9.40 HELLERTOWN BOROUGH

This section presents the jurisdictional annex for Hellertown Borough.

A. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact	
Name	Cathy Kichline
Title/ Department	Borough Manager
Address	865 Main St., Hellertown, PA 18055
Telephone	610-838-7041
Fax	610-838-0500
Email	c.kichline@hellertownborough.org

Secondary Point of Contact	
Name	Christopher Scherer
Title/ Department	Emergency Management Coordinator
Address	865 Main St., Hellertown, PA 18055
Telephone	610-730-4910 (cell)
Fax	
Email	ema@hellertownborough.org

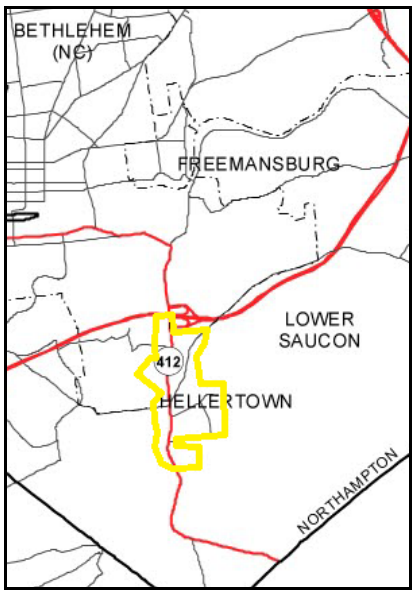
Alternate Point of Contact	
Name	Barry Isett and Associates
Title/ Department	Borough Engineer
Address	85 S. Route 100, Allentown, PA 18106
Telephone	610-398 -094
Fax	610-481-9098
Email	bsmith@barryisett.com

Alternate Point of Contact	
Name	Kris Russo
Title/ Department	Zoning/ Code Enforcement Officer
Address	865 Main St., Hellertown, PA 18055
Telephone	610-838-7041
Fax	610-838-0500
Email	K.Russo@hellertownborough.org

B. MUNICIPAL PROFILE

Hellertown Borough is located in the southwestern part of Northampton County. It encompasses an area of approximately 1.3 square miles, and has a population of 5,898 (2010 Census). As shown in Figure 1, the township is nearly surrounded by Lower Saucon Township, and is bordered to the north by Bethlehem City.

Figure 1



(Source: http://www.lvpc.org/pdf/maps/baseMap-LehighNorthamptonCounties.pdf)

Hellertown is bordered to the west by the Saucon Creek.

Interstate 78 passes east-west through the northern part of the borough. Other major east-west roads include Friedensville Road/Water Street in the center of the Borough, and Skibo Road/East Walnut Street in the southern part of the borough. PA Route 412 (Main Street) passes north-south through the western part of the borough, and Easton Road extends from the center of the borough northeast across the borough's northeastern border. Main Street is the main vehicular route for residents as well as neighboring municipalities from the south to I-78.

B.1 Known or Anticipated Future Development

No known or anticipated development identified at this time.

C. NATURAL HAZARD EVENT HISTORY SPECIFIC TO HELLERTOWN BOROUGH

Type of Event and Date	FEMA Disaster # (if applicable)	Local Damage and Losses
Hurricane Andrew (1992)		Unknown
Hurricane Ivan (2004)		Depot Street Culvert collapsed, bridge abutments and streambank erosion, temporary closure of several streets
Hurricane Irene (2011)	DR-4025; EM-3339	Erosion of Silver Creek streambanks, damage to private properties along Silver Creek and Polk Valley Run, floodwaters close Water Street/Front Street
Tropical Storm Lee (2011)	DR-4030; EM-3340	Heavy accumulation of debris and sediment in the Silver Creek, floodwaters close Water Street/Front Street
October Snowstorm (2011)		Temporary road closures due to fallen trees, debris, and wires. Loss of power to Borough up to 7 days following event.

