

Executive Summary

After suffering the effects of floods, tornadoes, winter storms, and other natural and man-made hazards, the citizens, business leaders, and officials of Somerset County recognized the need to develop a long-term approach to reducing their vulnerability to hazards. In 2003, the Somerset County Hazard Mitigation Planning Committee, the local leadership for an initiative to promote communities' resistance to natural and man-made hazards, began a hazard mitigation planning process to identify the hazards that can affect the County and create a strategy to reduce damage from these hazards. This process culminated in the development of the first version of this Somerset County Hazard Mitigation Plan (HMP), which was adopted by the County and several municipalities and was approved by the Pennsylvania Emergency Management Agency (PEMA) and Federal Emergency Management Agency (FEMA) in 2004. This document represents the work of citizens, elected and appointed government officials, business leaders, and volunteer and nonprofit groups to protect community assets, preserve the economic viability of the community, and save lives.

In 2009, PEMA contracted the services of contracted consulting agency to revise and update the Somerset County Hazard Mitigation Plan. The plan was successfully updated in accordance with the requirements set forth by PEMA and FEMA. The updated 2010 Somerset County Hazard Mitigation Plan was adopted by the Somerset County Commissioners in 2010. Forty six (46) of the fifty (50) Somerset Municipalities then adopted the 2010 Somerset County Hazard Mitigation Plan as the municipal hazard mitigation plan.

The Somerset County Commissioners secured a grant to complete the 2015 update to the Somerset County Hazard Mitigation Plan. MCM Consulting Group, Inc. was hired to assist the county with the update of the plan. The planning kick off meeting was conducted August 19, 2014. The planning process consisted of the following:

- Identification and prioritization of the hazards that may affect the county and its municipalities
- Assessment of the county's and municipalities' vulnerability to these hazards
- Identification of the mitigation actions that can reduce that vulnerability
- Development of a strategy for implementing those actions, including identifying the agency(ies) responsible for that implementation

Throughout the planning process, the general public was given the opportunity to comment on the existing HMP and provide suggestions for the updated version. Public meetings were also conducted to provide residents an opportunity to provide input on the HMP.

The following hazards were identified by the LEPC as presenting the highest risk to the County and its municipalities:

- Floods, flash floods, and ice jams
- Severe winter storms
- Severe wind storms

Somerset County 2015 Hazard Mitigation Plan

- Environmental hazards: fixed facility
- Terrorism, war, and criminal activity
- Wildfire
- Tornadoes
- Utility interruptions
- Transportation accidents

To mitigate against the effects of these hazards, the LEPC identified the following goals for hazard mitigation over the next five years:

- Reduce potential injury/death and damage to existing community assets due to floods, flash floods, and ice jams.
- Reduce potential injury/death and damage to existing community assets due to high risk and moderate risk hazards.
- Promote disaster-resistant future development.
- Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.
- Improve response and recovery capabilities.
- Protect critical infrastructure in hazard areas.

The individual objectives and actions that will be implemented to do so are shown in Section 6.4.

Somerset County 2015 Hazard Mitigation Plan

Certification of Annual Review Meetings

The Somerset County Local Emergency Planning Committee (LEPC) has reviewed this Hazard Mitigation Plan. See Section 8 of the Somerset County Hazard Mitigation Plan for further details regarding this form. The Chairman of the LEPC hereby certifies the review.

YEAR	DATE OF MEETING	PUBLIC OUTREACH ADDRESSED?*	SIGNATURE
2016			
2017			
2018			
2019			
2020			

**Confirm yes here annually and describe on record of changes page.*

Record of Changes

DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
05/01/2010	Added hazard profiles on drought, earthquakes, subsidence and sinkholes, and hailstorms; added municipal surveys; revised mitigation action plans; added hazard profile information; completed other revisions required by FEMA for plan approval	Tony Subbio (consultant)	
07/20/2010	Completed additional revisions required by FEMA. Added text regarding potential loss to structures due to flood	Tony Subbio (consultant)	
05/07/2015	Changed Severe Windstorms profiles to Tornadoes/Severe Windstorms. Added the following hazard profiles to the risk assessment section: radon, hurricane/tropical storms, pandemic and infectious disease, transportation accidents, utility interruptions and levees. Updated the mitigation action plan and worked with the municipalities to develop new project opportunities.	Michael T. Rearick Consultant	

REMINDER: Please attach all associated meeting agendas, sign-in sheets, handouts, and minutes.

Table of Contents

Certification of Annual Review Meetings i

Record of Changes ii

1. Introduction 1

 1.1 Background 1

 1.2 Purpose 1

 1.3 Scope 2

 1.4 Authority and References 2

2. Community Profile 4

 2.1 Geography and Environment 4

 2.2 Community Facts 7

 2.3 Population and Demographics 9

 2.4 Land Use and Development 14

 2.5 Data Sources and Limitations 17

3. Planning Process 20

 3.1 Update Process and Participation Summary 20

 3.2 The Planning Team 21

 3.3 Meetings and Documentation 22

 3.4 Public & Stakeholder Participation 25

 3.5 Multi-Jurisdictional Planning 26

 3.6 Existing Planning Mechanisms 28

4. Risk Assessment 29

 4.1 Update Process Summary 29

 4.1.1 Data Sources and Limitations 30

 4.2 Hazard Identification 30

 4.2.1 Table of Presidential Disaster Declarations 31

 4.2.2 Summary of Hazards 34

 4.3 Hazard Profiles 38

 4.3.1 Floods, Flash Floods, and Ice Jams 39

Somerset County 2015 Hazard Mitigation Plan

- 4.3.2 Tornadoes and Severe Wind Storms 54
- 4.3.3 Severe Winter Storms 64
- 4.3.4 Wildfires 69
- 4.3.5 Radon 74
- 4.3.6 Drought..... 80
- 4.3.7 Earthquakes 88
- 4.3.8 Subsidence and Sinkholes 93
- 4.3.9 Hailstorms 95
- 4.3.10 Hurricane/Tropica Storms 97
- 4.3.11 Pandemic and Infectious Disease..... 100
- 4.3.12 Transportation Accidents 104
- 4.3.13 Utility Interruptions 112
- 4.3.14 Environmental Hazards 116
- 4.3.15 Terrorism, War, Criminal Activity Hazards..... 123
- 4.3.16 Levees 126
- 4.4 Hazard Vulnerability Summary 128
 - 4.4.1 Methodology 128
 - 4.4.2 Ranking Results 130
 - 4.4.3 Potential Loss Estimates 141
 - 4.4.4 Future Development and Vulnerability 143
- 5 Capability Assessment.....146**
 - 5.1 Update Process Summary 146
 - 5.2 Capability Assessment Findings 147
 - 5.2.1 Emergency Management 147
 - 5.2.2 Participation in the National Flood Insurance Program (NFIP) 147
 - 5.2.3 Planning and Regulatory Capability 151
 - 5.2.4 Administrative and Technical Capability 155
 - 5.2.5 Fiscal Capability 157
 - 5.2.6 Political Capability..... 160
 - 5.2.7 Self-Assessment..... 160
 - 5.2.8 Existing Limitations..... 162
- 6 Mitigation Strategy.....163**
 - 6.1 Update Process Summary 163
 - 6.2 Mitigation Goals and Objectives 192

6.3 Identification and Analysis of Mitigation Techniques 195

6.4 Mitigation Action Plan 198

7 Plan Maintenance.....239

7.1 Update Process Summary 239

7.1 Monitoring, Evaluating and Updating the Plan 239

7.2 Incorporation into Other Planning Mechanisms 240

 7.2.1 Somerset County Comprehensive Plan..... 240

 7.2.2 Somerset County Emergency Operations Plan 240

 7.2.3 Plan Interrelationships 241

7.3 Continued Public Involvement 243

8 Plan Adoption.....244

Appendix A: Bibliography

Appendix B: Local Mitigation Plan Review Crosswalk

Appendix C: Meeting and Other Participation Documentation

Appendix D: Municipality Flood Vulnerability Maps

Appendix E: Critical Facilities

Appendix F: 2015 Mitigation Project Opportunity Forms

Appendix G: 2010 Mitigation Opportunity Reviews

Appendix H: County and Municipal Adoption Resolutions

Appendix I: Annual Review Information

Appendix J: HAZUS Results

1. Introduction

1.1 Background

The Somerset County Board of Commissioners, in response to the Disaster Mitigation Act of 2000 (DMA 2000), spearheaded a county-wide hazard mitigation planning effort to prepare, adopt, and implement a multi-jurisdictional Hazard Mitigation Plan (HMP) for Somerset County and all of its 50 municipalities. The Somerset County Department of Emergency Services was charged by the County Board of Commissioners to prepare the 2010 plan. The 2010 HMP has been utilized and maintained during the 5 year life cycle.

The Somerset County Commissioners were successful in securing hazard mitigation grant funding to update the county hazard mitigation plan. The funding was available due to federal response and mitigation from severe flooding in 2011 and the subsequent issuance of a presidential disaster declaration in Pennsylvania. The Somerset County Commissioners again assigned the Somerset County Department of Emergency Services with the primary responsibility to update the hazard mitigation plan. MCM Consulting Group, Inc. was selected and hired to complete the update of the HMP. A local hazard mitigation planning team was developed. The team was comprised of government leaders and citizens from Somerset County. This updated HMP will provide another solid foundation for the Somerset County Hazard Mitigation Program.

Hazard mitigation describes sustained actions taken to prevent or minimize long-term risks to life and property from hazards and to create successive benefits over time. Pre-disaster mitigation actions are taken in advance of a hazard event and are essential to breaking the disaster cycle of damage, reconstruction and repeated damage. With careful selection, successful mitigation actions are cost-effective means of reducing risk of loss over the long-term.

Hazard mitigation planning has the potential to produce long-term and recurring benefits. A core assumption of mitigation is that current dollars invested in mitigation practices will significantly reduce the demand for future dollars by lessening the amount needed for recovery, repair, and reconstruction. These mitigation practices will also enable local residents, businesses, and industries to re-establish themselves in the wake of a disaster, getting the economy back on track sooner and with less interruption.

1.2 Purpose

The purpose of this HMP is to minimize the effects that natural, technological, and man-made hazards have on the people, property, environment, and business operations within Somerset County. This document exists to provide the background information and rationale for the mitigation actions that the Somerset County LEPC and municipal representatives have chosen to implement.

Somerset County 2015 Hazard Mitigation Plan

The document is governed by the Disaster Mitigation Act of 2000 (DMA 2000) and the implementation of regulations (44 CFR §201.6, published February 26, 2002). Local jurisdictions must comply with the DMA 2000 and these regulations to remain eligible for funding and technical assistance from state and federal hazard mitigation programs.

1.3 Scope

The implementation actions within this HMP apply to Somerset County and any municipalities that adopt this HMP as their own. However, only those municipalities that have participated in the plan update process will remain eligible for state and federal hazard mitigation funding through the HMP. For the purpose of this plan update, municipal participation was defined as completion and submission of a Risk Assessment Update Worksheet and Capability Assessment Survey, and attendance by a municipal official at a planning or public meeting conducted as part of the planning process.

1.4 Authority and References

This section lists references used to prepare the Somerset County HMP. Existing plans and studies were reviewed and integrated into the HMP. The Somerset County Comprehensive Plan, located on the Somerset County Planning Commission's Web site, was incorporated into multiple aspects of this HMP. Information from the comprehensive plan and other documents was used to formulate the county profile, to identify the history of individual hazards, and to detail the population projections in Somerset County.

Authority for this plan originates from the following federal sources:

- Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C., Section 322, as amended
- Code of Federal Regulations (CFR), Title 44, Parts 201 and 206
- Disaster Mitigation Act of 2000, Public Law 106-390, as amended
- National Flood Insurance Act of 1968, as amended, 42 U.S.C. 4001 *et seq.*

Authority for this plan originates from the following Commonwealth of Pennsylvania sources:

- Pennsylvania Emergency Management Services Code. Title 35, Pa C.S. Section 101
- Pennsylvania Municipalities Planning Code of 1968, Act 247 as reenacted and amended by Act 170 of 1988
- Pennsylvania Stormwater Management Act of October 4, 1978. P.L. 864, No. 167

The following Federal Emergency Management Agency (FEMA) guides and reference documents were used to prepare this document:

- FEMA 386-1: *Getting Started*. September 2002
- FEMA 386-2: *Understanding Your Risks: Identifying Hazards and Estimating Losses*. August 2001
- FEMA 386-3: *Developing the Mitigation Plan*. April 2003
- FEMA 386-4: *Bringing the Plan to Life*. August 2003
- FEMA 386-5: *Using Benefit-Cost Review in Mitigation Planning*. May 2007

Somerset County 2015 Hazard Mitigation Plan

- FEMA 386-6: *Integrating Historic Property and Cultural Resource Considerations into Hazard Mitigation Planning*. May 2005
- FEMA 386-7: *Integrating Manmade Hazards into Mitigation Planning*. September 2003
- FEMA 386-8: *Multijurisdictional Mitigation Planning*. August 2006
- FEMA 386-9: *Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects*. August 2008
- FEMA *Local Multi-Hazard Mitigation Planning Guidance*. July 1, 2008

The following Pennsylvania Emergency Management Agency (PEMA) guides and reference documents were used to prepare this document:

- PEMA: *Hazard Mitigation Planning Made Easy!*
- PEMA Mitigation Ideas: *Potential Mitigation Measures by Hazard Type: A Mitigation Planning Tool for Communities*. March 6, 2009
- PEMA: *Standard Operating Guide*. October 18, 2013

The following document produced by the National Fire Protection Association (NFPA) provided additional guidance for updating this plan:

- NFPA 1600: *Standard on Disaster/Emergency Management and Business Continuity Programs*. 2007

2. Community Profile

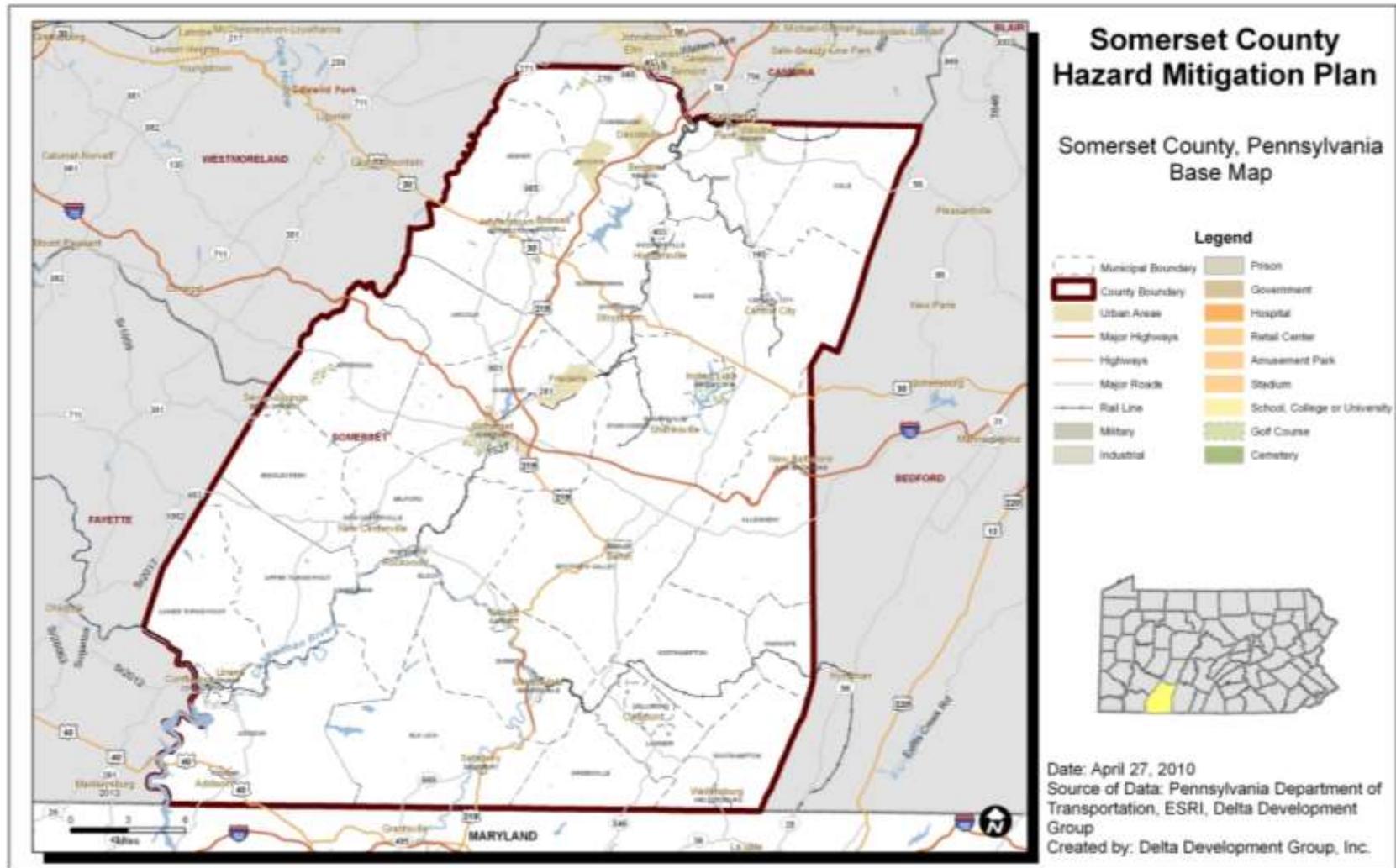
2.1 Geography and Environment

Somerset County is located in the southwest portion of the Commonwealth of Pennsylvania, in a region known as the Laurel Highlands. It is bordered to the southwest by Fayette County, to the northwest by Westmoreland County, to the north by Cambria County, to the east by Bedford County, and to the south by Maryland. The County's land area is 1,085 square miles, the seventh largest in the state.

Transected by the Appalachian continental divide, the County landscape is composed of aged mountain ridges and the headwaters of the Youghiogheny and Potomac Rivers. Somerset County rests atop the Allegheny Plateau. Consequently, much of the County's topography is generally characterized by rolling hills, instead of dramatic slopes and valleys. The plateau is defined on the east by the Allegheny Front, through which the Allegheny Tunnel of the Pennsylvania (PA) Turnpike extends and which represents the eastern continental divide. All waters west of this mountain – most of Somerset County – flow toward the Ohio River and ultimately the Mississippi River; all waters east flow to the Potomac River and into the Chesapeake Bay. The southern portion of the County is more mountainous and includes the highest point in Pennsylvania – Mount Davis. The Laurel Ridge defines the western portion of the County. The County's boundaries are responsive to and defined by these physical features. Elevations range from 1,040 feet in Southampton Township to the 3,213 feet of Mount Davis (excerpted from the Somerset County Comprehensive Plan Update, August 2006).

A base map of Somerset County can be found on the next page.

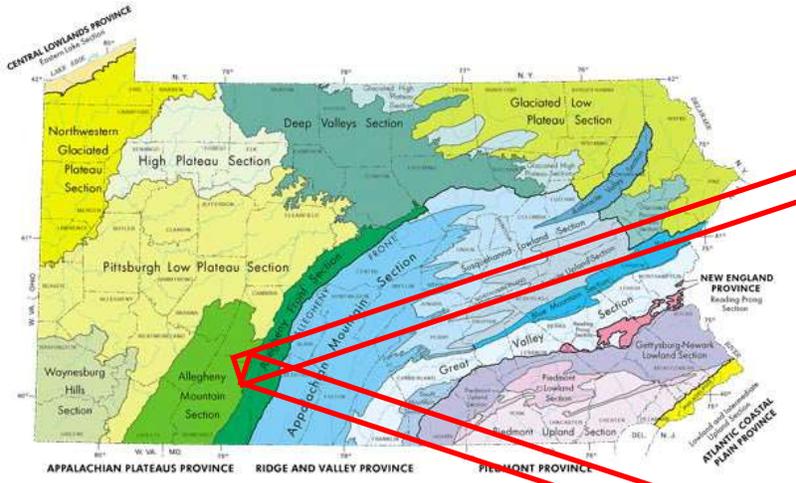
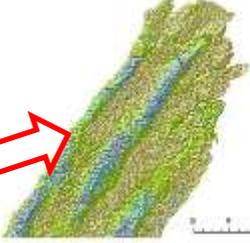
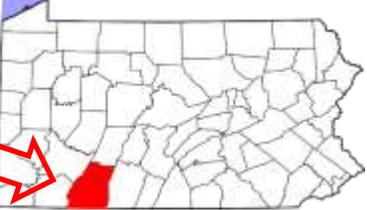
Somerset County Base Map



Somerset County 2015 Hazard Mitigation Plan

The Allegheny Mountain Section Appalachian Plateaus Province encompasses all of Somerset County, about half of Fayette and Cambria counties and parts of Westmoreland, Indiana, Blair, and Bedford Counties. Broad, rounded ridges separated by broad valleys are consistent in the Allegheny Mountain Section. The southern parts of these ridges form the highest mountains in Pennsylvania (Mt. Davis at 3,213 feet). The valleys have broad, rippling surfaces with shallow to deep stream incision. See Table 2-1.

Table 2-1

Physiographic provinces of PA DCSR	Allegheny Mountain Section Appalachian Plateaus Province
 <p>http://www.dcnr.state.pa.us/topogeo/field/map13/index.htm</p>	 <p>http://www.dcnr.state.pa.us/topogeo/field/map13/13alms/index.htm</p>
	<p>Location within Pennsylvania</p>  <p>http://www.bing.com/images/search?q=Somerset+County+PA+map&id=44B4FB33D383EAD92CD9209B3708B922F89152DB&FORM=IQFRBA#view=detail&id=DED3C07BA3316A8D4E689A567C33849C9495C805&selectedIndex=21</p>

Somerset County has 2,340 miles of streams (based on PENNDOT/DEP data). There are five major watersheds: Raystown, Conemaugh, North Branch of the Potomac, Kiskiminetas, and the Youghiogheny.

Minor watersheds in Somerset County include:

- Beaverdam Creek
- Beaverddam, Creek - Quemahoning
- Casselman River – Youghiogheny;
- Clear Shade Creek

- Coxes Creek Watershed,
- Fall Creek – Laurel Hill Creek;
- Flag Run – Casselman River;
- Headwaters Stoneycreek;
- Indian Lake – Lake Stonycreek;
- Lake Somerset – East Branch;
- Laurel Hill Creek watershed;
- Middle Creek;
- Middle Stonycreek River
- North Branch Quemahoning
- Paint Creek
- Roarin Run – Quemahoning;
- Sandy Run – Laurel Hill Creek;
- Shade Creek- Stony Creek
- Stoneycreek River Water Shed;
- South Fork Bens Creek
- Town Line Run;
- Tub Mill Run – Casselman River;
- Upper Stonycreek River
- Wells Creek
- West Branch Cosex Creek;
- Whites Creek.

The average temperature in Somerset County is in the upper 70s in the summer and low 30s in the winter. The average precipitation is 40” to 45” per year.

Somerset County is one of the snowiest inhabited locations in the United States, with the highest elevations of the county averaging 150 plus inches of snow each winter. Nor’easters and lake effect upslope snow events occur from late October through early April; and are caused by the county’s elevation and general proximity to both the Great lakes and the Atlantic Ocean.

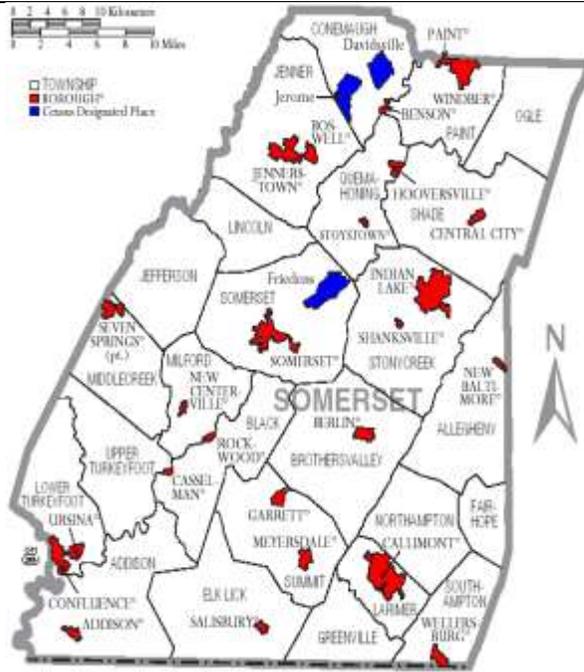
2.2 Community Facts

Settled primarily by farmers, the County’s communities are small and dispersed, comprising numerous towns, villages, and crossroads settlements rooted in history and rural values. Somerset County is classified politically as a 6th class county that includes 25 townships and 25 boroughs. Somerset Borough is the county seat.

Tourism, manufacturing, coal mining, and agriculture are the major economic forces in the County. The PA Turnpike (I-76) traverses the County from east to west. Other major highways include U.S. Routes 219 and 30, and PA Route 31 (excerpted from the Somerset County Comprehensive Plan Update, August 2006)

Somerset County 2015 Hazard Mitigation Plan

Table 2-2	
Boroughs	Townships
Addison	Addison
Benson	Allegheny
Berlin	Black
Boswell	Brothersvalley
Callimont	Conemaugh
Casselman	Elk Lick
Central City	Fairhope
Confluence	Greenville
Garrett	Jefferson
Hooversville	Jenner
Indian Lake	Larimer
Jennerstown	Lincoln
Meyersdale	Lower Turkeyfoot
New Baltimore	Middlecreek
New Centerville	Milford
Paint	Northampton
Rockwood	Ogle
Salisbury	Paint
Seven Springs	Quemahoning
Shanksville	Shade
Somerset	Somerset
Stoystown	Southampton
Ursina	Stonycreek
Wellersburg	Summit
Windber	Upper Turkeyfoot



http://en.wikipedia.org/wiki/Somerset_County,_Pennsylvania#mediaviewer/File:Map_of_Somerset_County_Pennsylvania_With_Municipal

During the French and Indian War, Somerset County was opened up when military expeditions developed roads for the westward settlers. General Braddock and his troops crossed the southwest corner of the county in 1755. Their trail was the first development in settling the county (the trail is now known as U.S. Route 40). Lands in Somerset County were relinquished from the Native Americans in 1768 with the Treaty of Fort Stanwix. Somerset County was established April 17, 1795, from Bedford County. It was named for Somerset, England.

Landmarks and places of interest include:

- Jennerstown Speedway
The track, one of the oldest short-track facilities in the U.S., is a 0.522-mile asphalt oval that opened in the late 1920s. Jennerstown features late models, modified, street stocks, chargers, and hobby stocks.

Somerset County 2015 Hazard Mitigation Plan

- The Mountain Playhouse
Pennsylvania's oldest professional stock theater and one of only twelve professional summer stock theaters remaining in the United States. The theater is housed in a restored 1805 gristmill, and seats 393.
- The Dressler Center
- National Memorial for Flight 93



Temporary memorial at crash site / Memorial site today

- State parks
 - Laurel Hill State Park
 - Kooser State Park
 - Laurel Ridge State Park
 - Laurel Mountain State Park
- The Great Allegheny Passage Trail
- Four – season resorts
 - Seven Springs
 - Hidden Valley
- Ten covered bridges
- Quecreek rescue site

2.3 Population and Demographics

Population and demographic information provides baseline data about residents. Changes in demographics or populations may be used to identify higher risk populations. Maintaining up-to-date data on demographics will allow the County to better assess magnitudes of hazards and develop more specific mitigation plans.

There are 19 municipal police departments in Somerset County, those municipalities that do not have police services rely on the Pennsylvania State Police, Troop A, Somerset station.

There are three hospitals: Windber Medical Center, Meyersdale Hospital, and Somerset Community Hospital; within the county.

Other public services are provided by 29 volunteer fire departments, 7 advanced life support and 3 basic life support emergency medical services.

Somerset County has 11 school districts, and 12 private educational facilities.

Somerset County 2015 Hazard Mitigation Plan

Baseline demographic information for Somerset County is provided below in Table 2-3.

Table 2-3	
Demographics	2010 Census
Total population	77,742
Male	40,029
Female	37,713
Median age (years)	44.3
Under 5 years	3,702
18 years and over	62,611
65 years and over	14,431

Source: U.S. Census Bureau, 2010 Census Interactive Population Search, Somerset County

The 2010 Census recorded 77,748 total population for Somerset County, and estimated 76,520 persons for 2013. This is a 1.6 percent decrease. There is a population density of 72.4 persons per square mile (according to the US Census Bureau's Quick Facts). There are 31,090 occupied housing units and 7,023 vacant housing units in the county.

The most densely populated areas are Somerset Township and Conemaugh Township.

A low population density means that people are spread throughout the County rather than clustered in groups. Dispersing information, instructions, and resources in a low-density area is more difficult than in a more densely populated area because individuals are not centralized.

However, a low population density also helps prevent hazards from affecting as many people. For example, diseases may not spread as quickly because there is less contact between people. Similarly, fires are less likely to spread to other structures because of the large distances between them. The magnitude of an event is typically smaller in a less populated area because each event affects fewer people and properties.

Almost 20 percent of Somerset County's population is 65 or older. These residents may have special needs. For example, many may be unable to drive; therefore, special evacuation plans may need to be created for them. They may also have hearing or vision impairments that could make receiving emergency instructions difficult. Both older and younger populations have higher risks for contracting certain diseases. The County's combined populations who are under

Somerset County 2015 Hazard Mitigation Plan

5 years of age and over 65 years represent approximately 24 percent of its total population. (2013 estimates)

Table 2-4 provides population estimates for each municipality in Somerset County and in the County as a whole. Somerset County is losing population. By the year 2030, it is estimated that the entire County will have a population of 79,469. This means that Somerset County loses approximately 18 people annually from 2000 to 2030. Many municipalities are expecting to deal with a population loss as well. This means that some structures may become vacant and infrastructure will age, since there will be little new development that would require infrastructure updates. It is important that the County properly maintains its existing infrastructure and has plans to manage or redevelop vacant properties.

Table 2-4

Municipality Name	2000 Census	Annual Growth Rate (Percent)	2010 Census	Annual Growth Rate (Percent)	2020 Projected	Annual Growth Rate (Percent)	2030 Projected
Addison Borough	214	-0.03	207	-0.16	178	-0.01	176
Addison Township	1,019	-0.05	974	0.07	1,052	-0.01	1,045
Allegheny Township	654	0.05	692	-0.01	686	0.01	693
Benson Borough	194	-0.02	191	-1.73	70	0.04	73
Berlin Borough	2,192	-0.04	2,104	0.12	2,397	0.00	2,394
Black Township	980	-0.06	926	0.01	934	-0.01	927
Boswell Borough	1,364	-0.07	1,277	-0.04	1,225	0.00	1,231
Brothersvalley Township	2,415	-0.01	2,398	0.02	2,457	0.00	2,457
Callimont Borough	51	-0.24	41	0.37	65	0.02	66
Casselman Borough	99	-0.05	94	-0.04	90	-0.01	89
Central City Borough	1,258	-0.12	1,124	-0.05	1,068	-0.01	1,056
Conemaugh Township	7,452	-0.02	7,279	-0.13	6,426	0.00	6,400
Confluence Borough	834	-0.07	780	-0.10	710	0.00	708
Elk Lick Township	2,293	-0.02	2,241	0.02	2,286	0.00	2,288
Fairhope Township	137	-0.02	134	-0.10	122	-0.01	121
Garrett Borough	449	0.02	456	-0.38	330	0.00	331
Greenville Township	718	-0.07	668	0.16	793	0.00	791
Hooversville Borough	779	-0.21	645	0.11	728	-0.01	720
Indian Lake Borough	450	-0.14	394	0.33	590	0.00	591
Jefferson Township	1,375	0.03	1,423	0.04	1,476	0.01	1,492
Jenner Township	4,054	0.02	4,122	-0.10	3,751	0.00	3,745
Jennerstown Borough	714	-0.03	695	0.12	790	-0.01	786
Larimer Township	590	0.01	595	0.14	691	0.00	692

Somerset County 2015 Hazard Mitigation Plan

Table 2-4

Municipality Name	2000 Census	Annual Growth Rate (Percent)	2010 Census	Annual Growth Rate (Percent)	2020 Projected	Annual Growth Rate (Percent)	2030 Projected
Lincoln Township	1,669	-0.10	1,518	0.07	1,634	0.00	1,631
Lower Turkeyfoot Township	672	-0.11	603	0.06	644	0.00	642
Meyersdale Borough	2,473	-0.13	2,184	0.08	2,368	0.00	2,367
Middlecreek Township	797	0.09	875	-0.13	776	-0.01	771
Milford Township	1,561	-0.01	1,553	0.00	1,552	0.00	1,549
New Baltimore Borough	168	0.07	180	-0.42	127	-0.02	124
New Centerville Borough	193	-0.45	133	0.22	170	0.01	171
Northampton Township	366	-0.07	343	-0.09	315	-0.01	311
Ogle Township	588	-0.17	501	0.23	649	0.01	654
Paint Borough	1,103	-0.08	1,023	0.02	1,047	0.00	1,042
Paint Township	3,300	-0.05	3,149	-0.06	2,957	0.00	2,959
Quemahoning Township	2,180	-0.08	2,025	-0.01	2,010	0.00	2,014
Rockwood Borough	954	-0.07	890	-0.05	847	0.00	848
Salisbury Borough	878	-0.21	727	0.26	987	-0.01	975
Seven Springs Boro	126	-10.45	11	0.95	244	-0.03	238
Shade Township	2,886	-0.04	2,774	-0.23	2,253	0.00	2,250
Shanksville Borough	245	-0.03	237	-0.05	226	-0.01	224
Somerset Borough	6,762	-0.08	6,277	0.12	7,110	0.00	7,095
Somerset Township	11,088	0.09	12,122	0.14	14,101	-0.01	14,004
Southampton Township	655	-0.04	630	0.19	777	-0.01	772
Stonycreek Township	2,221	0.01	2,237	0.09	2,455	0.00	2,452
Stoystown Borough	428	-0.21	355	0.19	439	-0.01	435
Summit Township	2,368	-0.04	2,271	-0.04	2,185	0.00	2,189
Upper Turkeyfoot Township	1,232	-0.10	1,119	0.17	1,342	0.00	1,337
Ursina Borough	254	-0.13	225	-0.24	181	0.02	185
Wellersburg Borough	176	0.03	181	-1.01	90	-0.01	89
Windber Borough	4,395	-0.06	4,138	-0.26	3,291	-0.01	3,269
SOMERSET COUNTY	80,023	-13.58	77741	-1.13	79,692	-0.11	79,469

Source: Pennsylvania State Data Center

Somerset County 2015 Hazard Mitigation Plan

Table 2-5	
Race and Ethnicity	2010 Census
White	74,603
African American	1,863
Asian	239
American Indian and Alaska Native	86
Native Hawaiian and Pacific Islander	17
Some other race	468
Two or more races	466
Hispanic or Latino	840

Source: U.S. Census Bureau, 2010 Census Interactive Population Search, Somerset County

Approximately 3 percent of Somerset County’s population speaks a language other than English. Hazard mitigation strategies will need to address language barriers to ensure that all residents can receive emergency instructions.

Table 2-6	
Housing Characteristics	2010 Census
Total housing units	38,113
Owner-occupied housing units	23,885
Renter-occupied housing units	7,205
Vacant housing units	7,023
Seasonal, recreational, or occasional use	4,559
Median value (dollars)	95,100

Source: U.S. Census Bureau, 2010 Quick Facts, Somerset County

Somerset County has 38,113 residential properties. These properties may be vulnerable to various natural hazards, particularly flooding and windstorms. Damage to residential properties is not only expensive to repair or rebuild, but also devastating to the displaced family.

Somerset County has approximately 4,559 seasonal homes throughout the county.

Approximately 22 percent of the County’s population rents. Renters are more transient than homeowners; therefore, communicating with renters may be more difficult than with home owners. Similarly, tourists would be a harder population to communicate with during an emergency event. Communication strategies should be developed to ensure that these populations can be given proper notification.

Table 2.7	
Economic Characteristics	2012 Estimates
Median household income	\$ 46,263.00
Median family income	\$ 56,322.00
Per capita income	\$ 23,266.00

Source: U.S. Census Bureau, 2012 American Community Survey, Somerset County

The median household income in the County is \$46,263, which is lower than the Commonwealth of Pennsylvania’s median household income of \$51,230. The County’s per capita income of \$23,266 is lower than the Commonwealth’s per capita income of \$27,774.

2.4 Land Use and Development

Somerset County is comprised of 1,085 square miles (689,920 acres). Sixty one percent, or 400,000 acres of the county has forest cover that are second or third growth. There are 2,340 miles of streams. It is estimated that Somerset County has approximately 81,000 acres of prime agricultural soils.

There are 17,945 acres of state forests and over 15,000 acres of state game lands in Somerset County.

The County’s Comprehensive Plan details its land use goals and objectives. These have been adjusted for the 2015 hazard mitigation plan update.

Goal: Promote the development of recreation and natural resource-based tourism industries.

Objective: The growing recreation and tourism economy in the county has established itself as a viable economic force. Now is the time for the County to fully capitalize on this trend. The county must continue to expand its investment in creating attractions and enhancing the visitor experience. Nearly every county in the state is exploring its opportunities to grow its tourism economy. With the large ski resorts, the Great Allegheny Passage Trail, and numerous state parks, Somerset County has tourism resources that many other counties cannot offer. With growing competition, it is important to support this business sector.

Detailed Action Strategies

- Identify tourism opportunities related to the Great Allegheny Passage Trail.
- Identify tourism linkages.
- Promote natural resources as an economic advantage for companies.
- Consider all projects in terms of tourism impact.
- Develop more recreation programs for seniors and youths.

Somerset County 2015 Hazard Mitigation Plan

- Coordinate with Somerset County Hotel Tax Grant.
- Develop education programs for those working in the tourism industry.

Goal: To ensure that new development conserves and maintains the positive character qualities of the County and its landscapes and to provide for growth that is consistent with infrastructure investments.

Objective: Recent development is at odds with the economic development initiatives, especially tourism, and is functionally inefficient.

- Much of the newer development lacks quality and positive aesthetic values.
- Poor standards for roadway access, project interconnectivity, and parking requirements create additional and unnecessary transportation problems.
- Incompatible land uses create conflicts.
- The county's architectural and scenic qualities are important resources for tourism and are generally not being protected.

Detailed Action Strategies

- Evaluate zoning implementation options.
- Abandon the existing County Interchange Area Zoning Ordinance.
- Develop a new Corridor and Limited Access Highway Interchange Area Ordinance to provide for higher quality development. Reduce the ability of sprawling strip-type development, especially when Route 219 is completed to I-68.
- Develop model ordinances and educational programs, including strategic public relations and media campaign components.
- Offer incentive programs for communities to adopt zoning.
- Work with municipalities to update existing ordinances and codes to promote modern standards and consistency with local and county plans.
- Lobby the state to require land ordinances in order to be eligible for key funding programs and to provide incentive for participation in programs.

Goal: Restore vibrancy and health to County boroughs and villages to promote economic investment and reduce sprawling development patterns.

Objective: Years of decline and shifts in the economy have left many of the county's towns and boroughs in a neglected state.

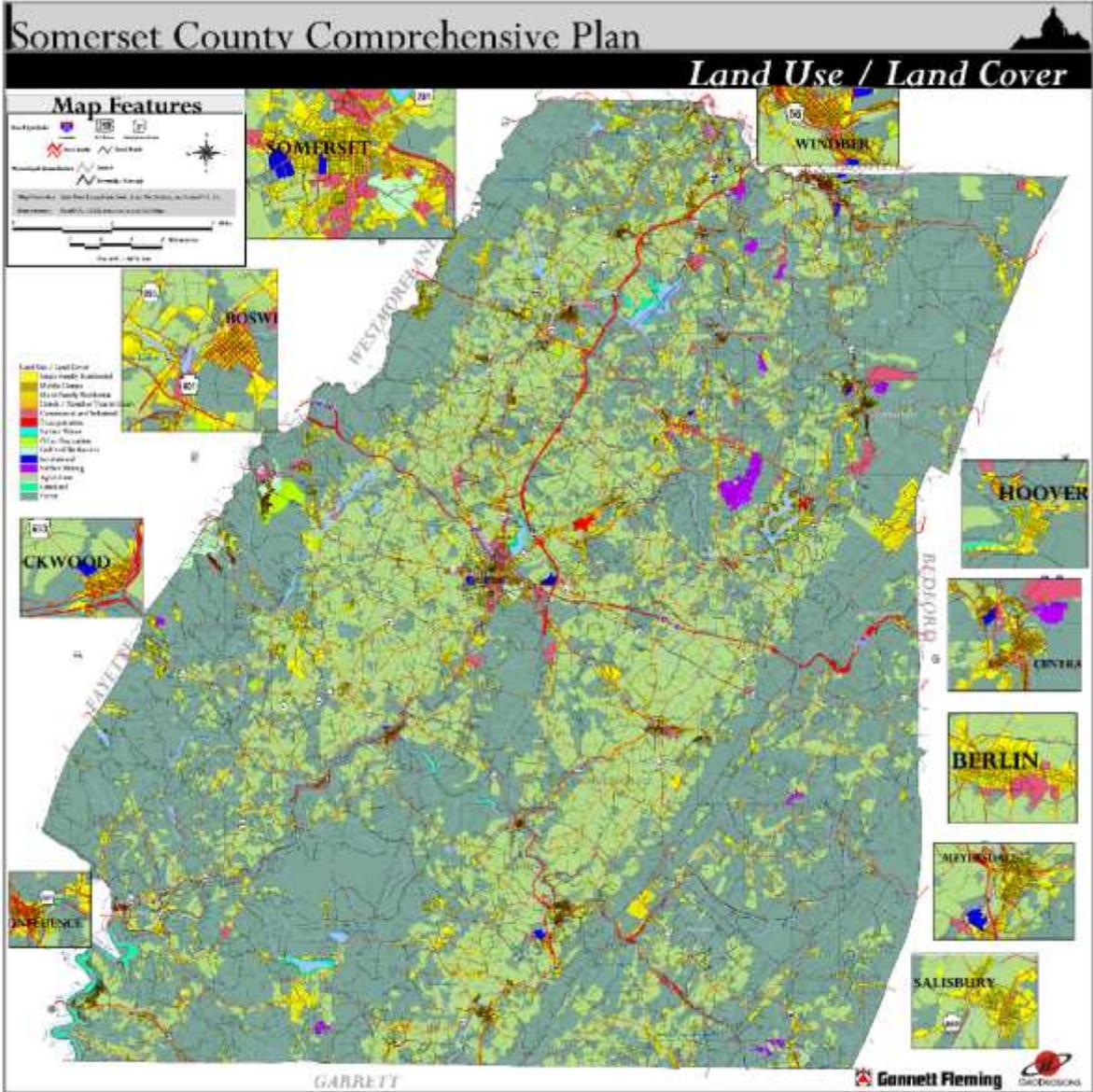
Detailed Action Strategies

Somerset County 2015 Hazard Mitigation Plan

- Create a Redevelopment Program to restore vibrancy and health to the county's boroughs and villages, capitalize on untapped economic potential, and reduce sprawling development patterns.
- Provide planning assistance to local communities.
- Provide grant-writing support.
- Develop marketing strategies and economic analysis to redevelop properties and projects.
- Market projects to private investors/developers.
- Provide land/property assemblage and acquisition.
- Create public/private financing with infrastructure support.

The map on the following page shows Somerset County's existing Land Use Plan. It also calls out the more developed municipalities in the region to depict their land use plans as well. As can be seen from the map, the majority of the county is forested, with small pockets of development dispersed between the ridgelines.

Land Use Plan



2.5 Data Sources and Limitations

Information for the community profile was developed by using information from the following sources:

- U.S. Census Bureau, 2010 Census Interactive Population Search, Somerset County
- U.S. Census Bureau, 2010 Quick Facts, Somerset County
- Pennsylvania State Data Center, <http://pasdc.hbg.psu.edu/Home/tabid/926/Default.aspx>
- Somerset County Comprehensive Plan Update, 2006. Available online at http://www.co.somerset.pa.us/files/comprehensive_files/pdf/ExecutiveSummary.pdf

Somerset County 2015 Hazard Mitigation Plan

- EPA - My Waters Mapper – http://watersgeo.epa.gov/mwm/?layer=303D&feature=PA17C48064_5303&extraLayers=null
- Jennerstown Speedway - <http://www.jennerstownspeedway.net/history.html>
- Mountain Playhouse - <http://www.mountainplayhouse.com/>

The countywide Digital Flood Insurance Rate Maps (DFIRM), were used for all flood risk analysis and estimation of loss. The DFIRM database provides flood frequency and elevation information used in the flood hazard risk assessment. Other Somerset County GIS datasets including road centerlines and structures were utilized in conjunction with the DFIRM. The DFIRM data that was used for this plan update became effective on October 15, 2014. The most current DFIRM data was used for the update of this plan.

Although digital parcel tax data was available, the data was not valid. GIS staff stated that the data has not been maintained over the years. Utilization of the data would not provide accurate loss estimates if used for hazard loss estimations. Also, the data did not have appropriate attributes that designated specific structure types.

The GIS structure file also provided some challenges during the development of the mitigation plan update. This file did not allow for the determination of residential versus commercial structures due to data attributes. There was also no way to determine a mobile home from a single family residence. The lack of these abilities directly affected the development of the hazard profiles for specific hazards (flooding, tornadoes, wind storms, etc.)

Geographic Information Systems (GIS) Data

GIS data was utilized in risk assessment, estimation of loss and the development of map products for the hazard mitigation plan update. A core foundation of data was available from the Somerset County Planning Department. The following is a list of existing GIS data that was utilized in the plan update process.

Somerset County existing GIS data used for the mitigation plan update	
GIS Data Layer	GIS Data Layer
<ul style="list-style-type: none"> • Address Points • Parcel Polygons • Road Centerlines • Railroads • County Boundaries • Towers 	<ul style="list-style-type: none"> • Rivers • Streams • Lakes, Ponds, Swamps • Schools • School Districts

Somerset County 2015 Hazard Mitigation Plan

The following is a list of new GIS data that was developed and utilized in the plan update process.

Somerset County new GIS data used for the mitigation plan update	
GIS Data Layer	GIS Data Layer
<ul style="list-style-type: none"> • Nursing Homes • EMS Facilities • Tornado History 1954-2015 • Hospitals • SARA Facilities 	<ul style="list-style-type: none"> • Fire Departments • Tier II Facilities • Severe Repetitive Loss Properties • 2014 Digital Flood Maps

3. Planning Process

A successful planning process builds partnerships and brings together members representing government agencies, the public, and other stakeholders to reach consensus on how the community will prepare for and respond to hazards that are most likely to occur. Applying a comprehensive and transparent process adds validity to the plan. Those involved gain a better understanding of the problem or issue and how solutions and actions were devised. The result is a revised set of common community values and widespread support for directing financial, technical, and human resources to an agreed-upon action. The planning process was an integral part of updating the Somerset County HMP. This section describes the planning process used to update Somerset County's HMP.

3.1 Update Process and Participation Summary

The Somerset County Hazard Mitigation Plan update began in August 2014. The Somerset County Commissioners were able to secure a hazard mitigation grant to start the process. The Somerset County Emergency Management Agency was identified as the lead agency for the 2015 Somerset County Hazard Mitigation Plan Update. The planning process involved a variety of key decision makers and stakeholders within Somerset County. Somerset County immediately determined that the utilization of a contracted consulting agency would be necessary to assist with the plan update process. MCM Consulting Group, Inc. was selected as the contracted consulting agency to complete the update of the hazard mitigation plan. The core hazard mitigation team, which was referred to as the project team, included Somerset County officials from the Commissioners' Office, Somerset County Emergency Management Agency, Somerset County Planning Department and MCM Consulting Group, Inc.

The update process was developed around the requirements laid out in the Federal Emergency Management Agency (FEMA) Local Hazard Mitigation Crosswalk, referenced throughout this plan, as well as numerous other guidance documents including, but not limited to, Pennsylvania's All-Hazard Mitigation Standard Operating Guide, FEMA's State and Local Mitigation Planning How-to Guide series of documents (FEMA 386-series) and the National Fire Protection Association (NFPA) 1600 Standard on Disaster/Emergency Management and Business Continuity Programs.

MCM Consulting Group, Inc. (MCM) assisted Somerset County in coordinating and leading public involvement meetings, local planning team meetings, analysis, and the writing of the Hazard Mitigation Plan (HMP) Update. The Somerset County Local Planning Team worked closely with MCM with writing and reviewing the HMP. MCM conducted project meetings and local planning team meetings throughout the process. Meeting agendas, meeting minutes and sign in sheets were developed and maintained for each meeting conducted by MCM. These documents are detailed in **Appendix C** of this plan.

Several public meetings with local elected officials were held, as well as work sessions and in-progress review meetings with the Somerset County Local Planning Team and staff. At each of

Somerset County 2015 Hazard Mitigation Plan

the public meetings, respecting the importance of local knowledge, municipal officials were strongly encouraged to submit hazard mitigation project opportunity forms, complete their respective portions of the capabilities and risk assessments, and review and eventually adopt the county hazard mitigation plan. Somerset County will continue to work with all local municipalities to collect local hazard mitigation project opportunities.

The HMP planning process consisted of:

- Applying for and receiving a Hazard Mitigation Planning Grant (HMPG) to fund the planning project.
- Announcing the initiative via press releases and postings on the county website.
- Involving elected and appointed county and municipal officials in a series of meetings, training sessions, and workshops.
- Identifying capabilities and review the information with the municipalities.
- Identifying hazards and review the information with the municipalities.
- Assessment of risk and analyzing vulnerabilities.
- Identifying mitigation strategies, goals, and objectives.
- Developing an implementation plan.
- Announce completion via press releases and postings on the county website.
- Plan adoption at a public meeting of the Somerset County Board of Commissioners.
- Plan submission to FEMA and PEMA.

MCM Consulting Group, Inc. assisted Somerset County through the HMP update process. The 2015 Somerset County HMP was completed on May 7, 2015. The 2015 plan follows an outline developed by PEMA in 2013 which provides a standardized format for all local HMPs in the Commonwealth of Pennsylvania. The format of the 2010 Somerset County HMP was identical to the 2015 HMP, but all information that was still current was carried over into the new plan. The only changes was to the appendices to meet the 2015 HMP requirements.

3.2 The Planning Team

The 2015 Somerset County Hazard Mitigation Plan Update was led by the Somerset County Project Team. The Somerset County Project Team provided guidance and leadership for the overall project. The project team assisted MCM Consulting Group, Inc. with dissemination of information and administrative tasks. Table 3.2-1 outlines the individuals that comprised this team.

Name	Organization	Position
Richard Lohr	Somerset County Emergency Services	Director
David Fox	Somerset County Emergency Services	9-1-1 Coordinator
Sharlene McCoy	Somerset County Emergency Services	Administrative Assistant
Brad Zearfoss	Somerset County Planning Department	Director
Michael T. Rearick	MCM Consulting Group, Inc.	Senior Consultant

Somerset County 2015 Hazard Mitigation Plan

In order to represent the county, the Somerset County Project Team developed a diversified list of potential Local Planning Team (LPT) members. Members that participated in the 2010 hazard mitigation plan were highly encouraged to participate. The project team then conducted outreach to the prospective members, provided a description of duties and tasks and solicited participation. The LPT worked throughout the process to plan and hold meetings, collect information, and conduct public outreach.

The stakeholders listed in Table 3.2-2 served on the 2015 Somerset County Hazard Mitigation Local Planning Team, demonstrating their commitment to actively participate in the planning process by attending meetings, completing assessments, surveys, and worksheets, and/or submitting comments.

Name	Organization	Position
Richard Lohr	Somerset County Emergency Services	Director
David Fox	Somerset County Emergency Services	9-1-1 Coordinator
Sharlene McCoy	Somerset County Emergency Services	Administrative Assistant
Brad Zearfoss	Somerset County Planning Department	Director
Joel Landis	Somerset County Emergency Services	HazMat Coordinator
Gary Ziegler	Somerset County Planning Department	GIS Specialist
Don Anderson	Pennsylvania Fish and Boat Commission	LEPC Member
Fred Beers	Department of Corrections	LEPC Member
Joe Betta	Somerset County Government	LEPC Member
Tom Brown	Somerset Fire Department	LEPC Member
Dan Buck Sr.	Somerset Fire Department	LEPC Member
Dan Buck Jr.	Somerset Fire Department	LEPC Member
Steve Buncich	Conemaugh Township	Supervisor
Randy Cox	Somerset Borough Police	Police Chief
Jayne Houck	American Red Cross	Coordinator
Jerry Lyons	Somerset County LEPC	LEPC Member
Fred Rosemeyer	Somerset Borough	Borough Councilperson/LEPC Chair
Michael Rearick	MCM Consulting Group, Inc.	Senior Consultant
David Haas	MCM Consulting Group, Inc.	Consultant

3.3 Meetings and Documentation

Several public meetings with local elected officials and the local planning team were held. At each of the public meetings, municipal officials were strongly encouraged to submit hazard mitigation project opportunity forms, complete their respective portions of the capability assessment and risk assessment, and adopt the multi-jurisdictional HMP. Table 3.3-1 lists the meetings held during the HMP planning process, which organizations and municipalities attended and the topic that was discussed at each meeting. All meeting agendas, sign-in sheets, presentation slides, any other documentation is located in **Appendix C**.

Somerset County 2015 Hazard Mitigation Plan

A final public meeting was held on May 7, 2015 to present the draft plan and invite public comments. The meeting was advertised in the local newspaper and also made available digitally on the Somerset County web site at: www.co.somerset.pa.us. The public comment period remained open until June 7, 2015. All public comments were to be submitted in writing to Richard Lohr at the Somerset County Emergency Management Agency. No public comments were received.

Each meeting was followed by detailed meeting minutes that documented all discussion, decisions, and unmet needs identified during the meetings. These minutes were shared among the LEPC members, contractors, and attendees of the meeting. Documentation from all meetings can be found in **Appendix C**. County residents were informed of public meetings through various sources, including newspapers, websites and announcements.

The LEPC partnered with MCM Consulting Group, Inc. to aid in the development of the updated HMP. The contractor assisted the county in drafting planning documents, preparing meeting materials, and facilitating meetings. The LEPC reviewed any documentation produced by MCM, provided validation, and acted as an advocate for the HMP update.

