Somerset County 2020 Hazard Mitigation Plan

Somerset County Department of Emergency Services

MCM Consulting Group, Inc.
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Certification of Annual Review Meetings

YEAR	DATE OF MEETING	PUBLIC OUTREACH ADDRESSED? *	SIGNATURE
2021			
2022			
2023			
2024			
2025			

**Confirm yes here annually and describe on record of change 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)

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

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Acronyms

Acronym	Meaning
AACT	American Academy of Clinical Toxicology
ACHA	American College Health Association
ACMT	American College of Medical Toxicology
AHJ	Authority Having Jurisdiction
AMD	Acid Mine Drainage
ANSI	American National Standards Institute
ASAM	American Society of Addiction Medicine
ASHRAE	American Society of Heating, Refrigerating and Air-Conditioning Engineers
ASIRT	Association for Safe International Road Travel
BFE	Base Flood Elevation
CBD	Cannabidiol
CBRNE	Chemical, Biological, Radiological, Nuclear or Explosive
CDC	Centers for Disease Control and Prevention
CERT	Community Emergency Response Team
CFR	Code of Federal Regulations
CFS	Commodity Flow Study
CHSN	College Health Surveillance Network
CIDRAP	Center for Infectious Disease Research and Policy
CPAP	Continuous Positive Airway Pressure
CRNP	Certified Registered Nurse Practitioner
CRS	Community Rating System
DCNR	Department of Conservation and Natural Resources
DDAP	Department of Drug and Alcohol Programs
DEA	Drug Enforcement Administration
DFIRM	Digital Flood Insurance Rate Maps
DMA	Disaster Mitigation Act
DPS	Department of Public Safety
EF	Enhanced Fujita
EIA	Energy Information Administration
EMA	Emergency Management Agency
EMPG	Emergency Management Performance Grant
EMS	Emergency Medical Services
EOP	Emergency Operations Plan
EPA	Environmental Protection Agency
EPCRA	Emergency Planning and Community Right-To-Know Act
EPZ	Emergency Planning Zone
FBI	Federal Bureau of Investigation

FEMA	Federal Emergency Management Agency
FMA	Flood Mitigation Assistance Grant Program
FRA	Federal Railroad Association
GIS	Geographic Information Systems
GTP	Global Tungsten & Powders
HAZUS	Hazards U.S Software
HMA	Hazard Mitigation Assistance
HMEP	Hazardous Material Emergency Planning Grant
HMGP	Hazard Mitigation Grant Program
HMP	Hazard Mitigation Plan
HMRF	Hazardous Material Response Fund
HSCA	Hazardous Sites Cleanup Act
HSGP	Homeland Security Grant Program
HVAC	Heating, Ventilation, and Air Conditioning
HVE	Homegrown Violent Extremist
ICC	International Code Council
IES	Illuminating Engineering Society
LEPC	Local Emergency Planning Committee
LGBTQ	Lesbian, Gay, Bisexual, Trans & Queer
LPT	Local Planning Team
MAT	Medication-Assisted Treatment
MPC	Municipalities Planning Code
MPH	Miles Per Hour
NARM	Notification and Resource Manual
NAS	Neonatal Abstinence Syndrome
NCDC	National Climatic Data Center
NCEI	National Centers for Environmental Information
NFIP	National Flood Insurance Program
NFPA	National Fire Protection Association
NIH	National Institute of Health
NLD	National Levee Database
NOAA	National Oceanic and Atmospheric Administration
NTP	Narcotic Treatment Program
NWS	National Weather Service
OIH	Opioid-Induced Hyperalgesia
OUD	Opioid Use Disorder
PA	Physician Assistant
PA DCED	Pennsylvania Department of Community and Economic Development
PA DEP	Pennsylvania Department of Environmental Protection
PA DOA	Pennsylvania Department of Agriculture
PA DOH	Pennsylvania Department of Health

PA GWIS	Pennsylvania Groundwater Information System
PA-HART	Pennsylvania Helicopter Aquatic Rescue Team
PAWNVCP	Pennsylvania West Nile Virus Control Program
PDM	Pre-Disaster Mitigation Grant
PDMP	Prescription Drug Monitoring Program
PDSI	Palmer Drought Severity Index
PEMA	Pennsylvania Emergency Management Agency
PennDOT	Pennsylvania Department of Transportation
PHMSA	Pipeline and Hazardous Materials Safety Administration
PISC	Pennsylvania Invasive Species Council
POD	Points of Dispensing
PWSA	Public Water Service Area
RF	Risk Factor
SARA	Superfund Amendments and Reauthorization Act
SFHA	Special Flood Hazard Area
TRI	Toxic Release Inventory
UCC	Uniform Construction Code
US ACOE	US Army Corps of Engineers
US HHS	US Department of Health and Human Services
USACE	United States Army Corps of Engineers
USDA	US Department of Agriculture
USDA FS	US Department of Agriculture Forest Service
USGS	United States Geological Survey
WL	Working Level
WMD	Weapons of Mass Destruction
WUI	Wildland Urban Interface

Executive Summary

Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. Hazard mitigation focuses attention and resources on county and municipal policies and actions that will produce successive benefits over time. State and local governments engage in hazard mitigation planning to identify risks and vulnerabilities associated with natural as well as human-caused hazards and develop long-term strategies for protecting people and property from future hazard events. Mitigation plans are key to breaking the cycle of disaster damage, reconstruction, and repeated damage. This plan 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 2019, Somerset County Department of Emergency Services contracted the services of a 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 Somerset County Hazard Mitigation Plan was adopted by the Somerset County Commissioners in 2020. Forty-eight municipalities adopted the 2015 Somerset County Hazard Mitigation Plan as the municipal hazard mitigation plan and it is anticipated that all participating municipalities will adopt the 2020 Somerset County Hazard Mitigation Plan Update.

The Somerset County Commissioners secured a grant to complete the 2020 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 December 16, 2019.

The planning process for the 2020 Somerset County Hazard Mitigation Plan Update 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 and projects that can reduce that vulnerability
- Development of a strategy for implementing the actions and projects, 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. Due to COVID-19, public meetings were conducted via online surveys and webinars to provide residents an opportunity to provide input on the HMP. Additionally, a community preparedness survey was dispersed to all members of the community. In total, twenty-eight

surveys were collected and analyzed. The following hazards were identified by the local planning team as presenting the highest risk to the county and its municipalities:

- Emergency Services
- Opioid Epidemic
- Invasive Species
- Flash Flooding
- Environmental Hazards
- Tornado and Windstorm
- Terrorism
- Levee Failure
- Dam Failure
- Utility Interruption
- Flooding
- Winter Storms
- Pandemic and Infectious Disease
- Wildfire
- Drought
- Subsidence and Sinkholes
- Radon Exposure
- Ice Jam Flooding
- Hurricane and Tropical Storm
- Hailstorm
- Landslides
- Transportation Accidents
- Earthquakes

A total of twenty-three hazards are identified in the 2020 Somerset County Hazard Mitigation Plan. A total of sixteen identified hazards were listed in the previous 2015 plan update. New hazards identified in this plan include emergency services, opioid epidemic, invasive species, dam failure, and landslides. Additionally, it should be noted that flooding, flash flooding, and ice jam flooding were separated out into separate profiles. Also, tornado/windstorms and levee failure/dam failure were profiled together for this plan update.

To mitigate against the effects of these hazards, the local planning team 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 all 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.