D. NATURAL HAZARD RISK/VULNERABILITY RISK RANKING

The following relative ranking of natural and non-natural hazard risks in this municipality was developed using PEMA's Risk Factor methodology described in Section 4, "Risk Assessment"

HAZARD RISK	NATURAL HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Winter Storm	3	2	4	1	3	2.7
	Flood	3	2	3	3	3	2.7
MODERATE	Radon Exposure	4	1	2	1	4	2.4
	Subsidence / Sinkholes	2	2	4	2	1	2.3
	Extreme Temperatures	4	1	2	1	3	2.3
	Drought	2	1	4	1	4	2.2
	Wildfire	3	1	2	3	3	2.2
	Hailstorm	3	1	3	2	1	2.1
	Wind, incl. Tornado	1	3	2	4	1	2.1
	Lightning	4	1	1	2	1	2
LOW	Earthquake	1	1	4	4	1	1.9
	Landslide	1	1	1	4	1	1.3

HAZARD RISK	MAN-MADE HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Fire (Urban / Structural)	4	2	1	4	2	2.6
	Env. Hazard and Explosion	3	2	2	4	3	2.6
	Utility Interruption	3	1	3	4	3	2.5
MOD - ERATE	Transportation Accident	4	1	1	4	1	2.2
	Mass Gathering and Civil Disturbance	3	1	1	4	2	2
LOW	Terrorism	1	3	1	4	1	1.9
	Building Collapse	1	3	1	4	1	1.9
	Dam Failure	1	2	2	4	2	1.9
	Nuclear Incident	1	1	1	4	2	1.4
	Levee Failure	0	0	0	0	0	0

E. CAPABILITY ASSESSMENT

This section identifies the following capabilities of the local jurisdiction:

- Planning and Regulatory capability
- Administrative and Technical capability
- Fiscal capability
- Community classifications

E.1 Planning and Regulatory Capability

Tool / Program	Status			Dept./Agency Responsible	Effect on Loss Reduction: + Support O Neutral - Hinder	Change Since Last Plan: + Positive - Negative	Comments
	In Place	Date Adopted or Updated	Under Develop-ment				
Hazard Mitigation Plan	X	7/2006		County	+		Updating 2012
Emergency Operations Plan	X			Local Emergency Management	+	+	
Disaster Recovery Plan							
Evacuation Plan							
Continuity of Operations Plan							
NFIP							
NFIP – Community Rating System							
Floodplain Regulations (spec. NFIP Flood Damage Prevention Ordinance)	X		X	Planning	+	+	Updating floodplain ordinance in response to FEMA update of floodplain mapping
Floodplain Management Plan	X	4/7/1986		Admin.	+	+	
Zoning Regulations	X	2012	X	Admin.	+	+	Revisions adopted April 2012
Subdivision Regulations	X	5/5/1986			+	+	
Comprehensive Land Use Plan (or General, Master or Growth Mgt. Plan)							
Open Space Management	X	2006/2008					2006 Park & Rec Plan

Tool / Program	Status			Dept./Agency Responsible	Effect on Loss Reduction: + Support O Neutral - Hinder	Change Since Last Plan: + Positive - Negative	Comments
	In Place	Date Adopted or Updated	Under Develop-ment				
Plan (or Parks/Rec or Greenways Plan)		2010/2011					2008 Dimmick Park Plan 2010 Tuminello Park Plan 2011 Saucon Rail Trail
Stormwater Management Plan / Ordinance	X	3/21/2005			+	+	
Natural Resource Protection Plan							
Capital Improvement Plan		6/18/2012	X	Admin	+		
Economic Development Plan							
Historic Preservation Plan							
Farmland Preservation							
Building Code	X	2011					Adopted 2009 IPC + IFC
Fire Code			X				Reviewing 2009 IPC + IFC
Other							

E.2 Administrative and Technical Capability

Staff/Personnel Resources	Yes	No	Department/Agency	Comments
Planners (with land use / land development knowledge)		X		Use Borough Engineer
Planners or engineers (with natural and/or human caused hazards knowledge)		X		
Engineers or professionals trained in building and/or infrastructure construction practices (includes building inspectors)	X		Zoning and codes	
Emergency Manager	X			
NFIP Floodplain Administrator		X		
Land Surveyors		X		
Scientists or staff familiar with the hazards of the community		X		
Personnel skilled in Geographic Information Systems (GIS) and/or FEMA's HAZUS program		X		
Grant writers or fiscal staff to handle large/complex grants		X		
Staff with expertise or training in Benefit-Cost Analysis		X		
Other				

E.3 Fiscal Capability

Financial Resources	Yes	No	Department/Agency	Comments
Capital Improvement Programming	X		Council Manager	
Community Development Block Grants (CDBG)	X		Manager	
Special Purpose Taxes	X		Council	
Gas / Electric Utility Fees		X		
Water / Sewer Fees		X		
Stormwater Utility Fees		X		
Development Impact Fees		X		
General Obligation, Revenue, and/or Special Tax Bonds	X		Council	
Partnering Arrangements or Intergovernmental Agreements	X		Council	
Other				

E.4 Community Classifications

Program	Classification	Date Classified
Community Rating System (CRS)	NP	N/A
Building Code Effectiveness Grading Schedule (BCEGS)	TBD	TBD
Public Protection	TBD	TBD
Storm Ready	NP	N/A
Firewise	NP	N/A

N/A = Not applicable. NP = Not participating. TBD = To Be Determined.