Table 3.3-1: Somerset County HMP Process - Timeline

Date	Meeting	Attendees	Description
08/19/2014	Somerset County Hazard Mitigation Plan (HMP) Kick-Off Meeting	Somerset County Emergency Management Agency Somerset County Planning Department MCM Consulting Group, Inc.	Identified challenges and opportunities as they relate to fulfilling the DMA 2000 requirements. Identified existing studies and information sources relevant to the Hazard Mitigation Plan. Identified stakeholders, including the need to involve local officials.
09/18/2014	Local Planning Team Kick-Off Meeting	Somerset County Emergency Management Agency Somerset County Planning Department Somerset Volunteer Fire Department Conemaugh Township Pennsylvania Emergency Management Agency MCM Consulting Group, Inc.	Defined hazard mitigation planning and identified roles and responsibilities. Discussed the 2010 hazard mitigation plan and defined a timeline to complete the update. Identified challenges and opportunities as they relate to fulfilling the DMA 2000 requirements. Identified existing studies and information sources relevant to the Hazard Mitigation Plan. Identified stakeholders, including the need to involve local officials.

Somerset County 2015 Hazard Mitigation Plan

Table 3.3-1: Somerset County HMP Process - Timeline

Date	Meeting	Attendees	Description
09/18/2014	Municipality Capability Assessment and Risk Assessment Meetings	Somerset County Emergency Management Agency Somerset County Planning Department Addison Township Berlin Borough Black Township Confluence Borough Elk Lick Township Greenville Township Indian Lake Borough Jefferson Township Jenner Township Jennerstown Borough Larimer Township Lincoln Township Lower Turkeyfoot Township Middlecreek Township New Baltimore Borough Northampton Township Paint Township Quemahoning Township Rockwood Borough Salisbury Borough Shanksville Borough Somerset Borough Somerset Township Stoneycreek Township Stoystown Borough Summit Township Upper Turkeyfoot Township Ursina Borough Windber Borough Pennsylvania Emergency Management Agency MCM Consulting Group, Inc.	Provided an overview of hazard mitigation planning and the municipal requirements. Discussed the 2015 plan update process. Completed a review of the capabilities assessment section and the municipal capability assessment survey. Completed a review of the risk assessment section and the municipal hazard identification and risk evaluation worksheet.
02/25/2015	Public Meeting	Somerset County Emergency Management Agency Somerset County Planning Department MCM Consulting Group, Inc. No public participation	Conducted a public meeting to review the draft risk assessment section of the Somerset County Hazard Mitigation Plan update.
12/17/2014	Mitigation Strategy Meeting with Municipal Officials	Somerset County Emergency Management Agency Somerset County Planning Department Allegheny Township Brothersvalley Township Confluence Borough Elk Lick Township Fairhope Township Indian Lake Borough Jennerstown Borough Lower Turkeyfoot Township New Centerville Borough Northampton Township Paint Township Stoystown Borough Upper Turkeyfoot Township Windber Borough MCM Consulting Group, Inc.	Educated county and local elected officials on the hazard mitigation planning process. Presented the findings of the hazard vulnerability analysis and risk assessment. Sought input for mitigation projects throughout the county. Distributed Hazard Mitigation Project Opportunity Forms.

Somerset County 2015 Hazard Mitigation Plan

Table 3.3-1: Somerset County HMP Process - Timeline

Date	Meeting	Attendees	Description
02/25/2015	Public Meeting	Somerset County Emergency Management Agency Somerset County Planning Department MCM Consulting Group, Inc. No participation by the public	Conducted a public meeting to review the draft risk assessment section of the Somerset County Hazard Mitigation Plan update.
05/07/2015	Somerset County Hazard Mitigation Plan – Draft Plan Review Public Meeting	No participation by the public	An update of the hazard mitigation planning process was delivered. The Draft HMP was reviewed with all attendees. Attendees were informed about the timeline and their opportunity to review the entire draft plan and provide written comments for inclusion into the plan.

3.4 Public & Stakeholder Participation

Somerset County engaged numerous stakeholders and encouraged public participation during the HMP update process. Advertisements for public meetings were completed utilizing the local newspaper and the Somerset County website at www.co.somerset.pa.us. Copies of those advertisements are located in **Appendix C**. Municipalities and other county entities were invited to participate in meetings and encouraged to review and update various worksheets and surveys. Copies of all meeting agendas, meeting minutes and sign-in sheets are located in **Appendix C**. Worksheets and surveys completed by the municipalities and other stakeholders were summarized in various sections or appendices of this plan update. Municipalities were also encouraged to review hazard mitigation related items with other constituents located in the municipality like businesses, academia, private and nonprofit interests.

The tools listed below were distributed with meeting invitations or provided directly to municipalities to complete and return to the Somerset County Department of Emergency Services. Responses to these worksheets and surveys are included in specific portions and sections of the hazard mitigation plan update.

- 1. Risk Assessment Hazard Identification and Risk Evaluation Worksheet:** Capitalizes on local knowledge to evaluate the change in the frequency of occurrence, magnitude of impact, and/or geographic extent of existing hazards, and allows communities to evaluate hazards not previously profiled using the Pennsylvania Standard List of Hazards.
- 2. Capability Assessment Survey:** Collects information on local planning, regulatory, administrative, technical, fiscal and political capabilities that can be included in the countywide mitigation strategy.
- 3. Municipal Project Opportunity Forms and Mitigation Actions:** Copies of the previous mitigation opportunity forms that were included in the current HMP were provided to the municipalities for review and amendment. The previous mitigation actions were provided and reviewed at update meetings. New municipal project opportunity forms are included as well.

Somerset County 2015 Hazard Mitigation Plan

A schedule that provided appropriate opportunities for public comment was utilized during the review and drafting process. Any public comment that was received during public meetings or during the draft review of the plan were documented and included in the plan. Copies of newspaper public meeting notices, website posted public notices and other correspondence are included in **Appendix C** of this plan.

3.5 Multi-Jurisdictional Planning

Somerset County used an open, public process to prepare this HMP. Meetings and letters to municipal officials were conducted to inform and educate municipalities about Disaster Mitigation Act of 2000 and its requirements for local hazard mitigation plans. In turn, municipal officials provided information related to existing codes and ordinances, the risks and impacts of known hazards on local infrastructure and critical facilities, and recommendations for related mitigation opportunities. The pinnacle to the municipal involvement process was the adoption of the final plan. Please refer to **Appendix C** for documentation of the municipal and public participation in the planning process. Table 3.3-1 above reflects the municipality participation in meetings during the update process. Table 3.5-1 below reflects the municipality participation by completing worksheets, surveys and forms. Somerset County took a multi-jurisdictional approach to preparing its HMP, in that the HMP will apply to the county and all participating municipalities.

Forty six (46) municipalities within Somerset County have adopted the 2010 Somerset County Hazard Mitigation Plan as the municipal hazard mitigation plan. It is anticipated that a majority of the municipalities will adopt the 2015 Somerset County Hazard Mitigation Plan Update.

Table 3.5-1: Municipality Participation in Worksheets, Surveys and Forms

Municipality	Capability Assessment Survey	Risk Assessment and Hazard Identification Worksheet	Hazard Mitigation Opportunity Form Review and Updates
Addison Borough			
Addison Township	X	X	
Allegheny Township			
Benson Borough			
Berlin Borough	X		
Black Township	X	X	X
Boswell Borough			
Brothersvalley Township		X	
Callimont Borough		X	
Casselman Borough			
Central City Borough			
Conemaugh Township		X	
Confluence Borough	X	X	X
Elk Lick Township	X	X	

Somerset County 2015 Hazard Mitigation Plan

Municipality	Capability Assessment Survey	Risk Assessment and Hazard Identification Worksheet	Hazard Mitigation Opportunity Form Review and Updates
Fairhope Township			
Garrett Borough			X
Greenville Township	X		
Hooversville Borough			
Indian Lake Borough	X	X	X
Jefferson Township	X	X	
Jenner Township	X	X	
Jennerstown Borough	X	X	
Larimer Township	X	X	X
Lincoln Township	X	X	
Lower Turkeyfoot Township	X	X	
Meyersdale Borough			
Middlecreek Township	X		
Milford Township			
New Baltimore Borough	X	X	
New Centerville Borough		X	
Northampton Township	X	X	
Ogle Township			
Paint Borough		X	X
Paint Township	X	X	X
Quemahoning Township	X	X	
Rockwood Borough	X	X	
Salisbury Borough	X	X	
Seven Springs Borough		X	
Shade Township			
Shanksville Borough	X	X	
Somerset Borough	X	X	
Somerset Township	X	X	
Southampton Township		X	
Stoneycreek Township	X	X	
Stoystown Borough	X	X	
Summit Township	X	X	
Upper Turkeyfoot Township	X	X	
Ursina Borough	X	X	
Wellersburg Borough			
Windber Borough	X	X	X

3.6 Existing Planning Mechanisms

There are numerous existing regulatory and planning mechanisms in place at the state, county, and municipal level of government which support hazard mitigation planning efforts. These tools include the Commonwealth of Pennsylvania Standard All-Hazard Mitigation Plan, local floodplain management ordinances, the Somerset County Comprehensive Plan, the Somerset County Emergency Operations Plan, local emergency operation plans, local zoning ordinances, the local subdivision and land development ordinance and various watershed plans.

Information from several of these documents has been incorporated into this plan and mitigation actions have been developed to further integrate these planning mechanisms into the hazard mitigation planning process. In particular, information on identified development constraints and potential future growth areas was incorporated from the 2006 Somerset County Comprehensive Plan so that vulnerability pertaining to future development could be established. The previous Somerset County Hazard Mitigation Plan, Risk Assessment Section and the Somerset Commodity Flow Study Report provided extensive information on past occurrences, vulnerability, and risk in the last five years, including anecdotal information. Floodplain management ordinance information was used to aid in the establishment of local capabilities in addition to participation in the National Flood Insurance Program (NFIP).

4. Risk Assessment

4.1 Update Process Summary

The Risk Assessment section of the Somerset County Hazard Mitigation Plan (HMP) update utilizes existing data and analysis from the previous Federal Emergency Management Agency (FEMA)-approved HMP as well as more recent data and analysis on hazards occurring during the last five years. The development of the hazard vulnerability analysis (HVA) is the critical first step in the entire mitigation process, as it is an organized and coordinated way of assessing potential hazards and risks. The HVA identifies the effects of both natural and manmade hazards and describes each hazard in terms of its frequency, severity, and county impact. Somerset County maintains a biennial HVA in the Somerset County Emergency Management Agency.

For the 2010 version of this HMP, the following hazards were identified as posing the most risk to the county and its municipalities:

- Floods, Flash Floods, and Ice Jams
- Severe Wind Storms
- Severe Winter Storms
- Wildfires
- Environmental Hazards
- Terrorism, War, and Criminal Activity

The Somerset County Local Planning Team reviewed and assessed the change in risk for all natural and man-made hazards identified in the 2010 hazard mitigation plan. The mitigation planning team then identified hazards that were outlined within the 2013 Pennsylvania Hazard Mitigation Plan but not included in the 2010 Somerset County Hazard Mitigation Plan that could impact Somerset County. The team utilized the Hazard Identification and Risk Evaluation worksheet that was provided by the Pennsylvania Emergency Management Agency. The Somerset County Project Team met with municipalities and provided guidance on how to complete the municipal hazard identification and risk evaluation worksheet. Thirty three (33) municipalities out of fifty (50) returned a completed worksheet. This information was combined with the county information to develop an overall list of hazards that would need profiled.

Once the natural and man-made hazards were identified and profiled, the local planning team then completed a vulnerability assessment for each hazard. An inventory of vulnerable assets was completed utilizing GIS data and local planning team knowledge. The team used the most recent Somerset County tax assessment data to estimate loss to particular hazards. Risk Factor (RF) was then assessed to each profiled hazard utilizing the hazard prioritization matrix. This assessment allows the county and its municipalities to focus on and prioritize local mitigation efforts on areas that are most likely to be damaged or require early response to a hazard event.

4.1.1. Data Sources and Limitations

During the development of this plan, the ability to ascertain information from the property database, necessary to determine the types of structures, which structures were aged/dilapidated or which had basements, was affected by the lack of data. Subsequent versions of this plan will need to incorporate and respond to this data deficiency or need.

New impervious surface data was not available to support section 4.4. Somerset County will endeavor in the 2015-2020 planning period to identify new data to support this evaluation.

4.2 Hazard Identification

To develop a list of the hazards that pose the greatest risk to Somerset County, the emergency declarations for the county over the last five years were documented and analyzed. Table 4.2.1-1 below presents a comprehensive list of all Presidential disaster declarations that have occurred and Table 4.2.1-2 presents a list of the gubernatorial declarations and proclamations in Somerset County from 1956 to 2014, according to the Pennsylvania Emergency Management Agency. These lists present the foundation for identifying what hazards pose the greatest risk within Somerset County.

Municipalities were surveyed and asked to identify any changes over the last five years in the natural and human-made hazards that affect their municipalities. In addition, online research and examination was conducted to identify those natural and man-made hazards that have affected or could affect Somerset County and its municipalities.

Somerset County 2015 Hazard Mitigation Plan

4.2.1 Table of Presidential Disaster Declarations

The following table lists the Presidential Disaster Declarations that have (or may have) been issued for Somerset County since 1955.

Table 4.2.1-1: Presidential Disaster Declarations Affecting Somerset County

<i>Year</i>	<i>Date</i>	<i>Disaster Types</i>	<i>Disaster Number</i>	<i>Public Assistance</i> Assistance to State and local governments and certain private nonprofit organizations for emergency work and the repair or replacement of disaster-damaged facilities	<i>Individual Assistance</i> Assistance to individuals and households
2012	10/28	Hurricane Sandy	4099	Bedford, Bucks, Cameron, Dauphin, Forest, Franklin, Fulton, Huntingdon, Juniata, Monroe, Montgomery, Northampton, Philadelphia, Pike, Potter, Somerset, Sullivan, Wyoming	None
2010	4/16	Severe Winter Storms and Snowstorms	1898	Adams, Allegheny, Armstrong, Beaver, Bedford, Blair, Butler, Cambria, Chester, Cumberland, Dauphin, Delaware, Fayette, Franklin, Fulton, Green, Huntingdon, Indiana, Juniata, Lancaster, Lebanon, Perry, Philadelphia, Somerset, Westmoreland, and York.	None

Somerset County 2015 Hazard Mitigation Plan

Table 4.2.1-1: Presidential Disaster Declarations Affecting Somerset County

Year	Date	Disaster Types	Disaster Number	Public Assistance Assistance to State and local governments and certain private nonprofit organizations for emergency work and the repair or replacement of disaster-damaged facilities	Individual Assistance Assistance to individuals and households
2004	09/19	Tropical Depression Ivan	1557	Allegheny, Armstrong, Beaver, Bedford, Blair, Bradford, Bucks, Butler, Cameron, Carbon, Centre, Clarion, Clearfield, Clinton, Columbia, Cumberland, Dauphin, Elk, Franklin, Fulton, Green, Huntingdon, Indiana, Jefferson, Juniata, Lackawanna, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Potter, Schuylkill, Snyder, Somerset, Sullivan, Susquehanna, Tioga, Union, Washington, Wayne, Westmoreland, Wyoming and York for debris removal and emergency protective measures and Allegheny, Armstrong, Beaver, Bedford, Blair, Bradford, Bucks, Butler, Cameron, Carbon, Centre, Clarion, Clearfield, Clinton, Columbia, Cumberland, Dauphin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Juniata, Lackawanna, Lebanon, Luzerne, Lycoming, Mifflin, Monroe, Montour, Northampton, Northumberland, Perry, Pike, Schuylkill, Snyder, Somerset, Susquehanna, Tioga, Union, Washington, Wayne, Westmoreland, Wyoming, York	Allegheny, Armstrong, Beaver, Bedford, Blair, Bradford, Bucks, Butler, Cameron, Carbon, Centre, Chester, Clarion, Clearfield, Clinton, Columbia, Crawford, Cumberland, Dauphin, Delaware, Elk, Franklin, Fulton, Green, Huntingdon, Indiana, Jefferson, Juniata, Lackawanna, Lawrence, Lebanon, Lehigh, Luzerne, Lycoming, Mifflin, Monroe, Montgomery, Montour, Northampton, Northumberland, Perry, Philadelphia, Pike, Potter, Schuylkill, Snyder, Somerset, Sullivan, Susquehanna, Tioga, Union, Washington, Wayne, Westmoreland, Wyoming, York
1998	06/08	Flooding, Severe Storms, and Tornadoes	1219	None	Allegheny, Beaver, Berks, Pike, Somerset, Susquehanna, Wyoming

Public Assistance/Individual Assistance data not available prior to 1998

Somerset County 2015 Hazard Mitigation Plan

Table 4.2.1-1: Presidential Disaster Declarations Affecting Somerset County

<i>Year</i>	<i>Date</i>	<i>Disaster Types</i>	<i>Disaster Number</i>	<i>Public Assistance</i> Assistance to State and local governments and certain private nonprofit organizations for emergency work and the repair or replacement of disaster-damaged facilities	<i>Individual Assistance</i> Assistance to individuals and households
1996	01/21	Flooding	1093	Statewide	
1996	01/13	Blizzard	1085	Statewide	
1994	03/10	Winter Storm, Severe Storm	1015	No County Assistance Data Available	
1985	11/09	Severe Storms, Flooding	754	Allegheny, Fayette, Greene, Somerset, Washington, Westmoreland	
1984	08/27	Severe Storms, Flooding	721	Armstrong, Allegheny, McKean, Westmoreland, Bedford, Blair, Somerset	
1977	07/21	Severe Storms, Flooding	537	Bedford, Cambria, Clearfield, Crawford, Indiana, Jefferson, Somerset, Westmoreland	
1972	06/23	Tropical Storm Agnes	340	All 67 Counties	
1965	08/18	Water Shortage	206	Numerous Communities Statewide	
1956	05/21	Severe Storms	58	Western Counties	

Sources: FEMA and PEMA

Table 4.2.1-2 Somerset County Gubernatorial Declarations and Proclamations

<i>Date</i>	<i>Hazard Event</i>	<i>Presidential</i>	<i>Gubernatorial</i>
June 2013	High Winds, Thunderstorms, Heavy Rain, Tornado, Flooding		Proclamation of Emergency
October 2012	Hurricane Sandy	Presidential Declaration	Proclamation of Emergency
April 2012	Spring Winter Storms		Proclamation of Emergency
September 2011	Remnants of Tropical Storm Lee	Presidential Declaration	Proclamation of Emergency
January 2011	Severe Winter Storm		Proclamation of Emergency
February 2010	Severe Winter Storm		Proclamation of Emergency
April 2007	Severe Storm		Declaration
April 2007	Severe Winter Storm		Proclamation of Emergency
February 2007	Severe Winter Storm		Proclamation of Emergency
September 2006	Tropical Depression Ernesto		Proclamation of Emergency
September 2005	Hurricane Katrina	Presidential Declaration	Proclamation of Emergency
September 2001	Terrorism		Proclamation of Emergency

Somerset County 2015 Hazard Mitigation Plan

Table 4.2.1-2 Somerset County Gubernatorial Declarations and Proclamations

Date	Hazard Event	Presidential	Gubernatorial
July 1999	Drought		Declaration
December 1998	Drought		Proclamation of Emergency
February 1978	Blizzard		Declaration
January 1978	Heavy Snow		Declaration
February 1974	Truckers Strike		Declaration
February, 1972	Heavy Snow		Declaration
January, 1966	Heavy Snow		Declaration

Source: Pennsylvania Emergency Management Agency

4.2.2 Summary of Hazards

The Somerset County Local Planning Team (LPT) was provided the Pennsylvania Standard List of Hazards to be considered for evaluation in the 2015 HMP Update. Following a review of the hazards considered in the 2010 HMP and the standard list of hazards, the Local Planning Team decided that the 2015 plan should identify, profile, and analyze sixteen (16) hazards. These hazards include all the hazards profiled in the 2010 county mitigation plan. Table 4.2.2-1 contains a complete list of the 16 hazards that have the potential to impact Somerset County as identified through previous risk assessments, the Somerset County Hazards Vulnerability Analysis, and input from those that participated in the 2015 HMP update. Hazard profiles are included in Section 4.3 for each of these hazards.

Table 4.2.2-1 Identified Hazards for the Somerset County HMP Update

Natural Hazard	Hazard Description
Drought	Drought is a natural climatic condition which occurs in virtually all climates, the consequence of a natural reduction in the amount of precipitation experienced over a long period of time, usually a season or more in length. High temperatures, prolonged winds, and low relative humidity can exacerbate the severity of drought. This hazard is of particular concern in Pennsylvania due to the presence of farms as well as water-dependent industries and recreation areas across the Commonwealth. A prolonged drought could severely impact these sectors of the local economy, as well as residents who depend on wells for drinking water and other personal uses. (National Drought Mitigation Center, 2006).
Earthquake	An earthquake is the motion or trembling of the ground produced by sudden displacement of rock usually within the upper 10-20 miles of the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of underground caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and disrupt the social and economic functioning of the affected area. Most property damage and earthquake-related deaths are caused by the failure and collapse of structures due to ground shaking which is dependent upon amplitude and duration of the earthquake. (FEMA, 1997).

Somerset County 2015 Hazard Mitigation Plan

Table 4.2.2-1 Identified Hazards for the Somerset County HMP Update

Natural Hazard	Hazard Description
Flood, Flash Flood, Ice Jam	<p>Flooding is the temporary condition of partial or complete inundation on normally dry land and it is the most frequent and costly of all hazards in Pennsylvania. Flooding events are generally the result of excessive precipitation. General flooding is typically experienced when precipitation occurs over a given river basin for an extended period of time. Flash flooding is usually a result of heavy localized precipitation falling in a short time period over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces. The severity of a flood event is dependent upon a combination of stream and river basin topography and physiography, hydrology, precipitation and weather patterns, present soil moisture conditions, the degree of vegetative clearing as well as the presence of impervious surfaces in and around flood-prone areas. (NOAA, 2009). Winter flooding can include ice jams which occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of a river. The ice layer often breaks into large chunks, which float downstream, piling up in narrow passages and near other obstructions such as bridges and dams. All forms of flooding can damage infrastructure (USACE, 2007).</p>
Hailstorms	<p>In addition to flooding and severe winds, hail is another potential damaging product of severe thunderstorms. Hailstorms occur when ice crystals forms within a low pressure front due to the rapid rise of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation in the form of balls or irregularly shaped masses of ice greater than 0.75 inches in diameter (FEMA, 1997). The size of hailstones is a direct function of the size and severity of the storm. High velocity updraft winds are required to keep hail in suspension in thunderclouds. The strength of the updraft is a function of the intensity of heating at the earth's surface. Damage to crops and vehicles are typically the most significant impacts of hailstorms. Areas in western Pennsylvania experience 2-3 hailstorms annually.</p>
Hurricanes, Tropical Storms	<p>Hurricanes, tropical storms, and nor'easters are classified as cyclones and are any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise (in the Northern Hemisphere) and whose diameter averages 10-30 miles across. While most of Pennsylvania is not directly affected by the devastating impacts cyclonic systems can have on coastal regions, many areas in the state are subject to the primary damaging forces associated with these storms including high-level sustained winds, heavy precipitation, and tornadoes. Areas in southeastern Pennsylvania could be susceptible to storm surge and tidal flooding. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and Gulf of Mexico during the official Atlantic hurricane season (June through November). (FEMA, 1997).</p>
Pandemic & Infectious Diseases	<p>A pandemic occurs when infection from of a new strain of a certain disease, to which most humans have no immunity, substantially exceeds the number of expected cases over a given period of time. Such a disease may or may not be transferable between humans and animals. (Martin & Martin-Granel, 2006).</p>
Radon Exposure	<p>Radon is a cancer-causing natural radioactive gas that you can't see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupation settings. According to the USEPA, radon is estimated to cause about 21,000 lung cancer deaths per year, second only to smoking as the leading cause of lung cancer (EPA 402-R-03-003: EPA Assessment..., 2003). An estimated 40% of the homes in Pennsylvania are believed to have elevated radon levels (Pennsylvania Department of Environmental Protection, 2009).</p>

Somerset County 2015 Hazard Mitigation Plan

Table 4.2.2-1 Identified Hazards for the Somerset County HMP Update

Natural Hazard	Hazard Description
Subsidence/ Sinkholes	Subsidence is a natural geologic process that commonly occurs in areas with underlying limestone bedrock and other rock types that are soluble in water. Water passing through naturally occurring fractures dissolves these materials leaving underground voids. Eventually, overburden on top of the voids causes a collapse which can damage structures with low strain tolerances. This collapse can take place slowly over time or quickly in a single event, but in either case. Karst topography describes a landscape that contains characteristic structures such as sinkholes, linear depressions, and caves. In addition to natural processes, human activity such as water, natural gas, and oil extraction can cause subsidence and sinkhole formations. (FEMA, 1997).
Tornado, Wind Storm	A wind storm can occur during severe thunderstorms, winter storms, coastal storms, or tornadoes. Straight-line winds such as a downburst have the potential to cause wind gusts that exceed 100 miles per hour. Based on 40 years of tornado history and over 100 years of hurricane history, FEMA identifies western and central Pennsylvania as being more susceptible to higher winds than eastern Pennsylvania. (FEMA, 1997). A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes or tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air forcing the warm air to rise rapidly. The damage caused by a tornado is a result of high wind velocities and wind-blown debris. According to the National Weather Service, tornado wind speeds can range between 30 to more than 300 miles per hour. They are more likely to occur during the spring and early summer months of March through June and are most likely to form in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small, short-lived tornadoes can inflict tremendous damage. Destruction ranges from minor to catastrophic depending on the intensity, size, and duration of the storm. Structures made of light materials such as mobile homes are most susceptible to damage. Waterspouts are weak tornadoes that form over warm water and are relatively uncommon in Pennsylvania. Each year, an average of over 800 tornadoes is reported nationwide, resulting in an average of 80 deaths and 1,500 injuries (NOAA, 2002). Based on NOAA Storm Prediction Center Statistics, the number of recorded F3, F4, & F5 tornadoes between 1950-1998 ranges from <1 to 15 per 3,700 square mile area across Pennsylvania (FEMA, 2009). A water spout is a tornado over a body of water (American Meteorological Society, 2009).
Winter Storm	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. A winter storm can range from a moderate snowfall or ice event over a period of a few hours to blizzard conditions with wind-driven snow that lasts for several days. Many winter storms are accompanied by low temperatures and heavy and/or blowing snow, which can severely impair visibility and disrupt transportation. The Commonwealth of Pennsylvania has a long history of severe winter weather. (NOAA, 2009).
Wildfire	A wildfire is a raging, uncontrolled fire that spreads rapidly through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that can be seen for miles. Wildfires can occur at any time of the year, but mostly occur during long, dry hot spells. Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness, negligence, and ignorance. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion. Wildfires in Pennsylvania can occur in fields, grass, brush, and forests. 98% of wildfires in Pennsylvania are a direct result of people, often caused by debris burns (PA DCNR, 1999).

Somerset County 2015 Hazard Mitigation Plan

Man-Made Hazards	Hazard Description
Environmental Hazards	<p>Environmental hazards are hazards that pose threats to the natural environment, the built environment, and public safety through the diffusion of harmful substances, materials, or products. Environmental hazards include the following:</p> <ul style="list-style-type: none"> Hazardous material releases; at fixed facilities or in transit; including toxic chemicals, infectious substances, bio-hazardous waste, and any materials that are explosive, corrosive, flammable, or radioactive (PL 1990-165, § 207(e)). Oil and gas well incidents and coal mining; including the release of harmful chemical and waste materials into water bodies or the atmosphere, explosions, fires and other hazards and threats to life safety stemming from mining (Environmental Protection Agency, Natural Disaster PSAs, 2009)
Terrorism	<p>Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear and radiological weapons. (FEMA, 2009).</p>
Transportation Accidents	<p>Transportation accidents can result from any form of air, rail, water, or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially if vital transportation corridors or junctions are present. (Research and Innovative Technology Administration, 2009). Traffic congestion in certain circumstances can also be hazardous. Traffic congestion is a condition that occurs when traffic demand approaches or exceeds the available capacity of the road network. This hazard should be carefully evaluated during emergency planning since it is a key factor in timely disaster or hazard response, especially in areas with high population density. (Federal Highway Administration, 2009).</p>
Utility Interruption	<p>Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following:</p> <ul style="list-style-type: none"> Geomagnetic Storms; including temporary disturbances of the Earth’s magnetic field resulting in disruptions of communication, navigation, and satellite systems (National Research Council et al., 1986). Fuel or Resource Shortage; resulting from supply chain breaks or secondary to other hazard events, for example (Mercer County, PA, 2005). Electromagnetic Pulse; originating from an explosion or fluctuating magnetic field and causing damaging current surges in electrical and electronic systems (Institute for Telecommunications Sciences, 1996). Information Technology Failure; due to software bugs, viruses, or improper use (Rainer Jr., et al, 1991). Ancillary Support Equipment; electrical generating, transmission, system-control, and distribution-system equipment for the energy industry (Hirst & Kirby, 1996). Public Works Failure; damage to or failure of highways, flood control systems, deep-water ports and harbors, public buildings, bridges, dams, for example (United States Senate Committee on Environment and Public Works, 2009). Telecommunications System Failure; Damage to data transfer, communications, and processing equipment, for example (FEMA, 1997) Transmission Facility or Linear Utility Accident; liquefied natural gas leakages, explosions, facility problems, for example (United States Department of Energy, 2005) Major Energy, Power, Utility Failure; interruptions of generation and distribution, power outages, for example (United States Department of Energy, 2000).

Man-Made Hazards	Hazard Description
Levees	A levee is a human-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control or divert the flow of water so as to provide protection from temporary flooding (Interagency Levee Policy Review Committee, 2006). Levee failures or breaches occur when a levee fails to contain the floodwaters for which it is designed to control or floodwaters exceed the height of the constructed levee.

4.3 Hazard Profiles

Disaster frequency and its effects or severity are an important basis for planning emergency response and mitigation. Natural hazards tend to reoccur on a predictable seasonal basis, whereas human-caused or technological events tend to change over time with advancements in technology and methods of operation.

Five criteria were selected to assure a systematic and comprehensive approach to hazard analysis:

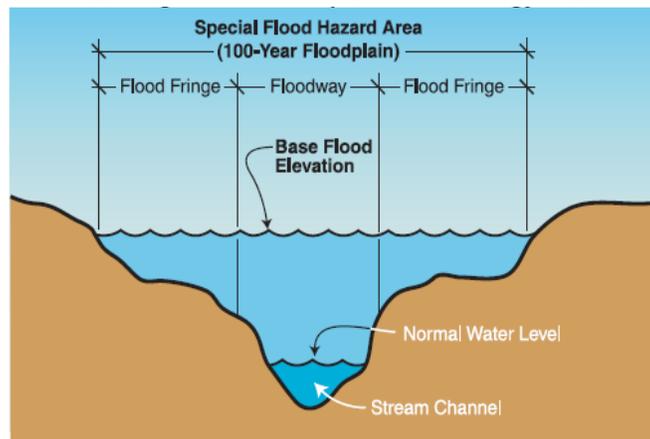
- **Location and Extent:** The location and extent of the county’s vulnerability to a certain hazard can vary throughout the county. The maximum threat or worst-case disaster should be considered for each hazard. However, secondary effects of many hazards can be just as devastating. These secondary effects cause many hazards to be regional hazards affecting many areas with differing impacts.
- **Range and Magnitude:** Each individual hazard poses certain threats to the county and its municipalities. It is important to identify what hazards pose the greatest threat and focus mitigation actions toward those hazards.
- **Past Occurrences:** A record of past events is particularly helpful to evaluate hazards. Past records of the county’s hazards also offer valuable information when tempered with the knowledge of preventative efforts, changes in preventative efforts, and advancements in technology that may reduce the frequency or severity of such an event.
- **Future Occurrences:** The probability of an occurrence in the future is another important factor to consider when preparing for an all-hazards response. An event that occurs annually with relatively minor impact may deserve more emphasis than a major event that occurs once every 50 to 100 years.
- **Vulnerability Assessment:** The susceptibility of a community to destruction, injury, or death resulting from a hazard event defines the degree of vulnerability. The degree of vulnerability may be related to geographic location, as with floodplains, the type of facilities or structure, or the socioeconomics of a given area. Additionally, certain population groups may be more vulnerable to some hazards because of immobility or

their inability to take protective action. The vulnerability assessment section of each hazard profile lists the critical infrastructure within the respective hazard areas. Maps showing the locations of this infrastructure in the special flood hazard area (SFHA) are shown in **Appendix D**. A map showing the critical infrastructure throughout the county (i.e., the critical infrastructure in the vulnerable areas for hazards) is located in section 5 of each hazard profile.

4.3.1 Floods, Flash Floods, and Ice Jams

A flood is a natural event for rivers and streams. For inland areas like Southwestern Pennsylvania, excess water from snowmelt or rainfall accumulates and overflows onto the stream banks and adjacent floodplains. As illustrated in Figure 4.3.1-1, floodplains are lowlands, adjacent to rivers, streams and creeks that are subject to recurring floods.

Figure 4.3.1-1: Floodplain Terminology



Floods are considered hazards when people and property are affected. Nationwide, hundreds of floods occur each year, making it one of the most common hazards in all 50 states and U.S. territories. In Pennsylvania, flooding occurs commonly and can occur during any season of the year from a variety of sources. Every two to three years, serious flooding occurs along one or more of Pennsylvania's major rivers or streams, and it is not unusual for this to occur several years in succession. Most injuries and deaths from flooding happen when people are swept away by flood currents and most property damage results from inundation by sediment-filled water.

Somerset County 2015 Hazard Mitigation Plan

Several factors determine the severity of floods, including rainfall intensity and duration, topography and ground cover. A large amount of rainfall over a short time span can result in flash flood conditions. A small amount of rain can also result in floods in locations where the soil is frozen or saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas.

In Southwestern Pennsylvania, including Somerset County, there are seasonal differences in the causes for floods. In the winter and early spring (February to April), major flooding has occurred as a result of heavy rainfall on dense snowpack throughout contributing watersheds, although the snowpack is generally moderate during most winters. Winter floods also have resulted from runoff of intense rainfall on frozen ground, and local flooding has been exacerbated by ice jams in rivers, streams and creeks.

Summer floods have occurred from intense rainfall on previously saturated soils. Summer thunderstorms that deposited large quantities of rainfall over a short period of time have also produced flash flooding. In addition, the Commonwealth occasionally receives intense rainfall from tropical storms in late summer and early fall.

Most flooding in Southwestern Pennsylvania has been associated with the Ohio River Basin, which is one of the largest in the United States and drains into the Mississippi River. All waters west of the eastern continental divide (encompassing most of the County) flow toward the Ohio River; waters to the east of the divide flow into the Susquehanna and Potomac Rivers. The most significant flooding problems in Somerset County have occurred in the Ohio River Basin, specifically on the following rivers and their tributaries:

- Youghiogheny River
 - Casselman River and Coxes Creek
 - Laurel Hill Creek
- Stonycreek River
 - Quemahoning Creek
 - Shade Creek
 - Paint Creek
 - Bens Creek

4.3.1.1 Location and Extent

Maps depicting the special flood hazard area within Somerset County and each municipality are shown in **Appendix D**. These maps are based on the FIRMs and digitized floodplain information from PA DEP. The PA DEP created a digital floodplain map layer for the entire Commonwealth, including Somerset County's 50 municipalities.

The National Flood Insurance Program (NFIP) publishes flood insurance rate maps. These maps identify the 1% annual chance of flood area (100 year flood plain). Special Flood Hazard Area (SFHA) and Base Flood Elevations (BFE) are developed from the 1% annual chance flood event. Structures located in the SFHA have a 26% chance of flooding in a 30 year period. The

Somerset County 2015 Hazard Mitigation Plan

SFHA serves as the primary regulatory boundary used by county and municipal governments. Federal floodplain management regulations and mandatory flood insurance purchase requirements apply to the following high risk special flood hazard areas:

4.3.1-2: Special Flood Hazard Area High Risk Zones

Zone	Description
A	Areas subject to inundation by the 1% annual chance flood event. Because detailed hydraulic analysis have not been performed, no base flood elevations or flood depths are shown
AE	Areas subject to inundation by the 1% annual chance flood event determined by detailed methods. BFEs are shown within these zones.
AH	Areas subject to inundation by the 1% annual chance shallow flooding (usually areas of ponding) where average depths are 1-3 feet. BFEs derived from detailed hydraulic analysis are shown in this zone.
AO	Areas subject to inundation by the 1% annual chance shallow flooding (usually sheet flow on sloping terrain) where average depths are 1-3 feet. Average flood depths derived from detailed hydraulic analysis are shown within this zone.
AR	Areas that result from the decertification of a previously accredited flood protection system that is determined to be in the process of being restored to provide base flood protection.

Source: Federal Emergency Management Agency

4.3.1.2 Range of Magnitude

Several factors determine the extent or “severity” of floods, including rainfall intensity and duration or volume and rate of snowmelt. The county also has conditions that may exacerbate the effects of floods:

- Topography and ground cover contribute to the location and severity of floods, e.g., water runoff is greater in areas with steep slopes and little or no vegetative ground cover.
 - Steep slopes: the county has sloping terrain which can contribute an increase to flooding, since runoff reaches the receiving creeks, streams and rivers more rapidly over steeper terrain.
 - Paved surfaces: urbanization leads to replacement of vegetative ground cover with asphalt and concrete, increasing surface runoff of stormwater. This effect may be exacerbated by poorly planned stormwater drainage systems.

Somerset County 2015 Hazard Mitigation Plan

- Hazardous materials facilities: As discussed later in this report under the Environmental Hazards, several facilities that handle or store hazardous materials are located in the 500-year floodplains, presenting potential sources of contamination during flood events.
- High hazard dams: Somerset County has 3 high hazard dams in the county. County EMA maintains emergency plans for each of these facilities. In the event of a dam failure, downstream flooding from the dam would be highly anticipated.

The following is a list and description of the potential environmental impacts from flooding:

- Hazardous materials could cause spills and leaks could cause the water and air quality to be affected.
- Flood debris could pose a wildfire danger.
- Water quality/quantity could be affected.

4.3.1.3 Past Occurrence

The worst flood to impact Somerset County for which data was available, was associated with Hurricane Ivan in September 2004. This flood caused \$50,000,000 in damages, and killed two people. Many parts of the county received over three inches of rain in a period of less than 12 hours. The Youghioghney River at Confluence Borough reached flood stage, rising approximately 10 feet in only 12 hours.

Somerset County has a long history of flooding problems, suffering damage from numerous major floods and localized flash flooding. Table 4.3.1-3 lists some of the significant flood events in Somerset County over the past 55 years.

Location	Date	Type	Death	Injury	Property Damage, \$K
Several counties	Oct-54	Flood (Hurricane)	UNK	UNK	UNK
Several counties	May-56	Flood	UNK	UNK	UNK
Hooversville, Meyersdale, Windber, Conemaugh, Ogle	Jun-72	Flood (Hurricane)	UNK	UNK	UNK
Several counties	Jul-74	Flood	UNK	UNK	UNK
Northern Section	7/19/1977	Flood	2	0	12,786
Summit, Elk Lick, Garrett	7/13/1979	Flood	UNK	UNK	UNK
Somerset Township	8/1/1979	Flood	UNK	UNK	UNK
Garrett, Windber, Central City	6/21/1983	Flash Flood	UNK	UNK	UNK
Summit, Northampton, Larimer, Fairhope	8/13/1984	Flood/Flash Flood	2	0	14,728
Elk Lick, Garrett, Summit, Meyersdale	11/4/1985	Flood	0	0	17

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-3: History of Flooding in Somerset County

Location	Date	Type	Death	Injury	Property Damage, \$K
Confluence	7/28/1989	Flood	0	0	UNK
Meyersdale	3/31/1993	Flash Flood	0	0	5
Countywide	4/16/1993	Flash Flood	0	0	1
Countywide	1/28/1994	Flash Flood	0	0	5
Countywide	6/15/1994	Flash Flood	0	0	5
Countywide	7/20/1994	Flash Flood	0	0	50
Several counties	1/19/1996	Flash Flood	0	0	1,200
Windber	6/18/1996	Flash Flood	0	0	UNK
Windber	8/8/1996	Flash Flood	0	0	UNK
Meyersdale	9/6/1996	Flash Flood	0	0	UNK
Somerset	4/13/2004	Flood	0	0	UNK
Berlin	5/18/2004	Flash Flood	0	0	UNK
Central City	9/8/2004	Flash Flood	0	0	UNK
Summit Township	9/8/2004	Flood (Hurricane Frances)	0	0	UNK
Several counties	9/17/2004	Flood (Hurricane Ivan)	2		50,000
Meyersdale	1/11/2005	Flood	0	0	UNK
Windber	8/8/2005	Flood	0	0	UNK
Northern Section	5/31/2006	Flash Flood	0	0	UNK
Somerset Borough	5/31/2006	Flood	0	0	UNK
Somerset	6/26/2006	Flash Flood	0	0	UNK
Somerset Township	6/26/2006	Flood	0	0	UNK
Countywide	11/16/2006	Flash Flood	0	0	UNK
Meyersdale	3/2/2007	Flood (Ice Jam)	0	0	UNK
Lincoln Township	3/14/2007	Flood	0	0	UNK
Jefferson Township	3/15/2007	Flood	0	0	UNK
Berlin	6/1/2007	Flash Flood	0	0	UNK
Countywide	12/19/2008	Flood	0	0	UNK
Southern part of County	6/27/2009	Flood	0	0	UNK
Countywide	1/25/2010	Flood	0	0	UNK
Countywide	9/30/2010	Flood	0	0	UNK
Meyersdale Borough	5/18/2011	Flood	0	0	UNK

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-3: History of Flooding in Somerset County

Location	Date	Type	Death	Injury	Property Damage, \$K
Windber Borough	8/19/2011	Flood	0	0	UNK
Countywide	9/9/2011	Flash flood	0	0	UNK
Shade Township	3/21/2012	Flood	0	0	UNK
Countywide	7/3/2013	Flash flood warning	0	0	UNK
Countywide	7/7/2013	Flash flood warning	0	0	UNK
Countywide	7/10/2013	Flash flood warning	0	0	UNK
Countywide	8/8/2013	Flash flood warning	0	0	UNK
Countywide	8/28/2013	Flood	0	0	UNK
Northern part of county	9/1/2013	Flood	0	0	UNK
Countywide	5/16/2014	Flood warning	0	0	UNK
Countywide	6/8/2014	Flood	0	0	UNK
Countywide	6/11/2014	Flood	0	0	UNK
Paint and Ogle Townships	6/12/2014	Flood	0	0	UNK

Events from 2009 to 2014 were obtained from Knowledge Center reports.
 During the January 25, 2010 flooding it was reported in Knowledge Center that a vehicle was stranded in water in Lincoln Township, there was a rescue of a person trapped by water in Somerset Township, and the Youghiogheny River flooded in Confluence Borough.

In addition to the aforementioned past flood events, the National Flood Insurance Program identifies properties that frequently experience flooding. *Repetitive loss properties* are structures insured under the NFIP which have had at least two paid flood losses of more than \$1,000 over any ten year period since 1978. A property is considered a *severe repetitive loss property* either when there are at least four losses each exceeding \$5,000 or when there are two or more losses where the building payments exceed the property value. As of January 28, 2015, there are no repetitive loss properties and 1 severe repetitive loss properties in Somerset County in accordance with data received from FEMA Region 3. Table 4.3.1-4 shows the number of severe repetitive loss properties per municipality in the red column and the repetitive loss properties by municipality in the remaining columns. The only severe repetitive loss property is located in Summit Township and is included on the map in **Appendix D**.

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-4: Summary of NFIP Policies, Severe Repetitive Loss and Repetitive Loss properties by municipality

MUNICIPALITY	NFIP POLICIES	SEVERE REPETITIVE LOSS	REPETITIVE LOSS 2-4 FAMILY	REPETITIVE LOSS SINGLE FAMILY	SUM OF REPETITIVE LOSS PROPERTIES
Addison Borough	0	0	0	0	0
Addison Township	3	0	0	0	0
Allegheny Township	5	0	0	0	0
Benson Borough	10	0	0	0	0
Berlin Borough	0	0	0	0	0
Black Township	3	0	0	0	0
Boswell Borough	2	0	0	0	0
Brothersvalley Township	2	0	0	0	0
Callimont Borough	0	0	0	0	0
Casselman Borough	0	0	0	0	0
Central City Borough	10	0	0	0	0
Conemaugh Township	74	0	0	0	0
Confluence Borough	17	0	0	0	0
Elk Lick Township	16	0	0	0	0
Fairhope Township	1	0	0	0	0
Garrett Borough	22	0	0	0	0
Greenville Township	1	0	0	0	0
Hooversville Borough	24	0	0	0	0
Indian Lake Borough	2	0	0	0	0
Jefferson Township	13	0	0	0	0
Jenner Township	8	0	0	0	0
Jennerstown Borough	3	0	0	0	0
Larimer Township	1	0	0	0	0
Lincoln Township	9	0	0	0	0
Lower Turkeyfoot Township	12	0	0	0	0
Meyersdale Borough	9	0	0	0	0
Middlecreek Township	21	0	0	0	0

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-4: Summary of NFIP Policies, Severe Repetitive Loss and Repetitive Loss properties by municipality

MUNICIPALITY	NFIP POLICIES	SEVERE REPETITIVE LOSS	REPETITIVE LOSS 2-4 FAMILY	REPETITIVE LOSS SINGLE FAMILY	SUM OF REPETITIVE LOSS PROPERTIES
Milford Township	6	0	0	0	0
New Baltimore Borough	8	0	0	0	0
New Centerville Borough	0	0	0	0	0
Northampton Township	2	0	0	0	0
Ogle Township	0	0	0	0	0
Paint Borough	5	0	0	0	0
Paint Township	12	0	0	0	0
Quemahoning Township	18	0	0	0	0
Rockwood Borough	3	0	0	0	0
Salisbury Borough	1	0	0	0	0
Seven Springs Borough	0	0	0	0	0
Shade Township	10	0	0	0	0
Shanksville Borough	1	0	0	0	0
Somerset Borough	37	0	0	0	0
Somerset Township	44	0	0	0	0
Southampton Township	5	0	0	0	0
Stoneycreek Township	30	0	0	0	0
Stoystown Borough	0	0	0	0	0
Summit Township	25	1	0	0	0
Upper Turkeyfoot Township	2	0	0	0	0
Ursina Borough	6	0	0	0	0
Wellersburg Borough	2	0	0	0	0
Windber Borough	105	0	0	0	0
TOTAL	590	1	0	0	0

4.3.1.4 Future Occurrence

Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. The National Flood Insurance Program (NFIP) uses historical records to determine the probability of occurrence for different extents of flooding. The probability of occurrence of future floods is expressed in percentages as the chance of a flood of a specific extent occurring in any given year.

A specific flood that is used for a number of purposes is called the “base flood”, which has a one percent chance of occurring in any particular year. The base flood is often referred to as the “100-year flood” since its probability of occurrence suggests it should reoccur once every 100 years, although this is not the case in practice. Experiencing a 100-year flood does not mean a similar flood cannot happen for the next 99 years; rather it reflects the probability that over a long period of time, a flood of that magnitude has a one percent chance of occurring in any given year.

Smaller floods occur more often than larger (deeper and more widespread) floods. Thus, a “10-year” flood has a greater likelihood of occurring than a “100-year” flood. Table 4.3.1-5 shows a range of flood recurrence intervals and their probabilities of occurrence.

The extent of flooding associated with a one percent probability of occurrence – the base flood – is used as a regulatory boundary by a number of federal, state and local agencies. Also referred to as the “special flood hazard area”, this boundary is a convenient tool for assessing vulnerability and risk in flood-prone communities, since many communities like Somerset county have maps available that show the extent of the base flood and the likely depths that will be experienced.

Table 4.3.1-5: Flood Probability Terms	
Flood Recurrence Intervals	Chance of Occurrence in Any Given Year, %
10 year	10
50 year	2
100 year	1
500 year	0.2

4.3.1.5 Vulnerability Assessment

River and Stream Flooding:

The flood hazard vulnerability assessment for the county focused on the community assets that are located in the special flood hazard area. While greater and smaller floods are possible, information about the extent and depth for the special flood hazard area is available in a similar format for all 50 Somerset County municipalities, providing a consistent basis for analysis.

Somerset County 2015 Hazard Mitigation Plan

Somerset County critical facilities within the special flood hazard area are listed in table 4.3.1-6. The assessed value and market value for each facility is documented as well. Critical facilities are facilities that if damaged would present an immediate threat to life, public health and safety. It should be noted that Ursina Borough does have a daycare facility that is identified in the SFHA. Daycares have been identified as a special needs facility.

Name	Facility Type	Location	Building Market Value
Benson Borough Building	Government Building	Benson Borough	\$44,730
Hollsopple Volunteer Fire Department	Fire Service	Benson Borough	\$75,900
Central City Volunteer Fire Department	Fire Service	Central City Borough	\$226,770
Confluence Volunteer Fire Department and Ambulance Service	Emergency Medical Service	Confluence Borough	\$135,930
Elk Lick Township Building and Police Department	Government Building and Law Enforcement	Elk Lick Township	\$91,210
Garrett Borough Building and Police Department	Government Building and Law Enforcement	Garrett Borough	\$56,580
Hooversville Borough Building	Government Building	Hooversville Borough	\$27,050
Hooversville Rescue Squad and Volunteer Fire Department	Emergency Medical Service	Hooversville Borough	\$81,060
Hooversville Police Department	Law Enforcement	Hooversville Borough	\$6,030
Rockwood Casualty Insurance Company	Tier II Facility	Rockwood Borough	\$783,940
Sheetz #57	Tier II Facility	Somerset Borough	\$458,050
Somerset Wastewater Plant	Tier II Facility	Somerset Borough	\$0.00 (Not Available)
Summit Township Building and Police Department	Government Building and Law Enforcement	Summitt Township	\$75,120
Cindy Shafer Daycare	Daycare	Ursina Borough	\$39,230

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-6 Somerset County Critical Facilities in the Special Flood Hazard Area

Name	Facility Type	Location	Building Market Value
API Defense Inc.	Tier II Facility	Windber Borough	\$573,700
Sheetz #27	Tier II Facility	Windber Borough	\$404,660
Verizon North	Tier II Facility	Windber Borough	\$123,700
Total			\$3,363,640

Flood events are also a major cause for road closures in the county and its municipalities. Affected areas of roadway may vary from a few feet for only a few hours (as in the case of flash flooding) to several hundred feet for a few days (as in the case of riverine flooding). Road closures limit accessibility to certain areas of the county, which in turn delays the provision of emergency services to the residents in those areas. In addition, despite posted signs warning drivers to stay out of floodwaters, inevitably there are individuals who must be rescued from their cars that become stranded in floodwaters.

A risk factor was determined for each municipality in Somerset County utilizing the summary of risk factor approach document for flooding. Table 4.3.1-7 outlines the risk assessment categories. With each category a level, criteria and index was applied along with a weight value. The results for each municipality are identified in Table 4.3.1-8. Risk Factors identified as high risk have risk factors greater than or equal to 2.5. Risk Factors ranging from 2.0 to 2.4 are considered moderate risk hazards. Hazards with Risk Factors less than 2.0 are considered low risk. According to the default weighting scheme applied, the highest possible risk factor value is 4.0.

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-7: Summary of Risk Factor Approach

Risk Assessment Category	Degree of Risk			Weight Value
	Level	Criteria	Index	
PROBABILITY <i>What is the likelihood of a hazard event occurring in a given year?</i>	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1% & 49.9% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 50% & 90% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	GREATER THAN 90% ANNUAL PROBABILITY	4	
IMPACT <i>In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?</i>	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.	4	
SPATIAL EXTENT <i>How large of an area could be impacted by a hazard event? Are impacts localized or regional?</i>	NEGLECTIBLE	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10.9% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 11 & 25% OF AREA AFFECTED	3	
	LARGE	GREATER THAN 25% OF AREA AFFECTED	4	
WARNING TIME <i>Is there usually some lead time associated with the hazard event? Have warning measures been implemented?</i>	MORE THAN 24 HRS	SELF-DEFINED	1	10%
	12 TO 24 HRS	SELF-DEFINED	2	
	6 TO 12 HRS	SELF-DEFINED	3	
	LESS THAN 6 HRS	SELF-DEFINED	4	
DURATION <i>How long does the hazard event usually last?</i>	LESS THAN 6 HRS	SELF-DEFINED	1	10%
	LESS THAN 24 HRS	SELF-DEFINED	2	
	LESS THAN 1 WEEK	SELF-DEFINED	3	
	MORE THAN 1 WEEK	SELF-DEFINED	4	

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-8 Flooding Risk Factor Results per Municipality

FLOODING HAZARD PER MUNICIPALITY	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
Addison Township	4	4	4	3	4	3.9
Allegheny Township	2	3	2	2	3	2.4
Benson Borough	4	4	4	3	4	3.9
Berlin Borough	2	3	2	2	3	2.4
Black Township	4	4	4	3	4	3.9
Boswell Borough	2	3	2	2	3	2.4
Brothersvalley Township	4	4	4	3	4	3.9
Callimont Borough	2	3	2	2	3	2.4
Casselman Borough	4	4	4	3	4	3.9
Central City Borough	4	4	4	3	4	3.9
Conemaugh Township	4	4	4	3	4	3.9
Confluence Borough	4	4	4	3	4	3.9
Elk Lick Township	4	4	4	3	4	3.9
Fairhope Township	4	4	4	3	4	3.9
Garrett Borough	4	4	4	3	4	3.9
Greenville Township	4	4	4	3	4	3.9
Hooversville Borough	4	4	4	3	4	3.9
Indian Lake Borough	4	4	4	3	4	3.9
Jefferson Township	4	4	4	3	4	3.9
Jenner Township	4	4	4	3	4	3.9
Jennerstown Borough	4	4	4	3	4	3.9
Larimer Township	4	4	4	3	4	3.9
Lincoln Township	4	4	4	3	4	3.9
Lower Turkeyfoot Township	4	4	4	3	4	3.9
Meyersdale Borough	4	4	4	3	4	3.9
Middlecreek Township	4	4	4	3	4	3.9
Milford Township	4	4	4	3	4	3.9

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.1-8 Flooding Risk Factor Results per Municipality

FLOODING HAZARD PER MUNICIPALITY	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
	PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
New Baltimore Borough	4	4	4	3	4	3.9
New Centerville Borough	2	2	2	4	1	2.1
Northampton Township	4	4	4	3	4	3.9
Ogle Township	4	4	4	3	4	3.9
Paint Borough	4	4	4	3	4	3.9
Paint Township	4	4	4	3	4	3.9
Quemahoning Township	4	4	4	3	4	3.9
Rockwood Borough	4	4	4	3	4	3.9
Salisbury Borough	2	2	2	4	1	2.1
Seven Springs Borough	2	2	2	4	1	2.1
Shade Township	4	4	4	3	4	3.9
Shanksville Borough	4	4	4	3	4	3.9
Somerset Borough	4	4	4	3	4	3.9
Somerset Township	4	4	4	3	4	3.9
Southampton Township	4	4	4	3	4	3.9
Stoneycreek Township	4	4	4	3	4	3.9
Stoystown Borough	2	2	2	4	1	2.1
Summit Township	4	4	4	3	4	3.9
Upper Turkeyfoot Township	4	4	4	3	4	3.9
Ursina Borough	4	4	4	3	4	3.9
Wellersburg Borough	4	4	4	3	4	3.9
Windber Borough	4	4	4	3	4	3.9

Flash Flooding:

Flash flooding has a highly likely probability within Somerset County, with a risk factor of 3.6 being associated. Flash flooding can occur anywhere within Somerset County when the conditions are right. Locations that are more populated and have more impervious ground have a higher vulnerability to flash flooding. During the risk assessment process numerous resources were utilized to determine flash flooding locations. Municipalities were asked to identify

Somerset County 2015 Hazard Mitigation Plan

locations within the municipality that are prone to frequent flash flooding. The National Climatic Data Center was also queried to determine flash flood vulnerable areas. This data is reflected in table 4.3.1-3 above.