Mitigation actions are specific projects and activities that help achieve goals. A total of fifty-six actions were developed for this plan update as they pertain to hazards identified by the local planning team. The 2015 Somerset County Hazard Mitigation Plan consisted of forty-six total actions. A total of twelve actions were removed from the previous plan update and twelve actions were new for this plan update. The individual objectives and actions that will be implemented are shown in Section 6.4. Each municipality was provided the opportunity to submit new project opportunity forms for this update. A total of eight project opportunity forms were submitted during the 2015 HMP update. Municipalities were asked to indicate the current status of these projects submitted in 2015, of which zero indicated any completed projects. A total of forty-one project opportunities were submitted for this plan update.

The 2020 Somerset County Hazard Mitigation Plan is the cornerstone to reducing Somerset County's vulnerability to disasters. It is the commitment to reducing risks from hazards and serves as a guide for decision makers as they commit resources to reducing the effects of hazards. Hazard mitigation is the only phase of emergency management specifically dedicated to breaking the cycle of damage, reconstruction, and repeated damage.

The 2020 Somerset County Hazard Mitigation Plan is a living document that reflects ongoing hazard mitigation activities and requires monitoring, evaluating, and updating to ensure the mitigation actions are implemented. To facilitate the hazard mitigation planning process and adhere to regulatory requirements, the plan will be reviewed annually and any major revisions will be incorporated into the five-year update.

1. Introduction

1.1. Background

The Somerset County Board of Commissioners, in response to the Disaster Mitigation Act of 2000 (DMA 2000), organized a countywide hazard mitigation planning effort to prepare, adopt and implement a multi-jurisdictional hazard mitigation plan (HMP) for Somerset County and all of its fifty municipalities. The Somerset County Planning Commission was charged by the Somerset County Board of Commissioners to prepare the 2020 plan update. The 2015 HMP has been utilized and maintained during the five year life cycle.

The Somerset County Commissioners were successful in securing hazard mitigation grant funding to update the county hazard mitigation plan. The pre-disaster mitigation grant funding was administered by the Pennsylvania Emergency Management Agency and provided to Somerset County as a sub-grantee. The Somerset County Commissioners assigned the Somerset County Planning Commission with the primary responsibility to update the hazard mitigation plan. MCM Consulting Group, Inc. was selected to complete the update of the HMP. A local hazard mitigation planning team comprised of government leaders and citizens from Somerset County was developed. 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 reestablish themselves in the wake of a disaster, getting the economy back on track sooner and with less interruption.

1.2. Purpose

The purpose of the 2020 Somerset County Hazard Mitigation Plan (HMP) is:

- To protect life, safety and property by reducing the potential for future damages and economic losses that result from natural hazards;
- To qualify for additional grant funding, in both the pre-disaster and the post-disaster environment;
- To speed recovery and redevelopment following future disaster events;

- To demonstrate a firm local commitment to hazard mitigation principles; and
- To comply with both state and federal legislative requirements for local hazard mitigation plans.

1.3. Scope

This Somerset County Multi-Jurisdictional Hazard Mitigation Plan serves as a framework for saving lives, protecting assets and preserving the economic viability of the fifty municipalities in Somerset County. The HMP outlines actions designed to address and reduce the impact of a full range of natural hazards facing Somerset County, including drought, earthquakes, flooding, tornadoes, hurricanes/tropical storms and severe winter weather. Human-caused hazards such as transportation accidents, hazardous materials spills and fires are also addressed.

A multi-jurisdictional planning approach was utilized for the Somerset County HMP update, thereby eliminating the need for each municipality to develop its own approach to hazard mitigation and its own planning document. Further, this type of planning effort results in a common understanding of the hazard vulnerabilities throughout the county, a comprehensive list of mitigation projects, common mitigation goals and objectives and an evaluation of a broad capabilities assessment examining policies and regulations throughout the county and its municipalities.

1.4. Authority and Reference

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
- 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
- FEMA Mitigation Ideas: A Resource for Reducing Risk to Natural Hazards. January 2013

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. 2011

2. Community Profile

2.1. Geography and Environment

Somerset County covers approximately 1,074 square miles and is situated in the southwest portion of Pennsylvania, in a region known as the Laurel Highlands. The county is bordered by Westmoreland County to the northwest, Cambria County to the north, Bedford County to the east, Fayette County in the southwest, and the state of Maryland to the south. Somerset County is in the Allegheny Mountain section of the Appalachian Plateaus Physiographic Province.

Somerset County presents a wide range of topographic features. The landscape is composed of aged mountain ridges characterized by rolling hills. The valleys have broad, rippling surfaces with shallow to deep stream incision. The southern portion of the county is more mountainous and includes the highest point in Pennsylvania, Mount Davis. Elevations in the county range from a high of 3,213 feet at Mount Davis to a low of 1,040 feet in Southampton Township.

The average temperature in Somerset County is in the upper 70s during the summer and low 30s in the winter. The Köppen climate classification for Somerset County is a humid continental climate. The average yearly precipitation is forty to forty-five inches. Nor'easters and lake effect upslope snow events can occur from late October through early April, averaging 150 plus inches of snow each winter on the highest elevations of the county. These snow events are caused by the elevation and the county's general proximity to both the Great Lakes and the Atlantic Ocean.

Somerset County is transected by the Appalachian continental divide. The plateau is defined on the east by the Allegheny Front, through which the Allegheny Tunnel of the Pennsylvania Turnpike extends, 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. River and stream valleys dominate the landscape of Somerset County with 6.6 square miles of water. Water drainage features are: Casselman River, Laurel Hill Creek, Stonycreek River, Shade Creek and Quemahoning Creek, which all are part of the Mississippi River Watershed. Wills Creek and the headwaters of Raystown Branch of the Juniata River are part of the Chesapeake Bay Watershed. Somerset County has 2,340 miles of streams and is comprised of five major watersheds:

- Raystown,
- Conemaugh,
- North Branch of the Potomac,
- Kiskiminetas
- Youghiogheny

The following are minor watersheds within Somerset County:

- Beaverdam Creek
- Beaverdam, Creek – Quemahoning Creek
- Blue Lick Creek – Casselman River
- Brush Creek
- Buffalo Creek
- Casselman River – Youghiogheny River
- Clear Shade Creek
- Dark Shade Creek
- Drake Run – Youghiogheny River
- Elklick Creek
- Fall Creek – Laurel Hill Cree
- Flag Run – Casselman Rive
- Gladdens Run
- Headwaters Raystown Branch Juniata River
- Headwaters Stonycreek River
- Indian Lak – Lake Stonycreek – Rhoads Creek
- Jennings Run
- Lake Somerset – East Branch Coxes Creek
- Laurel Hill Creek – Laurel Hill Lake Dam
- Laurel Run
- Little Piney Creek – Piney Creek
- Middle Creek
- Middle Stonycreek River
- Mill Run
- North Branch Quemahoning Creek
- Paint Creek
- Red Run – Piney Creek
- Roaring Run – Quemahoning Creek
- Shaffer Run – Wills Creek
- Sandy Run – Laurel Hill Creek
- Shade Creek – Stony Creek
- South Fork Bens Creek
- Town Line Run
- Tub Mill Run – Casselman River
- Upper Stonycreek River
- Wells Creek
- West Branch Coxes Creek – Coxes Creek
- Whites Creek
- Youghiogheny River Lake

2.2. Community Facts

On April 17, 1795 Somerset County was established from Bedford County. It was named for Somerset, England. During the French and Indian War, military expeditions developed roads for the westward settlers, opening Somerset County. In 1755, General Braddock and his troops crossed the southwest corner of the county. Their trail (now known

as U.S. Route 40) was the first development in settling the county. In 1768, the Treaty of Fort Stanwix relinquished lands in Somerset County from the Native Americans.