The classifications listed above relate to the community's effectiveness in providing services that may impact it's vulnerability to the natural 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 one (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. StormReady communities are better prepared to save lives from the onslaught of severe weather through advanced planning, education and awareness.

Criteria for classification credits are outlined in the following documents:

- The Community Rating System Coordinators Manual
- The Building Code Effectiveness Grading Schedule
- The ISO Mitigation online ISO's Public Protection website at http://www.isomitigation.com/ppc/0000/ppc0001.html
- The National Weather Service Storm Ready website at http://www.weather.gov/stormready/howto.htm
- The National Firewise Communities website at http://firewise.org/

F. MITIGATION STRATEGY

F.1 Past Mitigation Activities/Efforts

The following table summarizes progress on the mitigation strategy identified by the Borough in the 2006 plan.

2006 Initiative		Status	Review Comments
Description	Location		
Upgrade electrical systems in Borough water pumping stations (installation of Permanent Generator)	3 Borough Pump Houses	In Progress	Well #1 to receive a generator; Conversion of Chlorine gas use to sodium hypochlorite scheduled in 2013.

Relocate or upgrade sewerage pumping station.	Spring Hill Shopping Center	No Progress	
Relocate or upgrade sewerage pumping stations.	Cherry Lane	Discontinued	
Saucon Creek - Streambank stabilization to mitigate flooding	Flooding Meadows Rd. to High St.	No progress	Awaiting funding opportunity.
Polk Valley Run - Flood control at bridge	SR412 bridge at Polk Valley Run	No progress	Awaiting funding opportunity.
Repair bridge/culvert	Water Street Bridge at Saucon Creek	No progress	Notified PennDOT of concern. No action at this time.
Silver Creek - Streambank stabilization to prevent flooding	Durham St. to Saucon Creek confluence	In Progress	Preliminary assessment complete. Awaiting funding opportunity.
Install/replace/repair culvert	Reservoir Rd, Polk Valley Rd, SR412, Front St	No progress	

Further details on mitigation activities completed in the Borough include:

- Annually, the Borough inspects and cleans the existing stormwater management system in the Borough, which facilitates the conveyance of stormwater and reduction in flooding due to blockages.

- The Borough adopted the 2009 International Property Maintenance Code in 2011.

F.2 Hazard Vulnerabilities Identified

It is estimated that in Hellertown Borough, 79 residents live within the 1% annual chance flood area (NFIP Special Flood Hazard Area). Of the municipality's total land area, 10% is located within the 1% annual chance flood area. $29,582,113 (3.3%) of the municipality's general building stock replacement cost value (structure and contents) is located within the 1% annual chance flood area. The Borough Hall, which includes administrative offices, Borough police department and the public works department are all partially located within the 1%-annual chance flood area.

There are 29 NFIP policies in the community. While there are 31 structures located within the 1% annual chance flood area, there are only 7 policies issued to property owners in the 1% annual chance flood area. FEMA has identified 2 Repetitive Loss (RL) including 0 Severe Repetitive Loss (SRL) properties in the municipality.

HAZUS-MH estimates that for a 1% annual chance flood, $2,774,447 (0.3%) of the municipality's general building stock replacement cost value (structure and contents) will be damaged, 155 people may be displaced, 96 people may seek short-term sheltering, and an estimated 99 tons of debris could be generated.