Locations that are identified as vulnerable to flash flooding in Somerset County are as follows:

- Berlin Borough
- Central City Borough
- Fairhope
- Larimer
- Myersdale Borough
- Somerset Borough
- Summit Township
- Windber Borough

The Somerset County Hazard Mitigation Team will continue to work with municipalities to identify vulnerable flash flooding locations and identify vulnerable special needs population and critical facilities. This will be a continuous process during the 2015-2020 mitigation plan period. As new data is developed, new special needs facilities appear and new critical facilities appear the interface between flash flooding locations and the new data will be analyzed to identify new vulnerability.

Ice Jam Flooding:

There is a possible probability that an ice jam flooding incident will affect Somerset County; and a risk factor of 2.4 was assigned using the risk factor assessment tool. Areas along the Stoney Creek, Casselman River and Yough River are the most vulnerable to ice jam flooding. The following identifies vulnerable municipalities for each of the waterways:

Stoney Creek:

- Benson Borough
- Village of Blough
- Hooversville Borough
- Quemahoning Township
- Shanksville Borough

Casselman River:

- Garrett Borough
- Myersdale Borough

Yough River:

- Addison Township
- Confluence Borough

Somerset County 2015 Hazard Mitigation Plan

The Somerset County Hazard Mitigation Team will continue to work with municipalities to identify vulnerable ice jam flooding locations and identify vulnerable special needs population and critical facilities. This will be a continuous process during the 2015-2020 mitigation plan period. As new data is developed, new special needs facilities appear and new critical facilities appear the interface between flash flooding locations and the new data will be analyzed to identify new vulnerability.

Dam Failure:

There is always a possibility a dam could fail. Flash flooding occurs with little to no notice. The most vulnerable area of any dam failure is the area immediately downstream from the dam. The volume of water that is released and the rate that the water is released have a direct impact on the severity of flooding impact downstream. Dams that meet the high hazard threshold require emergency action plans that assist with downstream notifications to vulnerable residents and businesses. Somerset County has 3 high hazard dam emergency action plans. These emergency action plans identify downstream residents and locations that are vulnerable to a failure condition. These plans are exercised and maintained by the dam owner a minimum of once every five years. Somerset County EMA will continue to participate with the high hazard dam program.

4.3.2 Tornadoes and Severe Wind Storms

Wind storms

Windstorms, straight line winds (derecho) or microbursts are more frequent with thunderstorms than with hurricanes or tornadoes in Pennsylvania. A microburst, which is a form of a windstorm, is a very-localized column of sinking air, capable of producing damaging, opposing and straight-line winds at the ground surface. Straight-line wind is wind that comes out of a thunderstorm. If these winds meet or exceed 58 miles per hours, then the National Weather Service (NWS) classifies the storm as severe. The downward momentum in the downdraft region of a thunderstorm produces these winds. An environment conducive to a storm containing straight-line wind is one in which the updrafts and thus downdrafts are strong, the air is dry in the middle troposphere and the storm has a fast forward motion.

Straight-line winds create movement of air from areas of higher pressure to areas of lower pressure – the greater the difference in pressure, the stronger the winds. Wind storms are

Figure 4.3.2-1



generally defined as sustained wind speeds of 40 mph or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration.

Straight-line winds, also known as wind gusts, outflow and downburst are produced from thunderstorms. Strong updrafts and downdrafts have the conducive environment for

straight-line winds.

A Wind Shear is usually found when a violent weather front is moving through; wind speeds have been recorded up to 100 miles per hour. Wind Shear is defined as a difference in wind speed and direction over a relatively short distance in the atmosphere.

Winds that meet or exceed 58 miles per hour are classified as severe by the National Weather Service.

Tornadoes

Tornadoes may occur in the Commonwealth during the spring and summer months. The National Weather Service estimates Pennsylvania will experience 10 tornadoes annually. A tornado, a violently rotating funnel-like vortex, is an extraordinary feature of severe thunderstorms. A condensation funnel does not need to reach to the ground for a tornado to be present; a debris cloud beneath a thunderstorm is all that is needed to confirm the presence of a tornado, even in the total absence of a funnel. While the extent of tornado damage is usually localized, the extreme winds of this vortex can be among the most destructive on earth when they move through populated, developed areas.

The Enhanced Fujita Tornado Scale (or the “EF-Scale”) classifies U.S. tornadoes into six intensity categories, named EF0 to EF5, based upon the damage caused and the associated estimated, maximum winds occurring within the funnel. The EF-Scale has subsequently become the definitive metric for estimating wind speeds within tornadoes based upon the damage done to buildings and structures.

Tornadoes can occur at any time during the day or night, but are most frequent during late afternoon into early evening, the warmest hours of the day. Tornado movement is characterized in two ways: direction and speed of the spinning winds, and forward movement of the tornado/storm track. Rotational wind speeds of the vortex can range from 100 mph to more than 250 mph. In addition, the speed of forward motion can be zero to 45 or 50 mph. Therefore, some estimates place the maximum velocity (combination of ground speed, wind speed and upper winds) of tornadoes at about 300 mph.

The forward motion of the tornado path can be a few hundred yards or several hundred miles in length. The width of tornadoes can vary greatly, but generally range in size from less than 100 feet to over a mile in width. Some tornadoes never touch the ground and are short-lived, while others may touch the ground several times.

4.3.2.1 Location and Extent

Wind storms

High winds and tornadoes can affect any area of the county. According to the Somerset County Comprehensive Plan 61 percent of the county has forest cover. There is a high probability that straight-line wind damages could go unreported for a period of time.

Somerset County 2015 Hazard Mitigation Plan

Tornadoes

Tornadoes can have varying secondary effects. The most common secondary effect is power failure; the severe wind strength can dismantle power sources. Structural damage can also be significant. Hazardous material releases can occur if a tornado comes near a holding tank, or the spill stems from a traffic accident caused by high winds.

A map of tornadoes that have affected Somerset County is located in section 4.3.2.5.

4.3.2.2 Range of Magnitude

Windstorms

Wind storms are generally defined as sustained wind speeds of 40 mph or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration.

The following is a list and description of the potential environmental impacts from windstorms:

- High profile vehicles can be toppled – to include commercial vehicles hauling hazardous materials that could pose harm on the environment.
- Fallen tree debris increases the risk of wildfires in a region.

Tornadoes

A tornado's magnitude is classified using the EF Scale, shown in table 4.3.2-2.

Tornado EF-Scale	Wind Speed, mph	Expected Damage
EF0	65-85	Light damage: Some damage to chimneys; branches break from trees and show-rooted trees pushed over; damage to sign boards.
EF1	86-110	Moderate damage: Peel surface off roofs; mobile homes pushed off foundations or overturned; moving autos pushed off road.
EF2	111-135	Considerable damage: Roofs torn off frame houses; mobile homes demolished; boxcars pushed over; large trees snapped or uprooted; light-object missiles generated.
EF3	136-165	Severe damage: Roofs and some walls torn off well-constructed houses; trains overturned; most trees in forest uprooted; cars lifted off ground and thrown.
EF4	166-200	Devastating damage: Well-constructed houses leveled; structures with weak foundations blown off some distance; cars thrown and large missiles generated.

Table 4.3.2-2: Enhanced Fujita Scale and Associated Damage

Tornado EF-Scale	Wind Speed, mph	Expected Damage
EF5	Over 200	Incredible damage: Strong frame houses lifted off foundations and carried considerable distance to disintegrate; automobile-sized missiles fly through the air in excess of 100 yards; trees debarked; incredible phenomena will occur.

The worst tornado to affect Somerset County was an F3 that struck Salisbury on May 31, 1998 (before the F Scale became the EF Scale). The tornado touched down east of Mount Davis and traveled nearly 15 miles through Salisbury and on to Pocahontas. One girl was killed, 15 people were injured, and 150 required overnight shelter. Between 10 and 15 businesses suffered significant damage.

The following is a list and description of the potential environmental impacts from tornadoes:

- Damages could pose a hazardous material(s) spill and/or leak.
- Leaks from a hazardous material gas could pose a fire danger.
- Large amounts of debris could pose both urban fire dangers and wildfires.

4.3.2.3 Past Occurrence

Wind storms

Table 4.3.2-3 identifies reported high winds in Somerset County since 1994.

Table 4.3.2-3: History of High Winds in Somerset County

Location	Date	Mag. (knots)	Death	Injury	Property Damage, \$K
Several counties	4/15/1994	UNK	0	0	500
Countywide	4/29/1994	UNK	0	0	1
Countywide	6/15/1994	UNK	0	0	5
Kingwood	7/9/1994	UNK	0	0	1
Countywide	7/20/1994	UNK	0	0	1
Several counties	11/6/1994	UNK	0	3	50
Several counties	11/27/1994	UNK	0	0	500
Countywide	11/11/1995	UNK	1	4	UNK
New Centerville	6/2/1999	UNK	0	0	10
Sipesville	7/9/1999	UNK	0	0	5
Countywide	7/28/1999	UNK	0	0	5

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.2-3: History of High Winds in Somerset County					
Location	Date	Mag. (knots)	Death	Injury	Property Damage, \$K
Several counties	9/29/1999	60	0	0	100
Jerome	10/13/1999	UNK	0	0	5
New Centerville	6/2/2000	UNK	0	0	5
Countywide	11/9/2000	UNK	0	0	2
Several counties	12/12/2000	UNK	1	2	500
Several counties	2/10/2001	UNK	0	0	150
Meyersdale	4/9/2001	UNK	0	0	3
Several counties	3/9/2002	50	0	0	50
Conemaugh	6/6/2005	UNK	0	0	UNK
Conemaugh	2/17/2006	UNK	0	0	UNK
Countywide	5/11/2008	UNK	0	0	UNK
Countywide	2/11/2009	UNK	0	0	UNK
*Entries after 2/11/2009 to 2014 were obtained through Knowledge Center.					
Location	Date	Event	Injury/Death	Property Damage, \$K	
Somerset Twp.	06/02/2009	Funnel cloud spotted	0	0	
Countywide	05/08/2010	Wind damage, multiple trees and poles down county wide	0	0	
Countywide	09/22/2010	Severe thunderstorm with trees and wires down county wide	0	UNK	
Countywide	11/17/2010	High wind weather event	0	UNK	
Countywide	03/23/2011	Tornado Warning	0	UNK	
Countywide	02/23/2012	High wind warning	-	-	
Paint Borough	04/23/2012	Multiple trees down	0	UNK	
Meyersdale and Somerset areas	07/08/2014	Severe weather with trees, wires and poles down.	0	UNK	
Countywide	07/13/2014	Thunderstorm with trees/lines down in Jerome, Conemaugh Township, and Windber. Power outages in Conemaugh Township.	0	UNK	

Tornadoes

Tornadoes have occurred in Pennsylvania in all seasons and in all parts of the state, but the western and southeastern portions have been more frequently struck. However, one of the deadliest in recent memory was the May 1985 storm in which 6 people were killed and 60 were injured as campers, manufactured homes, homes, and businesses were destroyed across

Somerset County 2015 Hazard Mitigation Plan

Lycoming, Union, and Northumberland Counties. Table 4.3.2-4 identifies reported tornadoes in Somerset County over more than half a century.

Table 4.3.2-4: History of Tornadoes in Somerset County

Location	Date	Magnitude (F-Scale)	Death	Injury	Property Damage, \$K
Countywide	5/11/1951	F2	0	1	UNKNOWN
Countywide	4/22/1954	F0	0	0	UNKNOWN
Countywide	5/13/1956	F2	0	1	UNKNOWN
Countywide	9/5/1975	F1	0	0	UNKNOWN
Countywide	7/5/1984	F1	0	0	\$25,000
Countywide	6/8/1990	F0	0	0	UNKNOWN
Salisbury	5/31/1998	F3	1	15	\$4,000,000
Bakersville	6/2/1998	F3	0	0	UNKNOWN
Buckstown	6/30/1998	F1	0	0	UNKNOWN
Wittenberg	7/31/2000	F0	0	0	\$5,000
Ralphyton	08/07/2013	EF0	0	0	\$2,000
Totals			1	17	\$4,032,000

Source: www.tornadoproject.com and National Climatic Data Center

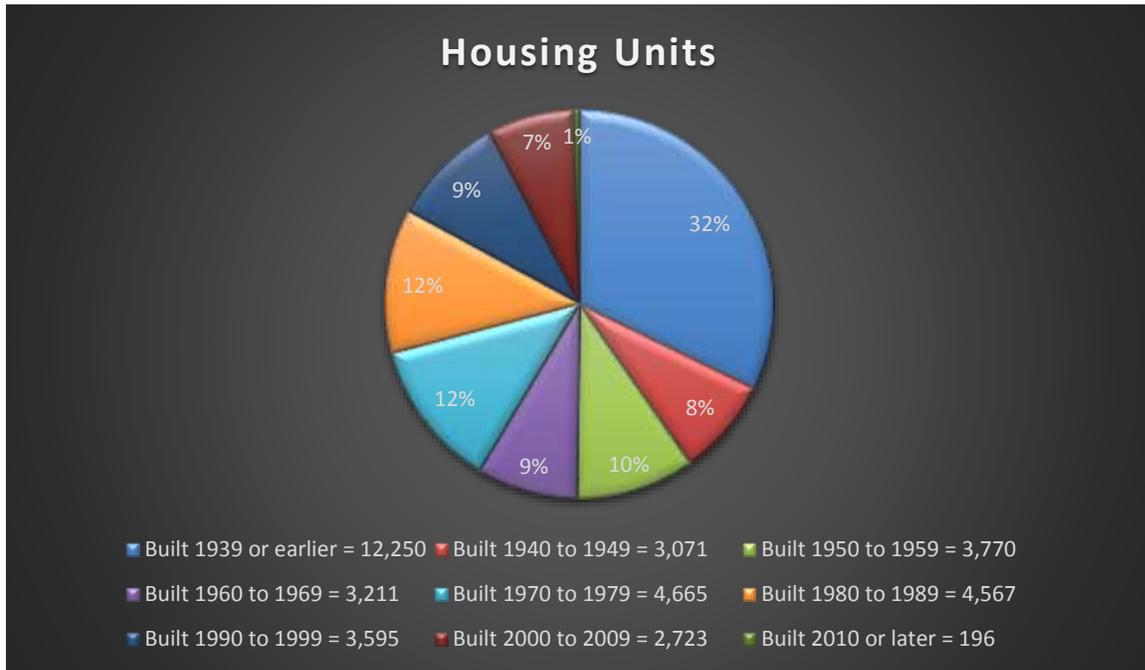
4.3.2.4 Future Occurrence

Wind storms

The probability of the county and its municipalities experiencing severe winds is difficult to quantify, but is considered relatively high. A risk factor of 3.7 has been assigned to windstorms using the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency. The county experiences strong winds on such a regular basis that several wind turbines have been installed in the county for power generation. That so few instances of high winds impacting the county have been reported over the last five years shows that these winds are doing less (or no) physical damage, possibly due to stronger building codes being in place.

Figure 4.3.2-5 shows the age of housing units (per American Fact-Finder results for 2012 American Community Survey 1-year estimates). Even though there are more stringent building codes in place there are still a number of homes that were built 1939 or earlier that could be compromised by tornadoes or severe winds.

Figure 4.3.2-5 Age of Housing Units in Somerset County



Tornadoes

With only 11 tornadoes striking Somerset County since 1950, the probability is very low. Those that have occurred were relatively weak and caused little destruction (with the exception of the tornado that hit Salisbury in 1998). Most of Pennsylvania is susceptible to tornadoes of a magnitude of at most an EF-3. It can reasonably be assumed that future tornadoes will be similar in nature to those that have affected the County in the past, and will strike the County once every five years (even though there has not been a reported tornado in Somerset County for 14 years.) A risk factor of 2.8 has been assigned to tornadoes using the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency.

There has been tornado warnings and watches since that time. Table 4.3.2-6 below depicts these watches and warnings for Somerset County.

Table 4.3.2-6: Tornado warnings and watches for Somerset County between January 2009 and September 2014

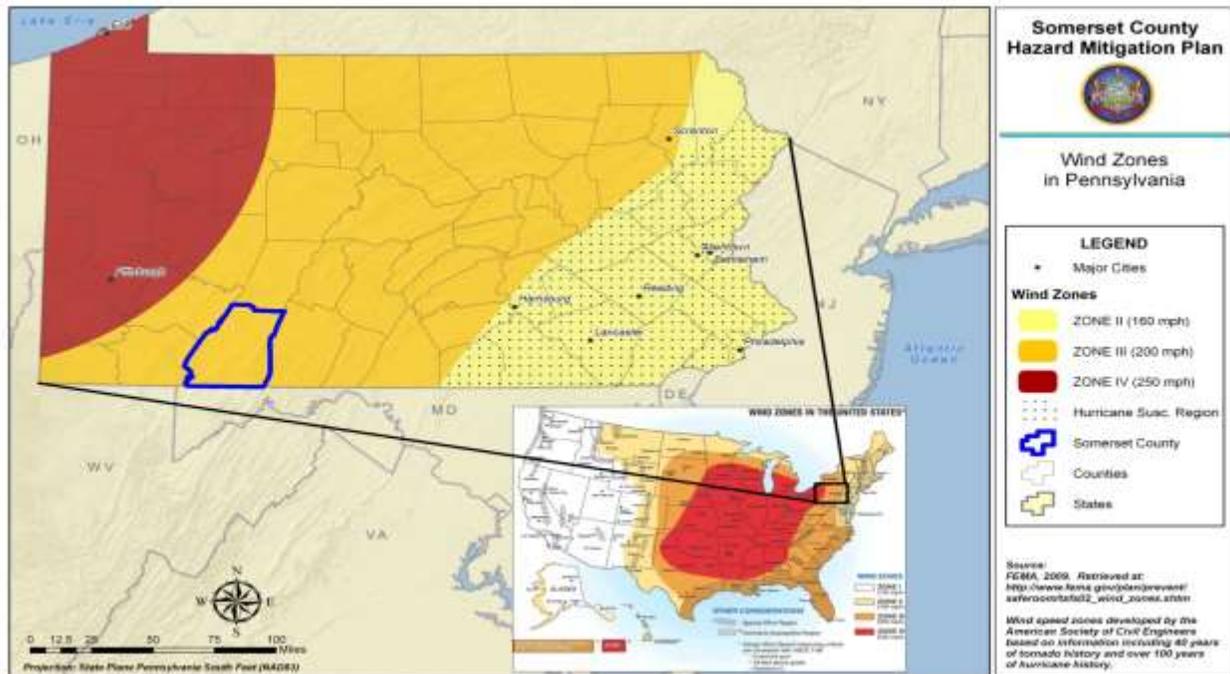
Date	Event
06/02/2009	Funnel cloud spotted
03/23/2011	Tornado warning
08/07/2013	Tornado warning
06/11/2014	Tornado Warning

Source: Knowledge Center™ reports

4.3.2.5 Vulnerability Assessment

A useful tool for determining vulnerability to the winds that result from hazard events like severe winds and tornadoes is depicted in Figure 4.3.2-7.

Figure 4.3.2-7: Wind Zones in Pennsylvania



Wind storms

This map is based on the map of design wind speeds developed by the American Society of Civil Engineers, and identifies wind speeds that could occur in different parts of the United States to be used as the basis for design and evaluation of the structural integrity of shelters and critical facilities.

Figure 4.3.2-7 shows that three different wind speed zones cover the Commonwealth of Pennsylvania: Zones II, III, and IV, with design wind speeds for community shelters (and other facilities, by extension) of 160, 200, and 250 miles per hour, respectively.

All critical infrastructure in the county is vulnerable to the effects of severe wind. Since high wind events may affect the entire county, it is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Evaluation criteria include age of the building (and what building codes may have been in effect at the time), type of construction, and condition of the structure (i.e., how well the structure has been maintained). Individual structure data was not available for this study, so it was difficult to determine the exact number and types of structures within Somerset County that have heightened vulnerability to wind hazards.

Somerset County 2015 Hazard Mitigation Plan

However, mobile homes and commercial trailers are extremely vulnerable to high winds (especially if they are not well anchored).

Tornadoes

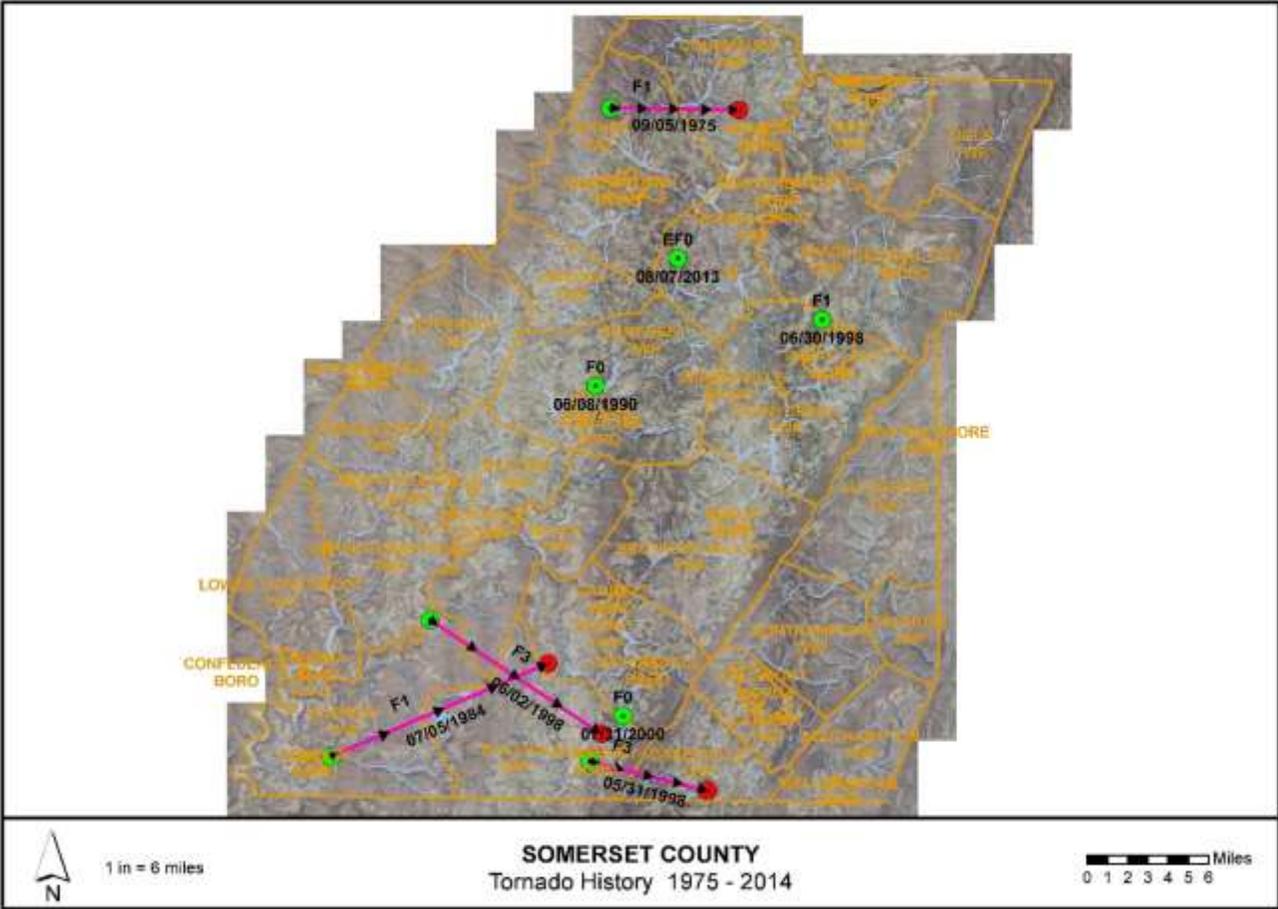
Tornadoes can occur at any time of the year, with peak months in the northern part of the United States during the summer. Tornadoes are most likely to occur between 3 and 9 P.M. but have been known to occur at all hours of the day or night.

Other factors that impact the amount of damage caused by a tornado are the strength of the tornado, the time of day, and the area of impact. Usually these distinct funnel clouds are localized phenomena impacting a small area. However, the high winds of tornados make them one of the most destructive natural hazards.

Other associated dangers that accompany thunderstorms that can produce tornadoes are:

- Flash floods – with 146 deaths annually nationwide
- Lightning – 75 to 100 deaths annually nationwide
- Damaging Straight-line winds – reaching 140 mph wind speed
- Large Hail – can reach the size of a grapefruit and causes several hundred million dollars in damages annually to property and crops.

Somerset County 2015 Hazard Mitigation Plan



4.3.3 Severe Winter Storms

Winter storms consist of cold temperatures and heavy snow or ice. Because winter storms are regular, annual occurrences in Pennsylvania, they are considered hazards only when they result in damage to specific structures and/or overwhelm local capabilities to handle disruptions to traffic, communications and electric power.

4.3.3.1 Location and Extent

Average annual snowfall in Somerset County ranges from 30" (in the southeast and southwest corners) to 90" (around Somerset Borough). A map displaying annual snowfall totals throughout Pennsylvania is shown in Figure 4.3.3-1.

Figure 4.3.3-1: Mean Annual Snowfall in Pennsylvania



4.3.3.2 Range of Magnitude

Winter storms are usually a County-wide hazard. Winter storms consist of cold temperatures, heavy snow or ice, and sometimes strong winds. A winter storm can adversely affect roadways, utilities, business activities and can cause loss of life, frostbite, or freezing. Winter storms may contain one or more of the following hazardous weather events:

- Heavy Snowstorm: Accumulations of four inches or more in a six-hour period, or six inches or more in a twelve-hour period.
- Sleet Storm: Significant accumulations of solid pellets which form from the freezing of raindrops or partially melted snowflakes causing slippery surfaces posing hazards to pedestrians and motorists.

Somerset County 2015 Hazard Mitigation Plan

- Ice Storm: Significant accumulations of rain or drizzle freezing on objects (trees, power lines, roadways, etc.) as it strikes them, causing slippery surfaces and damage from the sheer weight of ice accumulation.
- Blizzard: Wind velocity of 35 miles per hour or more, temperatures below freezing, considerable blowing snow with visibility frequently below one-quarter mile prevailing over an extended period of time.
- Severe Blizzard: Wind velocity of 45 miles per hour, temperatures of 10 degrees Fahrenheit or lower, a high density of blowing snow with visibility frequently measured in feet prevailing over an extended period time.

Somerset County's worst winter storm occurred in early February 2010. Over two feet of snow fell throughout Somerset County (30 inches were recorded in Somerset Borough) in a 12-hour period. A Declaration of Disaster Emergency was issued in Somerset County, Central City Borough, Lincoln Township, Rockwood Borough, and Somerset Borough; similar declarations were made by political subdivisions across the Commonwealth, including at the state level. Many municipal and state roads were closed because of the snow. Traffic was brought to a standstill on the Pennsylvania Turnpike around the Donegal and Somerset Interchanges. There were no reports of injuries or fatalities due to the snow, but over \$1.8 million in damages to barns, greenhouses, and other agriculture-related facilities was reported.

The following is a list and description of the potential environmental impacts from severe winter storms:

- Heavy snow/ice could cause structural collapse that could cause urban fire hazards with runoff of contaminated water.
- Heavy snow/ice could cause traffic accident, which could cause hazardous material spills/leaks.
- Heavy snow/ice could cause power interruptions, which could cause urban fire hazards with runoff of contaminated water.

4.3.3.3 Past Occurrence

The Commonwealth of Pennsylvania has a long history of severe winter weather. In the winter of 1993-1994, the state was hit by a series of protracted winter storms. The severity and nature of these storms combined with accompanying record-breaking frigid temperatures posed a major threat to the lives, safety and well-being of Commonwealth residents and caused major disruptions to the activities of schools, businesses, hospitals, and nursing homes.

The first of these devastating winter storms occurred in early January with record snowfall depths (in excess of 33 inches in the southwest and south-central portions of the Commonwealth), strong winds and sleet/freezing rains. Numerous storm-related power outages were reported, and as many as 600,000 residents were without electricity, in some cases for several days at a time. A ravaging ice storm followed, affecting the southeastern portion of the Commonwealth, which closed major arterial roads and downed trees and power lines. Utility crews from a five-state area were called to assist in power restoration repairs. Officials from

Somerset County 2015 Hazard Mitigation Plan

PP&L stated that this was the worst winter storm in the history of the company, and related damage-repair costs exceeded \$5,000,000.

Serious power supply shortages continued through mid-January because of record cold temperatures at many places, causing sporadic power generation outages across the Commonwealth. The entire Pennsylvania-New Jersey-Maryland grid and its partners in the District of Columbia, New York and Virginia experienced 15-30 minute rolling blackouts, threatening the lives of people and the safety of the facilities in which they resided. Power and fuel shortages affecting Pennsylvania and the East Coast power grid system required the Governor to recommend power conservation measures be taken by all commercial, residential, and industrial power consumers.

The record cold conditions resulted in numerous water-main breaks and interruptions of service to thousands of municipal and city water customers throughout the Commonwealth.

Additionally, the extreme cold in conjunction with accumulations of frozen precipitation resulted in acute shortages of road salt. As a result, trucks were dispatched to haul salt from New York to expedite deliveries to PA Department of Transportation (DOT) storage sites.

During January and February 1994, Pennsylvania experienced at least 17 regional or statewide winter storms. The consequences of these disasters resulted in the need for intervention by the President in an effort to alleviate the severity of the hardship and to aid the recovery of the hardest-hit counties.

In January 1996, another series of severe winter storms with 27- and 24-inch accumulated snow depths was followed by 50 to 60 degree temperatures resulting in rapid melting and flooding (as described in the preceding section on Flood Hazard Vulnerability Assessment).

Table 4.3.3-2 outlines winter storms that have occurred in Somerset County in the past.

Location	Date	Type	Death	Injury	Property Damage, \$K
Statewide	Jan 1966	Heavy Snow	UNK	UNK	UNK
Statewide	Feb 1972	Heavy Snow	UNK	UNK	UNK
Southwestern PA	Dec 1974	Heavy Snow	UNK	UNK	UNK
Statewide	Jan 1977	Severe Winter Weather	UNK	UNK	UNK
Statewide	Jan 1978	Heavy Snow	UNK	UNK	UNK
Statewide	Feb 1978	Heavy Snow	UNK	UNK	UNK
Statewide	Mar 1993	Heavy Snow	UNK	UNK	UNK
Several counties	10/31/1993	Heavy Snow	0	0	5
Countywide	12/21/1993	Heavy Snow	0	0	UNK
Statewide	1/4/1994	Heavy Snow	0	185	5,000
Statewide	1/14/1994	Extreme Cold	3	129	5,000
Statewide	1/17/1994	Heavy Snow	0	0	500
Several counties	1/27/1994	Ice Storm	0	62	50
Statewide	3/2/1994	Blizzard	0	1	5,000

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.3-2: History of Winter Storms in Somerset County

Location	Date	Type	Death	Injury	Property Damage, \$K
Several counties	3/10/1994	Ice Storm	0	0	500
Several counties	12/19/1995	Winter Storm	0	0	UNK
Several counties	1/7/1996	Blizzard	0	0	UNK
Several counties	12/8/1996	Heavy Snow	0	0	UNK
Several counties	3/14/1997	Ice Storm	0	0	UNK
Several counties	1/28/1998	Heavy Snow	0	0	UNK
Several counties	12/30/1998	Heavy Snow	0	0	UNK
Several counties	1/2/1999	Winter Storm	0	0	UNK
Several counties	1/19/2000	Heavy Snow	0	0	UNK
Several counties	12/13/2000	Winter Storm	0	0	UNK
Several counties	3/4/2001	Heavy Snow	0	0	150
Several counties	1/6/2002	Heavy Snow	0	0	UNK
Several counties	10/29/2002	Ice Storm	0	0	1,000
Several counties	1/2/2003	Heavy Snow	0	0	UNK
Several counties	2/16/2003	Heavy Snow	0	2	UNK
Several counties	12/13/2007	Ice Storm	0	0	UNK
Several counties	2/5/2010	Heavy Snow	0	0	1,800
* Entries after 2/5/2010 to 2014 were obtained through Knowledge Center and NCDC*					
Somerset County	02/09/2010	Winter storm	0	0	UNK
Somerset County	02/10/2010	Blizzard conditions	-	-	-
Somerset County	02/25/2010	Winter storm	0	0	UNK
Multiple townships	11/27/2010	Ice storm with road closures	-	-	-
Somerset County	02/01/2011	Winter storm	0	0	UNK
Somerset County	12/06/2011	Winter storm	-	-	-
Somerset County	01/20/2012	Winter storm	0	0	UNK
Somerset County	12/21/2012	Winter storm	0	0	UNK
Somerset County	12/26/2012	Winter storm	0	0	UNK
Somerset County	02/26/2013	Winter storm	0	0	UNK
Somerset County	03/17/2013	Winter storm	0	0	UNK
Somerset County	11/26/2013	Winter storm	0	0	UNK
Somerset County	12/06/2013	Ice and snow weather	-	-	-
Somerset County	12/14/2013	Winter storm	0	0	UNK
Somerset County	12/31/2013	Winter storm	-	-	-
Somerset County	01/06/14	Winter weather	-	-	-
Somerset County	01/20/2014	Winter storm	-	-	-

Table 4.3.3-2: History of Winter Storms in Somerset County

Location	Date	Type	Death	Injury	Property Damage, \$K
Somerset County	01/27/2014	Winter weather	-	-	-
Summit Township	02/05/2014	Winter storm	0	0	UNK
Countywide	02/13/2014	Winter storm event	0	0	UNK
Somerset Borough	02/19/2014	Ice storm with multiple accidents	0	UNK	UNK
Countywide	02/19/2014	Ice storm	0	0	UNK
Countywide	02/27/2014	Winter storm	0	0	UNK
Countywide	03/02/14	Winter storm	0	0	UNK
Countywide	03/11/14	Winter weather	0	0	UNK

Following the blizzard conditions and snow events in February 2010 there were five building collapses reported on Knowledge Center from February 18 to February 23. Of these collapses four were barns and one was a structure.

4.3.3.4 Future Occurrence

There is a highly likely probability of winter storms occurring in Somerset County. A risk factor of 3.9 is associated with this natural hazard as assessed with the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency. Winter storms occur on the average of 35 times a year in Pennsylvania. The National Climatic Data Center (NCDC) estimates that Somerset County has a 5 percent annual chance of equaling or exceeding accumulated snow depths of 20 to 30 inches. The county can expect to be affected by a winter storm every year, though the magnitude of those storms will vary.

4.3.3.5 Vulnerability Assessment

In Somerset County, wintertime snow accumulations are expected and normal. The most common, but potentially serious, effect of very heavy snowstorms with accumulations exceeding six or more inches in a 12-hour period are traffic accidents, interruptions in power supply, interruptions in communications, and the failure of inadequately designed and/or maintained roofing systems. All critical facilities are vulnerable to the effects of severe winter storms. Similar to the discussion under severe wind storms, vulnerability to the effects of winter storms on buildings is dependent on the age of the building (and what building codes may have been in effect at the time), type of construction, and condition of the structure (i.e., how well the structure has been maintained).

4.3.4 Wildfires

A wildfire is an uncontrolled fire spreading through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that can be seen for miles. A wildland fire is a wildfire in an area in which development is essentially nonexistent, except for roads, railroads, power lines, and similar facilities. An urban-wildland interface fire is a wildfire in a geographical area where structures and other human development meet or intermingle with wildland or vegetative fuels.

The U.S. Fire Administration (USFA) collects data from a variety of sources to provide a statistical analysis of fire incidents nationwide. According to the USFA, the number of fires, fire casualties, and economic losses has continued to decline over the last several years. From 1992 to 2001, fires per million population declined 204 percent, deaths per million declined 30 percent, and dollar loss per capita declined 6 percent. This data is confirmed by comparing it with the National Fire Protection Administration's (NFPA) data on national fire trends from 1977 to 2004. The NFPA data shows that in 1977, there was a total of 3,264,000 fires nationwide, resulting in 7,395 civilian deaths and 31,190 civilian injuries. In 2004, this number dropped to a total of 1,550,500 fires, 3,900 civilian deaths, and 17,785 civilian injuries nationwide. A 2001 study by the USFA showed the largest number of fires were classified as "outside/other" and accounted for 41 percent of all fires, while residential fires resulted in the highest percentage of fire deaths (77%), fire injuries (73%), and dollar loss (54%). Nonresidential properties, such as industrial and commercial establishments, institutions, and educational facilities, accounted for only 8 percent of all fires, but 28 percent of total dollar loss.

From 1992 to 2001, Pennsylvania had an average fire death rate above the national average, with an average between 11 and 17 per million population. This is due primarily to the state's high population density. In 2001, Pennsylvania averaged 3.01 civilian deaths per 1,000 fires and \$22,609 in property loss per fire. In 2003, the USFA recorded a fire death rate of 15.9 per million for Pennsylvania. This was above the 2003 national average of 14.4 per million and ranked the Commonwealth as the fifteenth highest state that year.

4.3.4.1 Location and Extent

Wildland fires can occur at any time of the year, but are most likely to occur in the County during a drought. Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. Most wildland fires are caused by human carelessness, negligence, and ignorance. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion.

The most frequent causes of devastating wildfires are droughts, arson, and human carelessness. Wildland fires in Pennsylvania can occur in fields, grass, and brush as well as in the forest itself. In Somerset County, almost 90 percent of the acreage consists of forested areas and croplands. Under dry conditions or drought, wildfires have the potential to burn forests as well as croplands.

The Pennsylvania Department of Conservation of Natural Resources (DCNR) Bureau of Forestry tracks forest fires by forest districts. Somerset County is located in the Forbes State Forest District of Pennsylvania (District 4). Forbes State Forest District covers Allegheny, Fayette, Green, Somerset, Washington, and Westmoreland counties.

District 4 reports the following ten-year wildfire summary:

- In 2013 there were 49 wildfires burning 99 acres.
- In 2012 there were 24 wildfires burning 57.8 acres.
- In 2011 there were 7 wildfires burning 20.8 acres.
- In 2010 there were 30 wildfires burning 75.1 acres.
- In 2009 there were 42 wildfires burning 187.2 acres.
- In 2008 there were 21 wildfires burning 525.5 acres.
- In 2007 there were 7 wildfires burning 7.6 acres.
- In 2006 there were 55 wildfires burning 86.4 acres.
- In 2005 there were 40 wildfires burning 947.6 acres.
- In 2004 there were 10 wildfires burning 27.9 acres.
- In 2003 there were 30 wildfires burning 123 acres.

http://www.dcnr.state.pa.us/cs/groups/public/documents/document/dcnr_20028810.pdf

Figure 4.3.4-1 shows the wildfire percentage occurrence during each month.

Figure 4.3.4-1: Wildfire Percentage Occurrence



4.3.4.2 Range of Magnitude

Wildland fires in Somerset County have generally been small and easily contained. There have been a few that have burned over 100 acres, but most are confined to 10 acres or less. The fact that Somerset County's land use is mostly forest or agricultural has led to very little property damage being done by these fires. The worst wildfire to occur within the County burned over 250 acres, though it caused no property damage, injuries, or deaths. However, the County recognizes that wildfires of this magnitude will continue to occur in Somerset County, and will have more devastating effects as development in or around wildlands increases.

Somerset County 2015 Hazard Mitigation Plan

The following is a list and description of the potential environmental impacts from wildfires

- Wildfires could cause a hazardous material(s) spill and/or leak if it is in close proximity to a SARA facility.
- Loss of natural vegetation could cause a land slide.

4.3.4.3 Past Occurrence

Knowledge Center entries and computer aided dispatch report summaries were used to develop a list of past occurrences of wildfires. The National Climatic Data Center had no reported incidents in the database for the period of August 1, 2009 through August 31, 2014. Table 4.3.4-2 lists the reported wildfires and brush fires that have occurred since January 2004.

Location	Date	Acreage	Death	Injury
Somerset Township	04/16/2005	10	0	0
Summit Township	04/17/2005	100	0	0
Paint Township	04/19/2005	2	0	0
Fairhope Township	10/01/2005	250	0	0
Shade Township	03/10/2006	UNK	0	0
Countywide	03/30/2006	UNK	0	0
Conemaugh Township	01/03/2007	10	0	0
Allegheny Township	04/17/2008	UNK	0	0
Fairhope Township	04/17/2008	10	0	0
Fairhope Township	08/25/2008	UNK	0	0
Black Township	03/11/2009	UNK	0	0
Elk Lick Township	03/11/2009	UNK	0	0
Shade Township	03/11/2009	UNK	0	0
Quemahoning Township	03/11/2009	UNK	0	0
Somerset Township	03/11/2009	UNK	0	0
Black Township	03/11/2009	UNK	0	0
Countywide	03/14/2009	UNK	0	0
Somerset Township	03/18/2009	UNK	0	0
Larimer Township	03/22/2009	UNK	0	0
Lincoln Township	03/22/2009	UNK	0	0
Stonycreek Township	03/22/2009	UNK	0	0
Jefferson Township	11/13/2009	UNK	0	0
Allegheny Township	11/15/2009	UNK	0	0
Black Township	03/20/2010	UNK	0	0
Conemaugh Township	04/05/2010	UNK	0	0
Quemahoning Township	04/05/2010	UNK	0	0

Somerset County 2015 Hazard Mitigation Plan

Location	Date	Acreage	Death	Injury
Boswell Borough	04/05/2010	UNK	0	0
Jenner Township	04/05/2010	UNK	0	0
Shade Township	04/06/2010	UNK	0	0
Shade Township	04/07/2010	UNK	0	0
Seven Springs Borough	04/07/2010	UNK	0	0
Lower Turkeyfoot Township	09/11/2010	UNK	0	0
Wellersburg Borough	10/08/2010	UNK	0	0
Shade Township	11/22/2010	UNK	0	0
Paint Township	11/18/2012	UNK	0	0
Fairhope Township	11/18/2012	UNK	0	0
Middlecreek Township	04/05/2013	UNK	0	0
Conemaugh Township	04/06/2013	UNK	0	0
Unknown location	04/06/2013	UNK	0	0
Paint Township	04/07/2013	UNK	0	0
Shanksville	04/10/2013	UNK	0	0
Northampton Township	04/16/2013	UNK	0	0
Unknown location	04/26/2013	UNK	0	0
Upper Turkeyfoot Township	04/27/2013	UNK	0	0
Northampton Township	04/27/2013	UNK	0	0
Unknown location	04/27/2013	UNK	0	0
Milford Township	05/03/2013	UNK	0	0
Jefferson Township	05/04/2013	UNK	0	0
Stonycreek Township	03/27/2014	UNK	0	0
Greenville Township	04/01/2014	UNK	0	0
Allegheny Township	04/10/2014	UNK	0	0
Lincoln Township	04/14/2014	UNK	0	0
Shade Township	04/19/2014	UNK	0	0
Somerset Township	04/19/2014	UNK	0	0
Elk Lick Township	04/20/2014	UNK	0	0
Stonycreek Township	04/21/2014	UNK	0	0
Summit township	04/21/2014	UNK	0	0
Summit Township	04/21/2014	UNK	0	0
Paint Township	04/21/2014	UNK	0	0
Allegheny Township	04/27/2014	UNK	0	0
Shade Township	05/06/2014	UNK	0	0
PA Turnpike at 98.0 WB	05/19/2014	UNK	0	0

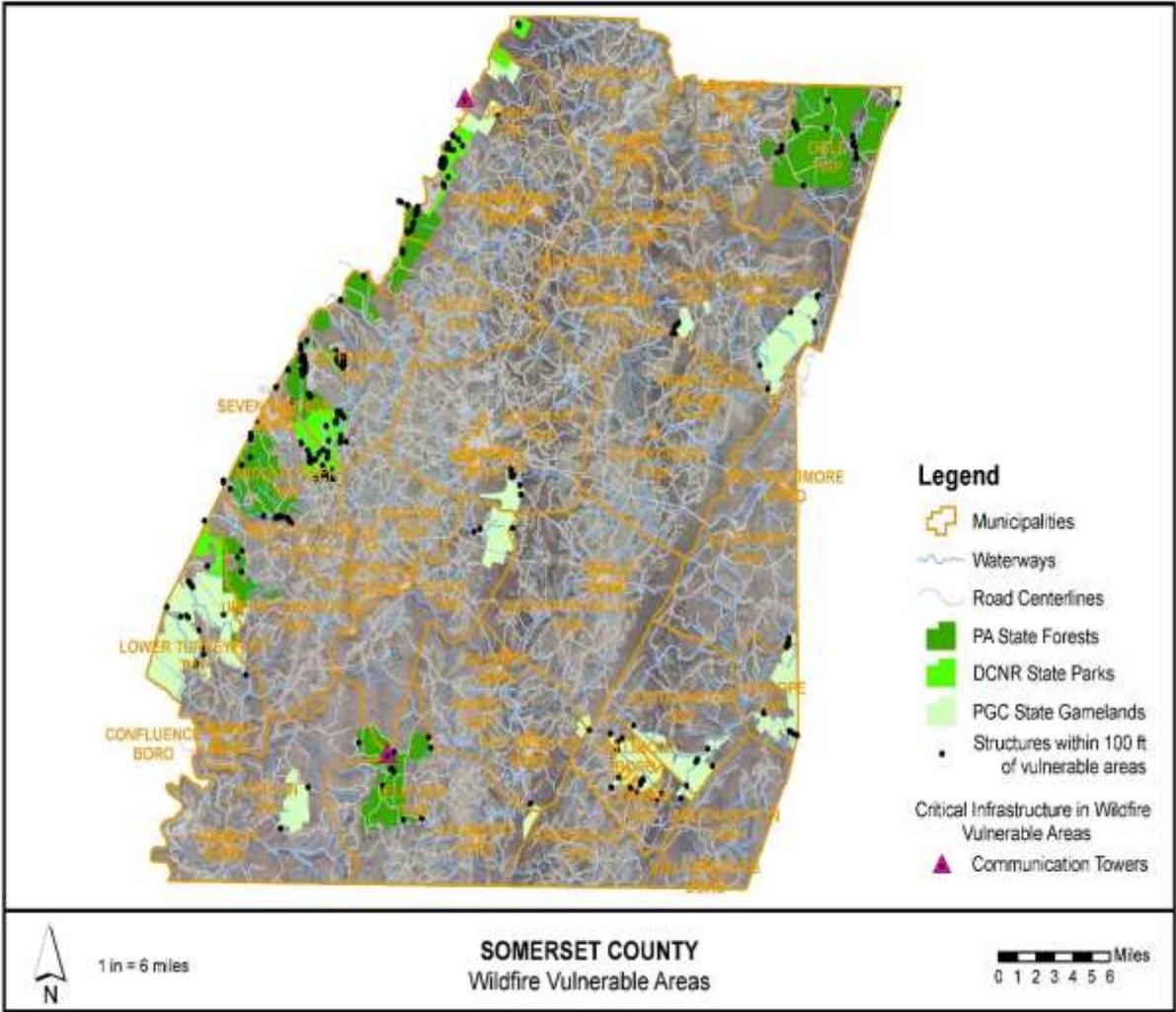
4.3.4.4 Future Occurrence

Wildland fires are most common in the spring (March – May) and fall (October – November) months. During spring months, the lack of leaves on the trees allows the sunlight to heat the existing leaves on the ground from the previous fall. The same theory applies for the fall; however, the dryer conditions are a more crucial factor. It is likely that wildfires will affect the county every year. A risk factor of 3.1 has been assigned to this hazard utilizing the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency.

4.3.4.5 Vulnerability Assessment

Wildfires have the potential to destroy huge areas of vegetation with no regard to the man-made structures within those areas. The rural areas in which these fires occur generally have little firefighting infrastructure such as hydrants, and the fire departments servicing those areas may take extended times to reach and ultimately extinguish the fire. Recognizing that these fires have the potential to spread relatively unopposed, the most vulnerable people and property are those within a short distance of the interface between the built environment and the wildland environment. For the purpose of this document, that distance is defined as 100 feet. The table below shows the critical infrastructure, consisting of a radio tower, a telephone switching station, and a school district building, within that area. A wildfire vulnerability map is located on page 73.

Table 4.3.4-3: Critical Infrastructure by Municipality within 100 Feet of Parks or Wildlands	
Municipality	Facility
Addison Township	MR Davis Radio Tower
Jefferson Township	805265-PA 013 Bald Knob
Ogle Township	Windber Area School District



4.3.5 Radon

4.3.5.1 Location and Extent

Radon is a naturally occurring, colorless, odorless, inert, radioactive gas. It forms as a product of the natural decay of uranium. Radon and its radioactive products are dangerous to health. Alpha particles are a probable cause of lung cancer. Studies done in Pennsylvania since 1984 show that indoor radon levels are controlled by the radon-emanation properties of the soil and rock homes are built on. The table below, Table 4.3.5-1, completed by the Pennsylvania Department of Environmental Protection, Bureau of Radon Protection, suggests guidelines to reduce radon exposure levels to .02 Working Levels (WL) or less.

If your home measures*	Suggested Action **	Time Frame for Plan
More than 5.0 WL	Residents should either promptly relocate or undertake temporary remedial action to lower levels as far below 5.0 WL as possible. Smoking in high areas discouraged.	Within 2-3 days
1.0 to 5.0 WL	Residents should undertake temporary remedial action to lower levels as far below 1.0 WL as possible. Smoking in high areas discouraged	Within 1 week
0.5 to 1.0 WL	Residents should undertake temporary remedial action to lower levels as far below 0.5 WL as possible	Within 2 weeks
0.1 to .05 WL	Residents should undertake temporary remedial action to lower levels as far below 0.1 WL as possible. Higher exposure levels require action to be taken in a shorter period of time.	3 weeks to 3 months
0.02 to 0.1 WL	Residents should undertake temporary and/or permanent remedial action to lower levels below 0.02 WL. Higher exposure levels require action to be taken in a shorter period of time.	4 to 15 months
<p>* Assumes continuous 24-hour exposure in living area. ** Home testing should be conducted at the end of the indicated time frame to determine if remedial action has reduce the radon daughter exposure levels below the indicated value. If remedial action has not been successful, residents should be aware of the risks associated with continuous exposure at the indicated levels. Source: Pennsylvania Department of Environmental Protection</p>		

Radioactivity caused by airborne radon has been recognized for many years as an important component in the natural background radioactivity exposure of humans. It was not until the 1980s that the wide geographic distribution of elevated values in houses and the possibility of extremely high radon values in houses were recognized. In 1984, routine monitoring of employees leaving the Limerick nuclear power plant near Reading, PA, showed that readings on Mr. Stanley Watras frequently exceeded expected radiation levels, yet only natural, nonfission- product radioactivity was detected on him. Radon levels in his home were detected around 2,500 pCi/L (pico Curies per Liter), much higher than the 4 pCi/L guideline of the Environmental Protection Agency (EPA) or even the 67 pCi/L limit for uranium miners.

As a result of this event, the Reading Prong section of Pennsylvania where Watras lived became the focus of the first large-scale radon threat in the world. Radon is a noble gas that

originates by the natural radioactive decay of uranium and thorium. Like other noble gases (e.g., helium, neon, and argon), radon forms essentially no chemical compounds and tends to exist as a gas or as a dissolved atomic constituent in groundwater.

Two isotopes of radon are significant in nature, ^{222}Rn and ^{220}Rn , formed in the radioactive decay series of ^{238}U and ^{232}Th , respectively. The isotope thoron (i.e. ^{220}Rn) has a half-life (time for decay of half of a given group of atoms) of 55 seconds, barely long enough for it to migrate from its source to the air inside a house and pose a health risk. However, radon (i.e. ^{222}Rn), which has a half-life of 3.8 days, is a widespread hazard. The distribution of radon is correlated with the distribution of radium (i.e. ^{226}Ra), its immediate radioactive parent, and with uranium, its original ancestor. Due to the short half-life of radon, the distance that radon atoms can travel from their parent before decay is generally limited to distances of feet or tens of feet.

Three sources of radon in houses are now recognized: radon in soil air that flows into the house; Radon dissolved in water from private wells and exsolved during water usage; this is rarely a problem in Pennsylvania; and radon emanating from uranium-rich building materials (e.g. concrete blocks or gypsum wallboard); this is not known to be a problem in Pennsylvania.

4.3.5.2 Range of Magnitude

Exposure to radon is the second leading cause of lung cancer after smoking. It is the number one cause of lung cancer among non-smokers. Radon is responsible for about 21,000 lung cancer deaths every year; approximately 2,900 of which occur among people who have never smoked. Lung cancer is the only known effect on human health from exposure to radon in air and thus far, there is no evidence that children are at greater risk of lung cancer than are adults (USEPA, 2010). The main hazard is actually from the radon daughter products (^{218}Po , ^{214}Pb , ^{214}Bi), which may become attached to lung tissue and induce lung cancer by their radioactive decay.