The county's communities are small and dispersed, comprising numerous towns, villages, and crossroads settlements rooted in history and settled primarily by farmers. Somerset County is politically classed as a 6th class county. Somerset Borough is the county seat.

The following twenty-five boroughs and twenty-five townships are in Somerset County are shown in *Table 1 - Somerset County Municipalities*.

Table 1 - Somerset County Municipalities

Somerset County Municipalities	
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

Somerset County's leading industries are healthcare and social assistance, accommodation and food services, retail trade, manufacturing, and educational services. The primary employment providers within Somerset County are displayed below in *Table 2 - Top Employers* below.

Table 2 - Top Employers

Somerset County Top Employers	
Company	**Industry**
State Government	Government
Seven Springs Mountain Resort Inc.	Resort
UPMC Somerset Hospital	Healthcare
Chan Soon-Shiong Medical Center	Healthcare
Somerset County	Government
CVS PA Distribution Inc.	Healthcare
Somerset Trust Company	Finance/banking
DeVilbiss Healthcare LLC	Healthcare
Wheeler Brothers Inc.	Manufacturing
Wal-Mart Associates Inc.	Retail
Source: Pennsylvania Department of Labor & Industry	

There was a sixteen percent loss of the civilian labor force aged 25-54 in Somerset County between 2000 and 2015. Whereas, the percentage of civilian labor force age 55+ went from eleven percent in 2000 to twenty-nine percent in 2015.

The wealth of natural resources found in the county has been instrumental in shaping the diversity of communities within its borders. Agriculture, mining, and the network of rivers have played a large role in the economic development in Somerset County.

The Pennsylvania Turnpike (Interstate 76) traverses the county from east to west. Other major highways include U.S. Routes 219 and 30, and PA Route 31.

Somerset County has thirteen municipal police departments, and those municipalities that do not have police services rely on the Pennsylvania State Police, Troop A, Somerset station. The Pennsylvania Turnpike is patrolled by the Pennsylvania State Police Turnpike Detail.

Three hospitals serve the county: Conemaugh Meyersdale Medical Center, UPMC Somerset Hospital, and Chan Soon-Shiong Medical Center at Windber.

Somerset County has twenty-seven volunteer fire departments and seven emergency medical services.

Landmarks and places of interest include:

- Jennerstown Speedway – A 0.522-mile asphalt oval short-track featuring late models, modified, street stock, chargers, and hobby stocks. Open in the late 1920s, the track is one of the oldest short-track facilities in the United States.
- The Mountain Playhouse – Pennsylvania's oldest professional stock theater. With 393 seats, the Mountain Playhouse is accommodated in a restored 1805 gristmill.
- Laurel Arts – Dressler Center – A non-profit organization started in 1975 that promotes workshops, programs and special events throughout the year.

- National Memorial for Flight 93 – Because of the brave and heroic actions of the forty passengers and crew aboard the hijacked Flight 93, an attack of the U.S. Capitol was prevented on Tuesday, September 11, 2001.
- State parks:
    - Laurel Hill State Park
    - Kooser State Park
    - Laurel Ridge State Park
    - Laurel Mountain State Park
- The Great Allegheny Passage Trail – a rail trail system in Maryland and Pennsylvania – the central trail of a network of long-distance hiker-biker trails throughout the Allegheny region of the Appalachian Mountains.
- Four-season resorts:
    - Seven Springs
    - Hidden Valley
- Ten covered bridges:
    - Lower Humbert Covered Bridge (also known as Faidley Bridge) built in 1891, and crosses 126 feet.
    - Barronvale Covered Bridge is 162 feet in length, likely built in 1902.
    - King's Covered Bridge likely built in 1906 and is 127 feet in length.
    - Burkholder Covered Bridge (also known as Beechdale Covered Bridge) built in 1870, ad is fifty-two feet in length.
    - Packsaddle Covered Bridge built in 1870 and is forty-eight feet in length.
    - New Baltimore Covered Bridge is eighty-six feet long and was built in 1879; then rebuilt in 1996 after it was destroyed in a flood.
    - Glessner Covered Bridge was constructed in 1881 and is ninety feet in length.
    - Trostletown Covered Bridge (also known as Kantner Covered Bridge) is 104 feet long. It was built in 1845 and restored in the middle of the 20th century.
    - Walter's Mill Covered Bridge was constructed in 1830, though some sources say 1859. If the earlier date is correct, that would make it one of the oldest covered bridges in Pennsylvania. The bridge is sixty feet long.
    - Shaffer's Covered Bridge was constructed in 1877 and is sixty-eight feet in length.
- Quecreek rescue site – In July 2002, nine miners were successfully rescued, drawing international attention. The miners were trapped underground for over seventy-seven hours, from July 24 to July 28, 2002.

2.3. Population and Demographics

Somerset County recorded a population of 77,742 during the 2010 U.S. Census, ranking the county in the thirty-seventh position among Pennsylvania's sixty-seven counties. The population in this county is declining according to the U.S. Census Bureau which estimated the population to be 73,447 in July 2019, or -5.5 percent from the April 1, 2010 population census. The median income of households in Somerset County is $48,224 (U.S. Census, 2018); with twelve percent of the county population listed as in poverty.

The populations per municipality are identified in *Table 3 - Municipal Population* below.

Table 3 - Municipal Population

Somerset County Municipality Populations			
Municipality	**2010 Population**	**2015 Estimated**	**2019 Estimated**
Addison Borough	207	198	206
Addison Township	974	941	924
Allegheny Township	692	682	662
Benson Borough	191	192	186
Berlin Borough	2,104	2,001	1,941
Black Township	926	885	863
Boswell Borough	1,277	1,223	1,186
Brothersvalley Township	2,398	2,344	2,284
Callimont Borough	41	39	38
Casselman Borough	94	92	93
Central City Borough	1,124	1,070	1,029
Conemaugh Township	7,279	7,023	6,848
Confluence Borough	780	746	727
Elk Lick Township	2,241	2,155	2,087
Fairhope Township	134	119	115
Garrett Borough	456	445	432
Greenville Township	668	653	632
Hooversville Borough	645	617	594
Indian Lake Borough	394	390	378
Jefferson Township	1,423	1,367	1,330
Jenner Township	4,122	3,940	3,792
Jennerstown Borough	695	664	640
Larimer Township	595	573	553
Lincoln Township	1,518	1,462	1,413
Lower Turkeyfoot Twp.	603	578	564
Meyersdale Borough	2,184	2,083	2,019
Middlecreek Township	875	838	810
Milford Township	1,553	1,522	1,476
New Baltimore Borough	180	174	168
New Centerville Borough	133	132	128
Northampton Township	343	332	323
Ogle Township	501	485	472
Paint Borough	1,023	966	935
Paint Township	3,149	3,081	3,019
Quemahoning Township	2,025	1,966	1,904