HAZUS-MH estimates the following damage and loss of use to critical facilities in the community as a result of a 1% annual chance flood event:

Critical Facilities Located in the DFIRM 1% and 0.2% Flood Boundaries and Estimated Potential Damage from the 1% Flood Event

Name	Type	Exposure	Potential Loss from 1% Flood Event

		1% Event	0.2% Event	Structure Damage	Content Damages	Days to 100-Percent Functional
Yeagers Pharmacy	Medical		X	-	-	-
HELLERTOWN PD	Police		X	-	-	-

Source: FEMA, 2004; FEMA, 2011; HAZUS-MH 2.1
Notes:
X = indicates the facility location as provided by Lehigh Valley is located in the DFIRM flood zone.
NA = HAZUS-MH 2.1 does not estimate the days to 100-percent functional for user-defined facilities.
- = There is no damage estimate either because the 0.2% annual chance flood event potential loss estimates were not run in HAZUS or HAZUS did not calculate potential loss estimates for some facilities located in the DFIRM flood hazard zone. This is because even though these facilities are located within the boundary of the flood depth grid generated by HAZUS the depth of flooding does not amount to any damages to the structure or contents according to the depth damage function used in HAZUS.

The following vulnerabilities have been identified by the community, within the risk assessment, or in other plan, reports and documents (e.g. FEMA Flood Insurance Studies, Act 167 Stormwater Management Plans):

- Silver Creek (tribute to Saucon Creek) runs through town and under Rt. 412 (Main Street) and some buildings - flooding
- Water St. bridge
- Easton Rd. / Cherry Lane Stormwater
- Flooding from Saucon Creek
- Flooding due to water runoff
- Power outages due to storm drainages (snow fall & winds)

Please refer to the Hazard Profiles in the risk assessment section for additional vulnerability information relevant to this jurisdiction.

F.3 Hazard Mitigation Strategy

Note some of the identified mitigation initiatives in Table F 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.

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
1	Silver Creek Corridor Stabilization and Clearing (Borough Line (east) to confluence of Saucon Creek (west)) – Excavation and clearing of deposited sediment and debris and stabilization of the streambank and bridge abutment.	Structural Projects; Natural Resource Protection	Flood	High	High	FEMA Mitigation Grants with local budget for cost share	Hellertown Borough	Short Term	Existing
2	Replacement of Harris Street Bridge - Remove and replace the Harris Street Bridge and associated abutments. The existing structure currently creates a temporary dam of the flood waters, which creates significant damage to neighboring properties and municipal roads. In addition, the structure has open grate decking which allows flood waters to penetrate the structure and block the road. A new structure will open the stream channel and permit better flow along the stream corridor and reduce bypass flows over private land and public streets.								
	See Above.	Structural Projects	Flood	High	High	FEMA Mitigation Grants with local budget for cost share	Hellertown Borough	Short Term	Existing
3	Thomas Iron Site Floodplain Restoration - In the early 1900's, the Thomas Iron site was a steel processing facility which supported neighboring Bethlehem Steel. The site is largely a low lying area in the oxbow of the Saucon Creek. This area was filled with slag, an aggregate by-product of the steel extraction process. The fill material has reduced the historic floodplain of the Saucon Creek, just below the confluence of Silver Creek. The removal of this material and restoration of the floodplain, will significantly increase the holding capacity of the Saucon Creek and reduce upstream flooding of the Silver Creek and Borough. Work to include removal of slag material, restoration of the floodplain vegetation and stream bank stabilization.								
	See Above.	Natural Resource Protection; Property Protection	Flood	Medium	High	FEMA Mitigation Grants with local budget	Hellertown Borough	Short Term	Existing

