9.9 HANOVER TOWNSHIP

This section presents the jurisdictional annex for Hanover Township.

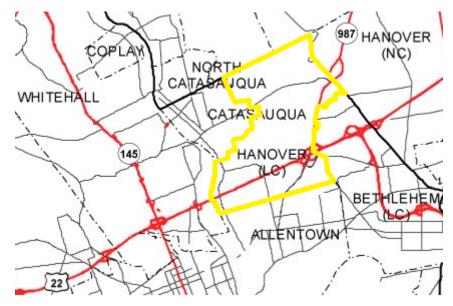
A. HAZARD MITIGATION PLAN POINT OF CONTACT

Pr	imary Point of Contact	Alternate Point of Contact			
<u>Name</u> <u>Title/</u> Department	Robin Yoder Fire Chief-EMA	<u>Name</u> <u>Title/</u> Department	Frederick W. Hay, P.E., CFM Township Engineer		
Address Telephone Fax Email	2202 Grove Road 484-239-8090 610-264-1069 <u>SPUDLINER@HANLECO.ORG</u>	Address Telephone Fax Email	2202 Grove Road 484-239-8090 610-264-1069 <u>FHAY@HANLECO.ORG</u>		

B. MUNICIPAL PROFILE

Hanover Township is a suburban township located in the east-central part of Lehigh County, on the border with Northampton County. It encompasses an area of approximately 4.2 square miles, and has a population of 1,571 (2010 Census). As shown in Figure 1, the township is bordered by Hanover Township (Northampton County) to the east; Bethlehem (Lehigh County) to the southeast; Allentown (Lehigh County) to the south; Whitehall Township and Catasauqua Borough (both Lehigh County) to the west; and Allen and East Allen Townships (both Northampton County) to the north.

Figure 1



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

Hanover Township is drained primarily by the Lehigh River, which forms the township's southwestern border with Whitehall Township. Two smaller tributaries of the Lehigh cut southwest across the northern part the township and across the southern border of the township.



Highway 22 crosses the township east-west and interchanges with Airport Road, which extends northeast toward Bath as Route 987 and south into Allentown. Other significant local roads include Catasauqua Road, Dauphin Street, Irving Street, Pennsylvania Avenue, Postal Road, Race Street, and Schoenersville Road meet 987 in the village of Schoenersville in Northampton County. Hanover Township is also home to the Lehigh Valley International Airport.



B.1 Known or Anticipated Future Development

Hanover Township has identified no known or anticipated future development at this time.

C. NATURAL HAZARD EVENT HISTORY SPECIFIC TO HANOVER TOWNSHIP

Type of Event and Date	FEMA Disaster # (if applicable)	Local Damage and Losses



D. 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	NATURAL		RISK ASS	ESSMENT C	ATEGORY		RISK
RISK	HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	FACTOR (RF)
нісн	Winter Storm	3	2	4	1	3	2.7
Ĕ	Flood	3	2	2	3	3	2.5
	Subsidence / Sinkholes	2	3	3	2	1	2.4
	Radon Exposure	4	1	2	1	4	2.4
ш	Extreme Temperatures	4	1	2	1	3	2.3
RAT	Drought	2	1	4	1	4	2.2
MODERATE	Wildfire	3	1	2	3	3	2.2
Σ	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
ГО	Landslide	1	1	1	4	1	1.3

HAZARD	MAN-MADE		RISK ASS	ESSMENT C	ATEGORY		RISK
RISK	HAZARDS	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	FACTOR (RF)
	Fire (Urban/Structural)	4	2	1	4	2	2.6
HIGH	Environmental Hazard and	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
MOD ERAT	Mass Gathering and Civil Disturbance	3	1	1	4	2	2
	Terrorism	1	3	1	4	1	1.9
	Building Collapse	1	3	1	4	1	1.9
LOW	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

		Status					
Tool / Program	In Place	Date Adopted or Updated	Under Develop- ment	Dept./Agency Responsible	Effect on Loss Reduction: + Support O Neutral - Hinder	Change Since Last Plan: + Positive - Negative	Comments
Hazard Mitigation Plan	х	7-2006		Lehigh County			Updating 2012
Emergency Operations Plan							
Disaster Recovery Plan							
Evacuation Plan							
Continuity of Operations Plan							
NFIP	х	4-2012		Hanover Township	+	+	
NFIP – Community Rating System							
Floodplain Regulations (spec. NFIP Flood Damage Prevention Ordinance)	х	2-2012		Hanover Township	+	+	
Floodplain Management Plan	х	2-2012		Hanover Township	+	+	
Zoning Regulations	x	7-2011		Hanover Township	+		
Subdivision Regulations	х	6-2011		Hanover Township	+		
Comprehensive Land Use Plan (or General, Master or Growth Mgt. Plan)	X	1995		Hanover Township			
Open Space Management Plan (or Parks/Rec or Greenways Plan)							
Stormwater Management Plan / Ordinance	х	6-2011		Hanover Township	+		
Natural Resource Protection Plan							