Somerset County Municipality Populations			
Municipality	**2010 Population**	**2015 Estimated**	**2019 Estimated**
Rockwood Borough	890	849	820
Salisbury Borough	727	699	675
Seven Springs Borough	11	11	10
Shade Township	2,774	2,656	2,568
Shanksville Borough	237	220	212
Somerset Borough	6,277	6,015	5,855
Somerset Township	12,122	12,245	12,174
Southampton Township	630	615	600
Stonycreek Township	2,237	2,142	2,084
Stoystown Borough	355	329	319
Summit Township	2,271	2,183	2,117
Upper Turkeyfoot Township	1,119	1,088	1,047
Ursina Borough	225	213	208
Wellersburg Borough	181	177	171
Windber Borough	4,138	3,963	3,816
Source: Pennsylvania State Data Center and US Census Bureau			

The median age in Somerset County is 44.3 years old (according to the 2010 United States Census Bureau). During the 2010 Census the population by age in Somerset County was represented by 59.8 percent age 20 to 64; 19.4 percent under age 18; and age 65 and older with 18.5 percent. Of the total population, 52.3 percent are male, and 47.7 percent are female. In 1950 the median age in Somerset County was late 20's, the population has aged and in 2015 the median age is 45 (Comprehensive Plan for the Southern Alleghenies Region, 2018). This is due to young adults moving away from the region for higher paying jobs/careers. Also, Somerset County has seen a population deficit of 1,548 (births minus deaths) between 2010 and 2016. The county has also seen 1,214 people migrate out of the county between 2010 and 2016. During this same time frame only 194 people moved into the county. Somerset County has seven nursing-care facilities.

In 2015, Somerset had 2.5 percent of the population ages 25-34 with college degrees, this is far below the 5.9 percent in Pennsylvania and 5.8 percent nationwide of the same age groups.

The U.S. Census Bureau Quick Facts for July 1, 2018 notes that eleven percent of Somerset County's population under the age of 65 have a disability. It is estimated that in 2016 the disability rate of person between the ages of 18 to 64 in Somerset County was 13.2 percent.

A total of 38,113 housing units were identified during the 2010 census, of this a total of 7,023 were vacant units.

There are eleven school districts and five private educational facilities in Somerset County.

Somerset County has a population density of 72.4 persons per square mile (according to the U.S. Census Bureau's Quick Facts). A low population density makes it harder for emergency management to provide information, instructions and resources to the population. However, a low population density also helps prevent hazards from affecting large numbers of 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 distance between them. The most densely populated areas are Somerset and Conemaugh townships. Somerset Borough is the largest borough within Somerset County with 6,277 residents and Seven Springs Borough is the smallest with only eleven residents.

2.4. Land Use and Development

Somerset County is mostly a rural county as about sixty-one percent or 400,000 acres of its total land area is classified as forest cover, which is second or third growth. There are 17,945 acres of state forests and over 15,000 acres of state game lands. Somerset County also has 2,340 miles of streams. Nearly 81,000 acres are classified as prime agricultural soils. Land use within these areas include residential, commercial, industrial, and public and semi-public uses.

PennDOT and the turnpike maintain 951 miles of roadways in Somerset County, while 1,263 miles are maintained by local/municipal authorities. There are 435 bridges in the county as well. Commuting characteristics in 2016 report that approximately eighty-three percent drive alone with only 9.3 percent carpooling and less than four percent using other modes of transportation.

Somerset County has 1,152 farms averaging 190 acres, according to the 2017 Census of Agriculture. Approximately seventy-four percent of this farmland is for livestock and twenty-six percent as crops. The number of farms increased by four percent between 2007 and 2012. In 2009, the US Department of Agriculture National Agricultural Statistics Service – PA Office reported there were 17,700 milk cows producing a total of 309,000 pounds of milk in Somerset County.

Somerset County has identified that the county's growing recreation and tourism economy is established as a viable economic force. The county needs to protect architectural and scenic qualities as important resources for tourism.

Years of decline and shifts in the economy have left towns and boroughs in a neglected status, a redevelopment program could restore vibrancy and health to these areas.

In the western part of Somerset County lie many small, deep natural gas fields with numerous unconventional and conventional active wells.

2.5. Data Sources

- Comprehensive Plan for the Southern Alleghenies Region, Adopted 2018

- Somerset County Regional Planning Commission
- United States Census Bureau (2010, 2018)
- United States Department of Agriculture
- Natural Resources Conservation Service
- Pennsylvania State Data Center
- Somerset County Conservation District
- Pennsylvania Department of Environmental Protection
- Somerset County Geographic Information Systems (GIS)
- Pennsylvania Spatial Data Access (PASDA)
- National Oceanic and Atmospheric Administration
- Pennsylvania Department of Conservation and Natural Resources
- Somerset County Today - Summary of Indicators
- Somerset County 2015 HMP
- Pennsylvania Department of Labor and Industry