Somerset County municipalities face a moderate level of radon gas emission. Only areas that have been tested and found safe are not susceptible to the effects of radon gas emission. The secondary effects of radon are difficult to identify. Often, radon goes undetected and unnoticed. Somerset County is identified by Environmental Protection Agency as being in Radon Zone 2 – Moderate Potential. Counties in this zone have a predicted average indoor radon screening level between 2-4 pCi/L (pico curies per liter).

Current data on abundance and distribution of radon in Pennsylvania houses is considered incomplete and potentially biased, but some general patterns exist. Values exceeding the EPA guideline of 4 pCi/L occur in all regions of the Commonwealth. Glaciated areas in northern Pennsylvania tend to have relatively low frequencies of elevated radon, perhaps because of thin soils and incomplete weathering. The Appalachian Plateaus province in western Pennsylvania also appears to have lower than average radon, as does the Atlantic Coastal Plain near Philadelphia and other areas having a shallow water table. The highest proportion of elevated values is in a zone extending from central Pennsylvania to southeastern Pennsylvania, and in the Reading Prong. High values in the latter area are attributed to known uranium-rich granitic gneisses (Smith, 1976; Gunderson et al., 1988), accentuated by local factors such as shear zones, and include a surprising number of extremely high radon values (>200 pCi/L). Elevated radon values in the larger, northwest-southeast trending zone are not understood, but may represent some combination of black shale (Martinsburg Formation), limestone soil, and deep weathering. Information average radon levels by zip code in Pennsylvania can be obtained from the DEP at: www.wpb-radon.com/PA_radon_map.html

4.3.5.4 Future Occurrence

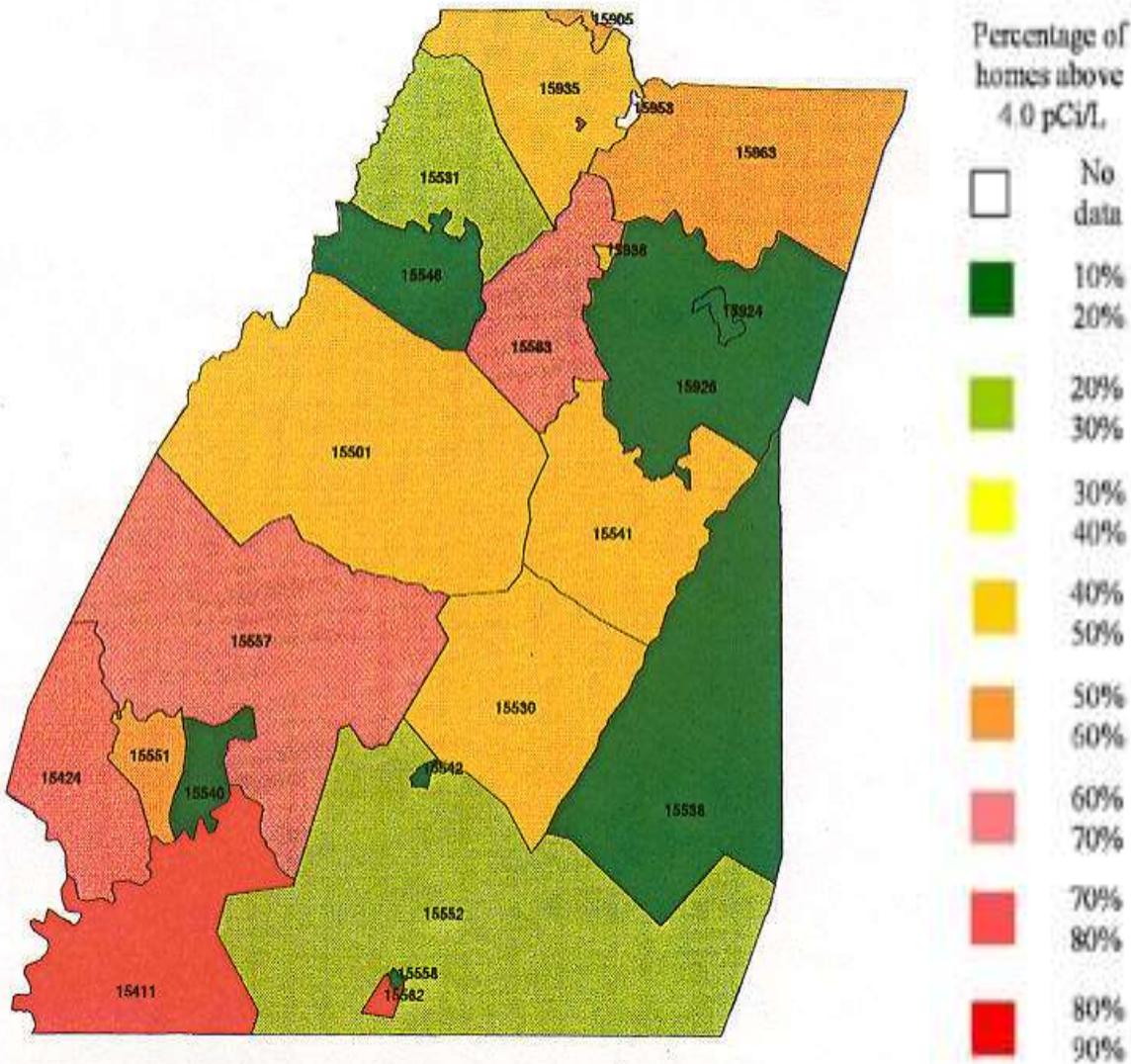
Radon gas is emitted from underground decaying uranium. The probability for radon emission in Somerset County is unlikely. No area should be assumed safe until tests have proven so. The EPA recommends that a homeowner take action to reduce his/her home indoor radon levels if his/her test is 4pCi/L (pico Curies per liter) or higher. A risk factor of 1.3 has been assigned to this hazard utilizing the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency.

4.3.5.5 Vulnerability Assessment

According to the Environmental Protection Agency (EPA), Somerset County is among the counties in Pennsylvania with a moderate potential for dangerous radon emission. It is important to remember that no individual location can be assumed to be safe unless proven so by testing. The EPA recommends that a homeowner take action to reduce his/her home indoor radon levels if his/her radon test is 4 pCi/L (pico Curies per liter) or higher. Table 4.3.5-4 shows the percentage of homes that have been identified being above 4.0 pCi/L of radon per zip code.

No specific data identifies special population as being more vulnerable to radon. Increased radon levels in a residence does increase the vulnerability of the inhabitants of that residence. Increase radon levels has been identified in lung cancer diagnosis. Radon mitigation strategies must be implemented to reduce the vulnerability.

Figure 4.3.5-4 Somerset County Radon by Zip Codes



4.3.6 Drought

4.3.6.1 Location and Extent

For layman's purposes, a drought is defined as a prolonged period of insufficient precipitation. However, drought conditions are qualified in different ways, depending upon the group impacted. A soil moisture deficit that inhibits crop production is typically referred to as an "agricultural drought." Whereas agricultural droughts may result from a rapid depletion of soil moisture, hydrological droughts often take months to fully materialize, as groundwater levels slowly decline and water storage decreases. Clearly, operational definitions are necessary to develop a common understanding of drought and its impacts. Operational definitions help hydrologists determine the onset, severity, and impact of droughts, which vary with the type of moisture deficit. Although climate is a primary contributor to hydrological drought, the construction of dams, deforestation, and land degradation all affect the hydrological system.

Drought can be broadly defined as a time period of prolonged dryness that contributes to the depletion of ground and surface water. There are three types:

Meteorological Drought – A deficiency in moisture in the atmosphere. This will have very little effect on the crops and water supply, depending on the preceding conditions.

Agricultural Drought – Inhibits the growth of crops, because of a moisture deficiency in the soil. This type of drought, if persistent, can lead to a hydrologic drought.

Hydrologic Drought – A prolonged period of time without rainfall that can have adverse effects on agriculture, streams, lakes, and groundwater levels.

Leaving areas with little moisture, droughts are often one of the leading contributing factors to wildfires.

Droughts have several effects:

- Depletion of consumable water supply
- Depletion of agricultural water supply
- Depletion of forest water and water used to fight forest fires
- Depletion of water for navigational and recreational purposes
- Depletion of water for natural irrigation (besides crops and forests)
- Poor water quality

Droughts can have adverse effects on farms and other water-dependent industries. This can result in a local economic loss. From a citizen's perspective, public safety is an issue in terms of consumable water not being available, as well as water for fire protection and emergency services.

4.3.6.2 Range of Magnitude

A drought is a period of prolonged dryness that contributes to depletion of groundwater and surface-water yields. When droughts occur, they can have significant adverse consequences for the following:

Somerset County 2015 Hazard Mitigation Plan

- Public water supplies for human consumption
- Rural water supplies for livestock consumption and agricultural operations
- Water quality
- Natural soil water or irrigation water for agriculture
- Water for forests and for fighting forest fires
- Water for navigation and recreation

Drought preparation includes three phases: drought watch, drought warning, and drought emergency.

- Drought Watch: A period to alert government agencies, public water suppliers, industrial water users, and the public regarding the potential for future drought-related problems. The focus is on increased monitoring, awareness, and preparation for response if conditions worsen. A request for voluntary water conservation is made. The objective of voluntary water conservation measures during a drought watch is to reduce water use by 5 percent in the affected areas. Because of varying conditions, individual water suppliers or municipalities may ask for more stringent conservation actions.
- Drought Warning: This phase involves a coordinated response to imminent drought conditions and potential water supply shortages through concerted voluntary conservation measures to avoid or reduce shortages, relieve stressed sources, develop new sources, and if possible, forestall the need to impose mandatory water use restrictions. The objective of voluntary water conservation measures during a drought warning is to reduce overall water use by 10 to 15 percent in the affected areas. Because of varying conditions, individual water suppliers or municipalities may ask for more stringent conservation actions.
- Drought Emergency: This stage is a phase of concerted management operations to marshal all available resources to respond to actual emergency conditions, to avoid depletion of water sources, to assure at least minimum water supplies to protect public health and safety, to support essential and high-priority water uses, and to avoid unnecessary economic dislocations. It is possible during this phase to impose mandatory restrictions on nonessential water uses as provided for in 4 Pa. Code Chapter 119, if deemed necessary and if ordered by the governor. The objective of water use restrictions (mandatory or voluntary) and other conservation measures during this phase is to reduce consumptive water use in the affected areas by 15 percent, and to reduce total use to the extent necessary to preserve public water system supplies, to avoid or mitigate local or area shortages, and to assure equitable sharing of limited supplies.
- Local Water Rationing: Although not a drought phase, local municipalities may, with the approval of the Pennsylvania Emergency Management Council, implement local water rationing to share a rapidly dwindling or severely depleted water supply in designated water supply service areas. These individual water rationing plans, authorized through provisions of 4 Pa. Code Chapter 120, will require specific limits on individual water consumption to achieve significant reductions in use. Under both mandatory restrictions

Somerset County 2015 Hazard Mitigation Plan

imposed by the Commonwealth and local water rationing, procedures are provided for granting of variances to consider individual hardships and economic dislocations.

The drought of 1991 had a significant impact on Somerset County agricultural production. During the drought, Somerset County farmers felt the negative impact. Specific data is limited, but the Governor's Proclamation of Disaster Emergency stated that the drought caused "millions of dollars" in damages to crops and agricultural businesses.

The following is a list and description of the potential environmental impacts from droughts:

- Water quality could be diminished.
- The supply of water is depleted.
- Dry conditions and lack of water could pose large wildfires.
- Crop production could be diminished.

4.3.6.3 Past Occurrence

Between 1930 and 1994, the Commonwealth of Pennsylvania experienced five significant droughts: 1930-1934, 1939-1942, 1953-1955, 1961-1967, and 1991-1992. From 1999 through early 2003, the area experienced a severe drought (per PA DEP). Somerset County drought data is shown in Table 4.3.6-1.

Date	Drought Status
April 11, 2006 - June 30, 2006	Watch
Aug 8, 2007 - Jan 11, 2008	Watch
Nov 7, 2008 - Jan 26, 2009	Watch
Sept. 10, 2010 – Sept. 28, 2010	Watch
Sept. 28, 2010 – Oct. 4, 2010	Emergency
Oct. 4, 2010 – Nov. 8, 2010	Watch
Nov. 8, 2010 – Nov. 16, 2010	Warning
July 19, 2012 –August 31, 2012	Watch

Source: PA Department of Environmental Protection Watershed Management Drought Information Center

According to the Palmer Drought Severity Index map at the end of this section, Somerset County spent 5% - 9.9% of the time between 1895 and 1995 in a severe and extreme drought.

4.3.6.4 Future Occurrence

The potential for a drought to occur in Somerset County is high. Given the frequency of drought watches being issued for Somerset County and its municipalities, the county can reasonably expect to be under a drought watch at least once per year. While some form of drought condition frequently exists in Somerset County, the impact depends on the duration of the event, severity of conditions, and area affected. A risk factor of 2.2 was assigned to drought using the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency.

4.3.6.5 Vulnerability Assessment

Drought vulnerability depends on the duration and area of impact. However, other factors contribute to the severity of a drought. Unseasonably high temperatures, prolonged winds, and low humidity can heighten the impact of a drought.

Extended periods of drought can lead to lowered stream levels, altering the delicate balance of riverine ecosystems. Certain tree species are susceptible to fungal infections during prolonged periods of soil moisture deficit. Fall droughts pose a particular threat because groundwater levels are typically at their lowest following the height of the summer growing season.

Wildfire is the most severe secondary effect associated with drought. Wildfires can devastate wooded and agricultural areas, threatening natural resources and farm production facilities. Prolonged drought conditions can cause major ecological changes, such as increases in scrub growth, flash flooding, and soil erosion.

Droughts can have adverse effects on farms and other water-dependent industries. This can result in a local economic loss. The size of animal herd operations and the number of farms per municipality was not available for this mitigation plan update but it has been identified that there is 81,000 acres of prime agricultural land in Somerset County and 400,000 acres of forest cover. From a societal perspective, public safety is an issue in terms of consumable water not being available, as well as water for fire protection and emergency services.

Public or municipal water service is available in some municipalities in Somerset County. The municipal water service and the municipalities that are served with municipal water service are listed in Table 4.3.6-2. Approximately 54,717 people are serviced in the county by municipal water service.

Table 4.3.6-2: Municipal Water Service in Somerset County

Municipal Water Service	Municipalities Served
Addison Area Water Authority	Addison Boro. & Addison Twp.
Berlin Borough Municipal Authority	Berlin Boro.& Brothersvalley Twp.
Boswell Boro of Mun. Authority	Part of Jenner Twp. Boswell
Cairnbrook Improvement Association	Village of Cairnbrook
Central City Water Authority	Central City Boro. & Shade Twp.
Citizens Water Company	Confluence Boro.& parts of Addison & Lower Turkeyfoot Twps.
Conemaugh Twp. Municipal Authority	Jenner Twp., Paint Twp., Benson Boro, Conemaugh Twp., Richland Twp., Stoney Creek Twp.
Confluence Boro Municipal Authority	Confluence
Cutshall's Mobile Home Court	trailer park & 1 home
Friedens Mutual Water Association	Freidens
Friedens Water Association, Inc.	Central Freidens

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.6-2: Municipal Water Service in Somerset County	
Municipal Water Service	Municipalities Served
Gahagen Water Association	Gahagen & part of Shade Twp.
Garrett Boro Municipal Authority	Garrett Boro.& part of Summit Twp.
Gray Area Water Authority of Jenner Township	Gray & Coal Jct. Areas
Hidden Valley Resort	Hidden Valley
Highland Mutual Water Association	Downtown Freidens
Hillcrest Manor, Inc.	Hillcrest Mobile Home Park
Hooversville Boro Municipal Authority	Hooversville Boro.& part of Quemahoning Twp.
Indian Lake Borough	Indian Lake Boro, Stoneycreek Twp., Somerset Co.- 5
Jenner Twp. Water Authority	Jenner RT 30 from 601 to 219, Loop to Boswell Alwine Main St. (601)
Jennerstown Municipal Authority	Jennerstown Boro. & Jenner Twp.
Lincoln Twp. Municipal Authority	
Meyersdale Municipal Authority	Summit Twp. & Meyersdale Boro
Reading Mines Water Association	Reading Mines
Rockingham Water Association	Rockingham
Rockwood Boro Municipal Authority	Rockwood & part of Black & Milford Twps.
Salisbury Comm. Of Water Works	Salisbury Boro.& Elklick Twp.
Seven Springs, Boro of Mun. Authority	Seven Springs Boro. & Middlecreek & Saltlick Twps.
Siemon Lakeview Manor Estate	Manor Residents only
Source: Somerset County Planning Department	

As indicated, public water service is not available to all residents of the county. Most areas rely on private domestic wells. Residents or water authorities that use private domestic wells are more vulnerable to droughts because their drinking water can literally dry up. Table 4.3.6-3 shows the number of domestic wells per municipality. There are a total of 3,524 domestic wells in the county. It is important to note that the well data was obtained from the Pennsylvania Groundwater Information System (PaGWIS). PaGWIS relies on voluntary submissions of well record data by well drillers; as a result, it is not a complete database of all domestic wells in the county. This is the most complete dataset of domestic wells available.

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.6-3: Domestic wells per municipality in Somerset County

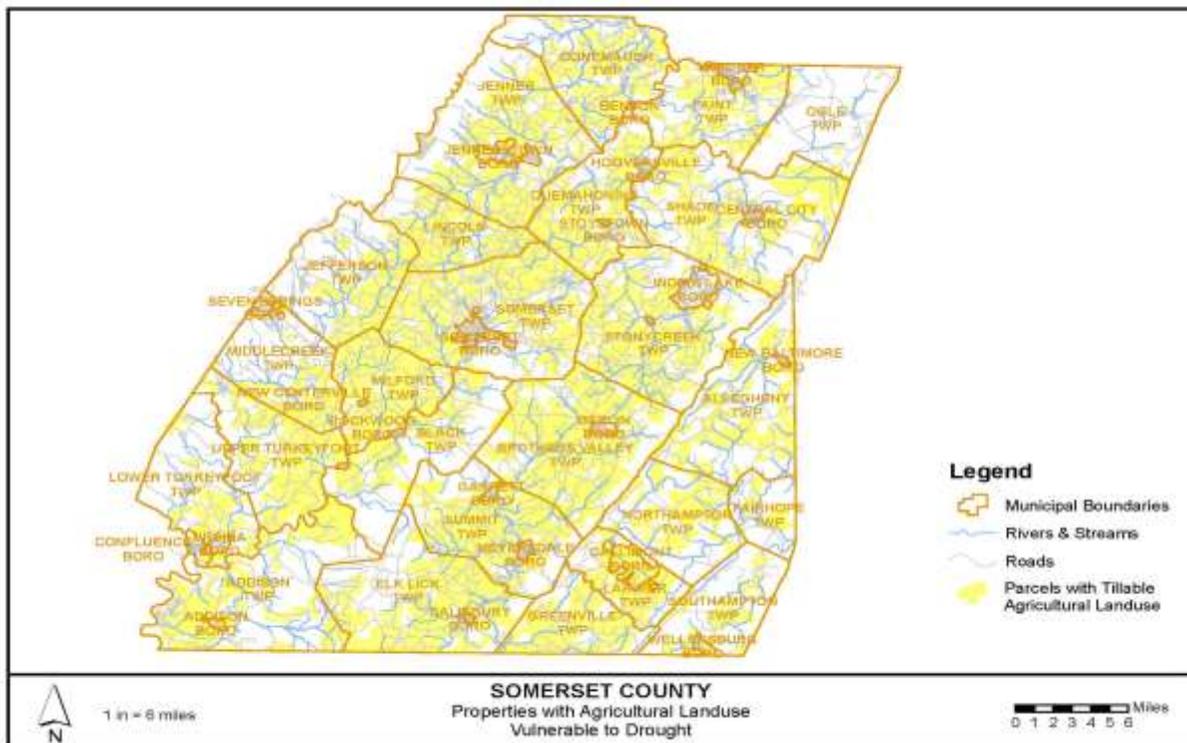
MUNICIPALITY	DOMESTIC WELLS
Addison Borough	35
Addison Township	53
Allegheny Township	125
Benson Borough	0
Berlin Borough	39
Black Township	51
Boswell Borough	0
Brothersvalley Township	244
Callimont Borough	3
Casselman Borough	2
Central City Borough	2
Conemaugh Township	92
Confluence Borough	2
Elk Lick Township	222
Fairhope Township	43
Garrett Borough	2
Greenville Township	74
Hooversville Borough	1
Indian Lake Borough	13
Jefferson Township	111
Jenner Township	100
Jennerstown Borough	1
Larimer Township	92
Lincoln Township	69
Lower Turkeyfoot Township	32
Meyersdale Borough	17
Middlecreek Township	106
Milford Township	141
New Baltimore Borough	9
New Centerville Borough	11
Northampton Township	54
Ogle Township	45
Paint Borough	0
Paint Township	52
Quemahoning Township	114
Rockwood Borough	13
Salisbury Borough	0

Somerset County 2015 Hazard Mitigation Plan

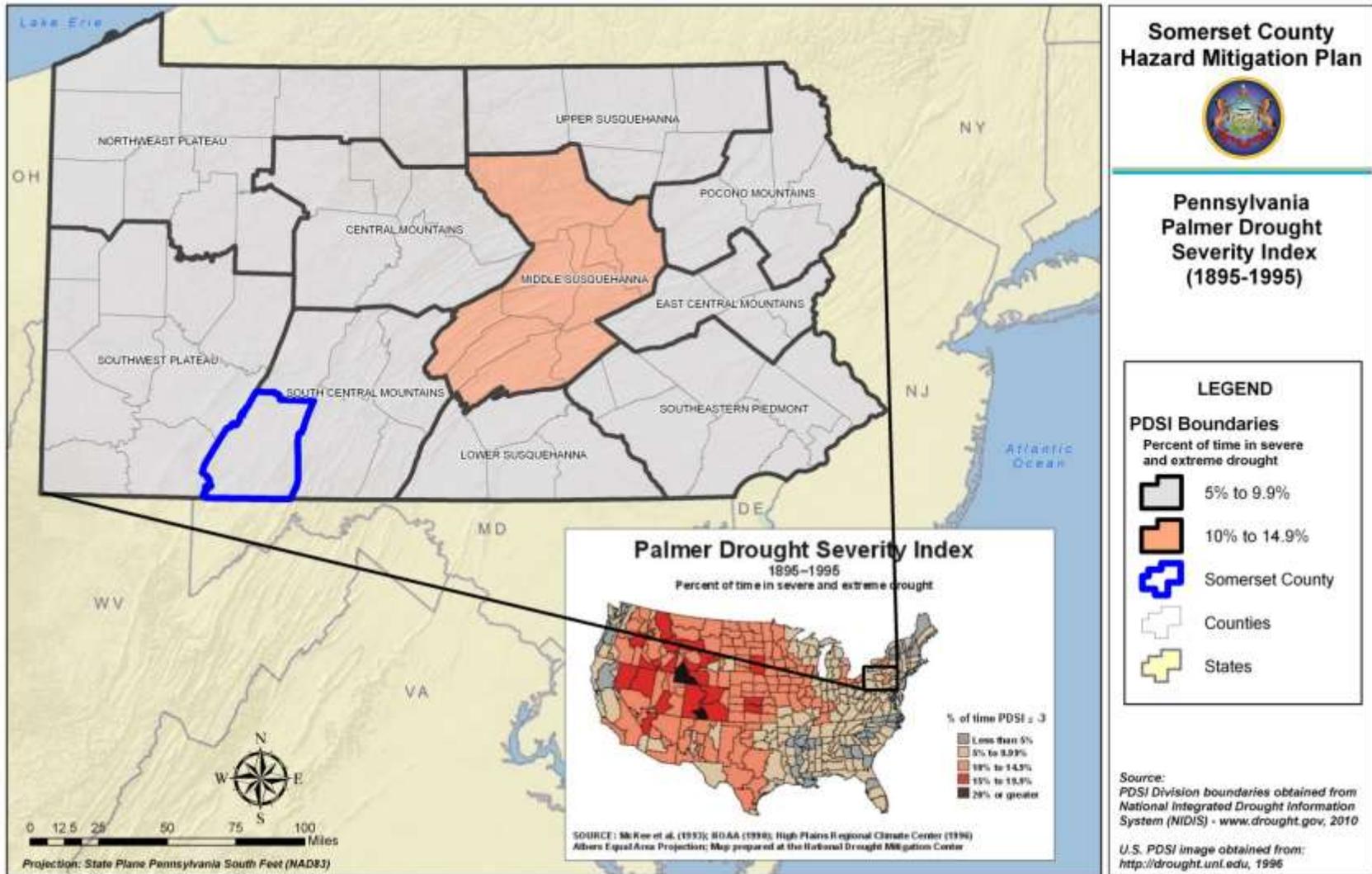
Table 4.3.6-3: Domestic wells per municipality in Somerset County

MUNICIPALITY	DOMESTIC WELLS
Seven Springs Borough	0
Shade Township	155
Shanksville Borough	4
Somerset Borough	31
Somerset Township	447
Southampton Township	39
Stoneycreek Township	172
Stoystown Borough	0
Summit Township	214
Upper Turkeyfoot Township	109
Ursina Borough	11
Wellersburg Borough	3
Windber Borough	32
Unknown	337
TOTAL	3524

Source: Pennsylvania Groundwater Information System



Somerset County 2015 Hazard Mitigation Plan



4.3.7 Earthquakes

4.3.7.1 Location and Extent

An earthquake is the sudden motion or trembling in the earth caused by an abrupt release of slowly accumulating strain, which results in ground shaking, surface faulting, and ground failures. Most areas of the United States are subject to earthquakes, and they occur literally thousands of times a year. Most earthquake occurrences result in little or no damage.

Earthquake rates in the northeastern United States are 100 times lower than in California. Those that do occur are typically felt over a much broader region than earthquakes of the same magnitude in the western United States; and as such, the area of damage could be larger in the northeast from an earthquake of the same magnitude in the west. A magnitude 4.0 eastern U.S. earthquake typically can be felt as far as 60 miles from its epicenter, but it infrequently causes damage near its source. A magnitude 5.5 eastern U.S. earthquake, although uncommon, can be felt as far as 300 miles from its epicenter, and cause damage as far away as 25 miles from its epicenter.

Historically, earthquakes in Pennsylvania are very rare, and have caused very little damage with no reported injuries or casualties. Since the Commonwealth does not reside on an active fault, many of the earthquakes that do occur are from deep within the earth’s crust. In most cases, these are non-measurable events.

4.3.7.2 Range of Magnitude

Earthquakes are caused by a sudden slip of a fault caused by the dynamic pressure of the earth’s plates pushing together on both sides of the fault over time. The strength of an earthquake is determined by the size of the slip and how close the slip occurred to the surface. The most active faults are along the Pacific Coast, although some smaller, less active, faults exist in the Eastern United States. The Richter scale describes the magnitude of an earthquake and can be seen below in Table 4.3.7-1.

Table 4.3.7-1: Richter scale magnitudes and associated earthquake size effects.

RICHTER MAGNITUDES	EARTHQUAKE EFFECTS
Less than 3.5	Generally not felt, but recorded.
3.5-5.4	Often felt, but rarely causes damage.
Under 6.0	At most, slight damage to well-designed buildings; can cause major damage to poorly constructed buildings over small regions.
6.1-6.9	Can be destructive in areas where people live up to about 100 kilometers across.
7.0-7.9	Major earthquake; can cause serious damage over large areas.
8.0 or greater	Great earthquake; can cause serious damage in areas several hundred kilometers across.

Seismic waves are the vibrations from earthquakes that travel through the Earth; they are recorded on instruments called seismographs. Seismographs record a zigzag trace that shows the varying amplitude of ground oscillations beneath the instrument. Sensitive

Somerset County 2015 Hazard Mitigation Plan

seismographs, which greatly magnify these ground motions, can detect strong earthquakes from sources anywhere in the world. The time, locations, and magnitude of an earthquake can be determined from the data recorded by seismograph stations.

The Richter magnitude scale was developed in 1935 by Charles F. Richter of the California Institute of Technology as a mathematical device to compare the size of earthquakes. The magnitude of an earthquake is determined from the logarithm of the amplitude of waves recorded by seismographs. Adjustments are included for the variation in the distance between the various seismographs and the epicenter of the earthquakes. On the Richter scale, magnitude is expressed in whole numbers and decimal fractions. For example, a magnitude 5.3 might be computed for a moderate earthquake, and a strong earthquake might be rated as magnitude 6.3. Because of the logarithmic basis of the scale, each whole number increase in magnitude represents a tenfold increase in measured amplitude; as an estimate of energy, each whole number step in the magnitude scale corresponds to the release of about 31 times more energy than the amount associated with the preceding whole number value.

At first, the Richter scale could be applied only to the records from instruments of identical manufacture. Now, instruments are carefully calibrated with respect to each other. Thus, magnitude can be computed from the record of any calibrated seismograph.

Earthquakes with magnitude of about 2.0 or less are usually called micro-earthquakes; they are not commonly felt by people and are generally recorded only on local seismographs. Events with magnitudes of about 4.5 or greater - there are several thousand such shocks annually - are strong enough to be recorded by sensitive seismographs all over the world. Great earthquakes, such as the 1964 Good Friday earthquake in Alaska, have magnitudes of 8.0 or higher. On the average, one earthquake of such size occurs somewhere in the world each year. The Richter scale has no upper limit. Recently, another scale called the moment magnitude scale has been devised for more precise study of great earthquakes.

The Richter scale is not used to express damage. An earthquake in a densely populated area which results in many deaths and considerable damage may have the same magnitude as a shock in a remote area that does nothing more than frighten the wildlife. Large-magnitude earthquakes that occur beneath the oceans may not even be felt by humans.

Another earthquake intensity measurement is the modified Mercalli Scale. This scale is a measure of the severity of ground shaking at a particular point. There are twelve Mercalli intensities, represented by Roman numerals. The intensities are subjective because they are based upon damage incurred by the buildings and the effects felt by the people in localized areas. Intensity is usually greatest at the epicenter of an earthquake and decreases with distance from the epicenter. Each earthquake has only one magnitude, although it may have several intensities.

The impact an earthquake event has on an area is typically measured in terms of earthquake intensity. Intensity is most commonly measured using the Modified Mercalli Intensity (MMI) Scale based on direct and indirect measurements of seismic effects. A detailed description of the Modified Mercalli Intensity Scale is shown in Table 4.3.7-2. The earthquakes that occur in Pennsylvania originate deep within the earth's crust; not on an active fault. Therefore, little or

Somerset County 2015 Hazard Mitigation Plan

no damage is expected. No injury or severe damage from earthquake events has been reported in Somerset County.

Table 4.3.7-2: Modified Mercalli Intensity Scale with Associated Impacts

SCALE	INTENSITY	DESCRIPTION OF EFFECTS	CORRESPONDING RICHTER SCALE MAGNITUDE
I	Instrumental	Detected only on seismographs	<4.2
II	Feeble	Some people feel it	
III	Slight	Felt by people resting; like a truck rumbling by	
IV	Moderate	Felt by people walking	
V	Slightly Strong	Sleepers awake; church bells ring	<4.8
VI	Strong	Trees sway; suspended objects swing; objects fall off shelves	<5.4
VII	Very Strong	Mild alarm, walls crack, plaster falls	<6.1
VIII	Destructive	Moving cars uncontrollable, masonry fractures, poorly constructed buildings damaged	<6.9
IX	Ruinous	Some houses collapse, ground cracks, pipes break open	
X	Disastrous	Ground cracks profusely, many buildings destroyed, liquefaction and landslides widespread	<7.3
XI	Very Disastrous	Most buildings and bridges collapse, roads, railways, pipes and cables destroyed, general triggering of other hazards	<8.1
XII	Catastrophic	Total destruction, trees fall, ground rises and falls in waves	>8.1

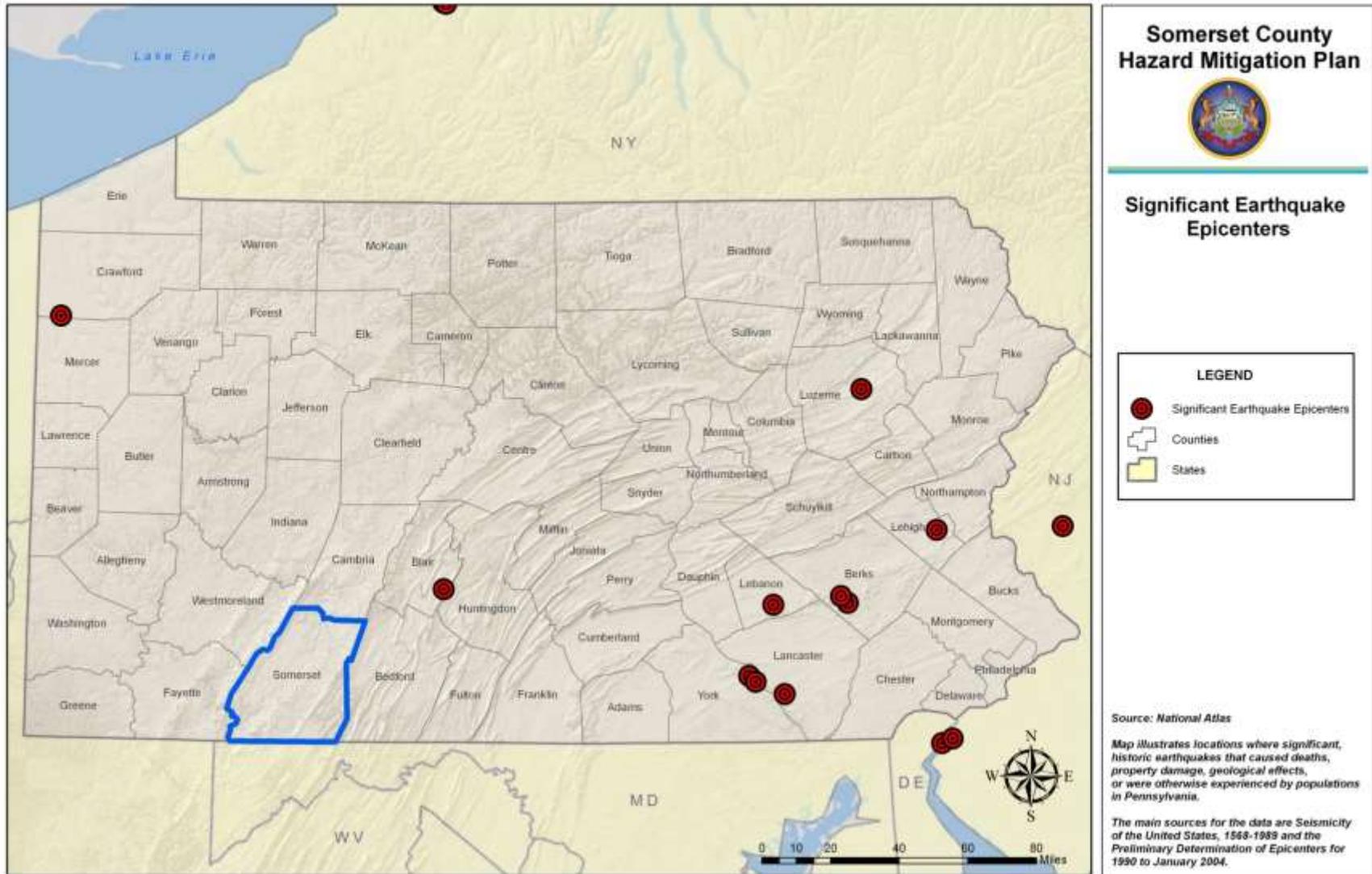
Source: en.wikipedia.org/wiki/Mercalli_intensity_scale

Environmental impacts of earthquakes can be numerous, widespread, and devastating, particularly if indirect impacts are considered. Poor water quality, damage to vegetation and hazardous material release due to vessel failure are examples of environmental impacts.

4.3.7.3 Past Occurrence

No earthquake epicenters have been measured in Somerset County. Figure 4.3.7-3 shows recorded earthquake events in Pennsylvania between 1990 and 2006. Earthquake events are shown in other areas of Pennsylvania, with a particular concentration of events occurring in the eastern part of the Commonwealth between Lancaster and Reading. One event is shown in nearby Blair County. Prior to 1960, an earthquake event occurred on the eastern border of York County which had a magnitude measured greater than four on the Richter Scale.

Figure 4.3.7-3: Significant Earthquake Epicenters in Pennsylvania



4.3.7.4 Future Occurrence

One way to express an earthquake's severity is to compare its acceleration to the normal acceleration due to gravity. Peak ground acceleration (PGA) measures the strength of ground movements in this manner. PGA represents the rate in change of motion of the earth's surface during an earthquake as a percentage of the established rate of acceleration due to gravity.

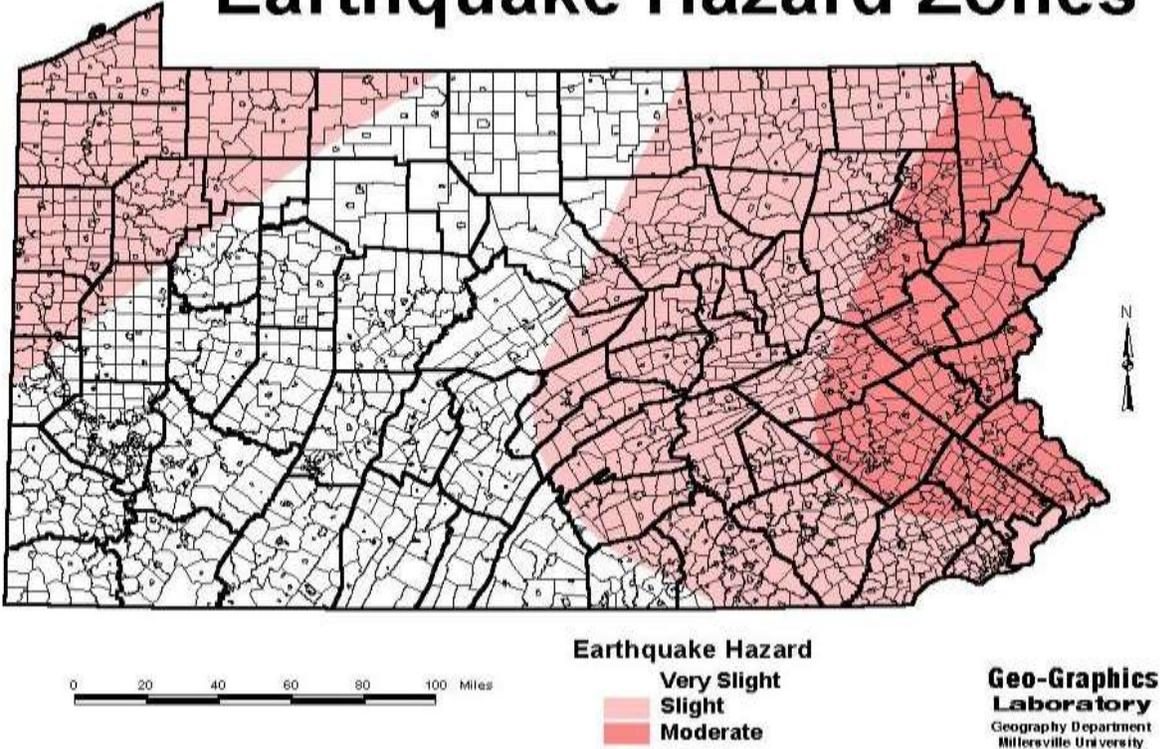
Figure 4.3.7-4 below shows the relative earthquake hazard zones in Pennsylvania identified by the Department of Earth Sciences at Millersville University. According to this map, earthquake hazards are “very slight” for all of Somerset County, meaning the PGA 10 percent probability of exceedance over a 50-year period equals 0-5 PGA. In general, ground acceleration must exceed 15 PGA for significant damage to occur, although soil conditions at local sites are extremely important in controlling how much damage will occur as a consequence of a given amount of ground acceleration.

4.3.7.5 Vulnerability Assessment

Somerset County is located in a zone where minor earthquake damage is expected. No damage or casualties have been reported from earthquake events. Therefore, it is reasonable to state that Somerset County is not vulnerable to the effects of earthquakes.

Figure 4.3.7-4: Pennsylvania Earthquake Hazard Zones

Earthquake Hazard Zones



4.3.8 Subsidence and Sinkholes

4.3.8.1 Location and Extent

Subsidence potential in Somerset County is primarily associated with the solution of carbonate bedrock, such as limestone and dolomite, by water. Water passing through naturally occurring fractures and bedding planes dissolves the bedrock, leaving voids below the surface. Eventually, overburden on top of the voids collapses, leaving surface depressions resulting in karst topography. Characteristic structures associated with karst topography include sinkholes, linear depressions, and caves. Often, sub-surface solution of limestone will not result in the immediate formation of karst features. Collapse sometimes occurs only after a large amount of activity, or when a heavy burden is placed on the overlying material. Abrupt or long-term changes in the ground surface may also occur following sub-surface fluid extraction (e.g., natural gas, water, oil). A small portion of Somerset County lies in an area of Pennsylvania where limestone, dolomite, or both are present near ground surface, thus making it slightly susceptible to natural sinkhole development. The following municipalities have identified near-surface limestone:

- Berlin Borough
- Brothers Valley Township
- Elk Lick Township
- Jenner Township
- Southampton Township
- Summit Township

4.3.8.2 Range of Magnitude

Based on the geologic formations underlying much of Somerset County, subsidence and sinkhole events may occur gradually or abruptly. Events could result in minor elevation changes or deep, gaping holes in the ground surface. Subsidence and sinkhole events can cause severe damage in urban environments, although gradual events can be addressed before significant damage occurs. If long-term subsidence or sinkhole formation is not recognized and mitigation measures are not implemented, fractures or complete collapse of building foundations and roadways may result. General recommendations have been published for site investigations prior to construction of buildings due to the potential for karst subsidence. These recommendations vary depending on the rock type immediately underlying soil cover. The recommendations include thorough geotechnical investigations to identify un-collapsed karst features and potential excavation to solid rock prior to construction.

Groundwater in limestone and other similar carbonate rock formations can be easily polluted, because water moves readily from the earth's surface down through solution cavities and fractures, thus undergoing very little filtration. Contaminants such as sewage, fertilizers, herbicides, pesticides, or industrial products are of concern.

The worst case scenario for sinkholes in Somerset County would be a series of large sinkholes opening in Berlin Borough. Roughly half of the borough has near-surface limestone, making it vulnerable to sinkholes. This series of sinkholes could close roads, cause power outages,

Somerset County 2015 Hazard Mitigation Plan

prevent the delivery of emergency services, cause injuries or death to the borough's residents, and could cause property damage.

The following is a list and description of the potential environmental impacts from subsidence and/or sink holes:

- Water quality could be diminished.
- The supply of water could be depleted.
- Power lines could be damaged increasing the risk for urban and/or wild fires.
- Fuel supply lines could be damaged, causing the release of hazardous materials into the environment.

4.3.8.3 Past Occurrence

According to the Pennsylvania Department of Conservation and Natural Resources and the Knowledge Center reporting since 2009, there have been no recorded sinkholes in Somerset County.

4.3.8.4 Future Occurrence

Based on geological conditions, subsidence events may possibly occur in the future for the areas of Somerset County underlain by carbonate rock such as limestone. That none have occurred makes accurate prediction of the likelihood of future events difficult.

4.3.8.5 Vulnerability Assessment

Based on geology, the following municipalities are vulnerable to sinkholes:

- Berlin Borough
- Brothers Valley Township
- Elk Lick Township
- Jenner Township
- Southampton Township
- Summit Township

The critical infrastructure vulnerable to sinkholes is shown in the following table. It includes one municipal office, an EMS company, a police department, and six churches.

Municipality	Facility
Berlin Borough	Berlin Alliance
	Berlin Area Ambulance Association
	Berlin Borough Municipal Authority
	Berlin Borough Police Department
	Berlin Brethren Church
	Berlin-Brothers Valley
	Berlin Central Office
	Berlin Oil Co Inc.

Municipality	Facility
	Berlin WWTP
Berlin Borough	Holy Trinity Lutheran Church
	Hometown Satellite
	Three Seasons Community Church
	Trinity United Church of Christ
Elk Lick Township	St. Paul's Wilhem

4.3.9 Hailstorms

4.3.9.1 Location and Extent

Hail is produced when an ice crystal collects additional water in the lower part of the storm but is pushed upward by the storm’s updraft. The liquid water freezes in the upper regions of the storm, making the ice crystal (i.e., hailstone) larger. The hail will continue to grow in this manner until its weight exceeds the force of the updraft.

Hailstorms are not limited to any particular geographic area of the county, and neither the duration of the storm nor the extent of area affected by such an occurrence can be predicted.

4.3.9.2 Range of Magnitude

Hail can vary in size from a few millimeters to several inches in diameter. Somerset County has experienced hail ranging in size from 0.75” to 1.75” in diameter. The worst damage from hail recorded in the County occurred in July 1994, when \$5,000 worth of crops were damaged by 0.75” diameter hail. No deaths, injuries, or property damage have been recorded due to hail in Somerset County.

The following is a list and description of the potential environmental impacts from hailstorms:

- Crop production could be damaged.

4.3.9.3 Past Occurrence

The NCDC report contains several references to hail as a reported incident in the county from 1950 to 2014. Table 4.3.9-1 outlines the past occurrences.

Location	Date	Mag.	Deaths	Injuries	Property Damage	Crop Damage
Countywide	6/6/1971	1.75 in.	0	0	0	0
Countywide	7/11/1977	1.75 in.	0	0	0	0
Countywide	7/12/1985	1.75 in.	0	0	0	0

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.9-1: History of Hailstorms in Somerset County

Location	Date	Mag.	Deaths	Injuries	Property Damage	Crop Damage
Countywide	4/1/1990	0.75 in.	0	0	0	0
Countywide	9/2/1990	0.75 in.	0	0	0	0
Sipesville	7/20/1994	0.75 in.	0	0	0	\$5,000
Savage	6/24/1996	UNK	0	0	0	0
Hooversville	6/13/1998	0.88 in.	0	0	0	0
Bakersville	6/19/1998	0.88 in.	0	0	0	0
Meyersdale	4/9/1999	0.75 in.	0	0	0	0
Ogle Township	4/22/1999	0.75 in.	0	0	0	0
Salisbury	7/31/1999	1.75 in.	0	0	0	0
Comptons Mill	7/14/2000	0.88 in.	0	0	0	0
Springs	7/10/2001	UNK	0	0	0	0
Meyersdale	4/28/2002	0.75 in.	0	0	0	0
Lavansville	7/8/2003	1.00 in.	0	0	0	0
Shanksville	5/17/2004	1.00 in.	0	0	0	0
Acosta	7/13/2005	0.75 in.	0	0	0	0
Confluence	5/31/2006	0.88 in.	0	0	0	0
Gray	05/14/2010	0.75 in.	0	0	0	0
Davidsville	03/23/2011	1.75 in.	0	0	0	0
Jerome	03/23/2011	2.00 in.	0	0	0	0
Ogletown	03/23/2011	1.00 in.	0	0	0	0
Hooversville	04/03/2011	1.00 in.	0	0	0	0
Berlin	04/27/2011	1.00 in.	0	0	0	0
Thomas Mill	07/04/2012	1.75 in.	0	0	0	0
Landstreet	07/04/2012	1.00 in.	0	0	0	0
Markleton	08/09/2012	0.88 in.	0	0	0	0
Wittenberg	07/04/2013	1.00 in.	0	0	0	0
Windber	08/07/2013	0.88 in.	0	0	0	0
TOTALS:			0	0	0	\$5,000

Source: National Climatic Data Center

4.3.9.4 Future Occurrence

It is not possible to predict the formation of a hailstorm with more than a few days' lead time. The past occurrences in the county described above, however, indicate that this event is one that can happen several times in any given year, most likely during the late spring and summer months. Based on prior occurrences, the county can expect a recordable hailstorm at least every two and one-half years.

4.3.9.5 Vulnerability Assessment

All of Somerset County, including all critical infrastructure, is vulnerable to the effects of hail, as the storm cells that produce this hazard are spread over a large (multi-county) area. The area of damage due to these storms is relatively small, in that a single storm does not cause widespread devastation, but may cause damage in a focused area of the storm.

Hail can cause serious damage to automobiles, aircraft, skylights, livestock, and crops – most notably corn and soybeans. The acreage of corn and soybean crops varies from year to year and the amount of acreage was not available for the vulnerability assessment. The National Weather Service reports that hail causes \$1 billion in damage to property and crops each year.

4.3.10 Hurricane/Tropical Storms

4.3.10.1 Location and Extent

Hurricanes and tropical storms will occur in the county in the spring and summer months. Most hurricanes that approach Somerset County are eventually downgraded to tropical storms or tropical depressions by the time they reach south western Pennsylvania. Heavy rain and flooding produced by a hurricane, tropical storm, or tropical depression will have the greatest impact on the county. Impacts of these events are normally county wide in nature.

4.3.10.2 Range of Magnitude

Hurricanes and tropical storms affect all of Somerset County. These hazards usually have a regional impact instead of just affecting Somerset County. Flooding and power outages are major secondary effects of hurricanes and tropical storms. Heavy rain can lead to large amounts of ground water that cannot be contained by streams and creeks. Power outages can be caused by high continuous winds that cause power lines to fail. The Saffir-Simpson Hurricane Scale is the most common tool used to classify tropical storms and hurricanes. Table 4.3.10-1 outlines the categorization of these events.

Table 4.3.10-1: Saffir-Simpson Hurricane Scale

Saffir-Simpson Hurricane Scale		
Category	Wind Speed	
	mph	knots
5	≥156	≥135
4	131-155	114-134
3	111-130	96-113
2	96-110	84-95
1	74-95	65-83
Non-Hurricane Classifications		
Tropical Storm	39-73	34-64
Tropical Depression	0-38	0-33

The following is a list and description of the potential environmental impacts from hurricanes/tropical storms:

- Hazardous materials spills/leaks may result from flooding.

4.3.10.3 Past Occurrence

Table 4.3.10-2 lists all of the hurricanes and tropical storms that have affected Pennsylvania from 1954 to 2012.

Table 4.3.10-2: Past occurrence of Hurricane and Tropical Storms in Pennsylvania

Date	Classification of Storm in PA or Name	Damages
10-15-1954	Hurricane Hazel	Tropical force winds, 6+ inches of rain in some areas.
8-1-1955	Hurricanes Connie & Diane	Tropical force winds, 10 inches of rain
6-21-1972	Hurricane Agnes	Widespread rains of 6-12 inches with local amounts up to 19 inches
9-6-1979	Tropical Storm David	Tropical force winds, 5 inches of rain
9-1987	Tropical Depression Nine	5 inches to part of the state
9-26-1992	Tropical Storm Danielle	Tropical force winds
8-18-1994	Tropical Depression Beryl	
8-29/31-1999	Tropical Depression Dennis	Tropical depression winds, 5 inches of rain
9-16-1999	Tropical Storm Floyd	6 deaths in PA, 10 inches of rain in the eastern part of the state. Storm surge of 2.8 feet in Philadelphia
6-16-2001	Tropical Storm Allison	10 inches of rain in parts of Philadelphia. 241 homes destroyed and 7 died in Philadelphia.
9-2003	Remnants Tropical Storm Henri	Rain and \$3.5 million in damages. 12 homes destroyed 380 majorly damaged power outages for PECO customers

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.10-2: Past occurrence of Hurricane and Tropical Storms in Pennsylvania

Date	Classification of Storm in PA or Name	Damages
9-17-2003	Hurricane Isabel	1 death in Lancaster Co. and strong winds to parts of the state
9-1/2-2006	Tropical Depression Ernesto	Caused 2.5 to 3 inches of rain in parts of the south-western portion of the state
6-4-2007	Tropical Depression Barry	Caused 1.66 inches of rain in the Philadelphia area
9-6-2008	Tropical Storm Hanna	An EF1 tornado was confirmed that touched down in Allentown
9-14-2008	Hurricane Ike	Caused 180,000 Western PA customers to be without power, wind gusts over 70 mph. One person killed in Oil City.
8-28-2011	Hurricane Irene	Left 706,000 people without power in Eastern PA, Killed 5 across the state. Flood waters raised the Schuylkill River. Winds were nearly 70 mph along the coast and 40-60 mph inland.
9-5-2011	Tropical Storm Lee	6-10 inches of rain with some areas receiving over 14 inches.
10-28-2012	Hurricane Sandy	\$65 billion in damages to the United States.

4.3.10.4 Future Occurrence

There is a possible probability of hurricanes and tropical storms affecting Somerset County, with expected annual events. A risk factor of 2.0 has been determined for this hazard based on the risk factor assessment tool. Hurricanes and tropical storms occur with relatively high frequency with 12.1 tropical storms and 6.4 hurricanes predicted annually for the North Atlantic basin, according to the National Climatic Data Center. The Pennsylvania Hazard Mitigation Plan has identified Somerset County to have a 6% annual chance of a hurricane or tropical storm occurring.

4.3.10.5 Vulnerability Assessment

The economy of Somerset County is highly vulnerable to hurricanes and tropical storms. These storms can halt business temporarily, and, if extensive damage is incurred, long-term business stoppages can occur. Secondary effects such as flooding and power loss put the citizens of Somerset County in danger. Flooding can destroy the physical structures, merchandise, and equipment essential for business operation. Power outages can suspend businesses and leave homes without heat and electricity or communications.

There is a low environmental vulnerability to hurricanes and tropical storms in Somerset County. The storms themselves are natural events and present little to no threat to the environment. However, with flooding as one of the major secondary effects of hurricanes and tropical storms, they can have an indirect negative effect on Somerset County. With high winds and heavy rain produced by these storms, some level of hazardous material releases may occur as a result of flooding or traffic accidents. The severity of the environmental damage depends on the storm's strength and duration.

Somerset County's critical facilities are moderately vulnerable to hurricanes and tropical storms. These strong weather storms can cause great physical damage to property while making it difficult for county personnel to travel to the critical facilities, if necessary. Further, secondary effects such as flooding, power outages, and disruption or closings of transportation routes can also affect critical facility operations.