		Status					
Tool / Program	In Place	Date Adopted or Updated	Under Develop- ment	Dept./Agency Responsible	Effect on Loss Reduction: + Support O Neutral - Hinder	Change Since Last Plan: + Positive - Negative	Comments
Capital Improvement Plan							
Economic Development Plan							
Historic Preservation Plan							
Farmland Preservation							
Building Code	Х	2009		Hanover Township			
Fire Code	Х	2009		Hanover Township			
Firewise							
Storm Ready	Х			Lehigh County	+		
Other							



Administrative and Technical Capability **E.2**

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



E.3 Fiscal Capability

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



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	Lehigh County	TBD
Firewise	NP	N/A

E.4 Community Classifications

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. Storm Ready 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 <u>http://www.weather.gov/stormready/howto.htm</u>
- The National Firewise Communities website at http://firewise.org/

F. MITIGATION STRATEGY

F.1 Past Mitigation Activities/Efforts

- Acquisition of two (2) residential structures in the NFIP SFHA. This area is now passive recreational/open space use.
- Drainage improvements along Airport Road, Lloyd Street, Middle Lloyd Street and Irving Street between Rt. 22 and Lloyd Street completed.
- Installed new equipment in pump stations and water meter station (raised to mitigate flood hazard).
- Rebuilt Irving Street culvert.
- Protect floodplain through ordinances (e.g. NFIP Flood Damage Prevention Ordinance).



F.2 Hazard Vulnerabilities Identified

It is estimated that in Hanover Township (LC), no residents live within the 1% annual chance flood area (NFIP Special Flood Hazard Area). Of the municipality's total land area, 2.2% is located within the 1% annual chance flood area. None of the municipality's general building stock replacement cost value (structure and contents) is located within the 1% annual chance flood area.

There are no NFIP policies in the community. While there are 15 parcels located within the 1% annual chance flood area, there are no policies issued to property owners in the 1% annual chance flood area. FEMA has identified no Repetitive Loss (RL) or Severe Repetitive Loss (SRL) properties in the municipality.

HAZUS-MH estimates that for a 1% annual chance flood, none of the municipality's general building stock replacement cost value (structure and contents) will be damaged, 7 people may be displaced and an estimated 30 tons of debris could be generated.

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):

- Weaverville Road flooding (state road)
- Airport Road at City Line Road (state road)
- Sinkholes Chestnut Grove Townhouses
- Hanover Township notes that while there are a limited number of structures in the SFHA, these properties appear to have a very limited flood risk based on events since Hurricane Floyd (1999).

Please refer to the Hazard Profiles for additional vulnerability information relevant to this jurisdiction.



F.3 Hazard Mitigation Strategy

Note below 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	Continue to monitor flood vulnerability of the limited number of structures located in the NFIP SFHA. If flood vulnerability appears to increase, work with property owners to mitigate their properties. Specifically include these property owners in public education and outreach efforts (see following initiative).	Property Protection	Flood	High	Low (monitoring flood vulnerability, outreach). High – Mitigation of structures	Municipal Budget (monitoring, outreach); FEMA HMA grants for mitigation	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, ISO FEMA	On-going	Existing
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	Property Protection	Flood	High	Medium	Municipal Budget	Municipality (via Municipal Engineer/NFIP Floodplain Administrator) with support from PEMA, ISO FEMA	On-going	New & 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*	
	continued compliance actions identified as Initiatives 2-8 (below).									
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: 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. 									
	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	
4	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. LVPC for Carbonate Bedrock Standard model ordinance.	Short Term	New & Existing	
5	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	
6	Have designated NFIP Floodplain Administrator	Public Education	Flood	High	Low	Municipal Budget	NFIP Floodplain	Short Term DOF	N/A	