Figure 1 - Somerset County Base Map

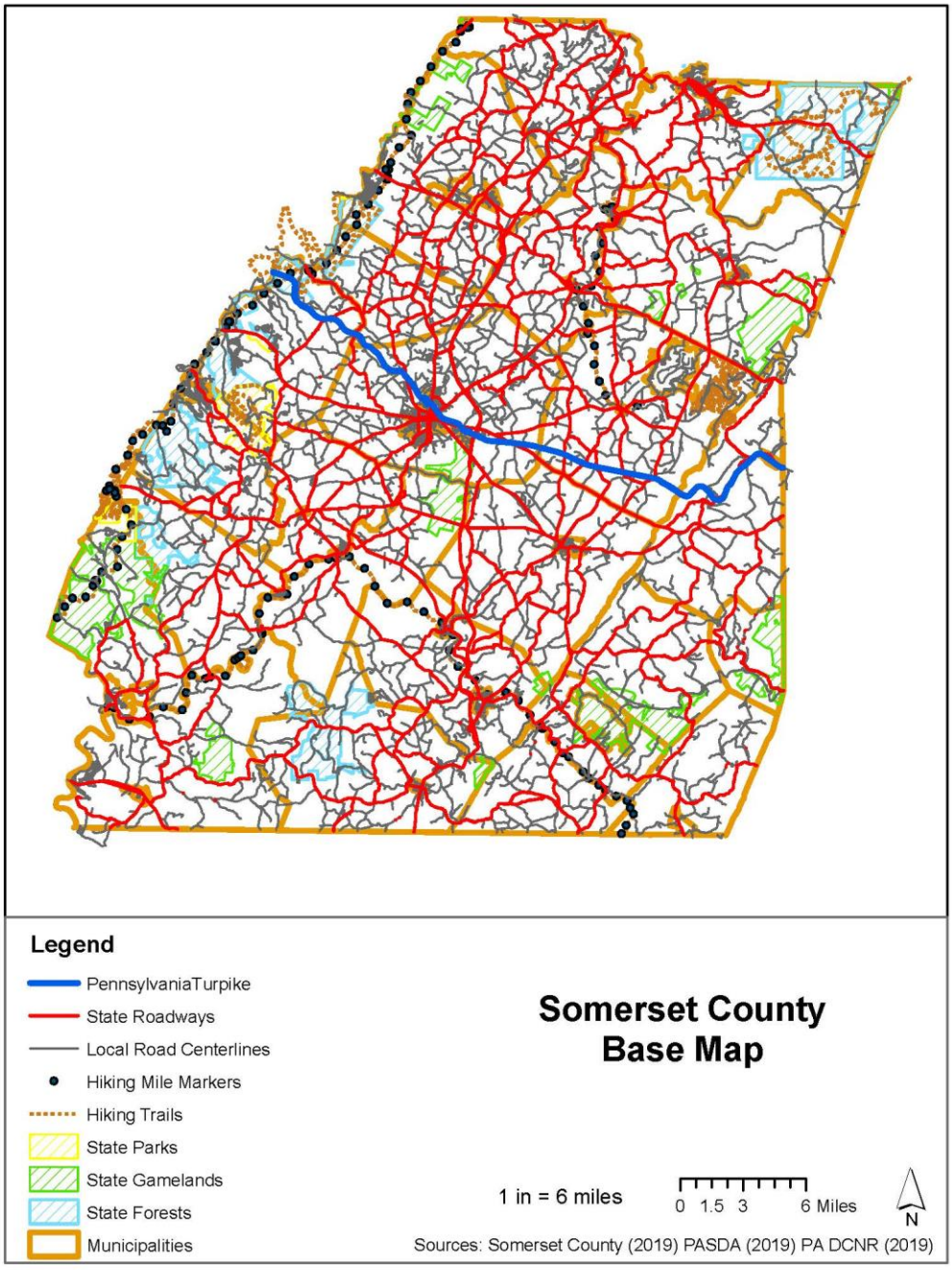


Figure 2 - Population Density Map

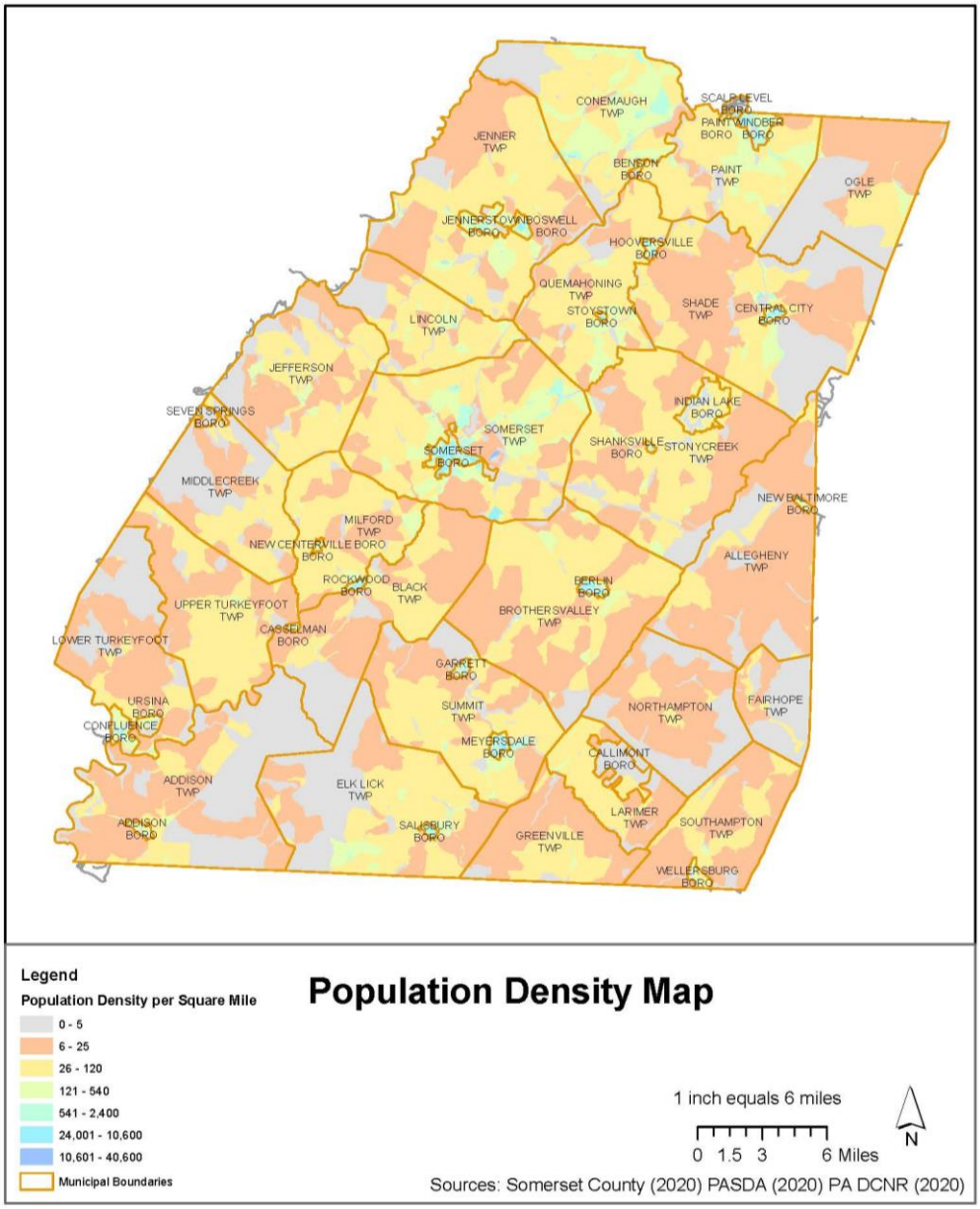


Figure 3 - Land Use – Land Cover Map