Flooding occurrences due to tropical storms and hurricanes are outlined in the flooding profile located in section 4.3.1.3. All vulnerabilities to flooding and flash flooding are identified in section 4.3.1.5 of this hazard mitigation plan. Municipal SFHA flooding maps with critical facilities and special needs facilities are located in Appendix D of this plan.

4.3.11 Pandemic and Infectious Disease

4.3.11.1 Location and Extent

A pandemic is a disease that attacks or affects the population of an extensive area. This is sometimes an entire country or continent. Each year, different strains of influenza are labeled as potential pandemic threats.

The Commonwealth of Pennsylvania is primarily concerned with West Nile Virus and influenza. West Nile Virus is spread through a mosquito bite and is aided by warm temperatures and wet climates conducive to mosquito breeding; with most cases occurring between April and October. West Nile Virus is a vector-borne disease. This means an animal, usually an insect or a tick, transmits parasitic microorganisms and therefore, the diseases they cause. The disease causes headaches, high fever, neck stiffness, disorientation, tremors, convulsions, muscle weakness, paralysis, and death in its most serious form. West Nile Virus has been detected in all 67 counties at least once in the past 10 years.

Influenza, also known as “the flu”, is a contagious disease. It is caused by the influenza virus and most commonly attacks the respiratory tract in humans. Pandemic influenza is more easily transmitted from person-to-person than West Nile Virus. The 2009 H1N1 flu virus resulted in 78 deaths in Pennsylvania by the time the pandemic ended.

4.3.11.2 Range of Magnitude

Public health emergencies typically occur on a regional basis. Sources include infected animals, contaminated food, and improperly prepared food. While the whole county is vulnerable to a public health emergency, the likely source of a severe infection may be a farm or restaurant.

While there are limited secondary hazards related to public health emergencies, an outbreak could cause a variety of general secondary effects. Civil disorder is the most likely hazard to result from a public health emergency. Further potential secondary effects could include a shortage of medical supplies and personnel; school, business, and government closings; and low attendance at places of employment, as well as slowed productivity.

WHO (World Health Organization) has six phases of pandemic alert for incorporation of new recommendations and approaches for preparedness and response plans. These phases are listed below in Table 4.3.11-1.

Phase	Characteristics
Phase 1	No viruses circulating among animals have been reported to cause infections in humans
Phase 2	An animal influenza virus circulating among domesticated or wild animals is known to have caused infection in humans and is therefore considered a potential pandemic threat.

Phase	Characteristics
Phase 3	An animal or human-animal influenza reassortant virus has caused sporadic cases or small clusters of disease in people, but has not resulted in human-to-human transmission sufficient to sustain community-level outbreaks.
Phase 4	Characterized by verified human-to-human transmission of an animal or human-animal influenza reassortant virus able to cause “community-level outbreaks”.
Phase 5	Characterized by human-to-human spread of the virus into at least two countries in one WHO region.
Phase 6	The pandemic phase is characterized by community level outbreaks in at least one other country in a different WHO region in addition to the criteria defined in Phase 5. Designation of this phase3 will indicate that a global pandemic is under way.

Source: WHO <http://www.who.int/en/>

Smallpox – This was an infectious disease unique to humans, caused by either of two virus variants, *Variola major* and *Variola minor*. The last naturally occurring case of smallpox (*Variola minor*) was diagnosed in October 1977 in Somolia. The last reported case in the United States was in 1949. *Variola major* is the more severe and has an overall mortality rate of 30 to 35 percent. *Variola minor* only has a mortality rate of 1 percent. Long-term complications of *Variola major* include characteristic scars. Less common complications are blindness, and limb deformities due to arthritis and osteomyelitis.

West Nile Virus – This is found in temperate and tropical regions of the world and is a mosquito-borne zoonotic arbovirus. It was first identified in the West Nile sub-region in the East African nation of Uganda in 1937. It was considered a minor risk to humans until an outbreak in Algeria in 1994. At that time there were cases of West Nile Virus that caused encephalitis. The virus has spread globally. In 2012, West Nile Virus killed 286 people in the United States.

Most of the West Nile virus infections in humans are subclinical, which cause no symptoms. In the approximately 20 percent of infections to humans where symptoms do occur, the time from infection to appearance of symptoms is between 2 to 15 days. Less than 1 percent of the cases are severe and result in neurological disease. Currently there is no vaccine against West Nile virus infection.

4.3.11.3 Past Occurrence

West Nile Virus:

West Nile Virus reached the United States in 1999 and a year later was detected in Pennsylvania when mosquito pools, dead birds, and/or horses in 19 counties tested positive for the virus. A comprehensive network has been developed in Pennsylvania that includes trapping mosquitoes, collecting dead birds and monitoring horses, people and, in past years, sentinel chickens. According to Pennsylvania’s West Nile Virus Control Program there has been no virus found in Somerset County in 2014. Table 4.3.11-2 outlines the West Nile Virus within Somerset County over the past fourteen years.

Table 4.3.11-2 West Nile Virus Control Program in Somerset County

Year	Total Positives	Human Cases	Avian Samples			Mosquito Samples			Veterinary Positives
			Collected	Tested	Positive	Collected	Tested	Positive	
2014	0	0	1	1	0	93	36	0	0
2013	1	0	0	0	0	197	81	1	0
2012	0	0	0	0	0	1	0	0	0
2011	1	0	0	0	0	164	107	1	0
2010	0	0	0	0	0	23	14	0	0
2009	0	0	0	0	0	760	104	0	0
2008	0	0	1	1	0	1045	125	0	0
2007	0	0	0	0	0	1033	125	0	0
2006	1	0	1	1	1	698	267	0	0
2005	2	0	1	1	0	381	228	0	0
2004	0	0	1	1	0	243	103	0	0
2003	5	0	12	11	5	344	185	0	0
2002	5	0	15	9	5	660	283	0	0
2001	0	0	1	1	0	498	36	0	0

Source: <http://www.westnile.state.pa.us/surv.htm>

Influenza

Somerset County was impacted with the H1N1 virus during 2009. The Pennsylvania Department of Health set up clinics throughout the county to administer vaccines.

The 1918 Influenza (Spanish Flu) Pandemic is classified as the “Mother of all Pandemics”. An estimated one third of the world’s population were infected and had clinically apparent illnesses during the 1918-1919 influenza pandemic. Pennsylvania was one of the hardest hit states in the country because influenza tended to strike cities very hard. At that time frame Philadelphia was the state’s largest city and Pittsburgh was the second largest city. The impact of the 1918-1919 Influenza is not limited to that time frame. All Influenza-A pandemics since that time have been caused by 1918 virus descendants (including “drifted” H1N1 viruses and reassorted H2N2 and H3N2 viruses). Table 4.3.11-3 lists past Influenza A events.

Year(s)	Common Name
1889	Russian Flu
1918-1919	Spanish Flu
1957	Asian influenza
1968	Hong Kong influenza
1976	Swine Flu
2009	Novel H1N1 "swine flu"
Source: World Health Organization (WHO) Fact sheet No. 211, Revised March 2003; CDC www.cdc.gov/ncidod/eid/vol12no01/05-0979.htm	

Planned H1N1 mass vaccination clinics were planned for in January 2010 for Somerset County.

Other

In July of 2013 there was an outbreak of Legionella at SCI-Somerset. Source: Knowledge Center.

4.3.11.4 Future Occurrence

The probability of a widespread pandemic public health emergency is every 10 years or less with varying degrees of severity. Minor outbreaks of less serious communicable disease, such as influenza, occur much more frequently. Somerset County is vulnerable to these diseases and infections since people commute from the larger urban areas to the county for recreation and sport related activities.

West Nile Virus

The best defense against West Nile Virus is to remove mosquito breeding locations – stagnant water sources. Another defense is to prevent insect bites by wearing shoes, socks, long pants and a long-sleeved shirt when outdoors for long periods of time, or when mosquitoes are most active. Also, consider the use of mosquito repellent.

4.3.11.5 Vulnerability Assessment

The probability of a pandemic occurring in Somerset County is low. A risk factor of 2.2 has been assigned to this hazard utilizing the risk factor assessment tool provided by the Pennsylvania Emergency Management Agency. However, it is extremely difficult to predict a pandemic. Many scientists believe it is only a matter of time until the next influenza pandemic occurs. The severity of the next pandemic cannot be predicted, but modeling studies suggest the impact of a pandemic on the United States could be substantial. In the absence of any control measures (vaccination or drugs), it is estimated that a “medium-level” pandemic could cause 89,000-207,000 deaths, 314,000-734,000 hospitalizations, 18-42 million outpatient visits, and another 20-47 million sick people in the United States. Between 15 to 35 percent of the U.S. population could be affected by an influenza pandemic, and the economic impact could range between \$71.3- \$166.5 billion.

Influenza pandemics are different from many of the threats for which public health and health-care systems are currently planning. A pandemic will last much longer than most public health

emergencies and may include “waves” of influenza activity separated by months (in 20th Century pandemics, a second wave of influenza activity occurred 3 to 12 months after the first wave). The numbers of healthcare workers and first responders available to work will likely reduce as they will be at high risk of illness from exposure in the community and healthcare settings. Some may have to miss work to care for ill family members. Resources in many locations could be limited depending on the severity and spread of an influenza pandemic.

Because of these differences and the expected size of an influenza pandemic, it is important to plan preparedness activities that will permit a prompt and effective public health response. The

U.S. Department of Health and Human Services (HHS) supports pandemic influenza activities in the areas of surveillance (detection), vaccine development and production, strategic stockpiling of antiviral medications, research, and risk communications. In May 2005, the U.S. Secretary of HHS created a multi-agency National Influenza Pandemic Preparedness and Response Task Group. This unified initiative involves CDC and many other agencies (international, national, state, local, and private) in planning for a potential pandemic. Its responsibility includes revision of a U.S. National Pandemic Influenza Response and Preparedness Plan.

Elderly individuals, children and immune deficient individuals are most vulnerable to influenza. Nursing facilities, daycares, schools and hospitals are considered more vulnerable since there are normally groups of these special needs populations present at the facilities. Spread of disease is an increased risk due to the vulnerability and population density of these populations.

4.3.12 Transportation Accidents

4.3.12.1 Location and Extent

Transportation accidents will claim more lives annually and cause more injuries than any other hazard. With rail, air, and highway transportation available all over Pennsylvania, every county in the Commonwealth is susceptible to this hazard. Somerset County is served by Interstate Highway 70(The Pennsylvania Turnpike), US Route 219, US Route 30, along with PA Routes 31, 281, and 403; as the main corridors. The Pennsylvania Turnpike consists of 30 miles, 889 miles are owned by Pennsylvania Department of Transportation, 86 miles are owned by other state agencies and; 1,259 miles are owned by individual boroughs and townships for a total of 2,264 miles of roadways.

Somerset County has two (2) identified airports in the county: Seven Springs Airport and Somerset County Airport. The Seven springs Airport Authority sponsors the facility as a privately owned, public-use airport. The airport is primarily used by vacationers as it has a close proximity to Seven Springs Mountain Resort, Hidden Valley Resort, Laurel Ridge State Park and Forbes State Forest. Somerset County Airport is classified as a business service airport, and is publicly owned.

Somerset County has a vast amount of pipelines in the county. New pipelines are continuously being constructed or upgraded. Most of the pipelines are located underground but there are locations located above ground and pose a risk for release.

Rail freight traffic enters the county from Pittsburgh through Ohioyle State Park in southwestern Somerset County, traveling eastward to Maryland. The line passes through the municipalities of Confluence, Fort Hill, Markleton, Rockwood, Garrett, Salisbury Junction, Keystone, Glencoe, Fairhope, and exits the county near Hyndman. Local feeder lines traverse Somerset County in a north-south direction originating from Johnstown and terminate in Rockwood, where the lines join with the “core main line”.

4.3.12.2 Range of Magnitude

In terms of transportation, the maximum threat to Somerset County is when the incident occurs in or near a heavily populated area. Each mode of public transit experiences accidents on an annual basis. Each of these incidents can occur on both small and large scales, depending on the number of vehicles involved.

Automobile accidents can occur on any roadway. Typically, the higher speeds and more heavily traveled roads experience a higher percentage of the county’s automobile accidents. These traffic accidents are most common during periods of inclement weather. Airplane accidents are most common near take-off and landing points. This is why the most vulnerable areas are those near and around airports. Significant pipeline accidents are not very common. The most vulnerable areas are those with pipelines running through or along hillsides. Mudslides and falling rocks can cause pipeline breaks. Hazardous material spills are the most common secondary effect of transportation accidents.

The following is a list and description of the potential environmental impacts from traffic accidents:

- Traffic accidents involving hazardous materials could pose an air, water and/or soil contamination.
- Traffic accidents involving electric lines could pose a wildfire and/or structure fire hazard.

4.3.12.3 Past Occurrence

Somerset County has witnessed less than the state average in automobile accidents from 2009-2013. Between that same five-year period, fatal accidents in Somerset County are also below the state average.

Somerset County 2015 Hazard Mitigation Plan

	2009	2010	2011	2012	2013
Total Crashes	834	844	851	793	808
Percentage to statewide total	0.7%	0.7%	0.7%	0.6%	0.7%
Fatal Crashes	12	20	8	12	11
Percentage to statewide total	1.0%	1.5%	0.6%	0.9%	0.9%
Seatbelt Usage in crashes	83%	82%	82%	84%	86%
State Average	77%	77%	78%	78%	78%

Source: Pennsylvania Department of Transportation

Table 4.3.12-2 lists the transportation accidents/incidents in Somerset County between January 2009 and August 2014, as identified on Knowledge Center™.

Classification	Date	Location	Information
Vehicle	1-3-2009	Berlin Borough	Vehicle accident into a structure.
Vehicle	1-16-2009	Somerset Township	Vehicle accident with entrapment.
Vehicle	1-29-2009	Somerset Borough	Vehicle accident.
Vehicle	3-5-2009	Summit Township	Vehicle accident.
Aviation	3-30-2009	Seven Springs Borough	Emergency aircraft landing.
Commercial	4-12-2009	Summit Township	Tanker truck overturned.
Vehicle	8-2-2009	Jefferson Township	Fatal vehicle accident on SR 30.
ATV	8-2-2009	Upper Turkeyfoot Township	Fatal ATV accident.
Vehicle	8-2-2009	Middlecreek Township	Fatal vehicle accident on SR 653.
ATV	8-2-2009	Shade Township	ATV accident.
Vehicle	9-18-2009	Jenner Township	Vehicle accident.
Vehicle	9-27-2009	Upper Turkeyfoot Township	Fatal vehicle accident with road closure.
Commercial	9-28-2009	Brothers Valley Township	Fuel tanker overturned.
Vehicle	11-8-2009	Somerset Township	Motorcycle accident.
Vehicle	11-14-2009	Elk Lick Township	Vehicle accident.
Commercial	12-3-2009	Addison Township	A tree on Rt. 40 fell onto a tractor trailer hauling ammonium nitrate.
School	12-28-2009	Quemahoning Township	School bus accident.
Vehicle	1-11-2010	Summit Township	Vehicle accident with road closure.
Vehicle	1-28-2010	Upper Turkeyfoot Township	Vehicle accident

Somerset County 2015 Hazard Mitigation Plan

Classification	Date	Location	Information
Rail	2-6-2010	Northampton Township	130 CSX cars hauling coal came apart from the engine as the train was descending a steep grade in Fairhope. There were no injuries.
Rail	2-6-2010	Ursina Borough	Accident involving a train and a car.
Vehicle	2-23-2010	Shade Township	Vehicle accident with injury.
Vehicle	3-17-2010	Jenner Township	Vehicle accident.
Rail	3-25-2010	Upper Turkeyfoot Township	CSX rail car carrying steel derailed. Crossing at Markleton School Road was closed.
Commercial	4-1-2010	Somerset Township	Tractor trailer rollover.
Vehicle	5-4-2010	Paint Township	Vehicle accident.
Vehicle	5-21-2010	Elk Lick Township	Vehicle accident with injury.
Vehicle	5-27-2010	Somerset Township	Vehicle accident.
Vehicle	6-14-2010	Elk Lick Township	Vehicle accident and fire as a result of a police pursuit
Vehicle	6-20-2010	Ursina Borough	Vehicle accident.
Vehicle	7-11-2010	Paint Township	Vehicle accident with entrapment.
Vehicle	7-17-2010	Milford Township	Vehicle accident with road closure.
Vehicle	7-30-2010	Shade Township	Vehicle accident with entrapment.
Vehicle	8-11--2010	Somerset Borough	Vehicle accident with road closure.
Vehicle	8-27-2010	Ogle Township	Vehicle accident.
Vehicle	9-7-2010	Somerset Borough	Vehicle accident involving a police car.
Vehicle	9-26-2010	Shade Township	Vehicle accident with road closure.
Vehicle	11-21-2010	Shade Township	Fatal vehicle accident with road closure.
Vehicle	11-25-2010	Upper Turkeyfoot Township	Vehicle accident with fire.
Vehicle	11-27-2010	Conemaugh Township	Vehicle accident with multiple entrapments on RT 403.
Vehicle	11-30-2010	Somerset Township	Vehicle accident with entrapment.
Vehicle	12-1-2010	Somerset Township	Vehicle accident.
Vehicle	12-1-2010	Jenner Township	Vehicle accident.
Vehicle	12-6-2010	Somerset Township	Vehicle accident.
Vehicle	12-6-2010	Brothers Valley Township	Vehicle accident.
Vehicle	12-6-2010	Brothers Valley Township	Vehicle accident.
Vehicle	12-6-2010	Paint Township	Vehicle accident.
Vehicle	12-7-2010	Quemahoning Township	Vehicle accident.
ATV	12-11-2010	Brothers Valley Township	Snowmobile accident.
Vehicle	12-18-2010	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	12-28-2010	Stonycreek Township	Fatal vehicle accident with entrapment and ejection.
Vehicle	12-30-2010	Elk Lick Township	Vehicle accident.
Vehicle	1-12-2011	Jenner Township	Vehicle accident with a road closure on RT 219 S. at milepost 41.
Commercial	1-17-2011	Summit Township	Tractor trailer into a car on RT 219.

Somerset County 2015 Hazard Mitigation Plan

Classification	Date	Location	Information
Vehicle	1-21-2011	Somerset Township	Vehicle accident.
Vehicle	2-16-2011	Paint Township	Vehicle accident with traffic delays.
Rail	2-22-2011	Somerset Borough	Train vs. car.
Vehicle	3-4-2011	Paint Township	Vehicle accident with entrapment on RT 56.
Commercial	3-7-2011	Wellersburg Borough	Tractor trailer accident.
Vehicle	3-14-2011	Shade Township	Fatal vehicle accident on RT 30 in Storystown.
Vehicle	3-18-2011	Conemaugh Township	Vehicle accident.
Vehicle	3-25-2011	Somerset Township	Vehicle accident with entrapment.
Vehicle	3-26-2011	Somerset Borough	Vehicle accident.
Vehicle	4-10-2011	Jenner Township	Vehicle accident with ejection.
Vehicle	5-2-2011	Salisbury Borough	Vehicle accident with entrapment and road closure.
Vehicle	5-3-2011	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	5-18-2011	Somerset Township	Vehicle accident.
Vehicle	5-27-2011	Shade Township	Vehicle accident.
Vehicle	5-31-2011	Shade Township	Vehicle accident with a fuel spill.
Public service	6-17-2011	Milford Township	Police unit in accident on Waterlevel Road.
Vehicle	6-17-2011	Addison Township	Vehicle accident with injuries.
Vehicle	6-25-2011	Ogle Township	Vehicle accident.
Vehicle	7-1-2011	Jefferson Township	Vehicle accident on the PA Turnpike.
ATV	7-3-2011	Stonycreek Township	ATV accident.
Vehicle	8-3-2011	Quemahoning Township	Vehicle accident.
Vehicle	8-29-2011	Somerset Township	Vehicle accident.
School	9-7-2011	Somerset Borough	School bus accident.
Commercial	9-14-2011	Somerset Township	Coal truck accident with no injury.
Commercial	11-7-2011	Brothers Valley Township	Fatal accident involving a butane tanker.
Vehicle	12-5-2011	Conemaugh Township	Pickup truck struck a building, a propane tank was struck but did not leak.
Vehicle	12-17-2011	Ogle Township	Vehicle accident.
Vehicle	12-17-2011	Middlecreek Township	Vehicle accident.
Vehicle	12-17-2011	Summit Township	Vehicle accident.
Commercial	12-19-2011	Summit Township	Commercial vehicle accident.
ATV	1-1-2012	Boswell Borough	Fatal ATV accident.
Vehicle	1-18-2012	Jefferson Township	Vehicle accident with minor entrapment.
Vehicle	2-2-2012	Conemaugh Township	Vehicle accident with injury.
Vehicle	2-2-2012	Milford Township	Fatal vehicle accident.
Commercial	2-26-2012	Brothers Valley Township	Milk tanker truck over a bank.
Vehicle	3-10-2012	Jefferson Township	Vehicle accident with ejection.

Somerset County 2015 Hazard Mitigation Plan

Classification	Date	Location	Information
Commercial	3-14-2012	Middlecreek Township	Tractor trailer vs. bus/Mass Casualty incident.
Vehicle	4-23-2012	Milford Township	Vehicle accident with a transformer down.
Vehicle	5-4-2012	Summit Township	Vehicle accident.
Vehicle	5-15-2012	Lincoln Township	Motorcycle accident.
Vehicle	6-21-2012	Somerset Township	Vehicle accident with entrapment.
Commercial	7-19-2012	Jenner Township	Coal truck accident.
Vehicle	7-19-2012	Quemahoning Township	Vehicle accident with road closure.
Vehicle	7-28-2012	Larimer Township	Vehicle accident with entrapment.
Vehicle	8-31-2012	Shade Township	Vehicle accident.
Rail	9-2-2012	Lower Turkeyfoot Township	Train derailment in Forthill.
Commercial	9-11-2012	Brothers Valley Township	Tractor trailer overturned.
Rail	9-24-2012	Somerset Township	Tractor trailer vs. train accident.
Aviation	10-17-2012	Stonycreek Township	Low flying aircraft.
Vehicle	10-20-2012	Somerset Borough	Vehicle accident with ejection and entrapment.
School	10-22-2012	Upper Turkeyfoot Township	School bus accident in New Lexington.
Vehicle	11-9-2012	Addison Township	Vehicle accident with entrapment.
Vehicle	11-9-2012	Ogle Township	Fatal vehicle accident with entrapment.
Commercial	11-16-2012	Jenner Township	Coal truck accident with entrapment.
Vehicle	11-17-2012	Jefferson Township	Vehicle accident with entrapment.
Vehicle	12-10-2012	Conemaugh Township	Vehicle accident with pole and wires down.
Vehicle	2-22-2013	Stonycreek Township	Fatal vehicle accident.
Vehicle	3-3-2013	Jenner Township	Vehicle accident with ejection and entrapment.
Vehicle	3-5-2013	Upper Turkeyfoot Township	Vehicle accident.
School	3-18-2013	Conemaugh Township	School bus accident
Vehicle	7-7-2013	Summit Township	Vehicle accident with entrapment and fire.
Commercial	7-26-2013	Unknown (not listed)	Coal truck rollover.
Vehicle	7-31-2013	Unknown (not listed)	Vehicle accident with entrapment.
Commercial	8-23-2013	Meyersdale Borough	Tri-axle rollover.
Vehicle	9-2-2013	Ursina Borough	Motorcycle accident.
Vehicle	9-26-2013	Somerset Borough	Vehicle rollover with entrapment.
Vehicle	10-18-2013	Berlin Borough	Vehicle accident with entrapment.
Commercial	10-22-2013	Jenner Township	Fatal vehicle accident involving a hazardous material.
School	11-15-2013	Windber Borough	Accident involving a school bus.
Commercial	11-18-2013	Quemahoning Township	Fatal commercial vehicle accident.

Somerset County 2015 Hazard Mitigation Plan

Classification	Date	Location	Information
Public service	11-2-2013	Boswell Borough	Two vehicle accident (police car involved) with two injuries.
Commercial	12-5-2013	Somerset Township	Tractor trailer fire.
Vehicle	12-8-2013	Brothers Valley Township	Vehicle accident with entrapment and fire.
Public service	1-26-2014	Lower Turkeyfoot Township	Fire truck accident.
Public service	1-27-2014	Windber Borough	Police cruiser involved in an accident.
Vehicle	2-3-2014	Garrett Borough	Vehicle accident with entrapment.
Vehicle	2-14-2014	Shade Township	Vehicle fire.
Vehicle	2-19-2014	Black Township	Vehicle accident with entrapment.
Vehicle	2-19-2014	Black Township	Vehicle accident.
Vehicle	2-24-2014	Stoneycreek Township	Vehicle accident.
Vehicle	2-27-2014	Brothers Valley Township	Vehicle accident with minor injuries.
Vehicle	2-27-2014	Stoneycreek Township	Vehicle accident.
Vehicle	2-28-2014	Somerset Township	Vehicle accident with entrapment.
Vehicle	2-28-2014	Conemaugh Township	Vehicle accident.
Rail	3-4-2014	Somerset Township	Train vs. car.
Aviation	3-4-2014	Somerset	Laser incident at the County Airport.
Commercial	3-6-2014	Somerset Township	Commercial vehicle fire.
Military	3-6-2014	Brothers Valley Township	Military vehicle accident.
Vehicle	3-8-2014	Black Township	Vehicle accident at a rail road crossing.
Commercial	3-10-2014	Shade Township	Commercial vehicle accident.
Vehicle	3-26-2014	Upper Turkeyfoot Township	Vehicle accident with entrapment.
Rail	3-27-2014	Northampton Township	Train fire.
Vehicle	4-10-2014	Elk Lick Township	Vehicle vs. pedestrian.
Vehicle	4-14-2014	Middlecreek Township	Vehicle accident with entrapment.
Rail	4-16-2014	Somerset Borough	CSX train vs. tractor trailer hauling coal.
Vehicle	4-16-2014	Lower Turkeyfoot Township	Vehicle rollover on rail road tracks.
Vehicle	4-20-2014	Somerset Township	Vehicle vs. pedestrian.
ATV	4-27-2014	Elk Lick Township	ATV accident with injury.
Commercial	5-1-2014	Quemahoning Township	Commercial vehicle accident.
Vehicle	5-2-2014	Addison Township	Vehicle accident with entrapment.
Commercial	5-9-2014	Elk Lick Township	Commercial vehicle accident.
Vehicle	5-21-2014	Jefferson Township	Vehicle accident.
Vehicle	5-21-2014	Somerset Township	Vehicle accident.
Public service	5-25-2014	Somerset Borough	Vehicle accident involving a police unit.
Vehicle	6-1-2014	Lower Turkeyfoot Township	Vehicle accident involving a pedestrian and a motorcycle.

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.12-2 Transportation accidents/incidents in Somerset County

Classification	Date	Location	Information
ATV	6-8-2014	Jenks Township	ATV accident with injury.
Vehicle	6-20-2014	Jenner Township	Fatal vehicle accident at RT 30 and RT 219.
Vehicle	6-23-2014	Conemaugh Township	Fatal vehicle accident.
Vehicle	6-23-2014	Paint Township	Motorcycle accident.
Vehicle	6-24-2014	Milford Township	Vehicle accident.
Vehicle	7-5-2014	Somerset Township	Vehicle vs. pedestrian.
ATV	7-6-2014	Stoneycreek Township	ATV accident with a hand amputation.
Commercial	7-7-2014	Somerset Township	Tractor trailer fire.
Commercial	7-7-2014	Black Township	Commercial vehicle accident.
Vehicle	7-14-2014	Somerset Township	Vehicle accident.
ATV	8-2-2014	Somerset Township	Fatal ATV vs. a car on Geiger Road.
Rail	8-9-2014	Fairhope Township	CSX train vs. a vehicle. There was no one in the vehicle.
Vehicle	8-24-2014	Shade Township	Fatal vehicle accident.
Vehicle	9-3-2014	Jenner Township	Vehicle accident with entrapment.
Rail	8-15-2014	Conemaugh Township	CSX trail derailment (minor) at Thomas Street crossing.

On August 2, 2009 there were there were four accidents reported within the county. Three of these accidents reported fatalities. There are, on average, approximately 25 transportation accidents per year in Somerset County.

4.3.12.4 Future Occurrence

The probability of a transportation accident is highly likely. Automobile accidents, both minor and fatal, will occur more frequently than a rail incident, pipeline incident or an aviation accident. Roadway accidents occur annually, often with limited impact. A risk factor of 2.5 has been assigned to this hazard utilizing the risk factor methodology probability criteria.

4.3.12.5 Vulnerability Assessment

The vulnerability for highway accident is directly related to the population and traffic density of that area. The more populated an area the more vulnerable it is to an accident.

According to the Federal Aviation Administration (FAA), one Somerset County airport was listed on the National Plan of Integrated Airport System (NPIAS) report, which lists all significant national air transportation systems. However, this does not discount the county’s vulnerability to an aviation accident.

4.3.13 Utility Interruptions

4.3.13.1 Location and Extent

Utility interruptions in Somerset County include disruptions in fuel, water, electric and telecommunications capabilities in the county, but the primary focus is on electric power failures. Utility interruptions are often a secondary impact of another hazard like severe storms, tornados, winter storms or tropical storms. Severe thunderstorms, tornados, and winter storms can also lead to more regional utility interruptions, while localized outages can be caused by traffic accidents or wind damage. Heat waves may also result in rolling blackouts where power may not be available for an extended period of time. Additional utility interruptions may be caused by traffic accidents. Utility interruptions have the potential to take place throughout the County.

Table 4.3.13-1 identifies the utility providers in Somerset County.

Table 4.3.13-1: Somerset County Municipal Utility Provider Summary	
Electric	Bedford Rural Electric Cooperative Somerset Rural Electric Cooperative Allegheny Power
Water	public water systems = authorities 14, associations 10, investor-owned 5, mobile associations 7, and 9 lack certified operators
Natural Gas (Providers)	Columbia Natural Gas of Pennsylvania Peoples Natural Gas Company Texas Eastern Transmission Corporation
Telephone	Verizon
Internet	Somerset Computer Center Western PA Internet Access, Inc. And a broad selection on national Internet service providers
Cable television	Cablevision Communications
*Pipelines	Columbia Natural Gas of Pennsylvania Columbia Pipeline Group Consol Energy Peoples Natural Gas Company Texas Eastern Transmission, LP/Spectra Energy
Sources: Somerset County Comp Plan, August 2006 *Pipeline Emergency Response Planning Information 2014 Emergency Responder Manual	

Table 4.3.13-2 shows the community public water supply populations and the primary source of that supply for Somerset County. The remaining residents of Somerset County receive their water supplies under the purview of the PUC (Public Utility commission).

Somerset County 2015 Hazard Mitigation Plan

**Table 4.3.13-2 Community Public Water Supply Populations and Primary Source (DEP, 2013)
Somerset County**

Ground	Ground or Purchased Ground Under SWI	Purchased Ground	Purchased Surface	Surface	Grand total
30,508	0	900	5,422	23,697	60,527

Source: PA 2013 Approved SSAHMP

4.3.13.2 Range of Magnitude

The special needs population would be at maximum threat, posed by a utility failure in Somerset County. Loss of resources, such as electricity, communications, gas, and water supply could have a serious effect on the health, safety, and general welfare of citizens. The special needs population can be vulnerable to loss of heat or air conditioning during extreme weather months. The County must account for its special needs population during times of extended utility failure.

Severe utility interruptions would be regional or widespread power and telecommunications outages. Most often these are short-term outages. The possibility of a large storm hindering the repair of power lines could cause power outages that last several days.

The potential secondary effect of a loss of communications and water is an inadequate emergency response. Efficient and effective communications and adequate portable water supply are critical resources for first responders. A loss of electricity and gas can have a negative impact on first responders, as well. However, the most critical secondary effect would be the loss of heating compounded by periods of severe cold.

The following is a list and description of the potential environmental impacts from utility interruptions:

Electric: Downed power lines could pose a wildfire or structure fire hazard.

Water: Water line breaks could cause hazardous materials to be washed into potable water systems.

Communications: A breakdown of communications could cause any/all emergencies that occur within the county to be left unmitigated properly.

4.3.13.3 Past Occurrence

It is commonly known that utility failures occur annually, at a minimum. The continued documentation of these failures may provide opportunities for the county to mitigate such service failures. Table 4.3.13-3 outlines documented utility outages that have occurred since 2009, per Knowledge Center™ reports.

Table 4.3.13-3: Somerset County Utility Outages

Utility	Provider	Date(s) of outage	Municipality	Contributing/other factors
Electric		1/16/2009	Hooversville Borough	Power outage
Phone	Verizon	1/17/2009	County wide	911 ANI/ALI outage
Electric		1/17/2009	Somerset Borough	Power outage
Water		1/25/2009	Somerset Borough	Water line break

Somerset County 2015 Hazard Mitigation Plan

Utility	Provider	Date(s) of outage	Municipality	Contributing/other factors
Electric		1/25/2009	Windber Borough	Power outage
Electric		1/32/2009	Conemaugh Township	Power outage
Telephone		2/5/2009	County wide	Cell and landline phone outage
Water		2/11/2009	Stoystown Borough	Water main break – water shortage
Electric		2/12/2009	County wide	Weather related incident
Electric		9/28/2009	Meyersdale Borough	Power outage
Water		1/11/2010	Addison Borough	Water outage
Electric		2/26/2010	Somerset Borough	Power outage
Electric		9/22/2010	County wide	Severe thunderstorms and winds with power outages
Telephone		12/23/2010	County wide	911 center phone problems
Telephone		5/11/2011	County wide	911 center phone problems
Natural Gas		5/31/2011	Windber Borough	Gas line rupture.
Electric		9/23/2011	Somerset Township	Power outage
Water	Quemahoning	1/12/2012	Lincoln Township	Water main break
Natural Gas		1/22/2012	Somerset Borough	4" gas main break
Water		5/9/2012	Lincoln Township	Water line break
Natural Gas		6/11/2012	Somerset Township	Ruptured gas line
Natural Gas		7/16/2012	Somerset Borough	Natural gas leak
Water		7/13/2012	Upper Turkeyfoot Township	Mobile home development water shortage
Water		8/13/2012	Addison Borough	Water outage/shortage
Telephone		11/27/2012	County wide	Non-911 phone lines outs at the 911 center
Water		11/27/2012	Jenner Township	Water line break
Water		1/23/2013	Somerset Township	Water break/heat loss at SCI-Somerset
Electric		2/4/2013	County wide	Power outages
Water		3/5/2013	Lincoln Township	Water line break
Telephone		4/19/2013	County wide	911-non emergency phone line down
Water		6/18/2013	Somerset Borough	Water main break
Electric		6/26/2013	Somerset Borough	Substation short/power outage
Telephone		9/21/2013	County wide	Phone malfunction at the 911 center
Natural Gas		11/5/2013	Somerset Borough	Natural gas release
Electric		12/31/2013	Berlin Borough	Power outage
Electric		1/2/2014	Shade Township	Wire arcing at power substation
Water		1/8/2014	Central City Borough	Water supply outage
Telephone		3/21/2014	County wide	Phone outage
Natural Gas		4/7/2014	Somerset Borough	Gas meter sheared on Laurel Crest Road
Telephone		4/23/2014	Summit Township	Landline phone outage
Electric		6/19/2014	Somerset Borough	Power outage at County buildings
Electric		7/8/2014	County wide	Electrical power outages

Table 4.3.13-3: Somerset County Utility Outages

Utility	Provider	Date(s) of outage	Municipality	Contributing/other factors
Natural Gas	Columbia Gas	7/31/2014	Somerset Borough	Natural gas leak/meter fell off of a building
Telephone/ Internet		8/27/2014	County wide	County network down to include Internet, county phones and internal systems
Water	Quemahoning	9/27/2014	Somerset Township	Water line break

4.3.13.4 Future Occurrence

Utility interruptions are difficult to predict. Most utility interruptions are secondary to severe weather. Citizens should always be prepared for these hazards. An aging infrastructure also poses a threat to potential utility interruptions. As the equipment and facilities age, constant wear and tear of the service deteriorates it. There is often a mix of new and old equipment along the line, as total replacement is not a feasible solution for utility companies.

The probability of a large-scale and extended utility failure is likely. A risk factor of 2.6 has been assigned to this hazard utilizing the risk factor methodology probability criteria.

4.3.13.5 Vulnerability Assessment

Electric

Severe weather is one of the largest causes of power loss. Snow, ice, high winds, and lightning can damage the electric power grid infrastructure. Worker strikes have not been known to cause major power outages. However, in some cases, minor power failures have occurred. Other causes of power outages include flooding, falling tree limbs, vehicle accidents involving utility poles, and small animals climbing the lines and shorting out the power supply.

When power shortages or failures do occur, they are typically on a regional scale, not simply in a single county. Causes and potential causes include infrastructure failure, sabotage, human error, and worker strikes. Also, power outages are often a secondary effect of severe weather. Power outages can damage both homes and businesses. Often, power outages will result in spoiled refrigerated inventories, affecting both residences and businesses.

Water

Water contamination can occur naturally, by human error, or intentionally. Occasionally, releases of manure and milk into the water supply can cause contamination. Overflows from sewage systems and lagoons on farms can also cause contamination of groundwater and drinking water. There are also times when accidental spills and releases of hazardous materials contaminate water. Water supplies along transportation routes may be affected by hazardous materials spills.

Water distribution can be affected in three ways: the amount of water available; the quality of the water; and the viability of the physical components of the distribution systems. The quantity of water depends on nature. Humans, on the other hand, are primarily responsible for the maintenance of water quality. Well contamination or water shortages due to drought would pose a high vulnerability.

Gas and liquid pipelines

Interruptions to natural gas distribution could be affected by several means: the deterioration of lines and facilities; puncturing the distribution lines by humans (either intentional or accidental); coastal and winter storms; extreme heat or cold events; or transportation accidents. Table 4.3.13-4 outlines the products that could be transported through Somerset County

Pipeline Company	Products transported via pipelines, DOT Guidebook ID #
Columbia Natural Gas of Pennsylvania & Columbia Pipeline Group	Natural Gas #1971
Consol Energy	Natural Gas #1971
Peoples Natural Gas Company	Natural Gas #1971
Texas Eastern Transmission, LP/Spectra Energy	Natural Gas #1971

Source: Pipeline Emergency Response Planning Information 2014 Emergency Responder Manual

Communications

Interruptions in communications could be affected by secondary effects of storms or high winds with trees and poles taken down; or by humans, either intentional or accidental. A loss of communications by emergency services would be devastating to the population of Somerset County. Emergency 9-1-1 calls could not be received nor could emergency units be dispatched properly.

4.3.14 Environmental Hazards

4.3.14.1 Location and Extent

Hazardous material releases can occur at facilities (fixed sites) or along transportation routes. Hazardous material releases can create direct injuries and death and contaminate air, water, and soils. They can occur as a result of human carelessness, intentional acts, or natural hazards. When caused by natural hazards, these incidents are known as secondary hazards. Hazardous materials can include toxic chemicals, radioactive materials, infectious substances, and hazardous wastes. An accidental hazardous material release can occur wherever hazardous materials are manufactured, used, stored, or transported. Such releases can affect the nearby population and contaminate critical or sensitive environmental areas.

Facilities that use, manufacture, or store hazardous materials in Pennsylvania must comply with Title III of the federal Superfund Amendments and Reauthorization Act (SARA), also known as the Emergency Planning and Community Right-to-Know Act (EPCRA), and the Commonwealth's reporting requirements under the Hazardous Materials Emergency Planning and Response Act (1990-165), as amended. The community right-to-know reporting requirements keep communities abreast of the presence and release of chemicals at individual facilities.

4.3.14.2 Range of Magnitude

With a hazardous material release, whether accidental or intentional, there are several potentially exacerbating or mitigating circumstances that will affect its severity or impact. Exacerbating conditions are characteristics that can enhance or magnify the effects of a hazard. Mitigating conditions, on the other hand, are characteristics of the target and its physical environment that can reduce the effects of a hazard. These conditions include:

- Weather conditions – affects how the hazard develops;
- Micro-meteorological effects of buildings and terrain – alters dispersion of materials;
- Shielding in the form of sheltering-in-place – protects people and property from harmful effects; and
- Non-compliance with applicable codes (e.g. fire and building codes) and maintenance failures (e.g. fire protection and containment features) – can substantially increase the damage to the facility itself and to surrounding buildings.

The severity of the incident varies with type of material released and the distance and related response time for emergency response teams. The areas within closest proximity to the releases are generally at greatest risk, yet depending on the agent, a release can travel great distances or exist over a long time (e.g., nuclear radiation), resulting in far-reaching effects to people and the environment.

The worst possible hazardous materials incident would be the release of a large quantity of chlorine gas from the Somerset Borough Wastewater Treatment Plant (WWTP) near Somerset Borough. While little physical property damage is likely from this type of event, the potential to cause injury and death to residents and visitors up to 10 miles from the facility is significant. In addition, an event such as this would likely close the county offices, causing a major disruption to government operations. A release at the facility also has the potential to close the Somerset Interchange of the Pennsylvania Turnpike. Closing this interchange would have significant ramifications. Tractor trailers carrying hazardous materials are not permitted to travel through the tunnels on the Turnpike. The Somerset Interchange is one end of the detour around the tunnels for tractor trailers. The interchange being closed would delay the delivery of goods, potentially from across the country.

The following is a list and description of the potential environmental impacts from environmental hazards

- Bodies of water and water systems could be contaminated.
- Soils could be contaminated.
- Air quality could be affected.

4.3.14.3 Past Occurrence

There are many hazardous materials facilities and several major transportation routes in Somerset County. The county has experienced hazardous material release accidents at facilities and along roadways; most incidents involve the spill of petroleum products or release of natural gas or propane and are easily contained. Many of them were due to tractor trailers'

Somerset County 2015 Hazard Mitigation Plan

fuel tanks rupturing in a minor accident. More than 15 percent of the spills were home heating oil, though no pattern in where these incidents occurred was found.

Table 4.3.14-1 lists incidents from March 2009 to September 2014 of incidents that involved hazardous materials.

Table 4.3.14-1. Hazardous material incidents in Somerset County from March 2009 to September 2014		
Location	Date	Incident
Conemaugh Township	1/8/09	Residential propane leak.
Somerset Borough	2/14/09	Residential natural gas leak.
Brothers Valley Twp.	3/18/09	Carbon monoxide poisoning.
Brothers Valley Twp.	9/28/09	Fuel tanker overturned.
Conemaugh Township	10/3/09	Oil spill.
Meyersdale Borough	10/5/09	Natural gas main rupture.
Windber Borough	11/16/09	Possible fuel oil spill.
Lincoln Township	12/11/09	Fuel spill.
Somerset Township	1/16/10	Fuel oil spill.
Meyersdale Borough	2/3/10	Sheared gas line.
Windber Borough	4/2/10	Gasoline spill.
Somerset Township	5/3/10	Diesel fuel leaking
Somerset Borough	11/22/10	Natural gas odor.
Jefferson Township	12/14/10	Smell of gas in a structure.
Quemahoning Township	12/21/10	Propane tank on fire.
Somerset Borough	1/15/11	Chemical suicide in a vehicle with hazardous materials.
Windber Borough	3/14/11	Natural gas leak.
Somerset Borough	3/30/11	Fuel spill in a creek.
Paint Township	4/26/11	Ruptured natural gas line.
Somerset Township	6/24/11	Diesel fuel spill.
Somerset Borough	8/31/11	Unknown hazardous material incident.
Rockwood Borough	9/23/11	Odor of diesel on the railroad.
Indian Lake Borough	10/17/11	Fuel oil spill.
Summit Township	11/10/11	Motor oil spill.
Jenner Township	1/26/12	Fuel spill.
Somerset Borough	2/29/12	Unknown spill.
Windber Borough	3/15/12	Oil spill on the roadway.
Addison Township	5/28/12	Anhydrous Ammonia leak; Placard #1005, 500 gallon tank leak was stopped. The tank is owned by a local farmer.
Somerset Township	6/11/12	Ruptured gas line.
Somerset Borough	7/16/12	Natural gas leak.
Quemahoning Township	8/21/12	Tractor trailer leaking diesel fuel.
Jenner Township	8/26/12	Main gas line rupture.

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.14-1. Hazardous material incidents in Somerset County from March 2009 to September 2014

Location	Date	Incident
Somerset Borough	10/17/12	Gas main rupture.
Stonycreek Township	11/5/12	Tractor trailer fire with hazardous materials.
Paint Township	12/7/12	Fuel oil spill.
Quemahoning Township	5/29/13	Hydraulic oil spill.
Windber Borough	8/17/13	Home heating fuel leak in a basement
Jenner Township	10/22/13	Multi-vehicle accident with hazardous materials, and one fatality.
Windber Borough	10/23/13	Fuel spill on the roadway.
Middlecreek Township	10/27/13	Hazardous materials incident (KC event #27932).
Somerset Township	10/30/13	Fuel spill.
Somerset Borough	11/5/13	Natural gas release.
Milford Township	11/9/13	Natural gas odor.
Conemaugh Township	12/6/13	Fuel spill at the BP gas station.
Somerset Borough	3/18/14	Heating oil spill.
Somerset Township	3/18/14	Smell of propane inside of a structure.
Somerset Borough	4/7/14	Gas meter sheared on Laurel Crest road.
Rockwood Borough	7/30/14	Fuel leaking from a train.
Paint Township	5/8/14	Medical call that involved hazardous materials (KC event #31595)
Somerset Township	5/19/14	Odor investigation.
Somerset Township	5/19/14	Hazardous material incident. (KC event #31914)
Somerset Township	6/29/14	Fuel leak from a tractor trailer.
Somerset Borough	7/31/14	Natural gas leak, meter fell off building. Columbia Gas is the provider.
Windber Borough	8/13/14	An unknown substance in Paint Creek, that was a mixture of aluminum and lime stone used for acid mine treatment.
Summit Township	8/23/14	A large tire fire at Meyersdale Trucking Company.
Somerset Township	9/7/14	A 1,000 gallon underground propane tank leaking.
Source: Knowledge Center™ reports		

Table 4.3.14-2 lists the more notable hazardous materials releases that have occurred from January 2004 to September 2014.

Table 4.3.14-2: Hazardous Materials Releases

Location	Date	Material	De ath	Inj ury	Property Damage, \$K
Middlecreek Twp.	8/31/2004	Chlorine	0	1	0
Somerset Twp.	4/13/2005	Therm Chek 6298	0	0	0
Addison	5/18/2006	Unknown	0	0	0
Somerset Twp.	12/12/2007	Unknown	0	0	0

Somerset County 2015 Hazard Mitigation Plan

Table 4.3.14-2: Hazardous Materials Releases

Location	Date	Material	Death	Injury	Property Damage, \$K
Somerset Twp.	1/3/2008	Nitrate	0	0	0
Somerset Twp	4/23/2008	Sulfuric Acid, Bleach, Drain Chemicals	0	0	0
Brothers Valley Twp.	3/18/2009	Carbon Monoxide	0	4	0
Somerset Borough	1/15/2011	Chemical suicide in a vehicle	1	-	UNK
Addison Township	5/28/2012	Anhydrous Ammonia leak; Placard #1005, 500 gallon tank leak was stopped.	0	0	UNK

Transportation carriers must have response plans in place to address accidents, otherwise the local emergency response team will step in to secure and restore the area. For example, in May 1998, a truck carrying hazardous waste spilled its load, prompting the Pennsylvania North-Central Region Emergency Response Team of the PADEP to respond. The cyanide-containing waste was quickly cleaned up with no injuries, property damage or environmental damage reported.

4.3.14.4 Future Occurrence

There are several SARA Title III facilities in Somerset County, many near population centers. Though they follow applicable safety and health regulations and best practices, accidents resulting in the release of hazardous substances may occur at these facilities at any time.

Hazardous materials are also transported along the PA Turnpike (I-76), US Routes 30 and 219, and PA Route 31. The likelihood of hazardous materials transportation incidents in the county is compounded by the fact that eastbound hazmat loads restricted from the Allegheny Tunnel of the PA Turnpike exit at the Somerset interchange and pass through Somerset Borough on their detour. The most common eastbound tunnel detour paths are on US Route 30 and PA Route 31. Transportation of hazardous materials on highways involves tanker trucks or trailers; not surprisingly, trucks are responsible for the greatest number of hazmat incidents. Hazmat releases from rail transport are also of concern due to collisions and derailments that result in large spills. There are several points where these transportation routes cross streams within the watersheds that are part of the county's domestic water supply.

While hazardous material release incidents in Somerset County have occurred in the past, they are generally considered difficult to predict. Smaller incidents, such as fuel spills, will affect the county many times each year, most likely along the Turnpike or during the refilling of home heating oil tanks. The county anticipates one significant hazmat release each year. An occurrence is largely dependent upon the accidental or intentional actions of a person or group. Intentional acts are addressed under the terrorism hazard.

4.3.14.5 Vulnerability Assessment

Vulnerability to environmental hazards focuses on the people in the hazard area, as opposed to other hazards that focus on the property damage as well. Much of the population in Somerset County lives within the vulnerability radius of a SARA Title III facility that stores extremely hazardous substances (EHS).

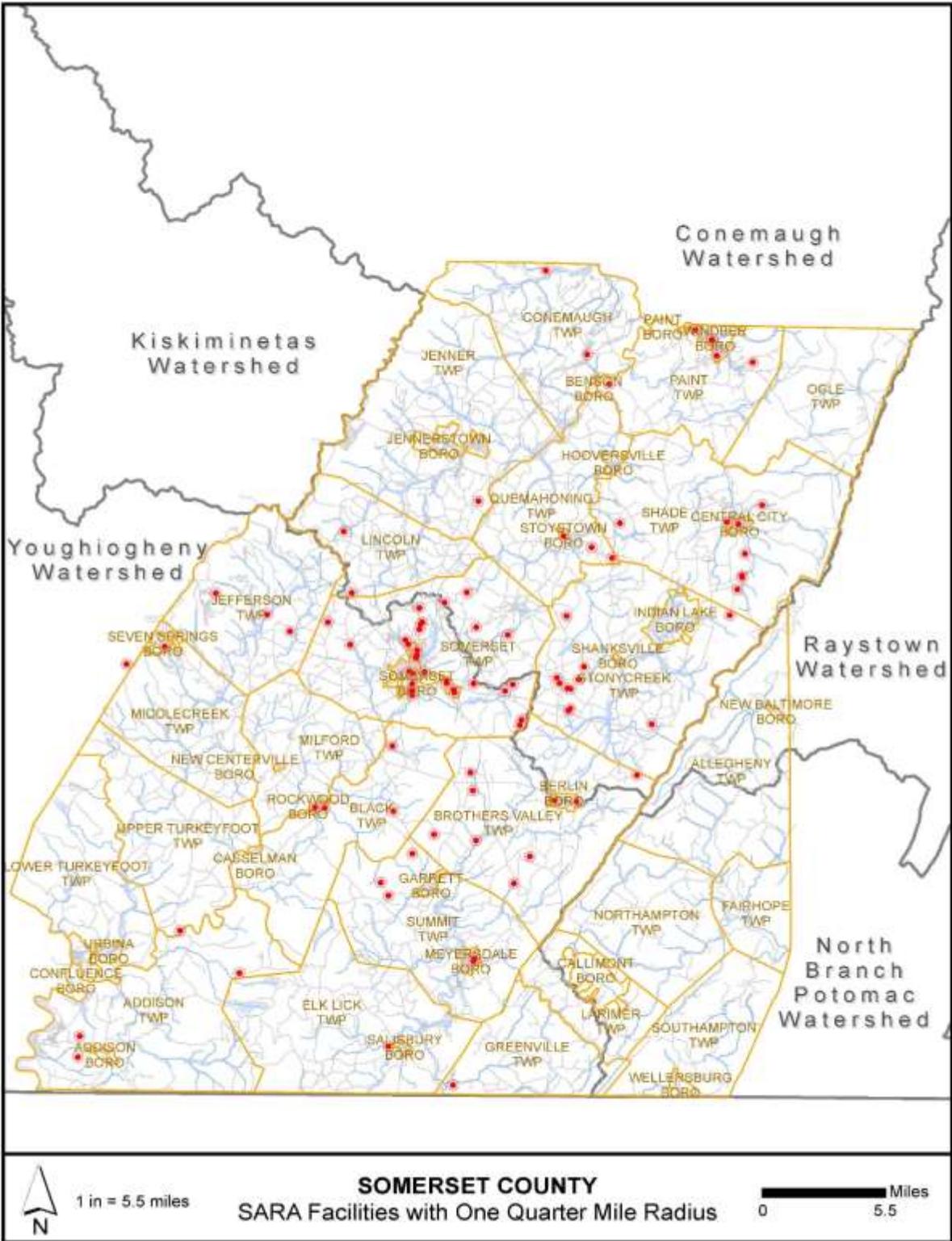
The five municipalities at the greatest risk from hazardous material releases from SARA Title III Planning Facilities (in order of decreasing relative vulnerability) are:

- Somerset Township
- Somerset Borough
- Jenner Township
- Paint Township
- Jefferson Township

A hazardous materials release can be the result of human carelessness, an intentional act, or a natural hazard. Human carelessness occurs predominantly during the manufacturing, transporting, or storing of the material. An intentional act would be considered either a terrorist act, criminal act, or act of vandalism. A hazardous materials spill can be a secondary effect of a natural hazard (e.g., flooding, earthquake, or severe weather). Due to the agricultural industry and traffic on transportation routes, this makes Somerset County vulnerable to hazardous material spills.

Crucial factors in a hazardous materials spill include location, weather conditions, and response. The location of a spill is critical for several reasons. The material could spill in a highly populated area, leak into a waterway, or be spilled in some other area that would cause other secondary effects. Those who are closest to the spill are the greatest at risk, but some hazardous materials can travel great distances. Weather conditions play a large role with even mild breezes carrying hazardous gases and fumes long distances. Air temperature is also a determining factor of how far the material will travel by air. Contaminated waterways and even rainfall can have a negative impact on the scope of the spill. Finally, the response to the incident can determine the extent of the damage. If the closest response team is miles from the incident, the material may have time to spread into the ground and waterways or in the air. However, all of these factors depend on the type of material that is released.

