated: Low = < \$10,000; Medium = \$10,000 to \$100,000; High = > \$100,000;
- Where actual project costs cannot reasonably be established at this time:

Low = Possible to fund under existing budget. Project is part of, or can be part of an existing on-going program.

Medium = Could budget for under existing work plan, but would require a reappropriation of the budget or a budget amendment, or the cost of the project would have to be spread over multiple years.

High = Would require an increase in revenue via an alternative source (i.e., bonds, grants, fee increases) to implement. Existing funding levels are not adequate to cover the costs of the proposed project.

Potential Funding (FEMA HMA):

- **BRIC** = Building Resilient Infrastructure and Communities
- **FMA** = Flood Mitigation Assistance Grant Program
- **HMGP** = Hazard Mitigation Grant Program
- **HSGP** = Homeland Security Grant Program
- **EMPG** = Emergency Management Performance Grant

Implementation Schedule:

- **Short Term** = 1 to 5 years
- **Long Term** = 5 years or greater
- **DOF** = Depending on Funding

Applies to New and/or Existing Structures:

- **N/A** = Not Applicable