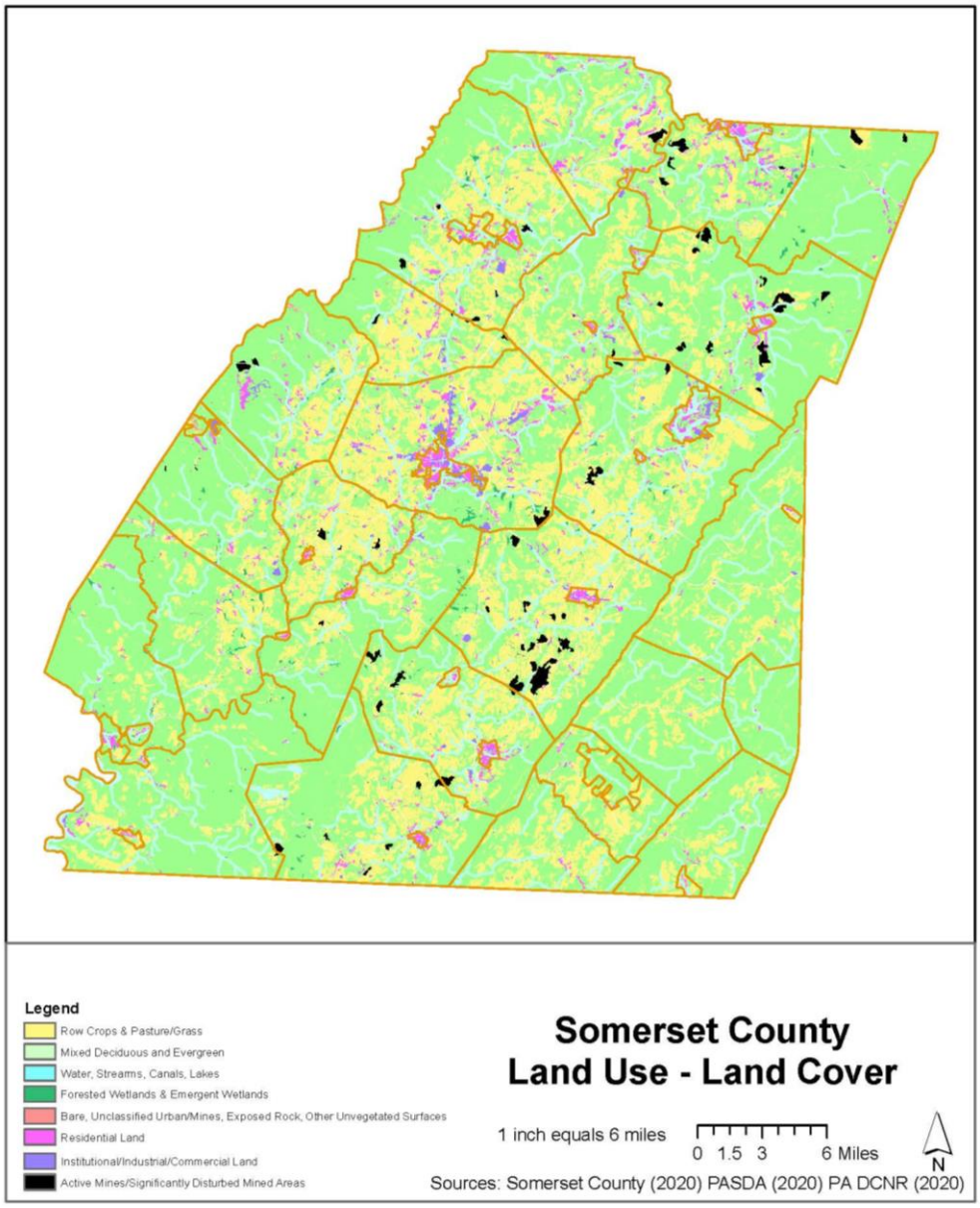


Figure 4 - Recreational Opportunities Map

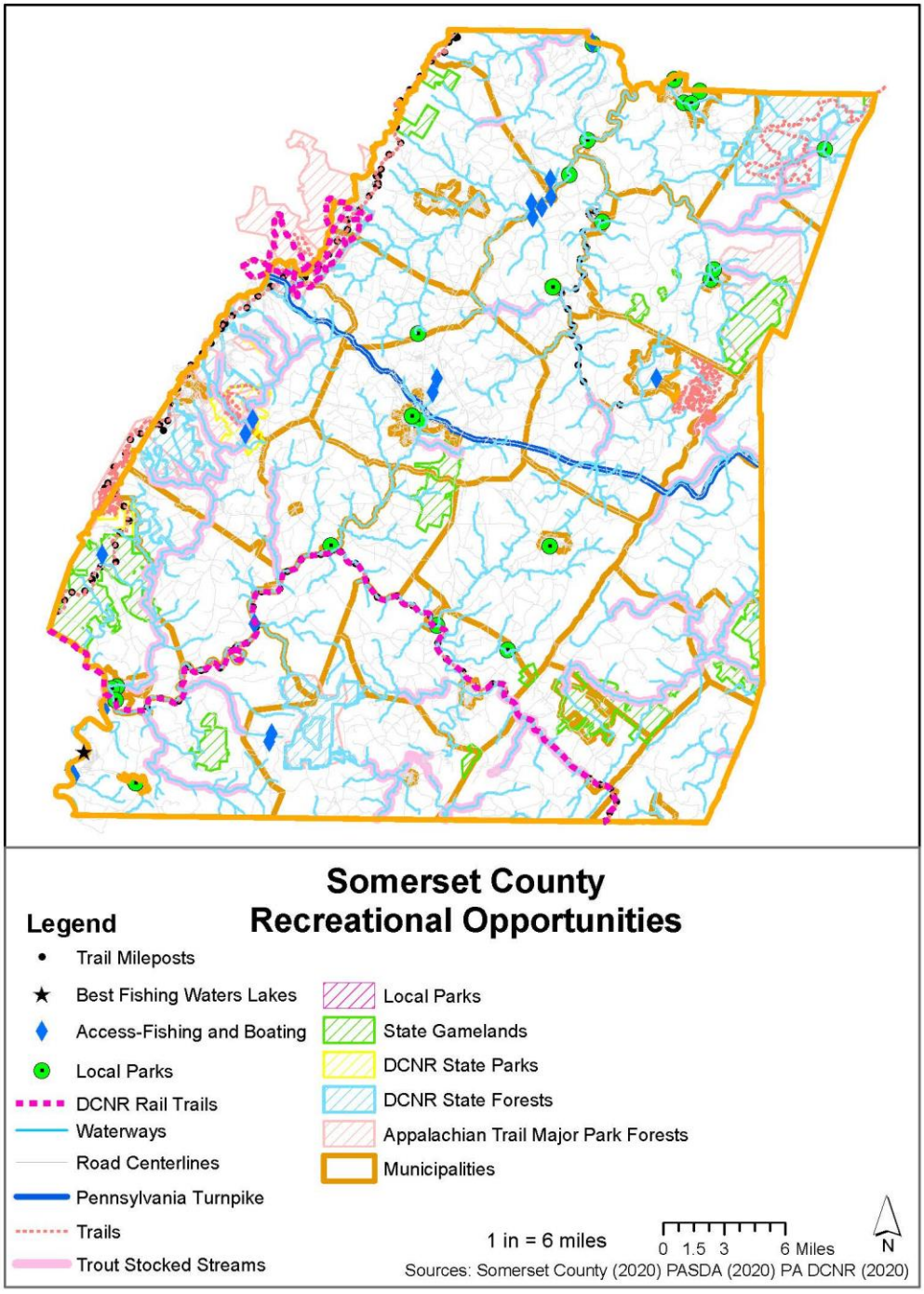
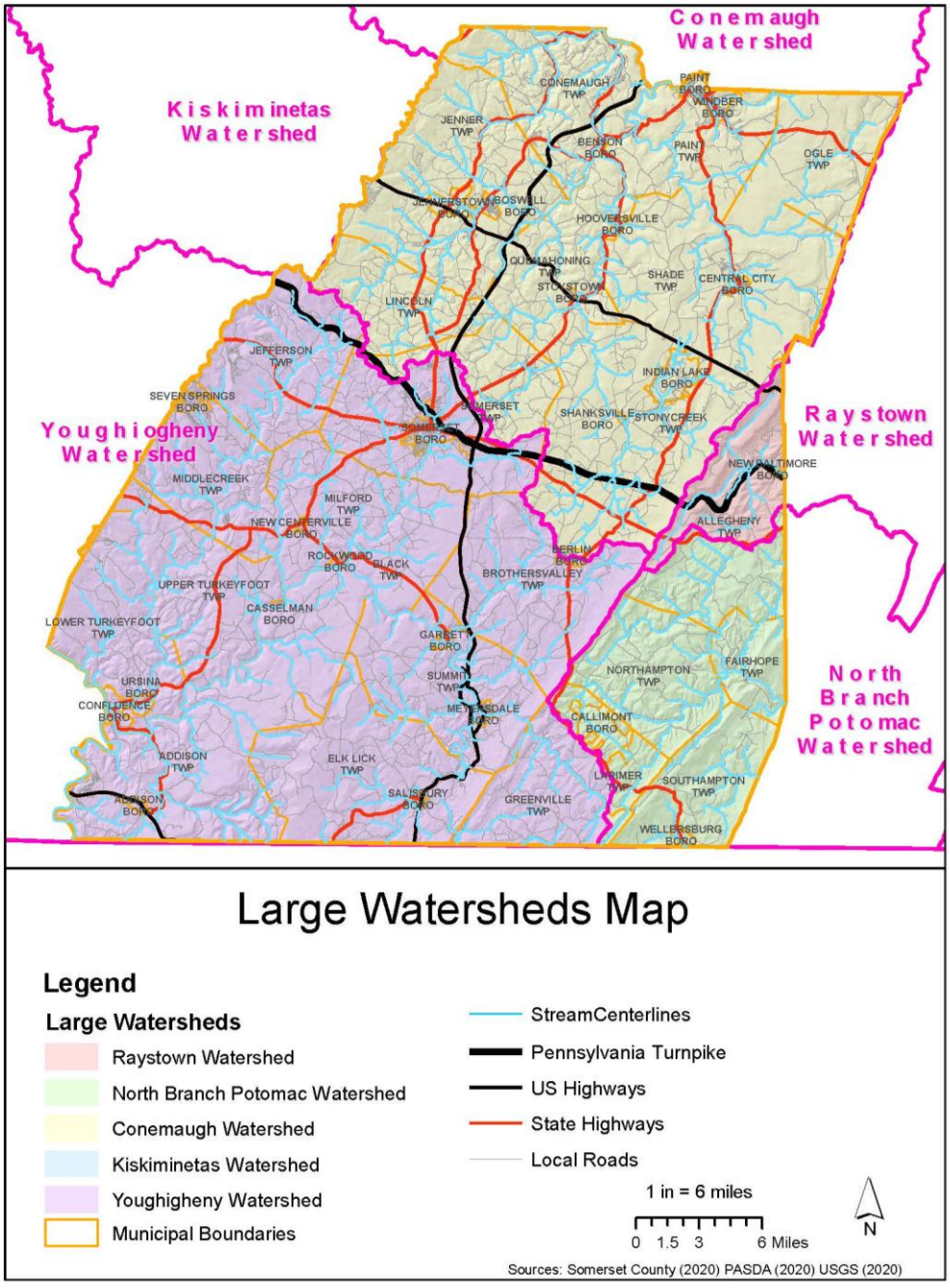