Somerset County 2015 Hazard Mitigation Plan



4.3.15 Terrorism, War, Criminal Activity Hazards

4.3.15.1 Location and Extent

Following several serious international and domestic terrorist incidents during the 1990's and early 2000's, citizens across the United States paid increased attention to the potential for deliberate, harmful actions of individuals or groups. The term "terrorism" refers to intentional, criminal, malicious acts, but the functional definition of terrorism can be interpreted in many ways. Officially, terrorism is defined in the Code of Federal Regulations as "...the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." (28 CFR §0.85)

The Federal Bureau of Investigation (FBI) further characterizes terrorism as either domestic or international, depending on the origin, base, and objectives of the terrorist organization. However, the origin of the terrorist or person causing the hazard is far less relevant to mitigation planning than the hazard itself and its consequences.

Terrorism refers to the use of WMD, including, biological, chemical, nuclear, and radiological weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and intentional hazardous materials releases; and "cyber-terrorism". Within these general categories, however, there are many variations. Particularly in the area of biological and chemical weapons, there are a wide variety of agents and ways for them to be disseminated.

Terrorist methods can take many forms, including:

- Arson/incendiary attack,
- Armed attack,
- Biological agent,
- Chemical agent,
- Cyberterrorism,
- Conventional bomb or bomb threat,
- Hazardous material release (intentional),
- Nuclear bomb, and
- Radiological agent.

The probability of terrorism occurring cannot be quantified with as great a level of accuracy as that of many natural hazards. Furthermore, these incidents generally occur at a specific location, such as a government building, rather than encompassing an area such as a floodplain. Thus planning should be asset-specific, identifying potentially at-risk critical facilities and systems in the community. Once a comprehensive list of critical assets has been developed, it should be prioritized so that efforts can be directed to protect the most important assets first. Then, beginning with the highest-priority assets, the vulnerabilities of each facility or system to each type of hazard should be assessed.

For the purpose of developing a realistic prioritization of terrorism hazard mitigation projects, three elements should be considered in concert:

- Relative importance of the various facilities and systems in the asset inventory.
- Vulnerabilities of those facilities.
- Threats that are known to exist.

Critical assets and infrastructures are systems whose incapacity or destruction would have a debilitating effect on the county; this includes:

- Government services
- Emergency services
- Water supply systems
- Transportation networks
- Telecommunications infrastructure
- Electrical power systems
- Gas and oil facilities

The severity of terrorist incidents depends upon the type of method used, the proximity of the device to people, animals, or other assets and the duration of exposure to the incident or device. For example, chemical agents are poisonous gases, liquids or solids that have toxic effects on people, animals, or plants. Many chemical agents can cause serious injuries or death. Severity of injuries depends on the type and amount of the chemical agent used, and the duration of exposure.

Biological agents are organisms or toxins that have illness-producing effects on people, livestock and crops. Because some biological agents cannot be easily detected and may take time to develop, it is difficult to know that a biological attack has occurred until victims display symptoms. In other cases the effects are immediate. Those affected by a biological agent require the immediate attention of professional medical personnel. Some agents are contagious, and victims may need to be quarantined.

4.3.15.2 Range of Magnitude

Three types of terrorist activity have potential relevance to Somerset County: agriterrorism, intentional hazardous materials releases, and bomb threats. Agriterrorism is direct, intentional, generally covert contamination of food supplies or introduction of pests and/or disease agents to crops and livestock. Somerset County is semi-rural with about 32 percent of its land area dedicated to agriculture. The county also has a number of SARA Title III facilities and major transportation routes that traverse the county, making intentional hazardous materials release a potential threat to citizens and the environment. Bomb threats represent a simple way to disrupt activities at critical infrastructure facilities, major events, financial institutions, and schools.

Somerset County's worst-case terrorist activity would be the release of a hazardous material at the United Flight 93 Memorial Site. The county estimates that 500,000 people will visit the site each year, which equates to approximately 1,370 people on any given day. A special event at the site would likely draw thousands, including local, state, and high-ranking federal officials. An attack during one of these events has the potential to kill or injure thousands, cause fear in hundreds of thousands, and paralyze government operations at many levels.

Somerset County 2015 Hazard Mitigation Plan

The following is a list and description of the potential environmental impacts from terrorism, war and criminal activity hazards:

- Bodies of water and water systems could be contaminated.
- Soils could be contaminated.
- Air quality could be affected.

4.3.15.3 Past Occurrence

Somerset County has experienced terrorist incidents in the past. The most notable incident was United Flight 93 on September 11, 2001, near Shanksville, which resulted in a Governor's Proclamation of Disaster Emergency for the County.

In 2002, one terrorist incident (i.e., bomb threat) was reported to PEMA. In 2001, four were reported (according to PEMA, Bureau of Operations, EOC Annual Report and Monthly Incident Summary). There was one bomb threat in 2004, two in 2005, one in 2006, and two in 2007.

Table 4.3.15-1 is a listing of the terrorism or criminal acts that have occurred in Somerset County that have been identified in Knowledge Center.

Table 4.3.15-1: Terrorism or criminal acts in Somerset County		
Date	Location	Event
11/5/09	Somerset Borough	Armed robbery
7/28/10	Somerset Borough	Barricaded person.
11/16/11	Jennerstown Borough	Robbery
11/17/11	Shade Township	Bomb threat at the Shade High School.
12/12/12	Shade Township	Bomb threat at the school.
5/23/13	Somerset Township	Civil disorder- CERT activity at SCI-Somerset.
6/26/13	Meyersdale Borough	Live grenade found.
10/7/13	Berlin Borough	Bomb threat.
11/6/13	Somerset Borough	Bomb threat at Somerset Area High School
12/31/13	Somerset Borough	Protester at a county building.
5/31/14	Somerset Borough	Shooting incident.
6/6/14	Shade Township	Terroristic threats at Shade High School.
7/14/14	Somerset Township	Threats against the County Assistance Office
Source: Knowledge Center™ reports		

4.3.15.4 Future Occurrence

An important consideration in estimating the likelihood of a terrorist incident is the existence of facilities, landmarks, or other buildings of national importance. Somerset County has many notable local landmarks and one major landmark of national significance: the crash site of United Flight 93 on September 11, 2001. The site has been a tourist attraction since being released from federal law enforcement, and a permanent memorial has been developed at the site. The symbolism of the site makes it a possible target for future terrorist activity.

4.3.15.5 Vulnerability Assessment

With the exception of the federal facilities listed above, Somerset County does not have facilities, buildings, or landmarks of national importance that are more likely to be terrorism targets than other areas in the United States. Notable county landmarks are of a local historical interest. Of greater concern to the community may be attacks against local critical facilities, agriterrorism, and intentional hazardous material releases. Intentional hazardous material releases are possible at the many SARA Title III facilities found throughout the county and along the major transportation routes that traverse the county. These releases would affect population centers as well as water supply areas.

With the exception of the crash of Flight 93, terrorism and criminal events have been isolated to individual facilities within the county. Therefore, each critical facility must be individually assessed for its vulnerability to a terrorist or criminal event.

4.3.16 Levees

4.3.16.1 Location and Extent

In 2009 FEMA completed an inventory of all known levees across Pennsylvania, with an update in 2014, known as the Mid-Term Levee Inventory (MLI). Levee data gathered in the MLI is first and foremost for structures designed to protect from the 1%-annual-chance flood event. Areas behind a maintained and certified levee that is designed to protect from a 1%-annual-chance flood is called a Levee Protected Area. The MLI does not include every levee, especially small levees and agricultural levees.

Flood waters will ultimately inundate the protected area landward of the levee in the event of a failure. The extent of inundation is dependent on the intensity of flooding. Buildings located nearest the levee overtopping or breach location will suffer the most damage from the initial embankment failure flood wave. Landward buildings will be damaged by inundation.

Levees require maintenance to continue to provide the level of protection they were designed and built to protect. Maintenance responsibility belongs to a variety of entities including, local, state and federal government and private land owners. Levee owners need to both maintain levees and pay for an independent inspection in order to have the levee certified as providing flood protection. The impacts of an un-certified levee include levee failure and insurance rate increases because FEMA identifies that the structures are not designed to protect to the 1%-annual-chance flood height on Flood Insurance Rate Maps. Levees designed and constructed by PA DEP (Department of Environmental Protection) are then sponsored by the municipality in which it has been constructed. Sponsorship indicates the party that is responsible for the levee's operations and maintenance. Table 4.3.16.1-1 lists the identified levees in Somerset County.

Table 4.3.16.1-1 Somerset County levees per the Mid-Term Levee Inventory

Levee Identification	Primary Community	Operated by:
Flaugherty Creek Right Bank Levee/Floodwall System	Meyersdale Borough and Summit Township	Meyersdale Borough
Flaugherty Creek Left Bank Levee/Floodwall System	Meyersdale Borough	Meyersdale Borough
Casselman River Levee System (Meyersdale)	Meyersdale Borough	Meyersdale Borough
Casselman River Levee System (Rockwood)	Rockwood Borough	Rockwood Borough
Elk Lick levee System	Elk Lick Township	Elk Lick Township

Source: http://r3levees.org/wiki/images/0/02/WIKI_Region3_1072014_PAL_Tracking_Spreadsheet.pdf

4.3.16.2 Range of Magnitude

Flood-related hazards due to levees are categorized as the following:

- Overtopping – where the water level rises over the top of the levee;
- Back-ending – where the water flows around the back of the levee outside of the edge of the levee system;
- Total failure – where the levee structure itself fails.

A levee failure causes flooding in landward areas adjacent to the levee system. Properties located in the area of reduced-risk landward of a levee system area not subject to the mandatory flood insurance purchase requirement of the National Flood Insurance Program. Therefore, regardless of whether a levee is accredited, there is concern that properties in these areas lack flood insurance. In the event of a failure, it is likely that flooded properties will not be insured.

The following is a list and description of the potential environmental impacts from a levee failure:

- Flooding could pose an air, water and/or soil contamination if hazardous materials are compromised in the flooding.
- Flood waters will back up sanitary sewer systems
- Water will inundate waste water treatments plans, causing raw sewage to contaminate residential and commercial buildings and the flooding waterway.
- Water supplies and waste water treatment could be off-line for a long period of time.
- Contaminated sediment must be removed from buildings and properties.

4.3.16.3 Past Occurrence

There is no comprehensive list of levee failures in Pennsylvania, and historically few, if any, have been reported. Somerset County has not reported levee failures.

4.3.16.4 Future Occurrence

Given certain circumstances, a levee failure can occur at any time. However, the probability of future occurrence can be reduced through proper design, construction and maintenance measures. Without proper maintenance, the age of a levee can increase the potential for failures. Further documentation of levees and levee failures will, over time, provide more information on this hazard.

4.3.16.5 Vulnerability Assessment

The vulnerability for levee failures is directly related to the population in landward areas adjacent to the levee system. The more populated an area the more vulnerable it is to a levee failure. Areas that are in the reduced-risk landward that do not have flood insurance are more vulnerable to property loss in an inundation event. Levees and vulnerable population are identified on the municipal flood maps located in **Appendix D**.

4.4 Hazard Vulnerability Summary

Ranking hazards helps communities set goals and priorities for mitigation based on their vulnerabilities. For the 2004 HMP, the Hazard Mitigation Planning Committee (HMPC) researched the hazards that affect Somerset County through gathering input from residents, state agencies (e.g., PEMA and the Pennsylvania Department of Conservation and Natural Resources [DCNR]), federal agencies (e.g., United States Geological Survey [USGS], National Weather Service), and other sources. The HMPC then ranked the hazards that impacted the County based on individual input.

For this update, a quantitative method known as the Risk Factor (RF) calculation was used to rank hazards that affect the County. The RF calculation described in this section is a tool used to measure the degree of risk for identified hazards in a particular planning area. The RF can also be used to assist local community officials in ranking and prioritizing those hazards that pose the most significant threat to their area based on a variety of factors deemed important by the Hazard Mitigation Steering Committee in the hazard mitigation planning process.

4.4.1 Methodology

Ranking hazards helps communities set goals and priorities for mitigation based on their vulnerabilities. A risk factor (RF) is a tool used to measure the degree of risk for identified hazards in a particular planning area. The RF can also assist local community officials in ranking and prioritizing hazards that pose the most significant threat to a planning area based on a variety of factors deemed important by the planning team and other stakeholders involved in the hazard mitigation planning process. The RF system relies mainly on historical data, local knowledge, general consensus from the planning team, and information collected through development of the hazard profiles included in Section 4.3. The RF approach produces numerical values that allow identified hazards to be ranked against one another; the higher the RF value, the greater the hazard risk.

Somerset County 2015 Hazard Mitigation Plan

RF values were obtained by assigning varying degrees of risk to five categories for each of the hazards profiled in the HMP update. Those categories include *probability, impact, spatial extent, warning time, and duration*. Each degree of risk was assigned a value ranging from one to four. The weighting factor agreed upon by the planning team is shown in Table 4.4-1. To calculate the RF value for a given hazard, the assigned risk value for each category was multiplied by the weighting factor. The sum of all five categories equals the final RF value, as demonstrated in the following example equation:

$$\text{Risk Factor Value} = [(Probability \times .30) + (Impact \times .30) + (Spatial \text{ Extent} \times .20) + (Warning \text{ Time} \times .10) + (Duration \times .10)]$$

Table 4.4-1 summarizes each of the five categories used for calculating a RF for each hazard. According to the weighting scheme applied, the highest possible RF value is 4.0.

Table 4.4-1: Summary of Risk Factor approach used to rank hazard risk.

Risk Assessment Category	Degree of Risk			Weight Value
	Level	Criteria	Index	
PROBABILITY <i>What is the likelihood of a hazard event occurring in a given year?</i>	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1% & 49.9% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 50% & 90% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY	GREATER THAN 90% ANNUAL PROBABILITY	4	
IMPACT <i>In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?</i>	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.	1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.	2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.	3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.	4	
SPATIAL EXTENT <i>How large of an area could be impacted by a hazard event? Are impacts localized or regional?</i>	NEGLIGIBLE	LESS THAN 1% OF AREA AFFECTED	1	20%
	SMALL	BETWEEN 1 & 10.9% OF AREA AFFECTED	2	
	MODERATE	BETWEEN 11 & 25% OF AREA AFFECTED	3	
	LARGE	GREATER THAN 25% OF AREA AFFECTED	4	

Somerset County 2015 Hazard Mitigation Plan

Table 4.4-1: Summary of Risk Factor approach used to rank hazard risk.

Risk Assessment Category	Degree of Risk			Weight Value
	Level	Criteria	Index	
WARNING TIME <i>Is there usually some lead time associated with the hazard event? Have warning measures been implemented?</i>	MORE THAN 24 HRS	SELF-DEFINED	(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)	1
	12 TO 24 HRS	SELF-DEFINED		2
	6 TO 12 HRS	SELF-DEFINED		3
	LESS THAN 6 HRS	SELF-DEFINED		4
DURATION <i>How long does the hazard event usually last?</i>	LESS THAN 6 HRS	SELF-DEFINED	(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)	1
	LESS THAN 24 HRS	SELF-DEFINED		2
	LESS THAN 1 WEEK	SELF-DEFINED		3
	MORE THAN 1 WEEK	SELF-DEFINED		4

4.4.2 Ranking Results

Using the methodology described in Section 4.4.1, Table 4.4-2 lists the risk factor calculated for each of the sixteen (16) potential hazards identified in the 2015 HMP. It should be noted that the tornado hazard and windstorm hazard were ranked individually instead of together and flooding was ranked according to flash flooding, river flooding and ice jam flooding. Hazards identified as *high* risk have risk factors greater than 2.5. Risk Factors ranging from 2.0 to 2.4 were deemed *moderate* risk hazards. Hazards with Risk Factors 1.9 and less are considered *low* risk.

Table 4.4-2: Somerset County Hazard Ranking Based on RF Methodology.

HAZARD RISK	HAZARD NATURAL(N) OR MAN-MADE(M)	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	ECONOMIC IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Flood (N)	4	4	4	3	4	3.9
	Winter Storms (N)	4	4	4	3	4	3.9
	Wind Storms (N)	4	4	4	4	1	3.7
	Flash Flood (N)	4	4	3	4	2	3.6
	Environmental hazards fixed facility (M)	4	4	2	4	3	3.5
	Terrorism (M)	4	3	4	4	2	3.5
	Environmental hazards transportation (M)	4	3	2	4	3	3.2
	Wildfire (N)	3	3	3	4	3	3.1
	Tornadoes (N)	2	3	3	4	3	2.8
	Utility Interruptions (M)	3	2	2	4	3	2.6
	Transportation Accidents (M)	4	1	2	4	2	2.5

Somerset County 2015 Hazard Mitigation Plan

Table 4.4-2: Somerset County Hazard Ranking Based on RF Methodology.

HAZARD RISK	HAZARD NATURAL(N) OR MAN-MADE(M)	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	ECONOMIC IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
MODERATE	Ice Jam Flooding (N)	2	3	2	2	3	2.4
	Drought (N)	1	2	4	1	4	2.2
	Pandemic and Infectious Disease (N)	1	2	4	1	4	2.2
	Hailstorms (N)	1	2	4	3	1	2.1
	Hurricane/Tropical Storm (N)	1	2	4	1	2	2
	Earthquake (N)	1	1	4	4	1	1.9
LOW	Subsidence and Sinkholes (N)	1	2	1	4	4	1.9
	Levees (M)	1	2	1	2	3	1.6
	Radon Exposure (N)	1	1	1	4	1	1.3

Based on these results, there are eleven (11) *high* risk hazards, five (5) *moderate* risk hazards and eight (4) *low* risk hazards in Somerset County. Mitigation actions were developed for all high, moderate, and low risk hazards (see Section 6.4). The threat posed to life and property for moderate and high risk hazards is considered significant enough to warrant the need for establishing hazard-specific mitigation actions. Mitigation actions related to future public outreach and emergency service activities are identified to address low risk hazard events.

A risk assessment result for the entire county does not mean that each municipality is at the same amount of risk to each hazard. Table 4.4-3 shows the different municipalities in Somerset County and their assessment of risk to hazards. A municipality hazard identification and risk evaluation worksheet was provided to all municipalities for completion. In part 1 of the worksheet, all hazards that were profiled in the current hazard mitigation plan were listed. The municipalities then identified if the frequency of occurrence, magnitude of impact and geographic extent had increased, decreased or had no change. The results are identified in Table 4.4-3 below. I = Increase, D = Decrease, NC = No Change.

In part 2 of the worksheet, a list of all natural and human-made hazards were listed. The municipalities were instructed to select hazards that have the potential to affect the municipality. The results of part 2 are identified in Table 4.4-4 below.

Extreme Temperatures, Expansive Soils, Lightning Strike, Building/Structure Collapse, Disorientation, Drowning, War/Criminal Activity, Dam Failure and Civil Disturbance hazards were identified by some municipalities. The Somerset County Project Team and the consulting firm completed research on these hazards. After review of past events and other data for each of these hazards, profiling of these hazards during the 2015 hazard mitigation plan update was

Somerset County 2015 Hazard Mitigation Plan

not recommended by the local planning team. Additional research on these hazards will be conducted during the next mitigation planning period. Historical data and related activity will be analyzed and documented for the next mitigation plan update. Information and data will be gathered from the municipalities that identified these hazards as new threats. Updating to the 2015 hazard mitigation plan will be completed as needed.

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-3: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
Hazards Profiled in the 2010 Somerset County Hazard Mitigation Plan**

Municipality	Flooding	Severe Wind Storms	Severe Winter Storms	Wildfires	Environmental Hazards	Terrorism	Drought	Earthquakes	Subsidence & Sinkholes	Hail storms
Addison Borough	Did Not Complete									
Addison Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Allegheny Township	Did Not Complete									
Benson Borough	Did Not Complete									
Berlin Borough	Did Not Complete									
Black Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Boswell Borough	Did Not Complete									
Brothersvalley Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Callimont Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Casselman Borough	Did Not Complete									
Central City Borough	Did Not Complete									
Conemaugh Township	I	NC	NC	NC	NC	NC	NC	NC	NC	
Confluence Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-3: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
Hazards Profiled in the 2010 Somerset County Hazard Mitigation Plan**

Municipality	Flooding	Severe Wind Storms	Severe Winter Storms	Wildfires	Environmental Hazards	Terrorism	Drought	Earthquakes	Subsidence & Sinkholes	Hail storms
Elk Lick Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Fairhope Township	Did Not Complete									
Garrett Borough	Did Not Complete									
Greenville Township	Did Not Complete									
Hooversville Borough	Did Not Complete									
Indian Lake Borough	D	NC	NC	NC	D	NC	NC	NC	NC	NC
Jefferson Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Jenner Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Jennerstown Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Larimer Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Lincoln Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Lower Turkeyfoot Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Meyersdale Borough	Did Not Complete									
Middlecreek Township	Did Not Complete									

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-3: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
Hazards Profiled in the 2010 Somerset County Hazard Mitigation Plan**

Municipality	Flooding	Severe Wind Storms	Severe Winter Storms	Wildfires	Environmental Hazards	Terrorism	Drought	Earthquakes	Subsidence & Sinkholes	Hail storms
Milford Township	Did Not Complete									
New Baltimore Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
New Centerville Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Northampton Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Ogle Township	Did Not Complete									
Paint Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Paint Township	I	NC	NC	NC	NC	NC	NC	I	NC	NC
Quemahoning Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Rockwood Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Salisbury Borough	NC	NC	NC	NC	I	I	NC	NC	NC	NC
Seven Springs Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Shade Township	Did Not Complete									
Shanksville Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-3: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
Hazards Profiled in the 2010 Somerset County Hazard Mitigation Plan**

Municipality	Flooding	Severe Wind Storms	Severe Winter Storms	Wildfires	Environmental Hazards	Terrorism	Drought	Earthquakes	Subsidence & Sinkholes	Hail storms
Somerset Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Somerset Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Southampton Township	I	NC	NC	NC	NC	NC	NC	NC	NC	NC
Stoneycreek Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Stoystown Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Summit Township	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Upper Turkeyfoot Township	NC	NC	NC	D	D	NC	D	NC	NC	NC
Ursina Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC
Wellersburg Borough	Did Not Complete									
Windber Borough	NC	NC	NC	NC	NC	NC	NC	NC	NC	NC

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-4: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
New Hazards for the 2015 Somerset County Hazard Mitigation Plan Update**

Municipality	Extreme Temperature	Hurricane / Tropical Storms	Landslide	Expansive Soils	Invasive Species	Lightning Strike	Radon Exposure	Building / Structure Collapse	Disorientation	Urban Fire /Explosion	Drowning	War / Criminal Activity	Transportation Accidents	Utility Interruption	Dam Failure	Civil Disturbance	Pandemic	Levee Failure
Addison Borough	Did Not Complete																	
Addison Township	No New Hazards Identified																	
Allegheny Township	Did Not Complete																	
Benson Borough	Did Not Complete																	
Berlin Borough	Did Not Complete																	
Black Township	No New Hazards Identified																	
Boswell Borough	Did Not Complete																	
Brothersvalley Township	No New Hazards Identified																	
Callimont Borough	No New Hazards Identified																	
Casselman Borough	Did Not Complete																	
Central City Borough	Did Not Complete																	
Conemaugh Township	X		X		X	X	X	X		X		X	X	X	X	X	X	
Confluence Borough	X	X				X			X		X		X	X	X			X
Elk Lick Township	No New Hazards Identified																	
Fairhope Township	Did Not Complete																	
Garrett Borough	Did Not Complete																	

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-4: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
New Hazards for the 2015 Somerset County Hazard Mitigation Plan Update**

Municipality	Extreme Temperature	Hurricane / Tropical Storms	Landslide	Expansive Soils	Invasive Species	Lightning Strike	Radon Exposure	Building / Structure Collapse	Disorientation	Urban Fire /Explosion	Drowning	War / Criminal Activity	Transportation Accidents	Utility Interruption	Dam Failure	Civil Disturbance	Pandemic	Levee Failure
Greenville Township	Did Not Complete																	
Hooversville Borough	Did Not Complete																	
Indian Lake Borough	No New Hazards Identified																	
Jefferson Township	No New Hazards Identified																	
Jenner Township	No New Hazards Identified																	
Jennerstown Borough	No New Hazards Identified																	
Larimer Township		X			X	X	X		X					X	X			
Lincoln Township	No New Hazards Identified																	
Lower Turkeyfoot Township	No New Hazards Identified																	
Meyersdale Borough	Did Not Complete																	
Middlecreek Township	Did Not Complete																	
Milford Township	Did Not Complete																	
New Baltimore Borough		X				X		X	X	X	X		X	X				
New Centerville	X					X	X	X		X		X	X	X				

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-4: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
New Hazards for the 2015 Somerset County Hazard Mitigation Plan Update**

Municipality	Extreme Temperature	Hurricane / Tropical Storms	Landslide	Expansive Soils	Invasive Species	Lightning Strike	Radon Exposure	Building / Structure Collapse	Disorientation	Urban Fire /Explosion	Drowning	War / Criminal Activity	Transportation Accidents	Utility Interruption	Dam Failure	Civil Disturbance	Pandemic	Levee Failure
Borough																		
Northampton Township	No New Hazards Identified																	
Ogle Township																		
Paint Borough	No New Hazards Identified																	
Paint Township								X										
Quemahoning Township			X		X	X	X	X		X				X	X			
Rockwood Borough	X												X					X
Salisbury Borough		X						X				X	X	X				
Seven Springs Borough	No New Hazards Identified																	
Shade Township	Did Not Complete																	
Shanksville Borough	No New Hazards Identified																	
Somerset Borough		X																
Somerset Township	No New Hazards Identified																	
Southampton Township	No New Hazards Identified																	
Stoneycreek Township															X			

Somerset County 2015 Hazard Mitigation Plan

**Table 4.4-4: Somerset County Municipality Hazard Identification and Risk Evaluation Worksheet Overview
New Hazards for the 2015 Somerset County Hazard Mitigation Plan Update**

Municipality	Extreme Temperature	Hurricane / Tropical Storms	Landslide	Expansive Soils	Invasive Species	Lightning Strike	Radon Exposure	Building / Structure Collapse	Disorientation	Urban Fire /Explosion	Drowning	War / Criminal Activity	Transportation Accidents	Utility Interruption	Dam Failure	Civil Disturbance	Pandemic	Levee Failure
Stoystown Borough						X								X				
Summit Township													X	X				
Upper Turkeyfoot Township		X			X	X	X	X						X				
Ursina Borough			X						X									X
Wellersburg Borough	Did Not Complete																	
Windber Borough		X								X								X

4.4.3 Potential Loss Estimates

Of the hazards profiled in Section 4.3, potential loss estimates can feasibly be obtained for floods, flash floods, and ice jams as these hazards’ vulnerability depends on geography more so than the others. Severe wind storms, severe winter storms, drought, earthquakes, wildfires and hailstorms will affect the entire county, or at least large portions of it. Environmental hazards affect the residents far more than the property within the county. Impacts of these hazards are described in the environmental hazards profile, above. Terrorism, war, and criminal activity can take place at any location in the county.

Estimated flooding potential losses were calculated by determining the market value of properties within the special flood hazard area (SFHA). The assessed value of these properties was then calculated from the Somerset County Tax Assessment Database for each of the 50 municipalities. The end result of the analysis will allow reasonable determinations of the estimated potential loss in each of the 50 municipalities. The results of this assessment are presented in table 4.4-5 below. The estimated losses can only be presented as potential, based on the random occurrence of hazard conditions and limited data.

The structures in a SFHA include those based on a point within a two-dimensional (longitude and latitude) plane. This data, however, does not include attribute information such as first-floor flood elevations, which is essential to assess the base flood elevation’s impact on the county’s infrastructure. As a result of this limitation, the estimates are likely overstated, but to what degree the potential losses are overstated cannot be determined.

4.4.3.1 Flooding

Flooding is the most significant hazard in Somerset County, both as a direct and secondary hazard. The estimation of potential loss in this assessment focuses on the monetary damage that could result from flooding. Though potential loss due to flooding is generally based on damage to structures, the loss analysis presented below is based on total market values (i.e., land plus structures). The numbers provided below represent an overestimation of the potential loss due to flooding, but the extent of the overestimation cannot be determined. The estimated potential loss in property from flood damage was determined for each municipality and the entire county. Table 4.4-5 outlines these cost estimations.

Table 4.4-5: Somerset Structures in the SFHA Potential Loss Estimates				
Municipality	Structures in SFHA	Land Market Value	Building Market Value	Total Market Value
Addison Borough	0	\$0	\$0	\$0
Addison Township	42	\$816,950	\$922,530	\$1,739,480
Allegheny Township	24	\$314,070	\$566,930	\$881,000
Benson Borough	35	\$154,560	\$861,990	\$1,016,550
Berlin Borough	0	\$0	\$0	\$0
Black Township	9	\$218,710	\$169,600	\$388,310
Boswell Borough	0	\$0	\$0	\$0
Brothersvalley Township	7	\$219,650	\$186,860	\$406,510
Callimont Borough	0	\$0	\$0	\$0

Somerset County 2015 Hazard Mitigation Plan

Table 4.4-5: Somerset Structures in the SFHA Potential Loss Estimates

Municipality	Structures in SFHA	Land Market Value	Building Market Value	Total Market Value
Casselman Borough	5	\$15,450	\$32,570	\$48,020
Central City Borough	33	\$178,840	\$1,166,740	\$1,345,580
Conemaugh Township	154	\$2,082,500	\$7,134,560	\$9,217,060
Confluence Borough	11	\$94,170	\$641,330	\$735,500
Elk Lick Township	57	\$653,710	\$3,251,470	\$3,905,180
Fairhope Township	18	\$276,450	\$275,220	\$551,670
Garrett Borough	59	\$337,240	\$1,520,830	\$1,858,070
Greenville Township	6	\$121,270	\$110,810	\$232,080
Hooversville Borough	75	\$458,560	\$2,096,690	\$2,555,250
Indian Lake Borough	2	\$30,530	\$57,120	\$87,650
Jefferson Township	28	\$2,049,590	\$2,119,510	\$4,169,100
Jenner Township	44	\$1,128,000	\$3,105,060	\$4,233,060
Jennerstown Borough	5	\$418,460	\$1,025,200	\$1,443,660
Larimer Township	11	\$214,380	\$481,360	\$695,740
Lincoln Township	24	\$277,700	\$440,880	\$718,580
Lower Turkeyfoot Township	30	\$527,360	\$1,267,780	\$1,795,140
Meyersdale Borough	20	\$201,770	\$790,150	\$991,920
Middlecreek Township	49	\$3,195,800	\$2,548,170	\$5,743,970
Milford Township	11	\$101,950	\$276,330	\$378,280
New Baltimore Borough	22	\$102,800	\$589,680	\$692,480
New Centerville Borough	0	\$0	\$0	\$0
Northampton Township	13	\$804,200	\$342,140	\$1,146,340
Ogle Township	6	\$240,160	\$263,260	\$503,420
Paint Borough	1	\$4,280	\$0	\$4,280
Paint Township	25	\$416,360	\$843,170	\$1,259,530
Quemahoning Township	71	\$882,630	\$1,864,360	\$2,746,990
Rockwood Borough	19	\$142,420	\$645,530	\$787,950
Salisbury Borough	0	\$0	\$0	\$0
Seven Springs Borough	0	\$0	\$0	\$0
Shade Township	20	\$286,220	\$566,310	\$852,530
Shanksville Borough	19	\$96,100	\$810,700	\$906,800
Somerset Borough	86	\$3,786,110	\$9,980,000	\$13,766,110
Somerset Township	79	\$1,241,640	\$4,757,890	\$5,999,530
Southampton Township	22	\$283,650	\$492,180	\$775,830
Stoneycreek Township	84	\$1,151,900	\$3,094,270	\$4,246,170
Stoystown Borough	0	\$0	\$0	\$0
Summit Township	68	\$1,512,510	\$2,661,440	\$4,173,950
Upper Turkeyfoot Township	39	\$294,860	\$736,050	\$1,030,910

Municipality	Structures in SFHA	Land Market Value	Building Market Value	Total Market Value
Ursina Borough	15	\$120,110	\$377,940	\$498,050
Wellersburg Borough	2	\$22,220	\$26,780	\$49,000
Windber Borough	146	\$1,122,530	\$7,720,920	\$8,843,450
Totals	1496	\$26,598,370	\$66,822,310	\$93,420,680

In addition to the above analysis (which is based on local data), the flood loss estimates were determined using FEMA's HAZUS-MH software. The results of that analysis are provided in **Appendix J**. The flood study provided estimates of total economic loss, building damage, content damage, and other economic impacts that can be used in local flood response and mitigation planning activities. While this information is extremely valuable, potential loss estimates due to flooding were recalculated using HAZUS-MH during development of the updated HMP.

4.4.4 Future Development and Vulnerability

An examination of development trends helps to identify and anticipate future vulnerabilities to hazards that may affect the county's growth and development. Analysis of changes in population and demographics is provided in Section 2.3.

Impervious surface coverage data from 1985 and 2000 was analyzed to determine static development trends and developing areas in relation to floodplain proximity. This combined information produces a more accurate depiction of the county's historical growth trends.

A comparison of impervious surface coverage data provides another method of detecting change in Somerset County's growth and development patterns. Impervious surface data, estimated from Thematic Mapper data using algorithms developed by Dr. Toby Carlson at University Park, Pennsylvania, was originally generated to support hydrologic investigations. This data is also useful for assessing urbanization and development patterns over time. Impervious surfaces primarily reflect the urban and built environments and include rooftops, sidewalks, roads, and parking lots.

By examining impervious surface coverage data, recent development trends in relation to floodplain proximity can be ascertained. This may generate recommendations to examine certain areas in more detail to better mitigate specific hazardous threats, such as flooding or transportation accidents, or hazardous material spills.

Development can often change the hazard threat level of an area by placing additional critical facilities, businesses, transportation networks, and populations within vulnerable areas. Any development along transportation routes can increase the vulnerability to transportation incidents and hazardous material spills. Most often, development occurs along these transportation networks because of access and increased demand for travel and access to services. Therefore, the impact of these hazards can increase along with their frequency.

Somerset County 2015 Hazard Mitigation Plan

While it can be difficult to curb development, it is to the municipality's advantage to be aware of development trends in order to successfully mitigate future hazards as risks increase.

Figures 4.4-6 and 4.4-7 illustrate the change in impervious surface coverage from 1985 to 2000 across Somerset County. According to the graphics, in 1985 Somerset County was significantly developed in Central City, Meyersdale, Paint, Boswell, Salisbury, Somerset, and Windber Boroughs, and along Routes PA-31, US-219, and I-70/76 outside of Somerset Borough.

The 2000 impervious surface coverage, shown in Figure 4.4-7 illustrates expanded development in each of those areas, as well as in Addison Township near Somerfield, Jenner Township in the area of Bakersville, Jennerstown Borough, Middlecreek Township near Trent and Kimmel, and Shade Township in Cairnbrook north of Central City Borough. Specific data to describe the types and numbers of future buildings, infrastructure, and critical facilities in the hazard areas was not available. However, any planned development of these structures should include an examination of the hazard areas identified in this HMP.

No new impervious surface coverage data was available for the 2015 mitigation plan update.

Figure 4.4-6: 1985 Impervious Surface Coverage

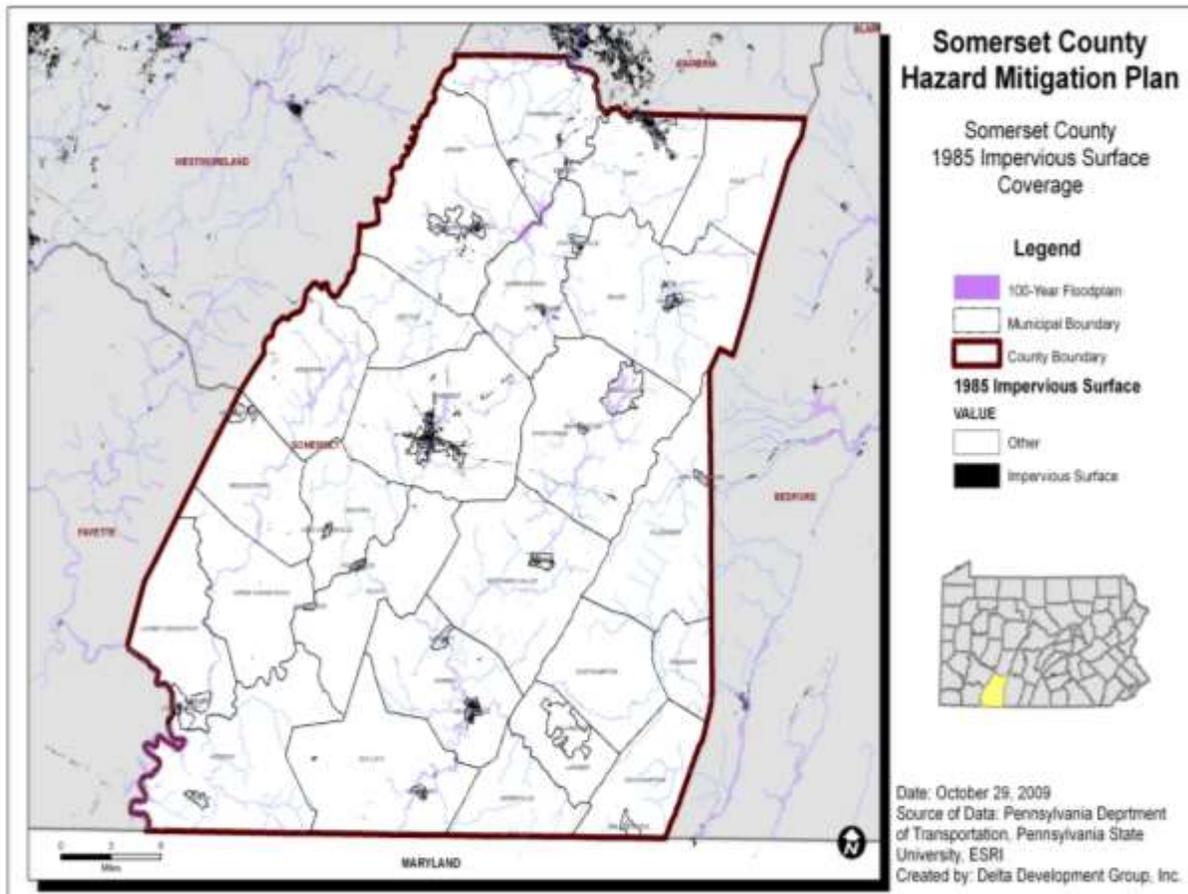
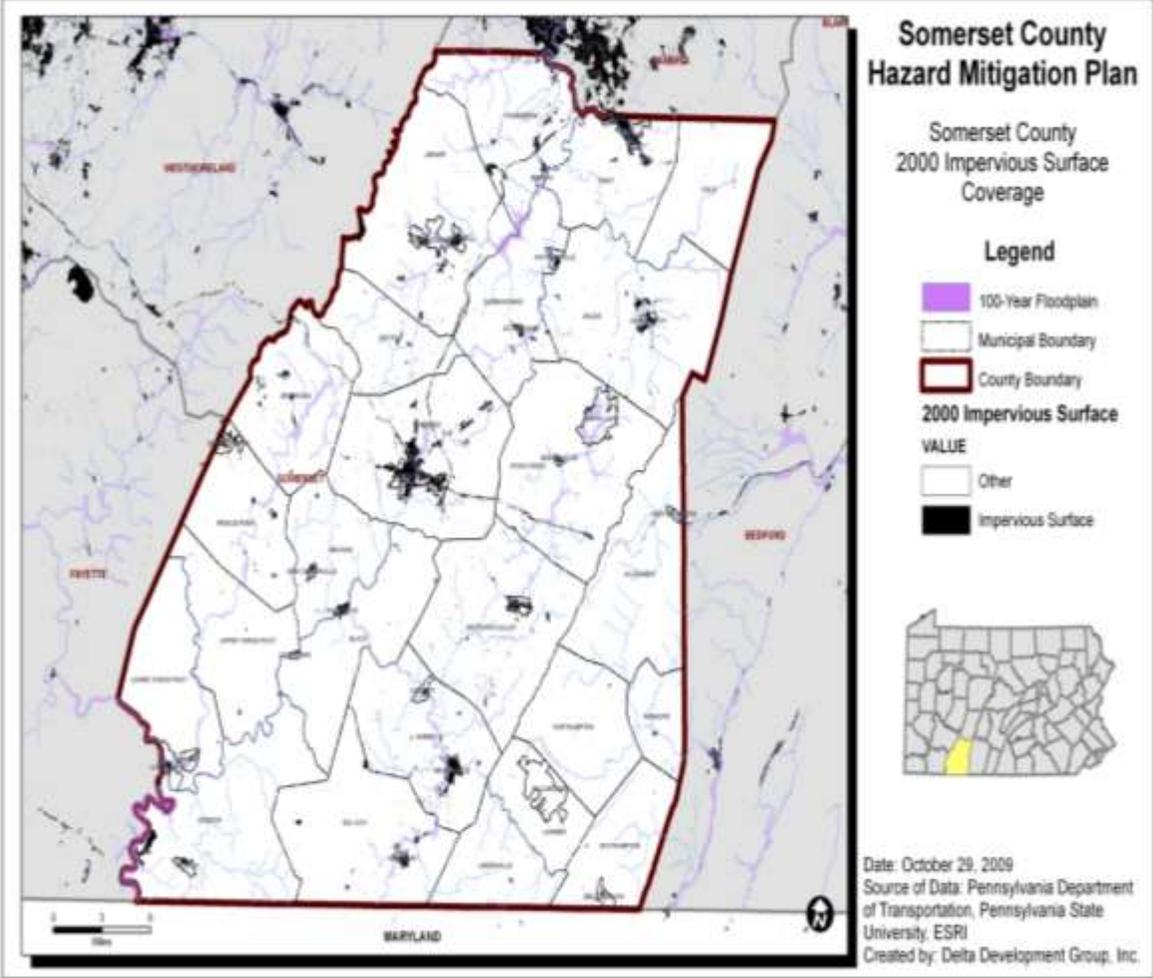


Figure 4.4-7: 2000 Impervious Surface Coverage



5 Capability Assessment

5.1 Update Process Summary

The capability assessment is an evaluation of Somerset County's governmental structure, political framework, legal jurisdiction, fiscal status, policies and programs, regulation and ordinances and resource availability. Each category is evaluated for its strengths and weaknesses in responding to, preparing for and mitigating the effects of the profiled hazards. The capability assessment has two components: an inventory of the county's and municipalities' missions, programs and policies; and, an analysis of their capacity to execute them. A capability assessment is an integral part of the hazard mitigation planning process. Here, the county and municipalities identify, review and analyze what they are currently doing to reduce losses and identify the framework necessary to implement new mitigation actions. This information will help the county and municipalities evaluate alternative mitigation actions and address shortfalls in the mitigation plan.

A capabilities assessment matrix/questionnaire was provided to the municipalities during the planning process at meetings of Somerset County officials. These meetings were designed to seek input from key county and municipal stakeholders on legal, fiscal, technical and administrative capabilities of all jurisdictions. As such, the capabilities assessment helps guide the implementation of mitigation projects and will help evaluate the effectiveness of existing mitigation measures, policies, plans, practices and programs.

Throughout the planning process, the mitigation local planning team considered the county's fifty (50) municipalities. Pennsylvania municipalities have their own governing bodies, pass and enforce their own ordinances and regulations, purchase equipment and manage their own resources, including critical infrastructure. These capability assessments, therefore, consider the various characteristics and capabilities of municipalities under study. Additionally, NFPA 1600 recommends that a corrective action program be established to address shortfalls and provide mechanisms to manage the capabilities improvement process.

The evaluation of the categories listed above – political framework, legal jurisdiction, fiscal status, policies and programs and regulation and ordinances – allows the mitigation planning team to determine the viability of certain mitigation actions. The capability assessment analyzes what Somerset County and its municipalities have the capacity to do and provides an understanding of what must be changed to mitigate loss.

Somerset County has a number of resources it can access to implement hazard mitigation initiatives including emergency response measures, local planning and regulatory tools, administrative assistance and technical expertise, fiscal capabilities and participation in local, regional, state and federal programs. The presence of these resources enables community resiliency through actions taken before, during and after a hazardous event. While the capability assessment serves as a good instrument for identifying local capabilities, it also provides a means for recognizing gaps and weaknesses that can be resolved through future mitigation actions. The results of this assessment lend critical information for developing an effective mitigation strategy.

5.2 Capability Assessment Findings

All Somerset County municipalities were asked to complete a Capability Assessment Survey. Of the 50 municipalities in the County, only 33 completed or partially completed and submitted a survey. Below are descriptions of the items listed in the Capabilities Assessment survey. The County's and each municipality's response to the survey can be found in Table 5.2-1.

5.2.1 Emergency Management

Emergency Management is a comprehensive, integrated program of mitigation, preparedness, response and recovery for emergencies/disasters of any kind. No public or private entity is immune to disasters and no single segment of society can meet the complex needs of a major emergency or disaster on its own.

The Somerset County Emergency Management Agency coordinates county-wide emergency management efforts. Each municipality has a designated local emergency management coordinator who possesses a unique knowledge of the impact that hazard events have on their community.

The Emergency Management Services Code (PA Title 35) requires that all municipalities in the Commonwealth have a Local Emergency Operations Plan (EOP) which is updated every two years. Of the 33 municipalities in the county that responded 7 have adopted by resolution the Somerset County Emergency Operations Plan (EOP) as the municipal plan. 26 of the municipalities have adopted or are in the process of developing a municipal EOP.

Somerset County's EOP, updated and adopted in 2015, is an all-hazards plan that complies with the National Incident Management System (NIMS) and is the basis for a coordinated and effective response to any disaster that may affect lives and property in Somerset County. The EOP, or portions thereof, would be implemented when emergency circumstances warrant it.

5.2.1.1 StormReady

StormReady is a program administered by the National Weather Service (NWS). To be certified as StormReady, a community must establish links to the NWS's warning systems and relationships with NWS staff, establish a 24-hour warning point, ensure sufficient capability to respond to severe weather events, and provide public outreach and education.

5.2.2 Participation in the National Flood Insurance Program (NFIP)

5.2.2.1 National Flood Insurance Program

Floodplain management is the operation of programs or activities that may consist of both corrective and preventive measures for reducing flood damage, including but not limited to such things as emergency preparedness plans, flood control works and flood plain management regulations. The Pennsylvania Floodplain Management Act (Act 166) requires every municipality identified by the Federal Emergency Management Agency (FEMA) to participate in the National Flood Insurance Program (NFIP) and permits all municipalities to adopt floodplain

Somerset County 2015 Hazard Mitigation Plan

management regulations. It is in the interest of all property owners in the floodplain to keep development and land usage within the scope of the floodplain regulations for their community. This helps keep insurance rates low and makes sure that the risk of flood damage is not increased by property development.

The Pennsylvania Department of Community & Economic Development (DCED) provides communities, based on their CFR, Title 44, Section 60.3 level or regulations, with a suggested ordinance document to assist municipalities in meeting the minimum requirements of the NFIP along with the Act 166. These suggested or model ordinances contain provisions that are more restrictive than state and federal requirements. Suggested provisions include, but are not limited to:

- Prohibiting manufactured homes in the floodway.
- Prohibiting manufactured homes within the area measured 50 feet landward from the top-of bank of any watercourse within a special flood hazard area.
- Special requirements for recreational vehicles within the special flood hazard area.
- Special requirements for accessory structures.
- Prohibiting new construction and development within the area measured 50 feet landward from the top-of bank of any watercourse within a special flood hazard area.
- Providing the County Conservation District an opportunity to review and comment on all applications and plans for any proposed construction or development in any identified floodplain area.

Act 166 mandates municipal participation in and compliance with the NFIP. It also establishes higher regulatory standards for new or substantially improved structures which are used for the production or storage of dangerous materials (as defined by Act 166) by prohibiting them in the floodway. Additionally, Act 166 establishes the requirement that a special permit be obtained prior to any construction or expansion of any manufactured home park, hospital, nursing home, jail and prison if said structure is located within a special flood hazard area.

The NFIP's Community Rating System (CRS) provides discounts on flood insurance premiums in those communities that establish floodplain management programs that go beyond NFIP minimum requirements. Under the CRS, communities received credit for more restrictive regulations; acquisition, relocations, or flood-proofing of flood-prone buildings; preservation of open space; and other measures that reduce flood damages or protect the natural resources and functions of floodplains.

The CRS was implemented in 1990 to recognize and encourage community floodplain management activities that exceed the minimum NFIP standards. Section 541 of the 1994 Act amends Section 1315 of the 1968 Act to codify the Community Rating System in the NFIP. The section also expands the CRS goals to specifically include incentives to reduce the risk of flood-related erosion and to encourage measures that protect natural and beneficial floodplain functions. These goals have been incorporated into the CRS and communities now receive credit toward premium reductions for activities that contribute to them.

Somerset County 2015 Hazard Mitigation Plan

Under the Community Rating System, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet a minimum of three of the following CRS goals:

- Reduce flood losses.
- Protect public health and safety.
- Reduce damage to property.
- Prevent increases in flood damage from new construction.
- Reduce the risk of erosion damage.
- Protect natural and beneficial floodplain functions.
- Facilitate accurate insurance rating.
- Promote the awareness of flood insurance.

There are 10 Community Rating System classes: Class 1 requires the most credit points and gives the largest premium reduction; Class 10 receives no premium reduction. CRS premium discounts on flood insurance range from five percent for Class 9 communities up to 45 percent for Class 1 communities. The CRS recognizes 18 creditable activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction and Flood Preparedness.

All of the County’s municipalities except Addison, Berlin, New Centerville, Seven Springs, and Stoystown Boroughs participate in the NFIP. These boroughs are not located within the 1% chance floodplain and have no identified flood hazard.

Of the 33 out of 50 municipalities that responded to the survey 21 indicated that they participate in the NFIP-CRS program in Somerset County. Table 5.2-1 identifies each municipality for floodplain compliancy and NFIP participation. (The shaded areas in the table indicate that the municipality did not return a survey. Information presented was garnered from other resources.)

Table 5.2-1: Summary of planning tools adopted by each municipality in Somerset County (HMP Capability Assessment Surveys, 2014: Somerset County Planning Department 2014)

Community	COMPREHENSIVE PLAN	PLAN YEAR ADOPTED	BUILDING CODE	NFIP PARTICIPANT	FLOODPLAIN ORDINANCE	SUBDIVISION & LAND DEVELOPMENT ORDINANCE	S&LDO YEAR ADOPTED	ZONING ORDINANCE	ZONING YEAR ADOPTED
Addison Borough	N		Y			N		N	
Addison Township	N		Y	Y		N			
Allegheny Township	N		Y			N			
Benson Borough	N		Y			N			

Somerset County 2015 Hazard Mitigation Plan

Table 5.2-1: Summary of planning tools adopted by each municipality in Somerset County (HMP Capability Assessment Surveys, 2014: Somerset County Planning Department 2014)

Community	COMPREHENSIVE PLAN	PLAN YEAR ADOPTED	BUILDING CODE	NFIP PARTICIPANT	FLOODPLAIN ORDINANCE	SUBDIVISION & LAND DEVELOPMENT ORDINANCE	S&LDO YEAR ADOPTED	ZONING ORDINANCE	ZONING YEAR ADOPTED
Berlin Borough	N		Y			N			
Black Township	CO		Y	Y		Y	2004		
Boswell Borough	Y		Y			Y			
Brothers Valley Township	N		Y			N			
Callimont Borough	Y		Y			Y			
Casselman Borough	N		N			N			
Central City Borough	N		Y			N			
Conemaugh Township	N		Y	Y	Y	Y	1990		
Confluence Borough	N		Y		Y	N			
Elk Lick Township	Y		Y	Y	Y	CO			
Fairhope Township	N		Y			N			
Garrett Borough	N		Y			N			
Greenville Township	N		Y			N			
Hooversville Borough	N		Y			N			
Indian Lake	N		Y	Y	Y	CO			
Jefferson Township	CO		Y	Y	Y	CO		N	
Jenner Township	N		Y	Y	Y	CO		Y	
Jennerstown Borough	Y	2013	Y		Y	Y		Y	
Larimer Township	N		Y	Y	Y	CO		N	
Lincoln Township	CO	2006	Y	Y	Y	CO		N	
Lower Turkeyfoot Township	N		Y	Y		N		N	
Meyersdale Borough	Y		Y			N		Y	
Middlecreek Township	N		Y			N		N	
Milford Township	N		Y			N		N	
New Baltimore Borough	CO		Y	Y	Y	N		N	
New Centerville Borough	Y		Y			N		N	
Northampton Township	N		Y			N		N	
Ogle Township	N		Y			N		N	
Paint Borough	CO		Y	Y	Y	CO		Y	
Paint Township	Y		Y	Y	Y	Y	2006	N	
Quemahoning Township	N		CO			CO		N	

Somerset County 2015 Hazard Mitigation Plan

Table 5.2-1: Summary of planning tools adopted by each municipality in Somerset County (HMP Capability Assessment Surveys, 2014: Somerset County Planning Department 2014)

Community	COMPREHENSIVE PLAN	PLAN YEAR ADOPTED	BUILDING CODE	NFIP PARTICIPANT	FLOODPLAIN ORDINANCE	SUBDIVISION & LAND DEVELOPMENT ORDINANCE	S&LDO YEAR ADOPTED	ZONING ORDINANCE	ZONING YEAR ADOPTED
Rockwood Borough	N		Y	Y	Y	N		N	
Salisbury Borough	CO		Y	Y	Y	N		N	
Seven Springs Borough	N		Y	N	N	N		N	
Shade Township	N		Y			N		N	
Shanksville Borough	N		CO			CO		N	
Somerset Borough	Y	1968	Y	Y	Y	Y	1977	N	
Somerset Township	Y		Y	Y	Y	Y		Y	
Southampton Township	N		Y		Y	CO		N	
Stoneycreek Township	N		Y	Y	Y	CO	2013	N	
Stoystown Borough	N		Y			CO		N	
Summit Township	CO		Y	Y	Y	CO		N	
Upper Turkeyfoot Township	Y	1995	Y		Y	CO		N	
Ursina Borough	Y		Y	Y	Y	CO		N	
Wellersburgh Borough	N		N			N		N	
Windber Borough	Y	2006	Y	Y	Y	Y	1959	Y	

5.2.3 Planning and Regulatory Capability

Pennsylvania municipalities have the authority to govern more restrictively than the state and county minimum requirements, as long as they are in compliance with all criteria established in the Pennsylvania Municipalities Planning Code (MPC) and their respective municipal codes. Municipalities can develop their own policies and programs and implement their own rules and regulations to protect and serve their local residents. Local policies and programs are typically identified in a comprehensive plan, implemented through a local ordinance and enforced by the governmental body or its appointee.

