

## 9.23 WASHINGTON TOWNSHIP

This section presents the jurisdictional annex for the Washington Township.

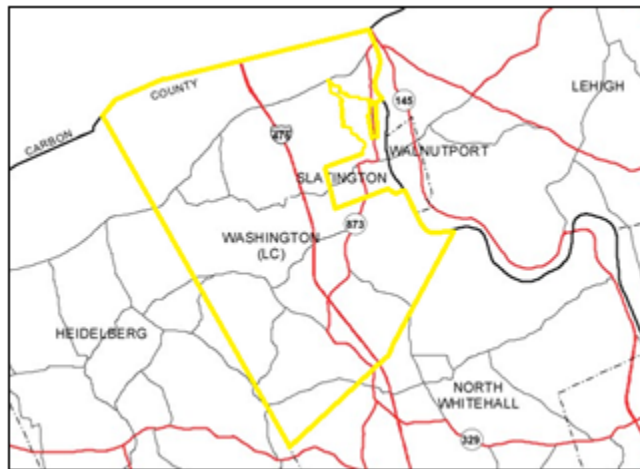
### A. HAZARD MITIGATION PLAN POINT OF CONTACT

Primary Point of Contact		Alternate Point of Contact	
<u>Name</u>	George T. Kern	<u>Name</u>	Gerald Phillips
<u>Title/</u>	Emergency Coordinator	<u>Title/</u>	Supervisor
<u>Department</u>		<u>Department</u>	
<u>Address</u>	2812 Cemetery St., Slatington, PA 18080	<u>Address</u>	7951 Center Street, Emerald, PA 18080
<u>Telephone</u>	610-767-9275	<u>Telephone</u>	610-767-8108
<u>Fax</u>		<u>Fax</u>	
<u>Email</u>	<a href="mailto:GTKcoins@aol.com">GTKcoins@aol.com</a>	<u>Email</u>	

### B. MUNICIPAL PROFILE

Washington Township is a rural township located in the northeastern part of Lehigh County, along the border of Carbon and Northampton counties. The township encompasses a land area of 23.8 square miles, and has a population of 6,624 (2010 Census). As shown in Figure 1, Washington Township is bordered by Carbon County to the north; Slatington Borough (Lehigh Township), Walnutport Borough, and Lehigh Township (both Northampton County) to the east; North Whitehall Township (Lehigh County) to the south; and Heidelberg Township to the west.

**Figure 1**



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

Washington Township lies within the Lehigh River Basin of the Lehigh River Watershed. The Lehigh River forms the boundary between Washington Township and Northampton County (except for areas where Slatington Borough lies between the township and the river). The major Lehigh River tributaries draining the township are Trout Creek, running east across the township and through Slatington Borough to the Lehigh; and Mill Creek, draining the southwest corner of the township in a southerly flow into Jordan Creek in Lowhill Township, and proceeding southeast through South Whitehall, Whitehall, and Allentown before emptying into the Lehigh River.



**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 RISK	NATURAL HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
<b>HIGH</b>	Flood	3	3	2	3	3	2.8
	Winter Storm	3	2	4	1	3	2.7
<b>MODERATE</b>	Radon Exposure	4	1	2	1	4	2.4
	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
	Landslide	1	2	3	4	1	2
<b>LOW</b>	Earthquake	1	1	4	4	1	1.9
	Subsidence / Sinkholes	2	1	1	2	1	1.4

HAZARD RISK	MAN-MADE HAZARDS	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
<b>HIGH</b>	Fire (Urban/Structural)	4	2	1	4	2	2.6
	Environmental Hazard and	3	2	2	4	3	2.6
	Utility Interruption	3	1	3	4	3	2.5
<b>MOD - ERATE</b>	Transportation Accident	4	1	1	4	1	2.2
	Mass Gathering and Civil Disturbance	3	1	1	4	2	2
<b>LOW</b>	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 Development				
Hazard Mitigation Plan	X	10/10/2006			+		Updating 2012
Emergency Operations Plan	X	10/9/2007					
Disaster Recovery Plan							
Evacuation Plan							
Continuity of Operations Plan							
NFIP							
NFIP – Community Rating System							
Floodplain Regulations (spec. NFIP Flood Damage Prevention Ordinance)							
Floodplain Management Plan							
Zoning Regulations	X						
Subdivision Regulations	X						
Comprehensive Land Use Plan (or General, Master or Growth Mgt. Plan)	X						
Open Space Management Plan (or Parks/Rec or	X						