Figure 5 - Large Watersheds Map



3. Planning Process

3.1. Update Process and Participation Summary

The Somerset County Hazard Mitigation Plan update began December 16, 2019. The Somerset County Commissioners were able to secure a hazard mitigation grant to start the process. The Somerset County Planning Commission was identified as the lead agency for the 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 steering committee, included officials from the Somerset County Department of Emergency Services, the Somerset County Planning Commission and MCM Consulting Group, Inc. (MCM).

The 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. assisted Somerset County Planning Commission as well as Somerset County Department of Emergency Services in coordinating and leading public involvement meetings, local planning team meetings, analysis and the writing of the updated HMP. The Somerset County Local Planning Team (LPT) worked closely with MCM in the writing and review of the HMP. MCM conducted project meetings and local planning team meetings throughout the process. Due to COVID-19, most meetings were held virtually. 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.

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. Due to COVID-19, a majority of meetings were held virtually. At each of 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 assessment 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 2020 Somerset County HMP update planning process consisted of:

- Applying for and receiving a hazard mitigation planning grant 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 reviewing the information with the municipalities.
- Identifying hazards.
- Assessment of risk and analyzing vulnerabilities.
- Identifying mitigation strategies, goals and objectives.
- Developing an implementation plan.
- Announcing 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.

The 2020 Somerset County HMP was completed in August 2020. The 2020 plan follows an outline developed by PEMA which provides a standardized format for all local HMPs in the Commonwealth of Pennsylvania. The 2020 HMP format is consistent with the PEMA recommended format. The 2020 Somerset County HMP has additional hazard profiles that were added to the HMP and these additional profiles increased the subsections in section 4.3 of the HMP.

3.2. The Planning Team

The 2020 Somerset County Hazard Mitigation Plan Update was led by the Somerset County Steering Committee. The Somerset County Steering Committee provided guidance and leadership for the overall project. The steering committee assisted MCM Consulting Group, Inc. with dissemination of information and administrative tasks. *Table 3 – Steering Committee* outlines the individuals that comprised this team.

Table 3 – Steering Committee

Somerset County Hazard Mitigation Plan Update Steering Committee		
Name	**Organization**	**Position**
Joel Landis	Somerset County Department of Emergency Services	Director
Brad Zearfoss	Somerset County Planning Commission	Director
Sharlene McCoy	Somerset County Department of Emergency Services	EMA Clerk
Seth Forry	Somerset County Department of Emergency Services	Training Officer
Brad Levan	Somerset County Department of Emergency Services	911 Coordinator/Deputy Director
Craig Hollis-Nicholson	Somerset County Department of Emergency Services	GIS/CAD/Radio Specialist
Michael Rearick	MCM Consulting Group, Inc.	Project Manager

Somerset County Hazard Mitigation Plan Update Steering Committee		
Name	**Organization**	**Position**
Corbin Snyder	MCM Consulting Group, Inc.	Consultant

In order to represent the county, the Somerset County Steering Committee developed a diversified list of potential local planning team (LPT) members. Members that participated in the 2015 hazard mitigation plan were highly encouraged to join the 2020 team. The steering committee then provided invitations to the prospective members and provided a description of duties to serve on the LPT. The following agencies, departments and organizations were invited to participate in the LPT: Somerset County Commissioners, Somerset County Conservation District, Pennsylvania Department of Transportation, Penn State Cooperative, Pennsylvania Conservation and Natural Resources, Somerset County Farm Bureau, Pennsylvania Department of Agriculture, Somerset Rural Electric Co-Op, Conemaugh Meyersdale Medical Center, Laurel View Village, USACE Yough Dam, Cambria Somerset Authority, Pennsylvania Turnpike Commission, Riggs Industries, all contiguous counties including Bedford, Cambria, Westmoreland and Fayette Counties of Pennsylvania and Allegany and Garrett Counties of Maryland, all Somerset County School Districts, and all fifty municipalities. The invitations for membership of the LPT were disseminated by the Somerset County Department of Emergency Services utilizing letters, email and telephone calls. Copies of these letters can be found in Appendix C. The LPT worked throughout the process to plan and hold meetings, collect information and conduct public outreach.

The stakeholders listed in *Table 4 - Local Planning Team* served on the 2020 Somerset County Hazard Mitigation Local Planning Team, actively participated in the planning process by attending meetings, completing assessments, surveys and worksheets and/or submitting comments.