Municipalities regulate land use via the adoption and enforcement of zoning, subdivision and land development ordinances, building codes, building permit ordinances, floodplain and/or storm-water management ordinances. When effectively prepared and administered, these regulations can lead to hazard mitigation. For example, the adoption of the NFIP and the Pennsylvania Floodplain Management Act (Act 166 of 1978) established minimum floodplain

management criteria. Adoption of Act 166 established higher standards. A municipality must adopt and enforce these minimum criteria to be eligible for participation in the NFIP.

Municipalities have the option of adopting a single-purpose ordinance or incorporating these provisions into their zoning, subdivision and land development or building codes; thereby mitigating the potential impacts of local flooding. This capability assessment details the existing Somerset County and municipal legal capabilities to mitigate the profiled hazards. It identifies the county's and the municipalities' existing planning documents and their hazard mitigation potential. Hazard mitigation recommendations are, in part, based on the information contained in the assessment.

5.2.3.1 Building Codes

Building codes are important in mitigation because they are developed for regions of the country in respect of the hazards existing in that area. Consequently, structures that are built according to applicable codes are inherently resistant to many hazards, such as strong winds, floods and earthquakes; and can help mitigate regional hazards, such as wildfires. In 2003 Pennsylvania implemented the Uniform Construction Code (UCC) (Act 45), a comprehensive building code that establishes minimum regulations for most new construction, including additions and renovations to existing structures.

The code applies to almost all buildings, excluding manufactured and industrialized housing (which are covered by other laws), agricultural buildings and certain utility and miscellaneous buildings. The UCC has many advantages. It requires builders to use materials and methods that have been professionally evaluated for quality and safety, as well as inspections to ensure compliance.

The initial election period, during which all of Pennsylvania's 2,565 municipalities were allowed to decide whether the UCC would be administered and enforced locally, officially closed on August 7, 2004. The codes adopted for use under the UCC are the 2003 International Codes issued by the International Code Council (ICC). Supplements to the 2003 codes have been adopted for use over the years since.

If a municipality has "opted in", all UCC enforcement is local, except where municipal (or third party) code officials lack the certification necessary to approve plans and inspect commercial construction for compliance with UCC accessibility requirements. If a municipality has "opted out", the PA Department of labor and Industry is responsible for all commercial code enforcement in that municipality; and all residential construction is inspected by independent third party agencies selected by the owner. The department also has sole jurisdiction for all state-owned buildings no matter where they are located. Historical buildings may be exempt from such inspections and Act 45 provides quasi-exclusion from UCC requirements.

The municipalities in Somerset County adhere to the standards of the Pennsylvania Uniform Construction Code (Act 45). All of Somerset County's municipalities have "opted in". Local residential and nonresidential code officials were required to register and obtain certification within three and five years, respectively. While some municipalities in Somerset County had already instituted building codes prior to the mandate by the Commonwealth, all 50

municipalities and the county have spent considerable time and resources retraining and becoming certified in the new requirements and revamping their administrative and enforcement procedures.

5.2.3.2 Zoning Ordinance

Article VI of the Municipalities Planning Code (MPC) authorizes municipalities to prepare and enact zoning to regulate land use. Its regulations can apply to: the permitted use of land; the height and bulk of structures; the percentage of a lot that may be occupied by buildings and other impervious surfaces; yard setbacks; the density of development; the height and size of signs; the parking regulations. A zoning ordinance has two parts, including the zoning map that delineates zoning districts and the text that sets forth the regulations that apply to each district. Every municipality is responsible for their own zoning ordinance. See Table 5.2-1.

5.2.3.3 Subdivision Ordinance

Subdivision and land development ordinances include regulations to control the layout of streets, the planning of lots and the provision of utilities and other site improvements. The objectives of a subdivision and land development ordinance are to: coordinate street patterns; assure adequate utilities and other improvements are provided in a manner that will not pollute streams, wells and/or soils; reduce traffic congestion; and provide sound design standards as a guide to developers, the elected officials, planning commissions and other municipal officials. Article V of the Municipality Planning Code authorizes municipalities to prepare and enact a subdivision and land development ordinance. Subdivision and land development ordinances provide for the division and improvement of land. Somerset County Planning Commission has the authority to approve, approve with conditions, or disapprove all subdivisions and land developments that occur in municipalities that do not have an ordinance.

In cases where municipalities have their own Subdivision and Land Development Ordinance, plans must be submitted to the County Planning Commission for review and the Planning Commission provides comments to the municipality within 30 days. See Table 5.2-1.

5.2.3.4 Stormwater Management Plan/Ordinance

The proper management of stormwater runoff can improve conditions and decrease the chance of flooding. Pennsylvania's Storm Water Management Act (Act 167) confers on counties the responsibility for development of watershed plans. The Act specifies that counties must complete their watershed stormwater plans within two years following the promulgation of these guidelines by the DEP, which may grant an extension of time to any county for the preparation and adoption of plans. Counties must prepare the watershed plans in consultation with municipalities and residents. This is to be accomplished through the establishment of a Watershed Plan Advisory Committee. The counties must also establish a mechanism to periodically review and revise watershed plans so they are current. Plan revisions must be done every five years or sooner, if necessary.

Municipalities have an obligation to implement the criteria and standards developed in each watershed stormwater management plan by amending or adopting laws and regulation for land

Somerset County 2015 Hazard Mitigation Plan

use and development. The implementation of stormwater management criteria and standards at the local level are necessary, since municipalities are responsible for local land use decisions and planning. The degree of detail in the ordinances depends on the extent of existing and projected development. The watershed stormwater management plan is designed to aid the municipality in setting standards for the land uses it has proposed. Municipalities within rapidly developing watersheds will benefit from the watershed stormwater management plan and will use the information for sound land use considerations. A major goal of the watershed plan and the attendant municipal regulations is to prevent future drainage problems and avoid the aggravation of existing problems.

There are 15 watersheds within Somerset County:

- Coxes Creek
- Stony Creek
- Quemahoning Creek
- Bens Creek
- Paint Creek
- Shade Creek
- Casselman River
- Laurel Hill Creek
- Wills Creek
- Buffalo Creek
- Raystown Branch Juniata River
- Youghoigheny River
- Shawnee Creek
- Little Conemaugh River
- Little Wills Creek

5.2.3.5 Comprehensive Plan

A comprehensive plan is a policy document that states objectives and guides the future growth and physical development of a municipality. The comprehensive plan is a blueprint for housing, transportation, community facilities, utilities and land use. It examines how the past led to the present and charts the community's future path. The Pennsylvania Municipalities Planning Code (MPC Act 247 of 1968, as reauthorized and amended) requires counties to prepare and maintain a county comprehensive plan. In addition, the MPC requires counties to update the comprehensive plan every 10 years.

With regard to hazard mitigation planning, Section 301.a(2) of the Municipality Planning Code requires comprehensive plans to include a plan for land use, which, among other provisions, suggests that the plan give consideration to floodplains and other areas of special hazards and other similar uses. The MPC also requires comprehensive plans to include a plan for community facilities and services and recommends giving consideration to storm drainage and floodplain management.

The Somerset County Comprehensive Plan was developed in 2006.

5.2.3.6 Capital Improvement Plan

The Capital Improvements Plan is a multi-year policy guide that identifies needed capital projects and is used to coordinate the financing and timing of public improvements. Capital improvements relate to streets, stormwater systems, water distribution, sewage treatment and other major public facilities. A capital improvements plan should be prepared by the respective county's planning department and should include a capital budget. This budget identifies the highest priority projects recommended for funding in the next annual budget. The capital improvements plan is dynamic and can be tailored to specific circumstances.

5.2.3.7 Emergency Operations Plan

Title 35, the Pennsylvania Emergency Management Services Code, requires all political jurisdictions to prepare, maintain and keep current a disaster emergency management plan for the prevention and minimization of injury and damage caused by disaster; prompt and effective response to disaster; and disaster emergency relief and recovery of consonance with the Pennsylvania Emergency Management Plan.

The Somerset County Emergency Operations Plan was updated in February 2015.

5.2.4 Administrative and Technical Capability

There are fifty (50) municipalities within Somerset County. Each of these municipalities conducts its daily operations and provides various community services according to local needs and limitations. Some of these municipalities have formed cooperative agreements and work jointly with their neighboring municipalities to provide services such as police protection, fire and emergency response, infrastructure maintenance and water supply management. Others choose to operate on their own. Municipalities vary in staff size, resource availability, fiscal status, service provision, constituent population, overall size, and vulnerability to the profiled hazards.

5.2.4.1 County Planning Commission

In Pennsylvania, planning responsibilities traditionally have been delegated to each county and local municipality through the MPC.

A planning agency acts as an advisor to the governing body on matters of community growth and development. A governing body may appoint individuals to serve as legal and engineering advisors to the planning agency. In addition to the duties and responsibilities authorized by Article II of the MPC, a governing body may, by ordinance, delegate approval authority to a planning agency for subdivision and land development applications. A governing body has considerable flexibility, not only as to which powers and duties are assigned to a planning agency, but also as to what form an agency will possess. A governing body can create a planning commission, a planning department, or both.

The purpose of the Somerset County Planning Commission is to receive and make recommendations on public and private proposals for development and to prepare and

administer planning regulations. Subdivision and land development plans are also reviewed and approved by the Somerset County Planning Commission, which works in conjunction with the municipal planning commissions, where applicable.

5.2.4.2 Municipal Engineers

A municipal engineer performs duties as directed in the areas of construction, reconstruction, maintenance and repair of streets, roads, pavements, sanitary sewers, bridges, culverts and other engineering work. The municipal engineer reviews and/or prepares plans, specifications and estimates of the work undertaken within the municipality.

5.2.4.3 Emergency Management Coordinator

A municipal Emergency Management Coordinator (EMC) is responsible for emergency management – preparedness, response, recovery and mitigation within his/her respective Authority Having Jurisdiction (AHJ). The responsibilities of the EMC are outlined in PA Title 35 §7503:

- Prepare and maintain a current disaster emergency management plan
- Establish, equip and staff an EOC
- Provide individual and organizational training programs
- Organize and coordinate all locally available manpower, materials, supplies, equipment and services necessary for disaster emergency readiness, response and recovery
- Adopt and implement precautionary measures to mitigate the anticipated effects of a disaster
- Cooperate and coordinate with any public and private agency or entity
- Provide prompt information regarding local disaster emergencies to appropriate Commonwealth and local officials or agencies and the general public
- Participate in all tests, drills and exercises, including remedial drills and exercises, scheduled by the agency or by the federal government

Title 35 requires Somerset County and its municipalities to have an Emergency Management Coordinator.

5.2.4.4 Personnel skilled in Geographic Information Systems (GIS) and/or FEMA's HAZUS program

Spatial and tabular data are linked in a computerized, visual format through the use of sophisticated Geographic Information Systems (GIS) technology. Through GIS projects it is possible to accomplish environmental restoration, economic development, “smart growth” land use planning, infrastructure development and training to use GIS for decision support. Somerset County has GIS capabilities that can assist the municipalities. According to the survey, only Conemaugh Township, Paint Township, Rockwood Borough and Somerset Township have personnel in the county that are skilled in HAZUS. Resource development staff or grant writers

Few communities have the financial resources that are required to implement all of its potential programs (e.g., mitigation measures). Therefore, they must rely on grants and other fundraising opportunities to obtain the money necessary to perform mitigation projects. Many grants are competitive, and individuals can provide donations to a vast array of causes, so the community must demonstrate that it can use those funds better than other applicants. This may be difficult, but having a specialist on staff will likely increase the community's chances of receiving funding.

5.2.5 Fiscal Capability

Fiscal capability is significant to the implementation of hazard mitigation activities. Every jurisdiction must operate within the constraints of limited financial resources. The following information pertains to various financial assistance programs pertinent to hazard mitigation.

5.2.5.1 State and Federal Grants

During the 1960s and 1970s, state and federal grants-in-aid were available to finance a large number of municipal programs, including streets, water and sewer facilities, airports, parks and playgrounds. During the early 1980s, there was a significant change in federal policy, based on rising deficits and a political philosophy that encouraged states and local governments to raise their own revenues for capital programs. The result has been a growing interest in "creative financing".

5.2.5.2 Capital Improvement Financing

Because most capital improvement projects involve the outlay of substantial funds, local governments can seldom pay for these facilities through annual appropriations in the annual operating budget. Therefore, numerous techniques have evolved to enable local governments to finance for capital improvements over a time period exceeding one year. Public finance literature and state laws governing local government finance classify techniques that are allowed to finance capital improvements. These techniques include revenue bonds; lease-purchase, authorities and special districts; current revenue (pay-as-you-go); reserve funds; and tax increment financing.

5.2.5.3 Indebtedness through General Obligation Bonds

Some projects may be financed with general obligation bonds. With this method, the jurisdiction's taxing power is pledged to pay interest and principal to retire debt. General obligation bonds can be sold to finance permanent types of improvements, such as schools, municipal buildings, parks and recreation facilities. Voter approval may be required.

5.2.5.4 Municipal Authorities

Municipal authorities are most often used when major capital investments are required. In addition to sewage treatment, municipal authorities have been formed for water supply, airports, bus transit systems, swimming pools and other purposes. Municipal authorities have powers to receive grants, borrow money and operate revenue-generating programs and are authorized to sell bonds, acquire property, sign contracts and take similar actions. Authorities are governed by

authority board members who are appointed by the elected officials of the member municipalities.

Sewer Authorities

Sewer authorities include multi-purpose authorities with sewer projects. They sell bonds to finance acquisition of existing systems or for construction, extension, or system improvement. Sewer authority operating revenues originate from user fees. The fee frequently is based on the amount of water consumed and payment is enforced by the ability to terminate service or by the imposition of liens against real estate. In areas with no public water supply, flat rate charges are calculated on average use per dwelling unit.

Water Authorities

Water authorities are multi-purpose authorities with water projects, many of which operate both water and sewer systems. The financing of water systems for lease back to the municipality is among the principal activities of the local government facilities' financing authorities. An operating water authority issues bonds to purchase existing facilities or to construct, extend, or improve a system. The primary source of revenue is user fees based on metered usage. The cost of construction or extending water supply lines can be funded by special assessments against abutting property owners. Tapping fees also help fund water system capital costs. Water utilities are also directly operated by municipal governments and by privately owned public utilities regulated by the PA Public Utility Commission. The PA Department of Environmental Protection has a program to assist with consolidating small water systems to make system upgrades more cost effective.

5.2.5.5 Community Development Block Grants

These grants are designed to assist the vulnerable populations within the community by ensuring affordable housing, creating jobs and providing direct services. The amount of each grant is determined by a formula that accounts for the community's need, poverty, population, housing and comparison to other areas. The annual appropriation is divided among the states and local jurisdictions (referred to as "non-entitlement communities" and "entitlement communities"). The following are entitlement communities:

- Central cities of Metropolitan Statistical Areas (MSAs)
- Cities with at least 50,000 people
- Some urban counties with at least 200,000 people

States provide CDBG funds to non-entitlement jurisdictions.

The majority of CDBG funds are required to be spent to benefit low- and moderate-income people. Also, there is a set of national objectives for the program, including addressing existing conditions that pose a threat to the health and welfare of the community (e.g., low-income housing in a floodplain).

5.2.5.6 Special Purpose Taxes

Communities may exercise their taxing authority to raise funds for any project they see fit. This includes special taxes to fund mitigation measures. Spreading the cost of a community project among the community's taxpayers helps provide the greatest public good for relatively little individual cost.

5.2.5.7 Gas/Electric Utility Fees

In the same way that special taxes can be levied to fund mitigation projects, another avenue for financing a project that a community may utilize is to dedicate a portion of homeowners' gas and electric utilities fees to upgrade and maintain the related infrastructure. Burying transmission lines, thereby mitigating from the effects of winds and ice storms, is expensive. These fees help to offset that cost.

5.2.5.8 Stormwater Utility Fees

Stormwater utility fees are assessed and collected to offset the cost of maintaining and upgrading stormwater management structures such as drains, retention ponds and culverts.

5.2.5.9 Development Impact Fees

Development impact fees are one-time fees assessed to offset the cost of providing public services to a new development. They may be dedicated to providing the related new water or sewer infrastructure, roads, parks and recreational areas, libraries, schools, etc. The new infrastructure may be less vulnerable to hazard impacts.

5.2.5.10 General obligation, revenue and/or special tax bonds

Jurisdictions may simply decide to dedicate general fund or similar financing to implement hazard mitigation projects.

5.2.5.11 Partnering arrangements or intergovernmental agreements

Intergovernmental cooperation is one manner of accomplishing common goals, solving mutual problems and reducing expenditures. The 50 municipalities within Somerset County comprise 25 boroughs and 25 townships. Each of these municipalities conducts its daily operations and provides various community services according to local needs and limitations. Some adjacent municipalities have formed cooperative agreements and work jointly with their neighboring municipalities to provide services such as police protection, fire and emergency response, infrastructure maintenance and water supply management. Other municipalities have chosen to operate on their own. Each municipality varies in staff size, resource availability, fiscal status, service provision, constituent population, overall size and vulnerability to the identified hazards.

5.2.5.12 Circuit Rider Program (Engineer)

The Circuit Rider Program is an example of intergovernmental cooperation. This program offers municipalities the ability to join together to accomplish a common goal. The Circuit Rider is a municipal engineer who serves several small municipalities simultaneously. These are municipalities that may be too small to hire a professional engineer for their own operations, yet need the skills and expertise the engineer can offer. Municipalities can jointly obtain what no single municipality could obtain on its own.

5.2.6 Political Capability

One of the most difficult capabilities to evaluate involves the political will of a jurisdiction to enact meaningful policies and projects designed to mitigate hazard events. The adoption of hazard mitigation measures may be seen as an impediment to growth and economic development. In many cases, mitigation may not generate interest among local officials when compared with competing priorities. Therefore, the local political climate must be considered when designing mitigation strategies, as it could be the most difficult hurdle to overcome in accomplishing the adoption or implementation of specific actions.

The Capability Assessment Survey was used to capture information on each jurisdiction's political capability. Survey respondents were asked to identify examples of political capability, such as guiding development away from hazard areas, restricting public investments or capital improvements within hazard areas, or enforcing local development standards that go beyond minimum state or federal requirements (i.e. building codes, floodplain management ordinances, etc.). These examples were used to guide respondents in scoring their community on a scale of "unwilling" (0) to "very willing" (5) to adopt policies and programs that reduce hazard vulnerabilities. Of the 33 municipalities that responded, scores ranged from 0-5 with an average score of 3.

5.2.7 Self-Assessment

In addition to the inventory and analysis of specific local capabilities, the Capability Assessment Survey required each local jurisdiction to conduct its own self-assessment of its capability to effectively implement hazard mitigation activities. As part of this process, county and municipal officials were encouraged to consider the barriers to implementing proposed mitigation strategies in addition to the mechanisms that could enhance or further such strategies. In response to the survey questionnaire, local officials classified each of the capabilities as either "L = limited" "M = moderate" or "H = high." All municipalities had a varying degree of capabilities for planning and regulatory capability, administrative and technical capability, fiscal capability and political capability. (The shaded areas in the table indicate that the municipality did not return a survey.)

Somerset County 2015 Hazard Mitigation Plan

Table 5.2-2: Somerset County Capability Self-Assessment Matrix

Municipality Name	Capability Category			
	Planning and Regulatory Capability	Administrative and Technical Capability	Fiscal Capability	Community Political Capability
Addison Borough				
Addison Township	M	M	L	L
Allegheny Township				
Benson Borough				
Berlin Borough				
Black Township	H	H	L	M
Boswell Borough				
Brothers Valley Township	L	M	M	M
Callimont Borough	L	L	L	L
Casselman Borough				
Central City Borough				
Conemaugh Township	H	H	H	H
Confluence Borough	L	L	L	M
Elk Lick Township	L	L	L	L
Fairhope Township				
Garrett Borough				
Greenville Township				
Hooversville Borough				
Indian Lake	M	M	H	H
Jefferson Township	M	M	M	L
Jenner Township	M	M	M	M
Jennerstown Borough	L	L	L	M
Larimer Township	L	L	L	L
Lincoln Township	M	M	L	L
Lower Turkeyfoot Township	L	L	L	L
Meyersdale Borough				
Middlecreek Township				
Milford Township				
New Baltimore Borough	L	L	L	L
New Centerville Borough	L	L	L	L
Northampton Township	L	L	L	L
Ogle Township				
Paint Borough	L	L	L	L
Paint Township	M	M	L	M
Quemahoning Township	M	M	L	M

Table 5.2-2: Somerset County Capability Self-Assessment Matrix

Municipality Name	Capability Category			
	Planning and Regulatory Capability	Administrative and Technical Capability	Fiscal Capability	Community Political Capability
Rockwood Borough	M	M	M	M
Salisbury Borough	L	L	L	L
Seven Springs Borough	L	L	L	L
Shade Township				
Shanksville Borough	M	L	L	L
Somerset Borough	H	H	M	H
Somerset Township	M	M	M	M
Southampton Township	L	L	L	L
Stonycreek Township	L	L	L	L
Stoystown Borough	L	L	L	L
Summit Township	L	L	L	L
Upper Turkeyfoot Township	L	L	M	M
Ursina Borough				
Wellersburgh Borough				
Windber Borough	H	H	M	H

5.2.8 Existing Limitations

Funding has been identified as the largest limitation for a municipality to complete mitigation activities. The acquisition of grants is the best way to augment this process for the municipalities. The county and municipalities representatives will need to rely on regional, state and federal partnerships for future financial assistance. Development of intra-county regional partnerships and intra-municipality regional partnerships will bolster this process.

6 Mitigation Strategy

6.1 Update Process Summary

Mitigation goals are general guidelines that explain what the county wants to achieve. Goals are usually expressed as broad policy statements representing desired long-term results. Mitigation objectives describe strategies or implementation steps to attain the identified goals. Objectives are more specific statements than goals; the described steps are usually measurable and can have a defined completion date. There were ten (10) goals and thirty five (35) objectives identified in the 2010 hazard mitigation plan. The 2015 Somerset County Hazard Mitigation Plan Update has six (6) goals and twenty four (24) objectives. Objectives have been added and arranged in order to associate them with the most appropriate goal. These changes are noted in Table 6.1-1. A list of these goals and objectives as well as a review summary based on comments received from stakeholders who participated in the HMP update process is included in Table 6.1-1. These reviews are based on the 5-Year hazard mitigation plan review worksheet, which includes a survey on existing goals and objectives, completed by the local planning team. Municipal officials then provided feedback on the changes to the goals and objectives via a mitigation strategy update meeting. Copies of these meetings and all documentation associated with the meetings are located in **Appendix C**.

Actions provide more detailed descriptions of specific work tasks to help the county and its municipalities achieve prescribed goals and objectives. There were eighty one (81) actions identified in the 2010 mitigation strategy; one of these actions have been entirely completed or discontinued while another eighty (80) are continual actions that reduce risk, vulnerability, and losses. A list of these actions as well as a review and summary of their progress based on comments from the Somerset County Local Planning Team is included in Table 6.1-2. Actions were evaluated by the local planning team with the intent of carrying over any actions that were not started or continuous for the next five years.

Table 6.1-1: Somerset County Mitigation Goals and Objectives Review Worksheet		Comments
GOAL 1	<i>Reduce potential injury/death and damage to existing community assets due to floods, flash floods and ice jams.</i>	
Objective 1.1	Identify and evaluate strategies for repetitive-loss properties.	<p>Review:</p> <p>The local planning team reviewed the goal and objectives. The following was recommended by the team:</p> <p>Objective 1.2 and 1.3 need 1% chance floodplain changed to special flood hazard area (SFHA).</p> <p>Objective 1.4 is completed.</p> <p>Objective 1.6 needs to be updated and should read as follows: Remove structures located in flood prone areas to minimize future losses by acquiring or relocating the structures from voluntary property owners and preserving lands subject to repetitive flooding.</p> <p>Objective 1.6 will be renumbered to 1.4 since objective 1.4 is complete.</p>
Objective 1.2	Provide public outreach/education regarding strategies (e.g., flood-proofing) for property owners in 1% chance floodplain.	
Objective 1.3	Address identified data limitations regarding lack of detailed information about individual structures located in the 1% chance floodplain.	
Objective 1.4	Obtain updated, detailed flood studies and Flood Insurance Rate Maps (FIRMs) (including 500-year flood) for areas with the greatest potential damage and threat to residents.	
Objective 1.5	Minimize the financial impact of personal mitigation measures on residents.	
Objective 1.6	Minimize the number of structures in the 1% chance floodplain.	

Somerset County 2015 Hazard Mitigation Plan

GOAL 2	<i>Reduce potential injury/death and damage to existing community assets due to severe wind storms.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 2 and the associated objectives. The team recommends the following:</p> <p>Objective 2.1: Change to state, “Identify communities that do not have warning systems and storm shelters.”</p>
Objective 2.1	Evaluate communities that require warning systems and storm shelters.	
Objective 2.2	Address identified data limitations regarding lack of detailed information about characteristics of individual structures.	
Objective 2.3	Implement measures to reduce the likelihood of severe wind affecting structures.	

GOAL 3	<i>Reduce potential injury/death and damage to existing community assets due to severe winter storms.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 3 and the associated objectives. The team recommends the following:</p> <p>Objective 3.1: Change to state, “Identify communities that do not have warning systems and storm shelters.”</p>
Objective 3.1	Evaluate communities that require warning systems and storm shelters.	
Objective 3.2	Address identified data limitations regarding lack of detailed information about characteristics of individual structures.	

Somerset County 2015 Hazard Mitigation Plan

GOAL 4	<i>Reduce potential injury/death and damage to existing community assets due to wildfires.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 4 and the associated objectives. The team recommends the following:</p> <p>Objective 4.1: Change to state, “Identify communities that do not have warning systems and storm shelters.”</p>
Objective 4.1	Evaluate communities that require warning systems and storm shelters.	
Objective 4.2	Implement measures to reduce the likelihood of wildfires affecting structures.	
Objective 4.3	Address identified data limitations regarding lack of detailed information about characteristics.	

GOAL 5	<i>Reduce potential injury/death and damage to existing community assets due to environmental hazards.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 5 and the associated objectives. The team feels that the goal and objectives are still valid and require no changes.</p>
Objective 5.1	Develop comprehensive approach to reducing potential injury/damages for nearby critical facilities and vulnerable populace.	
Objective 5.2	Evaluate potential contamination of drinking water sources along transportation corridors.	
Objective 5.3	Ensure that key roadways are adequate to support vehicles transporting hazardous materials.	

Somerset County 2015 Hazard Mitigation Plan

GOAL 6	<i>Reduce potential injury/death and damage to existing community assets due to terrorism, war and criminal activity.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 6 and the associated objectives. The team feels that the objectives are still valid. Objective 6.1 and 6.2 have been consolidated into Goal 2. Objective 6.1 is now objective 2.7 and objective 6.2 is the same as objective 9.1 and is to be deleted.</p>
Objective 6.1	Enhance response capability of County and municipal services.	
Objective 6.2	Increase public awareness of actions to take during an emergency.	

GOAL 7	<i>Promote disaster-resistant future development.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 7 and the associated objectives. The team feels that the goal and objectives are still valid. Goal 7 has been renumbered to Goal 3 and objectives 7.1 – 7.3 have been renumbered to objectives 3.1 - 3.3</p>
Objective 7.1	Encourage and facilitate the development or revision of comprehensive plans and zoning/land use ordinances to limit development in high-hazard areas.	
Objective 7.2	Encourage and facilitate the continued implementation of building codes that provide protection for new construction and substantial renovations from the effects of identified hazards.	
Objective 7.3	Provide adequate and consistent enforcement of ordinances and codes within and between jurisdictions.	

Somerset County 2015 Hazard Mitigation Plan

GOAL 8	<i>Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 8 and the associated objectives. The team feels that the goal and objectives are still valid. Goal 8 has been renumbered to Goal 4. Objectives 8.1 - 8.3 have been renumbered to Objectives 4.1 - 4.3</p>
Objective 8.1	Provide public education to increase awareness of hazards and opportunities for mitigation.	
Objective 8.2	Promote partnerships between the municipalities and the County to continue to develop a County-wide approach to identifying and implementing mitigation actions.	
Objective 8.3	Continue the promotion of disaster resistance in the business community via the hazard mitigation planning initiative.	

GOAL 9	<i>Improve response and recovery capabilities.</i>	<p>Review:</p> <p>The local planning team reviewed Goal 9 and the associated objectives. The team feels that the goal and objectives are still valid. Goal 9 has been renumbered to Goal 5. Objectives 9.1 – 9.3 have been renumbered to 5.1 – 5.3</p>
Objective 9.1	Increase awareness by residents (e.g., through public outreach/education) of actions to take during an emergency.	
Objective 9.2	Enhance response capability of County and municipal fire, police, and emergency medical services personnel to special populations.	
Objective 9.3	Ensure adequate emergency planning is conducted.	

Somerset County 2015 Hazard Mitigation Plan

GOAL 10	<i>Protect critical infrastructure in hazard areas.</i>	
Objective 10.1	Identify and evaluate protection of existing critical structures and infrastructure in the 1% chance floodplain.	<p>Review:</p> <p>The local planning team reviewed goal 10. The goal is accurate and requires no changes. The goal will be carried forward into the updated mitigation plan.</p> <p>Objective 10.1: This objective will have the “1% chance flood” removed and “special flood hazard area” added.</p> <p>Objective 10.7: This objective will be reworded to the following, “Protect utilities from natural and man-made hazards”.</p> <p>Goal 10 has been renumbered to Goal 6. Objectives 10.1 – 10.7 have been renumbered to 6.1 – 6.3.</p>
Objective 10.2	Identify the most vulnerable and critical structures and infrastructure due to the effects of severe wind.	
Objective 10.3	Identify the most vulnerable and critical structures and infrastructure due to the effects of severe winter storms.	
Objective 10.4	Identify the most vulnerable and critical structures and infrastructure due to the effects of wildfires.	
Objective 10.5	Identify by municipality the critical infrastructure around facilities that use or store hazardous materials, and transportation corridors.	
Objective 10.6	Identify by municipality the most vulnerable and critical structures and infrastructure relative to terrorism and criminal activity.	
Objective 10.7	Protect telephone and power transmission lines.	

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
1.1.1 - Identify existing repetitive-loss properties.			X			This action is continuous and will be reviewed every 5 years at a minimum. It has been updated to say repetitive loss and severe repetitive loss properties.
1.1.2 - Investigate options for protecting repetitive-loss properties within the floodplain.			X			Change protecting to mitigating.
1.2.1 – Work with township/borough officials to increase awareness among property owners, including informational mailings to property owners in the 1% chance floodplain, and sponsoring a series of workshops about costs and benefits of: <ul style="list-style-type: none"> • Acquiring and minimizing the cost of flood insurance coverage • Property acquisition, relocation, elevation, dry floodproofing, and wet floodproofing. 	X					No progress on this action. Grant funding is required. Change 1% chance flood plain to special flood hazard area (SFHA).

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
<p>1.3.1 - Obtain information for structures in the areas with the highest relative vulnerability to determine the best property protection methods. The information to be obtained includes:</p> <ul style="list-style-type: none"> • Lowest-floor elevation • Number of stories • Presence of a basement • Market and/or replacement value 	X					No progress on this action. Grant funding is required.
<p>1.3.2 - Obtain information for all remaining structures in the 1% chance floodplain to determine the best property protection methods to promote with individual property owners. Techniques for gathering information over time should include developing and implementing a program for integrated information “capture” at key points in normal township administrative procedures, including applications for building permits at township/borough offices.</p>	X					Change 1% chance floodplain to special flood hazard area (SFHA). Grant funding is required for this action.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
1.4.1 - Apply to PEMA for funding to undertake detailed flood studies for County's high-hazard areas to determine base flood elevation (BFE) and a full range of flood-recurrence intervals (50%, 20%, 10%, 4%, 2% and 1% chance events) for use in future refinements of the mitigation plan.	X					No progress on this project. New flood insurance rate maps have been adopted in the county. Grant funding is required for this project to be completed. Renumbered to action 1.3.3.
1.4.2 - Apply to FEMA for updates of the most outdated FIRMs for high-hazard areas.				X		The new flood insurance rate maps were adopted by the municipalities of Somerset County.
1.5.1 - Encourage participation of all municipalities in the National Flood Insurance Program (NFIP).			X			This is an ongoing action and will be maintained by the local planning team.
1.5.2 - Evaluate at the township/borough level the suitability of Community Rating System (CRS) for insurance premium reduction (and flood damage reduction).	X					Add encourage municipal participation to this action. No progress to date.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
1.6.1 - Evaluate and refine the County's prioritized list of properties for buyout opportunities.			X			This action is continuous and is evaluated a minimum of every 5 years. Renumbered to action 1.4.1
1.6.2 - Develop a fund to relocate structures out of the 1% chance floodplain.	X					No progress. The group feels that grant funding should be sought for this action. Renumbered to action 1.4.2
1.6.3 - Elevate structures to above the 1% chance floodplain.	X					No progress. Grant funding required. Remove the 1% chance floodplain and add base flood elevation. Renumbered to action 1.4.3
2.1.1 - Identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.			X			This is an ongoing action. With every risk assessment or hazard vulnerability assessment this is considered.
2.1.2 - Conduct qualitative evaluation process for managing stranded travelers (e.g., temporary shelters).	X					Grant funding is required for this action

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
2.1.3 - If warranted, implement additional storm shelters and warning systems, including: <ul style="list-style-type: none"> • Community sirens • Real-time weather data for emergency management personnel • National Oceanic and Atmospheric Administration (NOAA) weather radios for vulnerable populace • “Reverse 911” systems 	X					Grant funding is required for this action. The municipalities do not have sufficient local tax funds to do these projects.
2.2.1 - Maintain the linkage between the County tax assessment records and parcels in the County GIS.			X			The digitized parcels need to be completely overhauled and updated. The current files are not capable of being used for hazard mitigation planning. The action should be changed to read that the digitized parcels will be updated with grant funding.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
2.3.1 - Ensure that building codes include the use of roofing shingles that are less likely to be blown off of roofs.	X					A review of the uniform construction code will need completed by the municipalities. This action has been renumbered to action 3.2.1.
2.3.2 - Retrofit manufactured homes with anchors or tie-down straps.	X					Grant funding is required. This action has been renumbered to action 2.3.1.
3.1.1 - Identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.					X	This is a duplicate action. This is the same as action 2.1.1 and will be removed.
3.1.2 - Conduct qualitative evaluation process for managing stranded travelers (e.g., temporary shelters).					X	This action is the same action as 2.1.2 and can be deleted.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
3.1.3 - If warranted, implement additional storm shelters and warning systems, including: <ul style="list-style-type: none"> • Community sirens • Real-time weather data for emergency management personnel • NOAA weather radios for vulnerable populace • Reverse 911 systems 					X	This action is the same action as 2.1.3 and can be deleted.
3.2.1 - Develop a linkage between the County tax assessment records and parcels in the County GIS to allow future revisions of this plan to more easily incorporate information about construction type, age, condition, presence of basement, etc.	X					This action has been updated. The addition of the words future updated digital parcels will be added. This action is similar to action 2.2.1 and has been renumbered to action 2.2.1
4.1.1 - Identify residents with the highest relative vulnerability to the effects of wildfires and prepare implementation plan.			X			Emergency operations plans are updated regularly. This has been renumbered to action 2.1.4.
4.1.2 - Conduct qualitative evaluation process for managing stranded travelers					X	This action is the same action as 2.1.2 and can be deleted.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
4.1.3 - If warranted, implement additional storm shelters and warning systems, including: <ul style="list-style-type: none"> • Real-time weather data for emergency management personnel • NOAA weather radios for vulnerable populace • Reverse 911 systems 					X	This action is the same action as 2.1.3 and can be deleted.
4.2.1 - Ensure that building codes include the use of fire-resistant materials for structures near wildlands.	X					Grant funding is required to complete this action. This action has been renumbered to action 3.2.2
4.2.2 - Ensure that land use, zoning, and related regulations require an adequate setback of structures from the edge of wildlands.	X					No high hazard danger to this. This action has been renumbered to action 3.1.1

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
4.2.3 - Create regulations governing controlled burns on private property.			X			Municipal burn ordinances are executed as needed based on increased risk to wildfire during certain times of the year. This action has been renumbered to action 3.1.2
4.3.1 - Develop a linkage between the County tax assessment records and parcels in the County GIS to allow future revisions of this Plan to more easily incorporate information about construction type, age, condition, presence of basement, etc.					X	This action is the same as action 2.2.1 and should be removed.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
<p>5.1.1 - The LEPC should work with facility owners and operators identified in Section One as having the greatest potential impact (based on population in the immediate vicinity) to ensure:</p> <ul style="list-style-type: none"> • Facilities are in compliance with all relevant local, state, and federal requirements • Neighboring property owners understand the potential extent of the risk • Alert and warning systems are appropriate to the situation 	X					Grant funding is required to complete this action.
<p>5.1.2 - Install warning systems around hazardous material facilities when and if it is determined that existing warning systems are inadequate for the purposes of alerting neighboring property owners.</p>	X					Grant funding is required to complete this action. This action has been renumbered to action 2.4.1

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
5.2.1 - Obtain detailed topographic and planimetric surveys for areas along interstate highways in Somerset County identified as crossing points for tributaries that feed drinking water reservoir(s). Follow-up efforts would include preliminary engineering studies to determine earthwork and/or other diversions needed to prevent hazardous material spills in these areas from contaminating drinking water supplies.	X					Grant funding is required to complete this action. This action still remains active and would assist with mitigation of hazardous material releases. This action has been renumbered to action 2.5.1
5.3.1 - Maintain the county's Commodity Flow Study to identify those roadways most travelled by vehicles transporting hazardous materials.			X			Last study was in 2011. The next one will be completed in the next 5 years as funding becomes available to complete the study. This action has been renumbered to action 2.6.1

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
5.3.2 - Perform studies on roadways used to transport hazardous materials to ensure that they are adequate for this purpose.	X					Collaboration with municipalities and PennDOT will be conducted to complete this project once grant funding is secured. This action has been renumbered to action 2.6.2
6.1.1 - Work with Southwestern Regional Counterterrorism Task Force (PA Region 13) to plan and prepare for terrorist activities and all hazards, including training and exercises.			X			Training, planning and exercises are conducted by PA Region 13 annually. This action has been renumbered to action 2.7.1
7.1.1 - Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.	X					The Somerset County Planning Department is attempting to secure funding to complete the next comprehensive plan update. With this update, information from hazard mitigation will be incorporated. This action has been renumbered to action 3.1.3

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
7.1.2 - Present cost/benefit analysis to townships/boroughs that do not have comprehensive plans and/or zoning/land use ordinances.	X					Grant funding is required to complete this action. No funding was received during the current planning period. This action has been renumbered to action 3.1.4
7.1.3 - Integrate evaluation of snow removal and emergency access logistics with new development planning.			X			This is completed with all new development areas and is considered continuous. This action has been renumbered to action 3.1.5
7.1.4 - Create an ordinance requiring all buildings to have a fire break free of brush or trees of at least 100 feet around them in rural areas.	X					Grant funding is required to complete this action. This action has been renumbered to action 3.1.6
7.2.1 - Evaluate continued adequacy of township/borough building codes.			X			This is a continuous action that is completed by the municipalities. This action has been renumbered to action 3.2.3
7.2.2 - Encourage all townships/boroughs to maintain adoption of International Building Code.			X			Municipalities continually update the IBC. This action has been renumbered to action 3.2.4

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
7.3.1 - Provide updated training to municipal building inspectors.			X			Most inspectors are subcontracted and this requirement is expected of the selected contractor. This action has been renumbered to action 3.3.1
7.3.2 - Work with township/borough officials to increase awareness among mobile home owners (i.e., informational mailings, workshops) about requirements for proper anchoring for wind protection.	X					Grant funding is required to complete this action. No funding was received during the current planning period. This action has been renumbered to action 3.3.2
8.1.1 - Identify and publicize success stories as part of an overall consistent public relations program.	X					Grant funding required for someone to complete the research necessary. This action has been renumbered to action 4.1.1
8.1.2 - Encourage all residents to receive immunizations recommended by their primary care physicians.	X					No progress but the mitigation planning team will work with DOH. This action has been renumbered to action 4.1.2

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
8.1.3 - Identify and publicize easily prevented reasons for emergencies (e.g., careless smoking resulting in fires).	X					No progress, grant funding required. This action has been renumbered to action 4.1.3
8.2.1 - Convene regular meetings of the LEPC to discuss issues and progress related to the implementation of the plan.			X			Add the hazard mitigation plan. This action has been renumbered to action 4.2.1
8.3.1 - Renew and expand commitments to hazard mitigation planning among partner organizations.			X			Discussed this action. The team requested that the local planning team be included in the action. This action has been renumbered to action 4.3.1
9.1.1 - Increase awareness by residents of actions to take during an emergency, including sheltering and evacuation procedures. Methods to be used can include public outreach (i.e., Web site, mailings, workshops, media coverage) and education.			X			CERT class in 2014. Fire prevention week completes display in Annex building. This action has been renumbered to action 5.1.2

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
9.2.1 - Identify and maintain lists of special populations requiring additional emergency response.	X					Grant funding and personnel resources needed. This action has been renumbered to action 5.2.1
9.2.2 - Evaluate means to enhance response capability for those residents.	X					Reword this to say special needs residents. Grant funding required. This action has been renumbered to action 5.2.2
9.3.1 - Ensure that the County maintains a current all-hazards Emergency Operations Plan (EOP).			X			Last update was in 2012 and the annual review was completed 2014. This action has been renumbered to action 5.3.1
9.3.2 - Ensure that each municipality maintains a current all-hazards EOP.			X			Each municipality does their own. This action has been renumbered to action 5.3.2
9.3.3 - Encourage organizations responsible for critical infrastructure to maintain current Continuity of Operations (COOP) plans.		X	X			Grant funding is required to complete a thorough outreach program. Outreach to courts has been completed. This action has been renumbered to action 5.3.3

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
9.3.4 - Ensure that a current emergency plan is in place for each facility that uses, manufactures, or stores hazardous materials.			X			SARA planning is completed annually and additional outreach is conducted to Tier II facilities. This action has been renumbered to action 5.3.4
9.3.5 - Conduct post-disaster community recovery planning.	X					That completed will be completed post disaster. This action has been renumbered to action 5.3.5
9.3.6 - Conduct debris management planning.			X			The debris management plan requires updates. Change the word conduct to update. This action has been renumbered to action 5.3.6
10.1.1 - Investigate options for protecting critical infrastructure within the floodplain.	X					Grant funding required
10.1.2 - Conduct cost-benefit analysis of protection of those assets.	X					Protection of CI. Grant required

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.1.3 - Provide regular maintenance on stormwater management structures (culverts, drainage ditches, etc.)			X			This is a continuous project.
10.1.4 - Replace any stormwater management structures that require it.	X					Grant required
10.1.5 - Raise roadways that routinely flood to above the 1% chance floodplain.	X					Change 1% chance floodplain to base flood elevation. Grant needed
10.1.6 - Upgrade and replace manholes to prevent the release of sewage during a flood.	X					Grant needed
10.1.7 - Protect natural wetlands that may absorb floodwaters.			X			Regulatory issues with DEP and Conservation district. Continuously done.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.2.1 - Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan.	X					Remove word process. Grant funding required. Remove word infrastructure and add word residents
10.2.2 - Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, fire, police, rescue, and emergency management).	X					Combine with 10.2.1
10.2.3 - Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.	X					Renumbered to 6.2.2

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.3.1 - Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation Plan.					X	Duplicate action. Same 10.2.1.
10.3.2 - Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, fire, police, rescue, and emergency management).					X	Duplicate action. Covered in 10.2.1. Renumbered to action 6.2.1.
10.3.3 - Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.					X	Duplicate action. Same as 10.2.3. Now is action 6.2.2.

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.4.1 - Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation Plan.					X	Duplicate action. Covered in 10.2.1. Renumbered to action 6.2.1.
10.4.2 - Conduct cost-benefit analysis of protection of those assets.					X	Duplicate action. Same as 10.1.2. Now is action 6.2.1
10.4.3 - Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.					X	Duplicate action. Same as 10.2.3. Now is action 6.2.2.
10.5.1 - Conduct qualitative evaluation process to determine relative vulnerability of residents and critical facilities; gather information for subsequent refinements of this mitigation Plan.					X	Duplicate action. Same as 10.2.1. Renumbered to action 6.2.1

Somerset County 2015 Hazard Mitigation Plan

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.5.2 - Develop action plan for reducing potential injury/death and damage to identified vulnerable populace and at critical facilities.			X			Duplicate action. Same as 10.2.1. These are identified as SARA plans.
10.6.1 - Identify by municipality existing critical facilities with the highest relative vulnerability.			X			Add to natural and man-made hazards
10.6.2 - Develop action plan for reducing potential injury/death and damage at the identified critical facilities.					X	Duplicate action. Same as 10.5.2
10.6.3 - Conduct a detailed evaluation process to determine inherent and tactical vulnerability of critical facilities.					X	Duplicate action. Same as previous action

Table 6.1-2: 2010 Somerset County Mitigation Actions Review

Existing Mitigation Actions	Status					Review Comments
	No Progress / Unknown	In Progress / Not Yet Complete	Continuous	Completed	Discontinued	
10.6.4 - Work with PEMA, FEMA, and the US Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities.			X			PEMA quarterly meetings and Region 13 meetings.
10.7.1 - Bury above ground power and telephone transmission lines.	X					Grant required. Renumbered to action 6.3.1
10.7.2 - Amend development regulations to require below ground power and telephone transmission lines.	X					Renumbered to action 6.3.2

6.2 Mitigation Goals and Objectives

Based on results of the goals and objectives evaluation exercise and input from the local planning team, a list of six (6) goals and twenty four (24) corresponding objectives was developed. Table 6.2-1 details the mitigation goals and objectives established for the 2015 Somerset County Hazard Mitigation Plan Update.

Table 6.2-1: Somerset County 2015 Goals and Objectives

GOAL 1	<i>Reduce potential injury/death and damage to existing community assets due to floods, flash floods and ice jams.</i>
Objective 1.1	Identify and evaluate strategies for repetitive-loss and severe repetitive loss properties.
Objective 1.2	Provide public outreach/education regarding strategies (e.g., flood-proofing) for property owners in the special flood hazard area (SFHA).
Objective 1.3	Address identified data limitations regarding lack of detailed information about individual structures located in the special flood hazard area (SFHA).
Objective 1.4	Remove structures located in flood prone areas to minimize future losses by acquiring or relocating the structures from voluntary property owners and preserving lands subject to repetitive flooding.
Objective 1.5	Minimize the financial impact of personal mitigation measures on residents.
GOAL 2	<i>Reduce potential injury/death and damage to existing community assets due to high risk and moderate risk hazards.</i>
Objective 2.1	Identify communities that do not have warning systems and storm shelters.
Objective 2.2	Address identified data limitations regarding lack of detailed information about characteristics of individual structures.
Objective 2.3	Implement measures to reduce the likelihood of all natural and manmade hazards affecting structures.
Objective 2.4	Develop a comprehensive approach to reducing potential injury/damages for critical facilities and vulnerable populace in hazard areas.
Objective 2.5	Evaluate potential contamination of drinking water sources along transportation corridors.
Objective 2.6	Ensure that key roadways are adequate to support vehicles transporting hazardous materials.
Objective 2.7	Enhance response capability of county and municipal services.

Somerset County 2015 Hazard Mitigation Plan

Table 6.2-1: Somerset County 2015 Goals and Objectives

GOAL 3	<i>Promote disaster-resistant future development.</i>
Objective 3.1	Encourage and facilitate the development or revision of comprehensive plans and zoning/land use ordinances to limit development in high-hazard areas.
Objective 3.2	Encourage and facilitate the continued implementation of building codes that provide protection for new construction and substantial renovations from the effects of identified hazards.
Objective 3.3	Provide adequate and consistent enforcement of ordinances and codes within and between jurisdictions.
GOAL 4	<i>Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.</i>
Objective 4.1	Provide public education to increase awareness of hazards and opportunities for mitigation.
Objective 4.2	Promote partnerships between the municipalities and the County to continue to develop a County-wide approach to identifying and implementing mitigation actions.
Objective 4.3	Continue the promotion of disaster resistance in the business community via the hazard mitigation planning initiative.
GOAL 5	<i>Improve response and recovery capabilities.</i>
Objective 5.1	Increase awareness by residents (e.g., through public outreach/education) of actions to take during an emergency.
Objective 5.2	Enhance response capability of county and municipal fire, police, and emergency medical services personnel to special populations.
Objective 5.3	Ensure adequate emergency planning is conducted.

Table 6.2-1: Somerset County 2015 Goals and Objectives

GOAL 6	<i>Protect critical infrastructure in hazard areas.</i>
Objective 6.1	Identify and evaluate protection of existing critical structures and infrastructure in the special flood hazard area (SFHA).
Objective 6.2	Identify the most vulnerable and critical structures and infrastructure due to the effects of natural and man-made hazards.
Objective 6.3	Protect utilities from natural and man-made hazards.

6.3 Identification and Analysis of Mitigation Techniques

This section includes an overview of alternative mitigation actions based on the goals and objectives identified in Section 6.2. There are four general mitigation strategy techniques to reducing hazard risks:

- Local plans and regulations
- Structure and infrastructure
- Natural systems protection
- Education and awareness

Local Plans and Regulations: These actions include government authorities, policies or codes that influence the way land and buildings are developed and built. The following are some examples:

- Comprehensive plans
- Land use ordinances
- Subdivision regulations
- Development review
- Building codes and enforcement
- National Flood Insurance Program and Community Rating System
- Capital improvement programs
- Open space preservation
- Stormwater management regulations and master plans

The local plans and regulations technique will protect and reduce the impact of specific hazards on new and existing buildings by improving building code standards and regulating new and renovation construction. The improved building codes will decrease the impact of risk hazards.

Somerset County 2015 Hazard Mitigation Plan

Subdivision and land development enhancements will also augment this process. Ensuring that municipalities participate in the National Flood Insurance Program and encourage participation in the Community Rating System will decrease the impact as well.

Structure and infrastructure implementation: These actions involve modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability. The following are examples:

- Acquisitions and elevations of structures in flood prone areas
- Utility undergrounding
- Structural retrofits
- Floodwalls and retaining walls
- Detention and retention structures
- Culverts
- Safe rooms

Structure and infrastructure implementation is a technique that removes or diverts the hazard from structures or protects the structure from a specific hazard. The new or renovated structures are therefore protected or have a reduced impact of hazards.

Natural Resource Protection: These are actions that minimize damage and losses and also preserve or restore the functions of natural systems. They include the following:

- Erosion and sediment control
- Stream corridor restoration
- Forest management
- Conservation easements
- Wetland restoration and preservation

Natural resource protection techniques allow for the natural resource to be used to protect or lessen the impact on new or renovated structures through the management of these resources. Utilization and implementation of the examples above will protect new and existing buildings and infrastructure.

Education and Awareness: These are actions to inform and educate citizens, elected officials and property owners about hazards and potential ways to mitigate them and may also include participation in national programs. Examples of these techniques include the following:

- Radio and television spots
- Websites with maps and information
- Real estate disclosure
- Provide information and training
- NFIP outreach
- StormReady
- Firewise Communities

Somerset County 2015 Hazard Mitigation Plan

The education and awareness technique will protect and reduce the impact of specific hazards on new and existing buildings through education of citizens and property owners on the impacts that specific hazards could have on new or renovated structures. This information will allow the owner to make appropriate changes or enhancements that will lessen or eliminate the impact of hazards.

Table 6.3-1 provides a matrix identifying the mitigation techniques used for all risk hazards in the county. The specific actions associated with these techniques are included in Table 6.4-1.

Table 6.3-1: Somerset County Mitigation Strategy Technique Matrix

HAZARD	MITIGATION TECHNIQUE			
	Local Plans and Regulations	Structural and Infrastructure	Natural Systems Protection	Education and Awareness
Flood	X	X	X	X
Winter Storms	X	X		X
Wind Storms	X	X		X
Flash Flood	X	X	X	X
Environmental hazards fixed facility	X	X		X
Terrorism	X	X		X
Environmental hazards transportation	X	X		X
Wildfire	X	X	X	X
Tornadoes	X	X		X
Utility Interruptions	X	X		X
Transportation Accidents	X	X		X
Ice Jam Flooding	X	X	X	X

Table 6.3-1: Somerset County Mitigation Strategy Technique Matrix

HAZARD	MITIGATION TECHNIQUE			
	Local Plans and Regulations	Structural and Infrastructure	Natural Systems Protection	Education and Awareness
Drought	X			X
Pandemic and Infectious Disease	X			X
Hailstorms	X	X		X
Hurricane/Tropical Storms	X	X		X
Earthquake	X			X
Subsidence / Sinkhole	X			X
Levees	X			X
Radon Exposure	X	X		X

6.4 Mitigation Action Plan

The Somerset County Hazard Mitigation Local Planning Team (LPT) immediately began work on the mitigation strategy section of the 2015 hazard mitigation plan (HMP) update after the risk assessment section was completed. The LPT started this section by reviewing the 2010 HMP mitigation strategy section. A review of the previous goals, objectives, actions and project opportunities documented in the 2010 HMP was conducted. The next step the LPT completed was the brainstorming of possible new actions based on new identified risks. The LPT compiled all this information for presentations to the municipalities.

Somerset County 2015 Hazard Mitigation Plan

The LPT identified the following accomplishments since the development of the 2010 Somerset County Hazard Mitigation Plan. :

- Paint Borough was capable of upgrading the gravity sewer system. In 2010, Somerset Redevelopment Authority added and upgraded 2,500 linear feet of sewer lines. In 2012, an additional 3,500 linear feet was added or upgraded.
- Somerset County adopted the updated 2015 Somerset County Emergency Operations plan.
- Some of the Somerset County municipalities have adopted the updated 2015 Somerset County Emergency Operations Plan as the municipal emergency operations plan.
- Somerset County completed a hazardous material commodity flow study in 2011.
- Municipalities were able to complete some mitigation opportunities as a result of the disaster recovery funding from declared disasters since the last hazard mitigation plan update.
- The Somerset County HazMat Team has been recertified in accordance with Act 165 requirements.
- The Somerset County HazMat Team has been recognized for the Pennsylvania Participating Department Recognition Program as of April 21, 2015.
- Somerset County Department of Emergency Services has installed an updated public safety radio system to enhance communications for first responders.