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
						for cost share			
4	Polk Valley Run east and west of Main Street - This shallow stream corridor frequently overruns its banks, causing significant damage to neighboring properties. In addition, the Borough Authority's sewer pumping station is often flooded. Long term channelization of the stream corridor and re-construction of the culvert under Main Street is needed to expand the streams capacity and contain flows.								
	See Above.	Structural Projects; Property Protection; Natural Resource Protection	Flood	Low	High	FEMA Mitigation Grants with local budget for cost share	Hellertown Borough (with support from private, Borough Authority, PennDOT)	Long Term	Existing
5	Easton Road and Cherry Lane Stormwater - Recent development of the downstream area, outside the Borough, has restricted stormwater flow from this upper drainage area. The result has been flooding of the drainage channel and neighboring streets. Easton Road is the only other north/east bound road exiting the Borough, except Main Street. As a result, it is vital this roadway remain clear and passable at all times. Expanded stormwater improvements are required to capture and convey stormwater off the street and into the system downstream. In addition, temporary above and below grade storage is needed to prevent flooding surges.								
	See Above.	Structural Projects; Natural Resource Protection	Flood	Low	High	FEMA Mitigation Grants with local budget for cost share	Hellertown Borough (with support from PennDOT, City of Bethlehem, private)	Long Term DOF	Existing
6	Stormwater Improvements - The Borough Hall, public works facility and police station, neighboring private properties and state and Borough streets of Water, Main and Front Street flood to a condition of being impassable. The floods and street closures create significant life and safety concerns for the community during heavy rainfall events. Closure of State Route 412 (Main Street) cuts off a main north-south route for local and regional residents looking to reach Interstate I-78 and the City of Bethlehem. Water Street, is one of only two east-west routes which provide possible evacuation routes for Borough residents to higher elevations. The Borough's main stormwater system is a combination of inlets and pipes which outlet and utilizes the Silver Creek as the main trunk line to the Saucon Creek. Almost 60% of the Borough, which includes the most densely developed area, surrounds the Silver Creek and uses this corridor to carry away stormwater flows. The Borough proposes to make a number of improvements to the stormwater system which will alleviate the volume of stormwater reaching the Silver Creek. Several by-pass stormwater systems would be constructed to capture and convey upstream neighborhoods, and convey them directly to the Saucon Creek.								
	See Above.	Structural Projects;	Flood	High	High	FEMA Mitigation	Hellertown Borough (with	Long Term DOF	Existing

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
		Property Protection				Grants with local budget for cost share	support from PennDOT)		
7	Stormwater System Maintenance - Annual maintenance of the system is required to remove sediment, debris and trash which collected in the stormwater inlets, pipes and stream corridors. This material, if not removed, reduces capacity and increased potential local and surrounding area flooding. Following larger events, cleanup of the deposited debris is required.								
	See Above.	Structural Projects (maintenance)	Flood	Medium	Medium	Annual Borough Budget	Hellertown Borough (with support from PennDOT, City of Bethlehem, private)	On-going	Existing
8	Work with Northampton County EMS to install backup power at the Hellertown Borough Authority, Well #1. This project is part of the Northampton Countywide Generator Project, funded through 2008 LPDM.	Emergency Services	All Hazards	High	Low – Medium (local share of LPDM grant)	2008 LPDM grant; municipal budget for match	Municipal public works, working with Northampton County EMS	Short Term	Existing
9	Retrofit structures located in hazard-prone areas to protect structures from future damage, with repetitive loss and severe repetitive loss properties as priority. Specifically identified are the following: - Rentzheimer Street Bridge - Northampton Street Bridge - Main Street Culvert (Silver Creek) - Harris Street Bridge - Front Street Bridge	Property Protection	Flood	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 DOF	Existing

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
	- Main Street Bridge (Polk Valley Stream) - Water Street Bridge - Rail Trail Culvert (Silver Creek) 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.								
10	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. Specifically identified are the following: - None at this time. Phase 1: Identify appropriate candidates for relocation based on cost-effectiveness versus retrofitting.	Property Protection	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 DOF	Existing

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
	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.								
11	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).	Property Protection	Flood	High	Low - Medium	Municipal Budget	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, ISO FEMA	On-going	New & Existing
12	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								

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
	funding.								
	See above.	Public Education and Awareness	All Hazards	High	Low-Medium	Municipal Budget	Municipality with support from Planning Partners, PEMA, FEMA	Short Term	N/A
13	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).	Prevention	Flood; Subsidence / Sinkholes	High	Low	Municipal Budget	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, FEMA	Short Term	New & Existing
14	Determine if a Community Assistance Visit (CAV) or Community Assistance Contact (CAC) is needed, and schedule if needed.	Prevention, Property Protection	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PADEP, PEMA, FEMA	Short Term	N/A
15	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.	Public Education and Awareness	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	Short Term DOF	N/A
16	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	Prevention, Property Protection, Public Education and Awareness	Flood	Medium	Low	Municipal Budget	NFIP Floodplain Administrator with support from PADEP, PEMA, FEMA	Short Term	N/A