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 Development				
Greenways Plan)							
Stormwater Management Plan / Ordinance	X						
Natural Resource Protection Plan							
Capital Improvement Plan							
Economic Development Plan							
Historic Preservation Plan	X						
Farmland Preservation	X						
Building Code	X						
Fire Code							
Firewise							
Storm Ready	X			Lehigh County			
Other							

**E.2 Administrative and Technical Capability**

Staff/Personnel Resources	Yes	No	Department/Agency	Comments
Planners (with land use / land development knowledge)	X			
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			
Emergency Manager	X			
NFIP Floodplain Administrator	X			
Land Surveyors	X			
Scientists or staff familiar with the hazards of the community				
Personnel skilled in Geographic Information Systems (GIS) and/or FEMA's HAZUS program				
Grant writers or fiscal staff to handle large/complex grants				
Staff with expertise or training in Benefit-Cost Analysis				
Other				

**E.3 Fiscal Capability**

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

None

### F.2 Hazard Vulnerabilities Identified

It is estimated that in Washington Township, 89 residents live within the 1% annual chance flood area (NFIP Special Flood Hazard Area). Of the municipality's total land area, 2.5% is located within the 1% annual chance flood area. \$13,078,422 (1.5%) of the municipality's general building stock replacement cost value (structure and contents) is located within the 1% annual chance flood area.

There are 10 NFIP policies in the community. While there are 35 structures located within the 1% annual chance flood area, there are only 4 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, \$487,129 (0.1%) of the municipality's general building stock replacement cost value (structure and contents) will be damaged, 113 people may be displaced, 16 people may seek short-term sheltering, and an estimated 397 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
WASHINGTON TWP	User Defined (Gov)	X	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):

None

Please refer to the Hazard Profiles 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	Maintain adequate fleet of vehicles and equipment to handle anticipated emergency response in the Township	Emergency Services	All	High	Medium	Township Budget; available public protection and emergency services grant programs	Township Public Works	On-going	N/A
2	Work with local electric utilities to improve line clearing during severe wind/winter weather storms	Property Protection	Severe Storms	High	Medium	Township Budget	Township and electric utilities	On-going	Existing
3	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 (through their Points of Contact), PEMA	On-going	New & Existing
4	Complete the ongoing updates of the Comprehensive Emergency Management Plans	Emergency Services	All Hazards	High	Low	Municipal Budget	Township with support from Lehigh County EMA	On-going	New & Existing
5	Work with regional agencies (i.e. County and PEMA) to help develop damage assessment capabilities at	Public Education and Awareness,	All Hazards	Medium	Medium	Municipal budget, FEMA HMA and	Township with support from Lehigh County and PEMA	Short Term DOF	NA

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*
	the local level through such things as training programs, certification of qualified individuals (e.g. code officials, floodplain managers, engineers).	Emergency Services				HLS grant programs			

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		PA STEEL CRITERIA CONSIDERATIONS																				Results			
		(+) Favorable						(-) Less favorable						(N) Not Applicable											
		P Political			A Administrative			S Social		T Technical			E Economic			E Environmental					L Legal			SUMMARY (EQUAL WEIGHTING)	SUMMARY (BENEFITS & COSTS PRIORITIZED)
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	Maintain adequate fleet of vehicles and equipment to handle anticipated emergency response in the Township	+	+	+	-	-	+	+	+	+	+	+	+	+	-	+	+	+	N	+	N	+	+	18 (+) 3 (-) 2 (N)	22 (+) 3 (-) 2 (N)
2	Work with local electric utilities to improve line clearing	+	+	+	-	-	-	+	-	+	+	+	+	+	-	+	+	+	+	+	N	+	+	17 (+) 5 (-) 1 (N)	21 (+) 5 (-) 1 (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 Washington Township to illustrate the probable areas impacted within Washington 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 Washington 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.