The Somerset County Department of Emergency Services has been conducting numerous infrastructure enhancement projects over the past 5 years. Administrative staff has been committed to these infrastructure projects. With this commitment by the Somerset County DES Staff, there have been challenges with the completion of actions or projects outlined in the 2010 hazard mitigation plan. The Somerset County Department of Emergency Services is committed to making progress during the 2015-2020 planning period. During this period, annual reviews will be completed and reports of all actions and projects will be developed to determine the status.

MCM Consulting Group, Inc. completed municipality meetings on December 17, 2014 at various time periods at the Somerset County Department of Emergency Services. During all these meetings, an overview of mitigation strategy was presented and the municipalities were informed that they needed to have at least one hazard-related mitigation action for their municipality. All municipalities were invited to attend these meetings. Originally, the municipal meetings were to be conducted on December 17, 2014 and December 18, 2014. Due to a lack of participation by the municipalities, meetings were only conducted on December 17, 2015. Additional outreach by telephone and email was conducted January 2015 through March 2015. A copy of the spreadsheet outlining these contacts is included in **Appendix C**.

The municipalities were notified of draft mitigation actions and encouraged to provide new mitigation actions that could be incorporated into the plan. Municipalities were provided copies of their previously submitted mitigation opportunity forms and asked to determine if the projects

Somerset County 2015 Hazard Mitigation Plan

were still valid. Municipalities were solicited for new project opportunities as well. All agendas, sign in sheets and other support information from these meetings is included in **Appendix C**.

Mitigation measures for the 2015 Somerset County HMP are listed in the mitigation action plan. Table 6.4-1 is the 2015 Somerset County Mitigation Action Plan. This plan outlines mitigation actions and projects that comprise a strategy for Somerset County. The action plan includes actions, a benefit and cost prioritization, a schedule for implementation, any funding sources to complete the action, a responsible agency or department and an estimated cost. All benefit and cost analysis was completed using the Pennsylvania Emergency Management Agency recommended PA STEEL analysis tool. The completed PA STEEL analysis is located in Table 6.4-3. Table 6.4-2 is a matrix that identifies the county and/or municipalities responsible for mitigation actions in the new mitigation action plan.

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
1.1.1	Local Plans and Regulations	Identify existing repetitive loss and severe repetitive loss properties.	Flooding	X			2015-2017	Local, FMA	Somerset DES, County Planning and Municipalities	\$10,000
1.1.2	Local Plans and Regulations	Investigate options for mitigating repetitive-loss properties within the floodplain.	Flooding	X			2015-2020	Local, FMA	Somerset DES, County Planning and Municipalities	\$10,000
1.2.1	Education and Awareness	Work with township/borough officials to increase awareness among property owners, including informational mailings to property owners in the special flood hazard area (SFHA), and sponsoring a series of workshops about costs and benefits of: <ul style="list-style-type: none"> • Acquiring and minimizing the cost of flood insurance coverage • Property acquisition, relocation, elevation, dry flood proofing, and wet flood proofing. 	Flooding/Levees		X		2015-2020	Local, FMA	Somerset DES, County Planning and Municipalities	\$10,000
1.3.1	Local Plans and Regulations	Obtain information for structures in the areas with the highest relative vulnerability to determine the best property protection methods. The information to be obtained includes: <ul style="list-style-type: none"> • Lowest-floor elevation • Number of stories • Presence of a basement • Market and/or replacement value 	Flooding/Levees	X			2015-2020	Local, FMA	Somerset DES, County Planning and Municipalities	\$10,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
1.3.2	Local Plans and Regulations	Obtain information for all remaining structures in the special flood hazard area (SFHA) to determine the best property protection methods to promote with individual property owners. Techniques for gathering information over time should include developing and implementing a program for integrated information "capture" at key points in normal township administrative procedures, including applications for building permits at township/borough offices.	Flooding	X			2015-2020	Local, FMA	Somerset DES, County Planning and Municipalities	\$10,000
1.3.3	Local Plans and Regulations	Apply to PEMA for funding to undertake detailed flood studies for County's high-hazard areas to determine base flood elevation (BFE) and a full range of flood-recurrence intervals (50%, 20%, 10%, 4%, 2% and 1% chance events) for use in future refinements of the mitigation plan.	Flooding			X	2015-2020	Local, FMA	Somerset DES, County Planning and Municipalities	\$5,000
1.4.1	Local Plans and Regulations	Evaluate and refine the County's prioritized list of properties for buyout opportunities.	Flooding		X		2015-2020	Local, FMA	Somerset DES, County Planning	\$5,000
1.4.2	Local Plans and Regulations	Develop a fund to relocate structures out of the special flood hazard area (SFHA).	Flooding		X		2015-2020	Local	Somerset DES, County Commissioners, Municipal Elected Officials	\$1,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
1.4.3	Structural and Infrastructure	Elevate structures to above the base flood elevation.	Flooding/Levees		X		2015-2020	Local, FMA		\$500,000
1.5.1	Local Plans and Regulations	Encourage participation of all municipalities in the National Flood Insurance Program (NFIP).	Flooding		X		2015-2016	Local	Somerset DES, County Planning and Municipalities	\$5,000
1.5.2	Local Plans and Regulations	Evaluate at the township/borough level the suitability of Community Rating System (CRS) for insurance premium reduction (and flood damage reduction).	Flooding		X		2015-2020	Local	Somerset DES, County Planning and Municipalities	\$30,000
2.1.1	Local Plans and Regulations	Identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.	All Hazards		X		2015-2020	Local	Somerset DES, County Planning, Municipalities	\$10,000
2.1.2	Local Plans and Regulations	Conduct qualitative evaluation process for managing stranded travelers (e.g., temporary shelters).	All Hazards		X		2015-2020	Local	Somerset DES	\$5,000
2.1.3	Local Plans and Regulations	If warranted, implement additional storm shelters and warning systems, including: <ul style="list-style-type: none"> • Community sirens • Real-time weather data for emergency management personnel • National Oceanic and Atmospheric Administration (NOAA) weather radios • "Reverse 911" systems 	All Hazards	X			2015-2020	Local, Red Cross	Local, Red Cross	\$50,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
2.1.4	Local Plans and Regulations	Identify residents with the highest relative vulnerability to the effects of wildfires and prepare implementation plan.	Wildfire		X		2015-2020	Local	County Planning and Municipalities	\$5,000
2.2.1	Local Plans and Regulations	Develop a linkage between the County tax assessment records and parcels in the County GIS to allow future revisions of this plan to more easily incorporate information about construction type, age, condition, presence of basement, etc.	All Hazards		X		2015-2020	Local	County Planning and County Tax Departments	\$10,000
2.2.2	Local Plans and Regulations	Complete a new digitized parcel project and develop a GIS data layer that would be used to assist with damage assessment and estimation of loss during mitigation efforts.	All Hazards		X		2016	Local	County Planning and County Tax Departments	\$250,000
2.3.1	Structural and Infrastructure	Retrofit manufactured homes with anchors or tie-down straps.	Severe wind, Tornadoes, Hurricanes			X	2015-2020	PDM	Municipalities	\$50,000
2.4.1	Structural and Infrastructure	Install warning systems around hazardous material facilities when and if it is determined that existing warning systems are inadequate for the purposes of alerting neighboring property owners.	Environmental		X		2015-2020	Local	Municipalities and SARA Facility Owners	\$150,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
2.5.1	Local Plans and Regulations	Obtain detailed topographic and planimetric surveys for areas along interstate highways in Somerset County identified as crossing points for tributaries that feed drinking water reservoir(s). Follow-up efforts would include preliminary engineering studies to determine earthwork and/or other diversions needed to prevent hazardous material spills in these areas from contaminating drinking water supplies.	Environmental	X			2015-2020	Local, HMEP	County Planning, PennDOT, Municipalities	\$10,000
2.6.1	Local Plans and Regulations	Maintain the county's Commodity Flow Study to identify those roadways most travelled by vehicles transporting hazardous materials.	Environmental and Traffic Accidents		X		2016	Local, HMEP	Somerset DES	\$8,000
2.6.2	Local Plans and Regulations	Perform studies on roadways used to transport hazardous materials to ensure that they are adequate for this purpose.	Environmental and Traffic Accidents			X	2015-2016	Local, HMEP	Somerset DES, PennDOT, Municipalities	\$10,000
2.7.1	Local Plans and Regulations	Work with Southwestern Regional Counterterrorism Task Force (PA Region 13) to plan and prepare for terrorist activities and all hazards, including training and exercises.	All Hazards	X			2015-2020	Local	Somerset DES	\$10,000
3.1.1	Local Plans and Regulations	Ensure that land use, zoning, and related regulations require an adequate setback of structures from the edge of wild lands.	Wildfires	X			2015-2020	Local	County Planning and Municipalities	\$1,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
3.1.2	Local Plans and Regulations	Create regulations governing controlled burns on private property.	Wildfires		X		2015-2020	Local	Municipalities	\$1,000
3.1.3	Education and Awareness	Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.	All Hazards			X	2015-2020	Local	Somerset DES, County Planning, Municipalities	\$5,000
3.1.4	Local Plans and Regulations	Present cost/benefit analysis to townships/boroughs that do not have comprehensive plans and/or zoning/land use ordinances.	All Hazards	X			2015-2020	Local	County Planning	\$10,000
3.1.5	Local Plans and Regulations	Integrate evaluation of snow removal and emergency access logistics with new development planning.	Winter Storms	X			2015-2020	Local	County Planning and Municipalities	\$5,000
3.1.6	Local Plans and Regulations	Create an ordinance requiring all buildings to have a fire break free of brush or trees of at least 100 feet around them in rural areas.	Wildfires			X	2015-2020	Local	Municipalities	\$5,000
3.2.1	Local Plans and Regulations	Ensure that building codes include the use of roofing shingles that are less likely to be blown off of roofs.	Severe wind, Tornadoes, Hurricanes			X	2015-2020	Local	Municipalities	\$5,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
3.2.2	Local Plans and Regulations	Ensure that building codes include the use of fire-resistant materials for structures near wild lands.	Wildfires			X	2015-2020	Local	Municipalities	\$5,000
3.2.3	Local Plans and Regulations	Evaluate continued adequacy of township/borough building codes.	All Hazards	X			2015-2020	Local	County Planning and Municipalities	\$5,000
3.2.4	Education and Awareness	Encourage all townships/boroughs to maintain adoption of International Building Code.	All Hazards	X			2015-2020	Local	County Planning and Municipalities	\$5,000
3.3.1	Education and Awareness	Provide updated training to municipal building inspectors.	All Hazards			X	2015-2020	Local	Municipalities	\$10,000
3.3.2	Education and Awareness	Work with township/borough officials to increase awareness among mobile home owners (i.e., informational mailings, workshops) about requirements for proper anchoring for wind protection.	Severe Wind and Tornadoes			X	2015-2020	Local	County Planning and Municipalities	\$5,000
4.1.1	Education and Awareness	Identify and publicize success stories as part of an overall consistent public relations program.	All Hazards		X		2015-2020	Local	County Planning and Municipalities	\$5,000
4.1.2	Education and Awareness	Encourage all residents to receive immunizations recommended by their primary care physicians.	Infectious Disease			X	2015-2020	Local	DOH, Somerset DES and Municipalities	\$5,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
4.1.3	Education and Awareness	Identify and publicize easily prevented reasons for emergencies (e.g., careless smoking resulting in fires).	All Hazards	X			2015-2020	Local	County Planning and Municipalities	\$5,000
4.2.1	Education and Awareness	Convene regular meetings of the LEPC to discuss issues and progress related to the implementation of the hazard mitigation plan.	Environmental	X			2015-2020	Local	Somerset DES, LEPC	\$5,000
4.3.1	Local Plans and Regulations	Renew and expand commitments to hazard mitigation planning among partner organizations through the local planning team.	All Hazards		X		2015-2020	Local	Somerset DES and County Planning	\$5,000
5.1.1	Local Plans and Regulations	The LEPC should work with facility owners and operators identified as having the greatest potential impact (based on population in the immediate vicinity) to ensure: <ul style="list-style-type: none"> • Facilities are in compliance with all relevant local, state, and federal requirements • Neighboring property owners understand the potential extent of the risk • Alert and warning systems are appropriate to the situation 	Environmental hazards	X			2015-2020	Local	Somerset DES, LEPC and Facility Owners	\$10,000
5.1.2	Local Plans and Regulations	Increase awareness by residents of actions to take during an emergency, including sheltering and evacuation procedures. Methods to be used can include public outreach and education.	All Hazards	X			2015-2020	Local	Somerset DES and Red Cross	\$10,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
5.2.1	Local Plans and Regulations	Identify and maintain lists of special populations requiring additional emergency response.	All Hazards			X	2015-2020	Local	Municipalities	\$5,000
5.2.2	Local Plans and Regulations	Evaluate means to enhance response capability for special needs residents.	All Hazards		X		2015-2020	Local	Somerset DES, Municipalities and First Responders	\$10,000
5.3.1	Local Plans and Regulations	Ensure that the County maintains a current all-hazards Emergency Operations Plan (EOP).	All Hazards		X		2015-2020	Local, EMPG	Somerset DES	\$10,000
5.3.2	Local Plans and Regulations	Ensure that each municipality maintains a current all-hazards EOP.	All Hazards		X		2015-2020	Local, EMPG	Somerset DES and Municipalities	\$10,000
5.3.3	Local Plans and Regulations	Encourage organizations responsible for critical infrastructure to maintain current Continuity of Operations (COOP) plans.	All Hazards	X			2015-2020	Local	Somerset DES, County Planning, Municipalities	\$10,000
5.3.4	Local Plans and Regulations	Ensure that a current emergency plan is in place for each facility that uses, manufactures, or stores hazardous materials.	Environmental		X		2015-2020	Local, HMEP	Somerset DES	\$10,000
5.3.5	Local Plans and Regulations	Conduct post-disaster community recovery planning.	All Hazards			X	2015-2020	Local, HMGP, PDM	Somerset DES and County Planning	\$10,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
5.3.6	Local Plans and Regulations	Update debris management plan	All Hazards		X		2015-2020	Local, EMPG	Somerset DES	\$5,000
5.3.7	Local Plans and Regulations	Enhance the public safety agency personnel and equipment update system to allow input of data from first responders and public works	All Hazards	X			2015-2020	Local, HSGP	Somerset DES	\$20,000
6.1.1	Local Plans and Regulations	Investigate options for protecting critical infrastructure within the floodplain.	Flooding		X		2015-2020	Local, PDM	Municipality and Facility Owners	\$10,000
6.1.2	Local Plans and Regulations	Conduct cost-benefit analysis of protection of critical infrastructure.	Flooding		X		2015-2020	Local	Facility Owners	\$5,000-\$10,000 each facility
6.1.3	Structural and Infrastructure	Provide regular maintenance on stormwater management structures (culverts, drainage ditches, etc.)	Flooding		X		2015-2020	Local	Municipalities	\$50,000
6.1.4	Structural and Infrastructure	Replace any stormwater management structures that require it.	Flooding	X			2015-2020	Local, Storm water fees, PDM	Municipalities	\$250,000
6.1.5	Structural and Infrastructure	Raise roadways that routinely flood to above the base flood elevation.	Flooding	X			2015-2020	Local, FMA, PDM	County and Municipal elected officials	\$500,000 - \$1,000,000
6.1.6	Structural and Infrastructure	Upgrade and replace manholes to prevent the release of sewage during a flood.	Flooding	X			2015-2020	Local, Sewer Fees, PDM	Municipal and Sewer Authorities	\$100,000

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-1: Somerset County 2015 Mitigation Action Plan

Action Number	Mitigation Actions		Hazard Vulnerability	Benefit/Cost Prioritization			Implementation			Estimated Cost
	Category	Description/Action Items		High	Medium	Low	Schedule	Funding	Responsibility	
6.1.7	Natural Resource Protection	Protect natural wetlands that may absorb floodwaters.	Flooding		X		2015-2020	Local	DEP, DCNR	\$50,000
6.2.1	Local Plans and Regulations	Conduct qualitative evaluation process for critical facilities and residents to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan.	All Hazards			X	2015-2020	Local, HMRP	Somerset DES	\$180,000
6.2.2	Local Plans and Regulations	Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.	All Hazards		X		2015-2020	Local	Somerset DES, Municipalities and Owners	\$10,000
6.3.1	Structural and Infrastructure	Bury above ground power and telephone transmission lines.	Utility Interruptions		X		2015-2020	Local, Utility Companies	Municipal Public Works and Utilities	\$100,000
6.3.2	Local Plans and Regulations	Amend development regulations to require below ground power and telephone transmission lines.	Utility Interruptions		X		2015-2020	Local and Utility Companies	Municipal Public Works and Utilities	\$10,000

Funding acronym definitions:

FMA: Flood Mitigation Assistance Grant Program, administered by the Federal Emergency Management Agency

HMGP: Hazard Mitigation Grant Program, administered by the Federal Emergency Management Agency

PDM: Pre-Disaster Mitigation Grant, administered by the Federal Emergency Management Agency

EMPG: Emergency Management Performance Grant, administered by the Federal Emergency Management Agency

HSGP: Homeland Security Grant Program, administered by the Federal Emergency Management Agency

HMEP: Hazardous Material Emergency Planning Grant, administered by the Pennsylvania Emergency Management Agency

HMRP: Hazardous Material Response Fund, administered by the Pennsylvania Emergency Management Agency

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	1.1.1	1.1.2	1.2.1	1.3.1	1.3.2	1.3.3	1.4.1	1.4.2	1.4.3	1.5.1	1.5.2	2.1.1	2.1.2	2.1.3	2.1.4	2.2.1	2.2.2	2.3.1	2.4.1	2.5.1
Somerset County	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Addison Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Addison Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Allegheny Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Benson Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Berlin Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Black Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Boswell Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Brothersvalley Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Callimont Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Casselman Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Central City Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Conemaugh Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Confluence Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Elk Lick Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	1.1.1	1.1.2	1.2.1	1.3.1	1.3.2	1.3.3	1.4.1	1.4.2	1.4.3	1.5.1	1.5.2	2.1.1	2.1.2	2.1.3	2.1.4	2.2.1	2.2.2	2.3.1	2.4.1	2.5.1
Fairhope Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Garrett Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Greenville Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hooversville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Indian Lake Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Jefferson Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jenner Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jennerstown Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Larimer Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lincoln Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lower Turkeyfoot Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Meyersdale Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Middlecreek Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Milford Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	1.1.1	1.1.2	1.2.1	1.3.1	1.3.2	1.3.3	1.4.1	1.4.2	1.4.3	1.5.1	1.5.2	2.1.1	2.1.2	2.1.3	2.1.4	2.2.1	2.2.2	2.3.1	2.4.1	2.5.1
New Baltimore Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
New Centerville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Northampton Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ogle Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paint Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Paint Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quemahoning Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rockwood Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Salisbury Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Seven Springs Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Shade Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shanksville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Somerset Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Somerset Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Southampton Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	1.1.1	1.1.2	1.2.1	1.3.1	1.3.2	1.3.3	1.4.1	1.4.2	1.4.3	1.5.1	1.5.2	2.1.1	2.1.2	2.1.3	2.1.4	2.2.1	2.2.2	2.3.1	2.4.1	2.5.1
Stoneycreek Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stoystown Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Summit Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upper Turkeyfoot Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ursina Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Wellersburg Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X
Windber Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X		X	X	X	X	X

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	2.6.1	2.6.2	2.7.1	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	4.1.1	4.1.2	4.1.3	4.2.1	4.3.1
Somerset County	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Addison Borough		X				X		X		X		X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	2.6.1	2.6.2	2.7.1	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	4.1.1	4.1.2	4.1.3	4.2.1	4.3.1
Addison Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Allegheny Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Benson Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Berlin Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Black Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Boswell Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Brothersvalley Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Callimont Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Casselman Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Central City Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Conemaugh Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Confluence Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Elk Lick Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Fairhope Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Garrett Borough		X				X		X		X		X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	2.6.1	2.6.2	2.7.1	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	4.1.1	4.1.2	4.1.3	4.2.1	4.3.1
Greenville Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Hooversville Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Indian Lake Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Jefferson Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Jenner Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Jennerstown Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Larimer Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Lincoln Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Lower Turkeyfoot Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Meyersdale Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Middlecreek Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Milford Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
New Baltimore Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
New Centerville Borough		X				X		X		X		X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																				
Municipality	Mitigation Actions																			
	2.6.1	2.6.2	2.7.1	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	4.1.1	4.1.2	4.1.3	4.2.1	4.3.1
Northampton Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Ogle Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Paint Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Paint Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Quemahoning Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Rockwood Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Salisbury Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Seven Springs Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Shade Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Shanksville Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Somerset Borough		X				X		X		X		X	X	X	X	X	X	X	X	X
Somerset Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Southampton Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Stoneycreek Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X
Stoystown Borough		X				X		X		X		X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																					
Municipality	Mitigation Actions																				
	2.6.1	2.6.2	2.7.1	3.1.1	3.1.2	3.1.3	3.1.4	3.1.5	3.1.6	3.2.1	3.2.2	3.2.3	3.2.4	3.3.1	3.3.2	4.1.1	4.1.2	4.1.3	4.2.1	4.3.1	
Summit Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Upper Turkeyfoot Township		X		X	X	X		X	X	X	X	X	X	X	X	X	X	X	X	X	
Ursina Borough		X				X		X		X		X	X	X	X	X	X	X	X	X	
Wellersburg Borough		X				X		X		X		X	X	X	X	X	X	X	X	X	
Windber Borough		X				X		X		X		X	X	X	X	X	X	X	X	X	

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist																					
Municipality	Mitigation Actions																				
	5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5	5.3.6	5.3.7	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6	6.1.7	6.2.1	6.2.2	6.3.1
Somerset County	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Addison Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Addison Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Allegheny Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist

Municipality	Mitigation Actions																						
	5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5	5.3.6	5.3.7	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6	6.1.7	6.2.1	6.2.2	6.3.1	6.3.2	
Benson Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Berlin Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Black Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Boswell Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Brothersvalley Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Callimont Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Casselman Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Central City Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Conemaugh Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Confluence Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Elk Lick Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Fairhope Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Garrett Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist

Municipality	Mitigation Actions																					
	5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5	5.3.6	5.3.7	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6	6.1.7	6.2.1	6.2.2	6.3.1	6.3.2
Greenville Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Hooversville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Indian Lake Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jefferson Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jenner Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Jennerstown Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Larimer Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lincoln Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Lower Turkeyfoot Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Meyersdale Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Middlecreek Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Milford Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist

Municipality	Mitigation Actions																					
	5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5	5.3.6	5.3.7	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6	6.1.7	6.2.1	6.2.2	6.3.1	6.3.2
New Baltimore Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
New Centerville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Northampton Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ogle Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paint Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Paint Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Quemahoning Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Rockwood Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Salisbury Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Seven Springs Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shade Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Shanksville Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Somerset Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-2: Hazard Mitigation Actions – Municipal Checklist

Municipality	Mitigation Actions																					
	5.1.1	5.1.2	5.2.1	5.2.2	5.3.1	5.3.2	5.3.3	5.3.4	5.3.5	5.3.6	5.3.7	6.1.1	6.1.2	6.1.3	6.1.4	6.1.5	6.1.6	6.1.7	6.2.1	6.2.2	6.3.1	6.3.2
Somerset Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Southampton Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stoneycreek Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Stoystown Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Summit Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Upper Turkeyfoot Township	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Ursina Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Wellersburg Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X
Windber Borough	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X	X

National Flood Insurance Program (NFIP) Related Mitigation Actions

The Federal Emergency Management Agency (FEMA) requires that every participating jurisdiction that either participates in the NFIP or has identified Special Flood Hazard Areas (SFHAs) have at least one specific action in its mitigation action plan that relates to continued compliance with the NFIP. Action numbers 1.1.1; 1.1.2; 1.2.1; 1.3.1; 1.3.2; 1.3.3; 1.5.1 and 1.5.2 comply for Somerset County and all its municipalities. These actions are highlighted in yellow in Table 6.4-1 above.

Evaluate and Prioritize Mitigation Actions

Mitigation actions were evaluated using the seven criteria which frame the *PASTEEL* method. These feasibility criteria include:

- **Political:** Does the action have public and political support?
- **Administrative:** Is there adequate staffing and funding available to implement the action in a timely manner?
- **Social:** Will the action be acceptable by the community or will it cause any one segment of the population to be treated unfairly?
- **Technical:** How effective will the action be in avoiding or reducing future losses?
- **Economic:** What are the costs and benefits of the action and does it contribute to community economic goals?
- **Environmental:** Will the action provide environmental benefits and will it comply with local, state and federal environmental regulations?
- **Legal:** Does the community have the authority to implement the proposed measure?

The *PASTEEL* method uses political, administrative, social, technical, economic, environmental and legal considerations as a basis means of evaluating which of the identified actions should be considered most critical. Economic considerations are particularly important in weighing the costs versus benefits of implementing one action prior to another.

FEMA mitigation planning requirements indicate that any prioritization system used shall include a special emphasis on the extent to which benefits are maximized according to a cost-benefit review of the proposed projects. To do this in an efficient manner that is consistent with FEMA's guidance on using cost-benefit review in mitigation planning, the *PASTEEL* method was adapted to include a higher weighting for two elements of the *economic* feasibility factor – Benefits of Action and Costs of Action. This method incorporates concepts similar to those described in Method C of FEMA 386-5: Using Benefit Cost Review in Mitigation Planning (FEMA, 2007).

Those participating in the 2015 HMP update process provided comments which allowed for the prioritization of the mitigation actions listed in Table 6.4-1 using the seven *PASTEEL* criteria. In order to evaluate and prioritize the mitigation actions, *favorable* and *less favorable* factors were identified for each action. Table 6.4-3 summarizes the evaluation methodology and provides the results of this evaluation for all mitigation actions. The first results column includes a

Somerset County 2015 Hazard Mitigation Plan

summary of the feasibility factors, placing equal weight on all factors. The second results column reflects feasibility scores with benefits and costs weighted more heavily; and therefore, given greater priority. A weighting factor of three was used for each benefit and cost element. Therefore, a “+” benefit factor rating equals three pluses and a “-“ benefit factor rating equals three minuses in the total prioritization score.

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																									
	+ Favorable			- Less Favorable						N Not Applicable																
	P			A			S			T			E				E				L				Summary (Equal Weighting)	Summary (Benefits & Costs Prioritized)
Political			Administrative			Social			Technical			Economic				Environmental				Legal						
	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	Cost of Action	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			
1.1.1: Identify Repetitive Loss Properties (RLPs)	+	+	+	N	N	N	N	N	+	N	N	N	N	N	N	N	N	N	N	N	+	+	N	N	6 (+) 0 (-) 17 (N)	6 (+) 0 (-) 17 (N)
1.1.2: Investigate options for protecting RLPs	+	+	+	N	N	N	N	N	+	N	N	N	N	N	N	N	N	N	N	N	+	+	N	N	6 (+) 0 (-) 17 (N)	6 (+) 0 (-) 17 (N)
1.2.1: Increase public awareness of flooding	+	+	+	-	-	N	+	N	+	+	-	+	-	N	-	N	N	N	N	N	N	+	N	N	8 (+) 5 (-) 10 (N)	10 (+) 7 (-) 10 (N)
1.3.1: Info on structures most vuln. to flood	+	+	+	N	N	N	N	N	+	N	N	N	N	N	N	N	N	N	N	N	+	+	N	N	6 (+) 0 (-) 17 (N)	6 (+) 0 (-) 17 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																			Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)			
	+ Favorable			- Less Favorable						N Not Applicable															
	P			A			S		T			E			E				L						
Political Support			Administrative			Social		Technical			Economic			Environmental				Legal							
	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	Cost of Action	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		
1.3.2: Determine best protection method for flood	+	+	+	N	N	N	N	N	+	N	N	N	N	N	N	N	N	N	N	+	+	N	N	6 (+) 0 (-) 17 (N)	6 (+) 0 (-) 17 (N)
1.3.3: Funding for flood studies	-	+	-	N	-	N	-	-	+	+	+	+	-	N	-	N	N	N	N	N	N	N	-	5 (+) 8 (-) 10 (N)	7 (+) 10 (-) 10 (N)
1.4.1: Buyout list	+	+	+	N	-	N	+	N	+	+	+	+	-	N	-	N	N	N	N	+	+	+	-	11 (+) 4 (-) 8 (N)	13 (+) 6 (-) 8 (N)
1.4.2: Relocation fund	+	+	+	N	-	N	+	+	+	+	+	+	-	N	N	N	N	N	N	N	+	+	N	11 (+) 2 (-) 10 (N)	13 (+) 4 (-) 10 (N)
1.4.3: Structure elevation	+	+	-	N	-	N	-	-	+	+	+	+	-	N	-	N	N	N	N	+	+	+	N	9 (+) 6 (-) 8 (N)	11 (+) 8 (-) 8 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)			
	+ Favorable					- Less Favorable					N Not Applicable															
	P			A		S		T	E			E				L										
Political			Administrative		Social		Technical	Economic			Environmental				Legal											
	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	Cost of Action	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			
1.5.1: NFIP participation	+	+	+	N	N	N	+	+	+	+	-	+	N	+	-	N	N	N	N	N	+	+	+	N	12 (+) 2 (-) 9 (N)	14 (+) 2 (-) 9 (N)
1.5.2: Evaluate participation in NFIP CRS	+	+	+	N	N	N	+	+	+	+	-	+	N	+	-	N	N	N	N	N	+	+	+	N	12 (+) 2 (-) 9 (N)	14 (+) 2 (-) 9 (N)
2.1.1: Identify most vulnerable to severe weather	+	+	+	-	-	N	+	+	+	+	+	+	-	N	N	N	N	N	N	N	+	+	N	11 (+) 3 (-) 9 (N)	13 (+) 5 (-) 9 (N)	
2.1.2: Manage stranded travelers	+	+	+	-	-	N	+	+	+	N	+	+	-	N	-	N	N	N	N	N	+	+	N	10 (+) 4 (-) 9 (N)	12 (+) 6 (-) 9 (N)	
2.1.3: Shelter and warning systems	+	+	+	+	-	-	+	+	+	+	+	+	-	N	-	N	N	+	N	+	+	+	N	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)	

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)	Summary (Benefits & Costs Prioritized)			
	+ Favorable										- Less Favorable					N Not Applicable									
	P	A			S	T		E			E			L											
Political	Administrative			Social	Technical		Economic			Environmental			Legal												
	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	Cost of Action	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		
2.1.4: Identify most vuln. to wildfires	+	+	+	-	-	N	+	+	+	+	+	+	-	N	N	N	N	+	+	+	+	+	-	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)
2.2.1: Tax/GIS data linkage	+	+	N	+	+	-	+	N	+	+	+	+	-	N	N	N	N	N	N	+	+	+	N	12 (+) 2 (-) 9 (N)	14 (+) 4 (-) 9 (N)
2.2.2: Develop a new digitized parcel GIS layer	+	+	+	-	-	+	+	N	+	+	+	+	-	N	N	N	N	N	N	+	+	+	N	12 (+) 3 (-) 8 (N)	14 (+) 5 (-) 8 (N)
2.3.1: Mfg home tie-down/anchor	-	+	-	N	N	N	-	-	+	+	+	+	N	N	N	N	N	N	N	+	+	+	-	8 (+) 5 (-) 10 (N)	10 (+) 5 (-) 10 (N)
2.4.1: HAZMAT facility warning systems	+	+	+	N	N	-	+	+	+	+	+	+	N	N	N	N	N	+	N	+	+	+	-	13 (+) 2 (-) 8 (N)	15 (+) 2 (-) 8 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)		
	+ Favorable					- Less Favorable					N Not Applicable														
	P			A		S		T	E			E				L									
Political			Administrative		Social		Technical	Economic			Environmental				Legal										
	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	Cost of Action	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		
2.5.1: Engineering surveys re: drinking water contamination from roadways	+	+	+	-	-	N	+	+	+	+	+	+	-	N	-	N	N	+	+	+	+	+	N	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)
2.6.1: Maintain Commodity Flow Study	+	+	+	-	-	-	+	+	+	+	+	+	-	+	-	N	N	+	N	+	+	+	N	14 (+) 5 (-) 4 (N)	16 (+) 7 (-) 4 (N)
2.6.2: HAZMAT transport route studies	+	+	+	-	-	N	+	+	+	+	+	+	-	+	-	N	N	+	N	+	+	+	N	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)
2.7.1: Work with Region 13 to prepare for terrorism	+	+	+	-	+	+	+	+	+	+	+	+	+	N	+	N	N	+	N	+	+	+	N	17 (+) 1 (-) 5 (N)	19 (+) 1 (-) 5 (N)
3.1.1: Setback from wildlands	-	+	-	N	N	N	+	+	+	+	+	+	N	N	N	+	+	-	+	+	+	+	+	14 (+) 3 (-) 6 (N)	16 (+) 3 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)			
	+ Favorable					- Less Favorable					N Not Applicable															
	P			A		S		T	E			E				L										
Political			Administrative		Social		Technical	Economic			Environmental				Legal											
	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	Cost of Action	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			
3.1.2: Controlled burn regulations	+	+	-	N	N	N	-	+	+	+	-	+	N	N	N	+	+	+	+	+	+	+	+	N	13 (+) 3 (-) 7 (N)	15 (+) 3 (-) 7 (N)
3.1.3: Regular municipal vulnerability analyses	+	+	+	-	-	-	+	+	+	+	+	+	-	N	N	N	N	+	N	+	+	+	+	N	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)
3.1.4: Municipal cost/benefit analysis of comp. plans and/or zoning/land use ordinances	+	+	+	-	-	N	+	+	+	+	+	+	-	+	N	+	+	+	+	+	+	+	+	N	17 (+) 3 (-) 3 (N)	19 (+) 5 (-) 3 (N)
3.1.5: Integrate snow removal and emergency access logistics with new development planning	+	+	+	N	N	N	+	+	+	+	+	+	N	N	N	N	N	+	N	+	+	+	+	N	13 (+) 0 (-) 10 (N)	15 (+) 0 (-) 10 (N)
3.1.6: Fire break around structures in rural areas	-	+	-	-	N	-	+	+	+	+	+	+	N	N	N	N	N	+	+	+	+	+	+	-	12 (+) 5 (-) 6 (N)	14 (+) 5 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)	Summary (Benefits & Costs Prioritized)		
	+ Favorable										- Less Favorable					N Not Applicable								
	P			A			S		T		E			E			L							
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	Cost of Action	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		
3.2.1: Roofing shingles in building codes	-	+	-	N	N	N	+	+	+	+	+	+	N	N	N	N	N	N	+	+	+	-	10 (+) 3 (-) 10 (N)	12 (+) 3 (-) 10 (N)
3.2.2: Fire-resistant materials in building codes	-	+	-	N	N	N	+	+	+	+	+	+	N	N	N	N	+	N	+	+	+	-	11 (+) 3 (-) 9 (N)	13 (+) 3 (-) 9 (N)
3.2.3: Evaluate adequacy of building codes	+	+	+	-	-	N	+	+	+	+	+	-	+	N	N	N	+	N	+	+	+	-	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)
3.2.4: Adoption of International Building Code	+	+	+	-	N	N	+	+	+	+	+	N	+	N	N	N	+	N	+	+	+	-	14 (+) 2 (-) 7 (N)	16 (+) 2 (-) 7 (N)
3.3.1: Training to municipal building inspectors	+	+	+	-	-	-	+	+	+	+	+	-	+	N	N	N	N	N	+	+	+	N	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																			Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)			
	+ Favorable			- Less Favorable			N Not Applicable																		
	P			A			S			T			E			E			L						
Political Support			Administrative			Social			Technical			Economic			Environmental			Legal							
	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	Cost of Action	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		
3.3.2: Increase awareness among mobile home owners re: anchoring	+	+	+	-	-	N	-	+	+	+	+	+	-	N	N	N	N	N	N	+	+	+	N	11 (+) 4 (-) 8 (N)	13 (+) 6 (-) 8 (N)
4.1.1: Publicize success stories	+	+	+	N	-	N	+	+	+	N	+	+	-	N	N	N	N	+	N	+	+	+	N	12 (+) 2 (-) 9 (N)	14 (+) 4 (-) 9 (N)
4.1.2: Encourage immunizations	+	+	+	-	-	N	+	-	+	+	+	+	-	N	N	N	N	N	N	+	+	+	N	11 (+) 4 (-) 8 (N)	13 (+) 6 (-) 8 (N)
4.1.3: Publicize easily prevented reasons for emergencies	+	+	+	N	-	N	+	+	+	N	+	+	-	N	N	+	+	+	+	+	+	+	N	15 (+) 2 (-) 6 (N)	17 (+) 4 (-) 6 (N)
4.2.1: Regular HMP meetings	+	+	+	-	-	N	+	+	+	+	+	+	-	N	N	N	N	+	+	+	+	+	N	14 (+) 3 (-) 6 (N)	16 (+) 5 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)		
	+ Favorable					- Less Favorable					N Not Applicable														
	P			A		S		T	E			E				L									
Political			Administrative		Social		Technical	Economic			Environmental				Legal										
	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	Cost of Action	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		
4.3.1: Expand hazard mitigation planning among partner organizations	+	+	N	-	N	N	+	+	+	+	+	+	-	+	N	N	N	+	N	+	+	+	N	13 (+) 2 (-) 8 (N)	15 (+) 4 (-) 8 (N)
5.1.1: Work with HAZMAT facility owners/operators	+	+	+	-	-	N	+	+	+	+	+	+	N	N	N	+	+	+	+	+	+	+	-	16 (+) 3 (-) 4 (N)	18 (+) 3 (-) 4 (N)
5.1.2 Increase awareness of actions to take during an emergency	+	+	+	N	+	N	+	+	+	+	+	+	N	N	N	N	N	+	N	+	+	+	N	14 (+) 0 (-) 9 (N)	16 (+) 0 (-) 9 (N)
5.2.1: Maintain lists of special populations requiring additional emergency response	+	+	+	-	-	-	+	+	+	+	+	+	-	N	-	N	N	N	N	+	+	+	N	12 (+) 5 (-) 6 (N)	14 (+) 7 (-) 6 (N)
5.2.2: Enhance response capability for special populations	+	+	+	-	-	-	+	+	+	+	+	+	-	N	-	N	N	N	N	+	+	+	N	12 (+) 5 (-) 6 (N)	14 (+) 7 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)	
	+ Favorable										- Less Favorable					N Not Applicable								
	P			A			S		T		E			E			L							
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	Cost of Action	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		
5.3.1: Maintain an all-hazards County EOP	+	+	+	-	-	-	+	+	+	+	+	-	N	N	N	N	N	N	+	+	+	+	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)
5.3.2: Maintain all-hazards municipal EOPs	+	+	+	-	-	-	+	+	+	+	+	-	N	N	N	N	N	N	+	+	+	+	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)
5.3.3: Encourage COOP planning	+	+	+	-	-	-	+	+	+	+	+	-	+	N	N	N	N	N	+	+	+	+	14 (+) 4 (-) 5 (N)	16 (+) 6 (-) 5 (N)
5.3.4: Emergency plans for HAZMAT facilities	+	+	+	-	-	-	+	+	+	+	+	-	N	-	+	+	+	+	+	+	+	+	17 (+) 5 (-) 1 (N)	19 (+) 7 (-) 1 (N)
5.3.5: Conduct post-disaster community recovery planning	+	+	+	-	-	-	+	+	+	+	+	-	+	-	N	N	N	+	+	+	+	-	14 (+) 6 (-) 3 (N)	16 (+) 8 (-) 3 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)		
	+ Favorable					- Less Favorable					N Not Applicable														
	P			A		S		T	E			E				L									
Political			Administrative		Social		Technical	Economic			Environmental				Legal										
	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	Cost of Action	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		
5.3.6: Update the debris management plan	+	+	+	-	-	-	+	+	+	+	+	+	-	N	-	N	N	N	+	+	+	+	N	13 (+) 5 (-) 5 (N)	15 (+) 7 (-) 5 (N)
5.3.7: Enhance public safety personnel and equipment system	+	+	+	+	-	+	+	+	+	+	+	+	-	N	N	N	N	N	N	+	+	+	N	14 (+) 2 (-) 7 (N)	16 (+) 4 (-) 7 (N)
6.1.1: Investigate options for protecting CI within the floodplain	+	+	+	-	-	N	+	+	+	N	+	+	-	N	-	N	N	+	+	+	+	N	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)	
6.1.2: Cost-benefit analysis of protecting CI in floodplain	+	+	+	-	-	N	+	+	+	N	+	+	-	N	-	N	N	+	+	+	+	N	13 (+) 4 (-) 6 (N)	15 (+) 6 (-) 6 (N)	
6.1.3: Maintenance on stormwater management structures	+	+	+	-	-	-	+	+	+	N	+	+	-	N	-	+	+	+	+	+	+	+	N	15 (+) 5 (-) 3 (N)	17 (+) 7 (-) 3 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)		
	+ Favorable					- Less Favorable					N Not Applicable														
	P			A		S		T	E			E				L									
Political			Administrative		Social		Technical	Economic			Environmental				Legal										
	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	Cost of Action	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		
6.1.4: Replace stormwater management structures as needed	+	+	+	-	-	N	+	+	+	+	+	+	-	N	-	+	+	+	+	+	+	+	N	16 (+) 4 (-) 3 (N)	18 (+) 6 (-) 3 (N)
6.1.5: Raise roadways that routinely flood	+	+	+	-	-	N	+	+	+	+	+	+	-	N	-	+	+	+	+	+	+	+	N	16 (+) 4 (-) 3 (N)	18 (+) 6 (-) 3 (N)
6.1.6: Upgrade and replace manholes	+	+	+	-	-	-	+	+	+	+	+	+	-	N	-	+	+	+	+	+	+	+	N	16 (+) 5 (-) 2 (N)	18 (+) 7 (-) 2 (N)
6.1.7: Protect natural wetlands	+	+	+	N	-	-	+	+	+	+	+	+	-	N	N	+	+	+	+	+	+	+	-	16 (+) 4 (-) 3 (N)	18 (+) 6 (-) 3 (N)
6.2.1: Evaluate vulnerability of critical facilities	+	+	+	-	-	-	+	+	+	N	+	+	-	N	-	N	N	+	N	+	+	+	N	12 (+) 5 (-) 6 (N)	14 (+) 7 (-) 6 (N)

Somerset County 2015 Hazard Mitigation Plan

Table 6.4-3: Somerset County PA STEEL Review Results

Alternative Actions	PA STEEL Criteria Considerations																				Summary (Equal Weighting)		Summary (Benefits & Costs Prioritized)		
	+ Favorable					- Less Favorable					N Not Applicable														
	P			A		S		T	E			E				L									
Political			Administrative		Social		Technical	Economic			Environmental				Legal										
	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	Cost of Action	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		
6.2.2: Critical facility emergency action plan	+	+	+	-	-	-	+	+	+	+	+	+	-	N	-	N	N	+	N	+	+	+	N	13 (+) 5 (-) 5 (N)	15 (+) 7 (-) 5 (N)
6.3.1: Bury power and phone lines	+	+	+	N	N	-	+	N	+	+	N	+	N	N	-	N	N	N	+	+	N	N	-	9 (+) 3 (-) 11 (N)	11 (+) 3 (-) 11 (N)
6.3.2: Require below ground power/phone lines	+	+	+	N	N	-	+	N	+	+	N	+	N	N	N	N	N	N	+	+	N	N	-	9 (+) 2 (-) 12 (N)	11 (+) 2 (-) 12 (N)

7 Plan Maintenance

7.1 Update Process Summary

This update to Somerset County's Federal Emergency Management Agency (FEMA)-approved 2004 HMP was a comprehensive update that expanded the sources and amount of data for better trend analysis, updated the vulnerability and risk assessment for local hazards, created a more fluid process to streamline future updates to the HMP, and updated the hazard mitigation measures identified to limit the effects of local hazards.

7.2 Monitoring, Evaluating and Updating the Plan

Hazard mitigation planning in Somerset County is the responsibility of all levels of government (i.e., county and local), as well as the citizens of the County. As listed in FEMA 386-4, the planning team (the Somerset County Local Emergency Planning Committee [LEPC]) must continuously monitor and document the progress of the Plan's recommended actions. The Somerset County LEPC (listed in Section 3.2), under the direction of the Somerset County Department of Emergency Services, will be responsible for maintaining this Multi-Jurisdictional HMP. The LEPC will meet annually and following each emergency declaration, with the purpose of reviewing the plan. Richard B. Lohr, Director of the Somerset County Department of Emergency Services, will lead the LEPC for annual reviews of the HMP. Each year, the county will solicit new projects from the municipalities by sending out Mitigation Opportunity Forms and informing the municipalities of the opportunity to update their mitigation measures.

Each review process will ensure that the hazard vulnerability analysis and risk assessment reflect current conditions in the county and the municipalities, the capability assessment accurately reflects local circumstances, and the hazard mitigation strategies are updated based on the county's damage assessment reports and local mitigation project priorities. The LEPC will complete a progress report to evaluate the status and accuracy of the HMP and record the LEPC's findings. The Somerset County Department of Emergency Services and Planning Commission will maintain a copy of these records. The progress report template is found in **Appendix I**.

As directed by FEMA 386-4, the Progress Report will include the following information: the hazard mitigation action's objectives; who the lead and supporting agencies responsible for implementation are; how long the project should take, including a delineation of the various stages of work along with timelines (milestones should be included); whether the resources needed for implementation, funding, staff time, and technical assistance are available, or if other arrangements must be made to obtain them; the types of permits or approvals necessary to implement the action; details on the ways the actions will be accomplished within the organization, and whether the duties will be assigned to agency staff or contracted out; and the current status of the project, identifying any issues that may hinder implementation.

The HMP must be updated on a five-year cycle. This HMP will be updated within a five-year period and resubmitted to FEMA for reapproval. The monitoring, evaluating, and updating of the plan every five years will rely heavily on the outcomes of the annual LEPC meetings.

7.3 Incorporation into Other Planning Mechanisms

7.3.1 Somerset County Comprehensive Plan

Method

The Somerset County Planning Commission is responsible for maintaining and updating the county comprehensive plan and the county subdivision and land development ordinance. The planning commission meets monthly to review, discuss, and comment on municipal subdivision and land development plans. It uses this information to identify necessary revisions and to amend both the comprehensive plan and the subdivision and land development ordinance. The planning commission's meetings are open to the public and are advertised according to the Pennsylvania Sunshine Act (65 PA C.S.A.).

Technical assistance on community planning matters is provided through the Somerset County Planning Commission. The planning commission administers the county comprehensive plan and the county subdivision and land development ordinance. The planning commission also performs technical reviews of municipal subdivision and land development plans, municipal floodplain ordinances, municipal stormwater management plans and ordinances, and other community planning and development matters. Since the adoption of the existing HMP, these reviews have included informal cross-referencing of the planned development or regulatory activity with the provisions of the HMP. This practice will continue using the information in the updated HMP.

Maintenance Schedule

Article III of the Pennsylvania Municipalities Planning Code (Act 247 of 1968, as reenacted and amended) requires all Pennsylvania counties (except Philadelphia) to adopt a comprehensive plan and update it at least every 10 years. Coupling this requirement with the DMA 2000-required five-year update cycle for HMPs, when possible, will allow the county to better integrate the county comprehensive plan and multi-jurisdictional HMP planning processes and strengthen public participation for both efforts.

Somerset County's current comprehensive plan was adopted in September 2006. This plan provides general direction and a blueprint for the future of Somerset County and constituent communities. Recommendations from the multi-jurisdictional HMP can be incorporated into the document.

7.3.2 Somerset County Emergency Operations Plan

Method

The Pennsylvania Emergency Management Services Code (35 PA C.S. Sections 7701-7707, as amended) requires each county and municipality to prepare, maintain, and keep current an Emergency Operations Plan (EOP). The Somerset County Department of Emergency Services is responsible for preparing and maintaining the county EOP. The risk assessment information presented in the existing HMP was used to update the hazard vulnerability assessment section

of the county EOP. The updated risk assessment information will affect subsequent updates to the EOP.

Maintenance Schedule

The EOP is reviewed at least biennially. Whenever portions of the plan are implemented in an emergency event or training exercise, a review is performed and changes are made where necessary. These changes are then distributed to the county's local emergency management coordinators (LEMCs) for safekeeping.

The Somerset County Department of Emergency Services should consider the county's multi-jurisdictional HMP during its biennial review of the county EOP. Recommended changes to the HMP will then be coordinated with the LEPC.

7.3.3 Plan Interrelationships

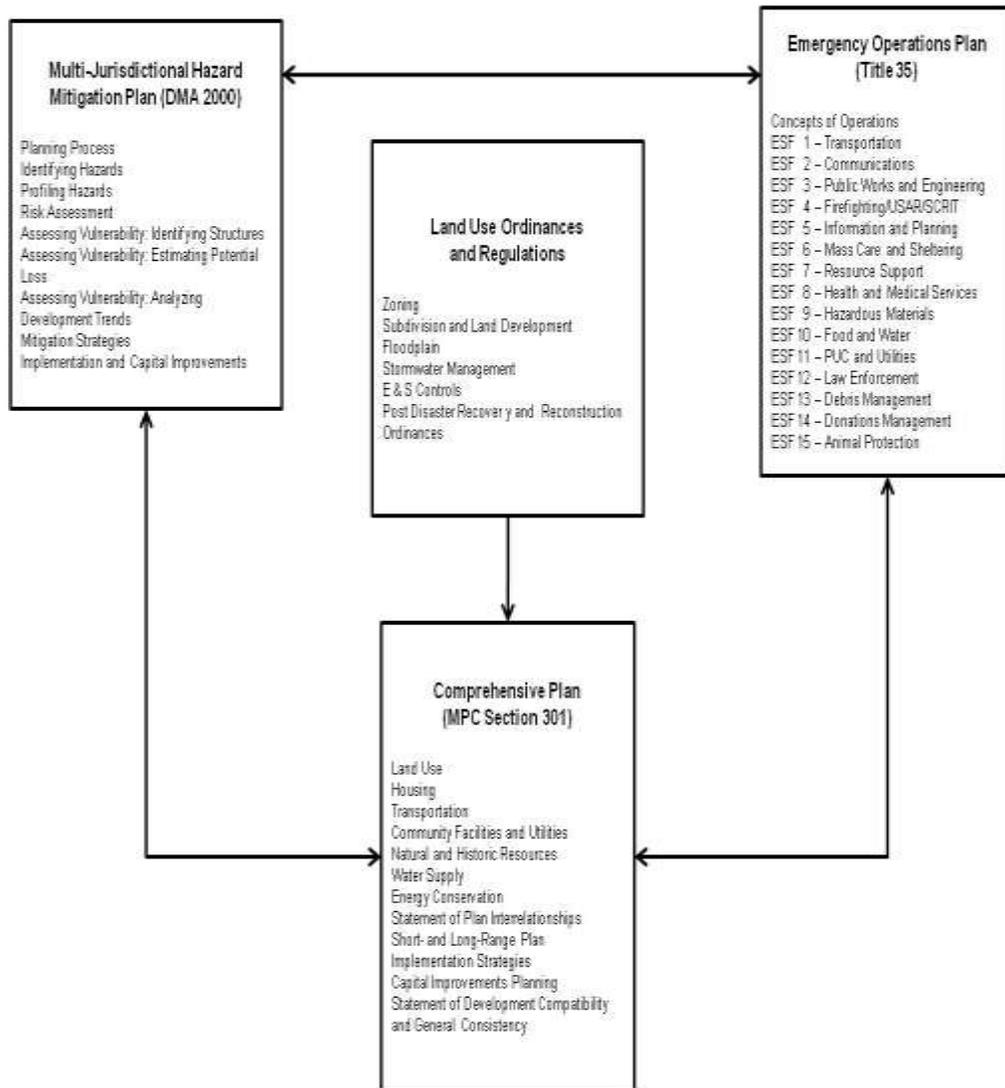
Figure 7.3-1 illustrates the interrelationships between the HMP, county comprehensive plan, county EOP, and other community planning mechanisms. Ensuring consistency between these planning mechanisms is critical. In fact, Section 301 (4.1) of the Pennsylvania Municipalities Planning Code requires that comprehensive plans include a discussion of the interrelationships among their various plan components, "which may include an estimate of the environmental, energy conservation, fiscal, economic development, and social consequences on the environment."

When developing the multi-jurisdictional HMP, certain sections of the county comprehensive plan, EOP, and various land use ordinances and regulations provided key information. Moving forward, each of these documents should not be treated as unrelated and updated separately. The county and each participating municipality are responsible for incorporating the specific mitigation actions recommended in this plan into the necessary planning documents, including the appropriate comprehensive plan, the county EOP, and any land use ordinances and regulations.

For example, zoning and other land use regulations will be amended to reflect the newly identified hazard areas, to ensure that development in those areas is minimized or at least conducted in a way that otherwise mitigates against the effects of hazards (e.g., requiring structures built in the floodplain to be elevated). As proposed changes to building codes are presented, their potential for mitigating damage due to hazards will be examined, and the changes will only be adopted if they are shown to lower risk. Changes to stormwater management plans will incorporate identified mitigation actions and will encourage increased participation in the NFIP.

To that end, Somerset County and its municipalities must ensure that the components of the HMP are integrated into existing community planning mechanisms and are generally consistent with goals, policies, or recommended actions. Somerset County and the LEPC will utilize the existing maintenance schedule of each plan to incorporate the goals, policies, or recommended actions as each plan is updated.

Figure 7.3-1: Interrelationships of Community Plans



7.4 Continued Public Involvement

The Somerset County Planning Commission will ensure that the HMP is posted and maintained on the county web site, and will continue to encourage public review and comment on the plan.

The citizens of Somerset County are encouraged to submit their comments to elected officials and/or members of the LEPC. To promote public participation, Somerset County welcomed comments on the HMP for a 30-day period. This offered the public the opportunity to share their comments and observations. All comments received will be maintained and considered by the LEPC when updating the HMP.

Somerset County will continue to reach out to municipalities regarding mitigation projects, especially those municipalities that did not submit projects for inclusion in this HMP. Any additional mitigation opportunity forms received during the life of this five-year HMP will be incorporated into the plan as an interim, updated and included in the next five-year Plan update.

The 2015 Somerset County HMP is available online for review at <http://www.co.somerset.pa.us>.

8 Plan Adoption

Resolutions reflecting formal adoption of this HMP by the county and participating municipalities can be found in **Appendix H**.