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
	CRS, followed by the completion and submission of an application to the program once the community's current compliance with the NFIP is established.								
17	Archive elevation certificates	Public Education and Awareness	Flood	High	Low	Municipal Budget	NFIP Floodplain Administrator	On-going	N/A
18	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	Municipality (via mitigation planning point of contacts) with support from Planning Partners (through their Points of Contact), PEMA	On-going	New & Existing
19	Complete the ongoing updates of the Comprehensive Emergency Management Plans	Emergency Services	All Hazards	High	Low	Municipal Budget	Municipality with support from PEMA	On-going	New & Existing
20	Create/enhance/ maintain mutual aid agreements with neighboring communities for continuity of operations.	Emergency Services	All Hazards	High	Low	Municipal Budget	Municipality with support from Surrounding municipalities and County	On-going	New & Existing
21	Identify and develop agreements with entities that can provide support with FEMA/PEMA paperwork after disasters; qualified damage assessment personnel – Improve post-disaster	Public Education and Awareness, Emergency Services	All Hazards	Medium	Medium	Municipal Budget	Municipality with support from County, PEMA, FEMA	Short Term	N/A

Action No.	Action	Mitigation Technique Category	Hazard(s) Addressed	Priority (H/M/L)	Estimated Cost	Potential Funding Sources	Lead Agency / Department	Implementation Schedule	Applies to New and/or Existing Structures*
	capabilities – damage assessment; FEMA/PEMA paperwork compilation, submissions, record-keeping								
22	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).	Public Education and Awareness, Emergency Services	All Hazards	Medium	Medium	Local budget, FEMA HMA and HLS grant programs	Municipality with support from County, PEMA	Short/Long Term DOF	N/A

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

Costs:
Where actual project costs cannot reasonably be established at this time:
Low = < $10,000
Medium = $10,000 to $100,000
High = > $100,000

Potential FEMA HMA Funding Sources:
PDM = Pre-Disaster Mitigation Grant Program
FMA = Flood Mitigation Assistance Grant Program
RFC = Repetitive Flood Claims Grant Program
SRL = Severe Repetitive Loss Grant Program
HMGP = Hazard Mitigation Grant Program

Timeline:
Short = 1 to 5 years. Long Term= 5 years or greater. OG = On-going program.
DOF = Depending on funding.

G. ANALYSIS OF MITIGATION ACTIONS

Municipal mitigation actions were evaluated and prioritized primarily using the PA STEEL methodology discussed in Section 6 of this plan. Per the cost-benefit weighted PA STEEL methodology, those actions receiving 20 or more favorable ratings were generally considered high-priority actions. However, other factors beyond the PA STEEL numeric ranking may have been considered by the municipality during project prioritization. For example, a project might be assigned a medium priority because of the uncertainty of a funding source, and could be changed to high once a funding source has been identified such as a grant.

Mitigation Action		PA STEEL CRITERIA CONSIDERATIONS (+) Favorable (-) Less favorable (N) Not Applicable																						Results	
		P Political			A Administrative			S Social		T Technical			E Economic				E Environmental					L Legal			SUMMARY (EQUAL WEIGHTING)	SUMMARY (BENEFITS & COSTS PRIORITIZED)
NO.	Name	Political Support	Local Champion	Public Support	Staffing	Funding Allocation	Maintenance / Operations	Community Acceptance	Effect on Segment of Population	Technically Feasible	Long-Term Solution	Secondary Impacts	Benefit of Action (x3)	Cost of Action (x3)	Contributes to Economic Goals	Outside Funding Required	Effect on Land / Water	Effect on Endangered Species	Effect on HAZMAT / Waste Site	Consistent w/ Community Environmental Goals	Consistent w/ Federal Laws	State Authority	Existing Local Authority	Potential Legal Challenge		
1	Silver Creek Corridor Stabilization and Clearing	+	+	+	N	+	+	+	+	+	+	+	+	+	N	+	+	N	N	+	+	N	+	+	18(+) 0(-) 5(N)	22(+) 0(-) 5(N)
2	Replacement of Harris Street Bridge	+	+	+	N	+	+	+	+	+	+	N	+	+	N	+	+	N	N	+	N	+	N	N	15(+) 0(-) 8(N)	19(+) 0(-) 8(N)
3	Thomas Iron Site Floodplain Restoration	+	+	+	N	+	+	+	+	+	+	+	+	+	N	+	+	N	N	+	+	+	+	N	18(+) 0(-) 5(N)	22(+) 0(-) 5(N)
4	Polk Valley Run east and west of Main Street	+	-	-	N	-	+	+	-	+	-	N	+	-	N	+	+	N	N	+	+	+	+	N	11(+) 6(-) 6(N)	13(+) 6(-) 6(N)