7 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. Public Hood Flood Medium Low Budget with support from PADEP, PEMA, FEMA DOF 8 Archive elevation certificates Public Education and Awareness Flood High Low Municipal Budget NFIP Floodplain Administrator On-going 8 Continue to support the implementation, monitoring, Au Low Municipal Budget, possibly Municipal Budget, possibly Municipal Budget, possibly Municipal planning point of contacts) On-going	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*
7Community Rating System (CRS) to further manage flood risk and reduce flood insurance premiums for NFIP policyholders. This shall start with the schall start with the 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.Prevention, Property Protection, Public add AwarenessFloodMediumLowMunicipal BudgetNFIP Floodplain Administrator with support from PADEP, PEMA, FEMAShort Ter DOF8Archive elevation certificatesPublic Education and AwarenessFloodHighLowMunicipal BudgetNFIP Floodplain Administrator with support from PADEP, PEMA, FEMANFIP Floodplain Administrator9Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined inAll CategoriesAll HazardsHighLow - High (for 5-year update)Municipal BudgetMunicipal Floodplain AdministratorMunicipal planning point of contacts)On-going9of this Plan, as defined inAll CategoriesAll HazardsHighLow - High (for 5-year update)Municipal BudgetMunicipal planning point of contacts)On-going		Floodplain Manager through the ASFPM, and pursue relevant continuing education training such as FEMA Benefit-Cost						Administrator		
8 Archive elevation certificates Education and Awareness Flood High Low Municipal Budget NFIP Floodplain Administrator On-going Administrator 9 Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in All All Hazards High Low – High (for 5-year update) Municipal Budget, planning point of contacts) with support from Planning Partners On-going All Hazards	7	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	Property Protection, Public Education and	Flood	Medium	Low		Floodplain Administrator with support from PADEP,	Short Term DOF	NA
9 Continue to support the implementation, monitoring, maintenance, and updating of this Plan, as defined in All All Hazards High Low – High (for 5-year update) Municipal (via mitigation planning point of contacts) 9 Municipal (for 5-year update) FEMA (for 5-year update) Witigation (for Planning point planning point of contacts)	8		Education and	Flood	High	Low		Floodplain	On-going	NA
5-year Points of update Contact), PEMA	9	implementation, monitoring, maintenance, and updating of this Plan, as defined in	All	All Hazards	High	(for 5-year	Budget, possibly FEMA Mitigation Grant Funding for 5-year	(via mitigation planning point of contacts) with support from Planning Partners (through their Points of Contact),	On-going	New & 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*	
	updates of the Comprehensive Emergency Management Plans	Services				Budget	with support from PEMA		Existing	
11	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	
12	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, record- keeping	Public Education and Awareness, Emergency Services	All Hazards	Medium	Medium	Municipal budget	Municipality with support from County, PEMA, FEMA	Short Term	NA	
13	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	Municipal budget, FEMA HMA and HLS grant programs	Municipality with support from County, PEMA	Short Term DOF	NA	

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 have been reasonably 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 reapportionment 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 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							(+) F		A STI rable		CRIT -) Les					ATIC Not		icab	le						Results	
		P Political			A Administrative			S Social		T Technical			E Economic					Envi	E ironi	nental		L Legal				
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	SUMMARY (EQUAL WEIGHTING)	SUMMARY (BENEFITS & COSTS PRIORITIZED)
1	Monitor Flood Vulnerability	+	+	+	N	-	-	+	+	N	+	+	+	N	+	+	+	N	N	+	+	+	+	N	16 + 2 - 6 N	20 + 2 - 6 N
2	Maintain NFIP compliance	+	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	+	+	N	+	-	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
3	Public Education and Outreach	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	N	N	Ν	N	+	+	17 (+) 0 (-) 6 (N)	21 (+) 0 (-) 6 (N)
4	Higher Regulatory Standards	+	+	-	+	+	-	-	-	+	+	+	+	+	+	+	+	N	Ν	+	+	+	+	-	16 (+) 5 (-) 2 (N)	20 (+) 5 (-) 2 (N)



5	Community Assistance Visit	+	+	+	+	+	-	+	+	+	Ν	Ν	+	+	+	+	N	N	N	Ν	+	N	+	-	14 (+) 2 (-) 7 (N)	18 (+) 2 (-) 7 (N)
6	NFIP FPA become a Certified Floodplain Manager	+	+	+	+	-	+	+	+	+	N	+	+	+	+	+	N	N	Ν	N	N	N	+	+	15 (+) 1 (-) 7 (N)	19 (+) 1 (-) 7 (N)
7	Join Community Rating System	+	+	+	+	-	-	+	+	+	+	+	+	+	+	+	+	+	Ν	+	+	N	+	+	19 (+) 2 (-) 2 (N)	23 (+) 2 (-) 2 (N)
8	Archive Elevation Certificates	+	+	+	+	+	+	+	+	+	N	+	+	+	N	+	N	N	N	N	+	N	+	+	16 (+) 0 (-) 7 (N)	20 (+) 0 (-) 7 (N)
9	Support Plan Maintenance and Update	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	Ν	N	Ν	Ν	+	+	+	+	19 (+) 0 (-) 4 (N)	23 (+) 0 (-) 4 (N)
10	Update CEMP	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	+	+	+	20 (+) 0 (-) 3 (N)	24 (+) 0 (-) 3 (N)
11	Enhance Mutual Aid Agreements	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	N	N	+	N	+	N	+	+	19 (+) 0 (-) 3 (N)	23 (+) 0 (-) 3 (N)
12	Identify Post- Disaster Capabilities	+	+	+	+	-	+	+	+	+	+	+	+	+	+	+	+	N	N	N	+	N	+	+	18 (+) 1 (-) 4 (N)	22 (+) 4 (-) 4 (N)
13	Develop Post- Disaster Capabilities	+	+	+	-	-	+	+	+	+	+	+	+	-	+	-	+	N	Ν	Ν	+	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 Hanover Township to illustrate the probable areas impacted within Hanover Township. 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 Hanover Township has significant exposure. The Planning Area maps are provided in the hazard profiles within Section 4, Volume I of this Plan.

J. ADDITIONAL COMMENTS

No additional comments at this time.