5	Easton Road and Cherry Lane Stormwater	+	-	-	N	-	+	+	-	+	+	-	-	-	-	+	+	N	N	+	+	+	+	-	11(+) 9(-) 3(N)	11(+) 9(-) 3(N)
6	Stormwater Improvements	+	+	+	N	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	+	+	+	-	19(+) 1(-) 3(N)	23(+) 1(-) 3(N)
7	Stormwater System Maintenance	+	-	+	N	+	+	+	-	+	-	-	+	-	N	-	+	N	N	+	+	+	+	-	12(+) 7(-) 4(N)	14(+) 7(-) 4(N)
8	Northampton Countywide Generator Project	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)
9	Retrofit Vulnerable Structures	+	+	+	-	-	+	+	+	+	+	+	+	+	+	-	+	+	+	N	+	N	+	+	18 (+) 3 (-) 2 (N)	22 (+) 3 (-) 2 (N)
10	Acquire Vulnerable Structures	+	+	+	-	-	-	+	-	+	+	+	+	+	+	-	+	+	+	+	+	N	+	+	17 (+) 5 (-) 1 (N)	21 (+) 5 (-) 1 (N)
11	Maintain NFIP compliance	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
12	Public Education and Outreach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	N	N	+	+	17 (+) 0 (-) 6 (N)	21 (+) 0 (-) 6 (N)
13	Higher Regulatory Standards	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+	N	N	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)
14	Community Assistance Visit	+	+	+	+	+	-	+	+	+	N	N	+	+	+	+	N	N	N	N	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
15	NFIP FPA become a Certified Floodplain Manager	+	+	+	+	-	+	+	+	+	N	+	+	+	+	+	N	N	N	N	N	N	+	+	15 (+) 1 (-) 7 (N)	19 (+) 1 (-) 7 (N)

16	Join Community Rating System	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	+	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
17	Archive Elevation Certificates	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
18	Support Plan Maintenance and Update	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	+	+	+	+	19 (+) 0 (-) 4 (N)	23 (+) 0 (-) 4 (N)
19	Update CEMP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)
20	Enhance Mutual Aid Agreements	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)
21	Identify Post-Disaster Capabilities	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	N	N	+	N	+	+	18 (+) 1 (-) 4 (N)	22 (+) 4 (-) 4 (N)
22	Develop Post-Disaster Capabilities	+	+	+	-	-	+	+	+	+	+	+	+	-	+	-	+	N	N	N	+	N	+	+	15 (+) 4 (-) 4 (N)	17 (+) 6 (-) 4 (N)

H. FUTURE NEEDS TO BETTER UNDERSTAND RISK/VULNERABILITY

A more detailed flood loss analysis could be conducted on a structural level (versus the Census block analysis conducted for the HMP). The location of each building, details regarding the building (see additional data needed below) and the assessed or fair market value could be included in HAZUS-MH. The FEMA DFIRM boundaries, FEMA Flood Insurance Study detailed studies, base flood elevations and available Light Detection and Ranging (LiDAR) data or digital elevation models (DEM) could be used to generate a more accurate flood depth grid and then integrated into the HAZUS model. The flood depth-damage functions could be updated using the U.S. Army Corps of Engineer damage functions for residential building stock to better correlate HAZUS-MH results with FEMA benefit-cost analysis models. HAZUS-MH would then estimate more accurate potential losses per structure.

Additional data needed to perform the analysis described above:

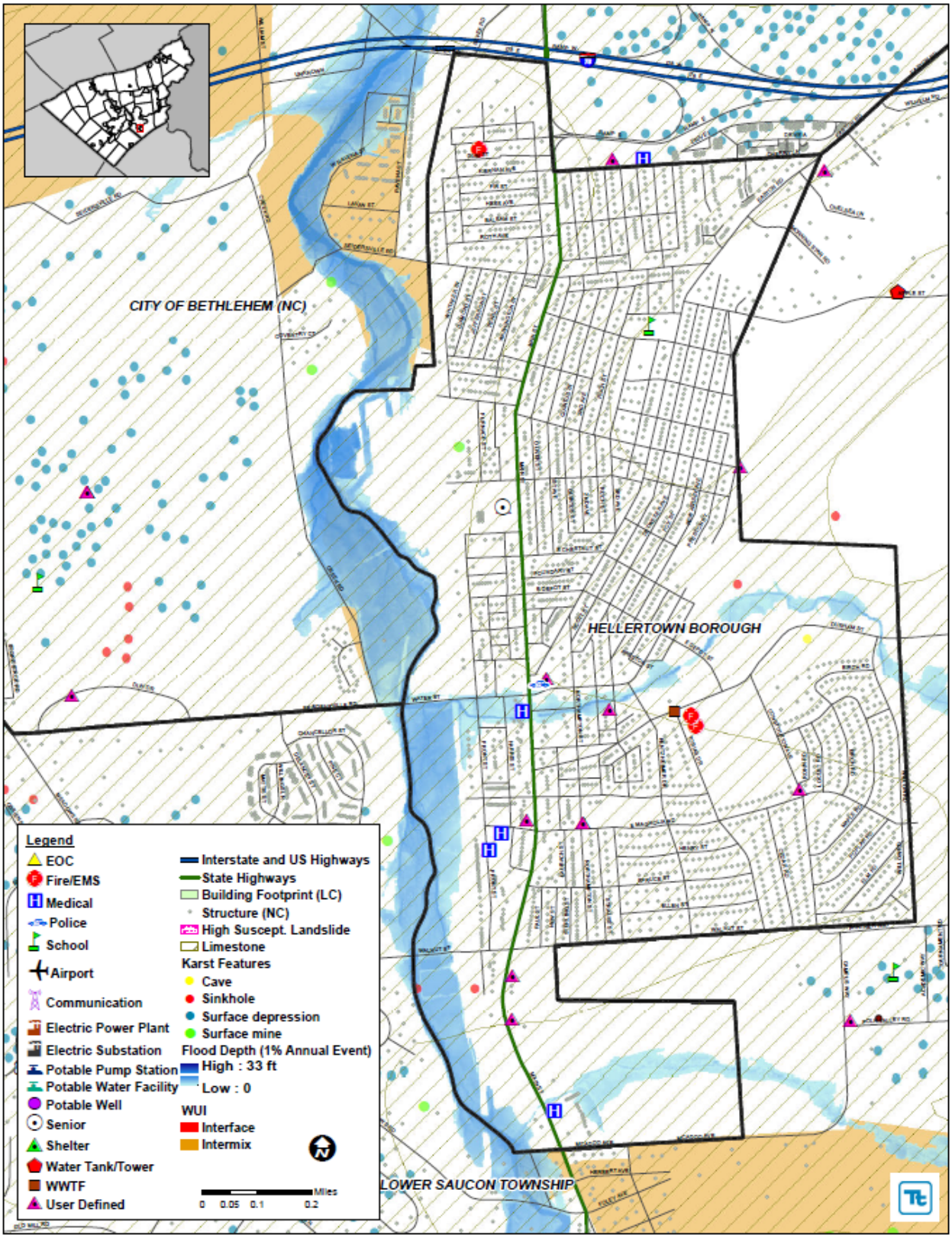
- Specific building information – first-floor elevation (elevation certificates), number of stories, foundation type, basement, square footage, occupancy type, year built, type of construction etc.
- Assessed or fair market value of structure
- LiDAR or high resolution DEM

I. HAZARD AREA EXTENT AND LOCATION

A hazard area extent and location map has been generated and is provided below for Hellertown Borough to illustrate the probable areas impacted within Hellertown Borough. This map is based on the best available data at the time of the preparation of this Plan, and is 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 Hellertown Borough has significant exposure. Regional risk maps are provided in the hazard profiles within Section 4, Volume I of this Plan.

J. ADDITIONAL COMMENTS

No additional comments at this time.


CITY OF BETHLEHEM (NC)
HELLERTOWN BOROUGH
LOWER SAUCON TOWNSHIP
Legend
EOC
Fire/EMS
Medical
Police
School
Airport
Communication
Electric Power Plant
Electric Substation
Potable Pump Station
Potable Water Facility
Potable Well
Senior
Shelter
Water Tank/Tower
WWTF
User Defined
Interstate and US Highways
State Highways
Building Footprint (LC)
Structure (NC)
High Suscept. Landslide
Limestone
Karst Features
Cave
Sinkhole
Surface depression
Surface mine
Flood Depth (1% Annual Event)
High : 33 ft
Low : 0
WUI
Interface
Intermix
Miles
0 0.05 0.1 0.2