Table 4 - Local Planning Team

Somerset County Hazard Mitigation Plan Update Local Planning Team		
Name	**Organization**	**Position**
Joel Landis	Somerset County Department of Emergency Services	Director
Fred Rosemeyer	Somerset Borough	Elected or Appointed Official
Brad Zearfoss	Somerset Planning Commission	Director
Craig Hollis-Nicholson	Somerset County Department of Emergency Services	GIS/CAD/Radio Specialist
Darlene Bracken	PEMA Western Area	Emergency Management Specialist
Sharlene McCoy	Somerset County Department of Emergency Services	EMA Clerk
Jeffrey Malaspino	Turkeyfoot Valley Area School District	Superintendent
Brian Shoff	Conemaugh Township	Elected or Appointed Official

Somerset County Hazard Mitigation Plan Update Local Planning Team		
Name	**Organization**	**Position**
Jayme Houck	American Red Cross	Disaster Program Manager
Mark Meekins	Meyersdale Medical Center	Manager
Vince Klinkner	US Army Corps of Engineers	Lead Park Ranger
Tom Bender	Bedford-Somerset DBHS	Director of Crisis Intervention
Gerald Parry	Northampton Township/Berlin Borough/Brothersvalley Township	Elected or Appointed Official
Kevin Broadwater	Meyersdale Borough/Callimont Borough/Summitt Township/Greenville Township	Elected or Appointed Official
James Summers	Riggs Industries	Safety Director
Ryan Weaver	DLP Conemaugh Meyersdale Medical Center	Assistant Director of Nursing
Seth Forry	EMA/Hazmat/Lincoln Township	Elected or Appointed Official
Randy Cox	Somerset Borough Police	Chief
Keith Allen Hay	Berlin/Brothersvalley School District	Elected or Appointed Official
Earl Waddell	Cambria Somerset Authority	Operations Manager
Susan Levy	Somerset County Animal Response Team	Coordinator
Brad Levan	Somerset County Department of Emergency Services	911 Coordinator/Deputy Director
Ernest Szabo	PEMA	State Hazard Mitigation Planner
Paul Gaudlip	Borough of Hooversville	Elected or Appointed Official
Barbara Gaudlip	Borough of Hooversville	Elected or Appointed Official
Gerald Walker	Somerset County Commissioner	Elected or Appointed Official
Pamela Tokar-Ickes	Somerset County Commissioner	Elected or Appointed Official
Colleen Dawson	Somerset County Commissioner	Elected or Appointed Official
Laurel Foy	Jennerstown Borough	Elected or Appointed Official
Sharon Fleegle	Jennerstown Borough	Elected or Appointed Official
Barry Thomas	Borough of New Centerville	Elected or Appointed Official
Howard Strickland	Lower Turkeyfoot Township	Elected or Appointed Official
Donald Miller	Somerset Township	Elected or Appointed Official
Randy Beistel	Somerset Township	Elected or Appointed Official
Nancy Green	Salisbury Borough	Elected or Appointed Official
Gregory Ansell	Middlecreek Township	Elected or Appointed Official
Royer Bailey	Borough of Somerset	Elected or Appointed Official
Dan Halverson	Somerset Township	Elected or Appointed Official
Terry Shultz	Middlecreek Township	Elected or Appointed Official
Carl Jones	Rockwood Borough	Elected or Appointed Official
Larry Mazer	Rockwood Borough	Elected or Appointed Official
Barbara Bubenko	Paint Borough	Elected or Appointed Official
Louis Bafile	Paint Borough	Elected or Appointed Official
Roy Murray	Larimer Township	Elected or Appointed Official
Rodney Norman	Garrett Borough	Elected or Appointed Official
Matthew Ash	Boswell Borough	Elected or Appointed Official
Ron Dawson	Allegheny Township	Elected or Appointed Official

Somerset County Hazard Mitigation Plan Update Local Planning Team		
Name	**Organization**	**Position**
Wilbert Bailey	Paint Township	Elected or Appointed Official
Ardith Deal	Elk Lick Township	Elected or Appointed Official
Steven Buncich	Conemaugh Township	Elected or Appointed Official
Kevin Nogroski	Addison Borough	Elected or Appointed Official
Jill Shultz	Middlecreek Township	Elected or Appointed Official
Stacey Meyers	Jefferson Township	Elected or Appointed Official
Marcia Lohr	New Baltimore Borough	Elected or Appointed Official
Teresa Snyder	Greenville Township	Elected or Appointed Official
Roxann Eppley	Lincoln Township	Elected or Appointed Official
Carol Perigo	Stoystown Borough	Elected or Appointed Official
Thomas Glessner	Berlin Borough	Elected or Appointed Official
Mark Keefer	Northampton Township	Elected or Appointed Official
Amy Yock	Central City Borough	Elected or Appointed Official
Wendy Senior	Paint Township	Elected or Appointed Official
Ansom Bloom	Windber Borough	Elected or Appointed Official
Caroline Felesky	Jenner Township	Elected or Appointed Official
Tami Yutzy	Somerset Township	Elected or Appointed Official
Nancy Metzgar	Allegheny Township/Fairhope Township	Elected or Appointed Official
John Hoffman	Brothersvalley Township	Elected or Appointed Official

3.3. Meetings and Documentation

Meetings with local elected officials and the local planning team were held as needed. Meetings were primarily held via conference call and virtual meeting rooms due to COVID-19. At each of the meetings, municipal officials were strongly encouraged to submit hazard mitigation project opportunity forms, complete their respective portions of the capability assessment and review and eventually adopt the multi-jurisdictional HMP. *Table 5 - HMP Process Timeline* 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, minutes, a participation tracking document, presentation slides, any other documentation is located in Appendix C.

The draft plan was made available for public review on July 24, 2020. The draft was advertised on Somerset County's social media page and was made available digitally on the Somerset County website at: www.co.Somerset.pa.us.

The public comment period remained open until August 24, 2020. All public comments were submitted via an online survey or in writing to Brad Zearfoss at the Somerset County Planning Commission. All public comments have been included in this plan in Appendix C.

Table 5 - HMP Process Timeline

Somerset County HMP Process - Timeline		
Date	**Meeting**	**Description**
12/16/2019	Somerset County Hazard Mitigation Plan (HMP) Kick-Off Meeting	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.
01/21/2020	Local Planning Team Initial Meeting	Defined hazard mitigation planning and identified roles and responsibilities. Discussed the 2015 hazard mitigation plan and defined a timeline to complete the update.
02/27/2020	Local Planning Team Meeting – Selection of Hazards	Somerset County LPT met via WebEx to discuss hazards profiled in the previous plan and identify any *new* hazards to be included in the plan update.
03/27/2020	Local Planning Team Meeting – Risk Factor Assessment	Somerset County LPT met via WebEx to determine a risk factor score for each of the selected hazards in the 2020 update. A municipal comparison document was then sent to all municipalities in Somerset County for their input.
04/29/2020	Local Planning Team Meeting – Mitigation Strategy	Somerset County LPT met via WebEx to start mitigation strategy development by reviewing goals and objectives from the 2015 plan. Additionally, the LPT discussed *new* goals and objectives for the 2020 plan update.
04/29/2020 – 04/30/2020	Meeting with Municipal Officials	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. This meeting was held via conference calls due to COVID-19.
05/13/2020	Local Planning Team Meeting – Mitigation Strategy	Somerset County LPT met via WebEx to discuss 2020 goals, objectives, and actions for mitigation strategy development.
06/05/2020	Risk Assessment Local Planning Team Review	Somerset County HMP local planning team members were sent a draft copy of section 4 for review prior to it being posted for public review.
06/15/2020	Risk Assessment Public Comment	Due to COVID-19, the draft risk assessment section of the Somerset County Hazard Mitigation Plan was posted via social media and on the county website. Members of the public were encouraged to read and submit any comments on this section via email or online survey.
07/15/2020	Somerset County Hazard Mitigation Plan – Draft Plan Public Review	The draft HMP was made available for all members of the public to review. All were invited to submit any comments via an online survey or provide comments to the Somerset County Planning Commission.

3.4. Public and Stakeholder Participation

Somerset County engaged numerous stakeholders and encouraged public participation during the HMP update process. Advertisements for public meetings were completed utilizing the Somerset County website and through social media. Copies of those advertisements are located in Appendix C. Municipalities and other county entities were invited to participate in various meetings and encouraged to review and update various worksheets and surveys. Copies of all meeting agendas, meeting minutes and a partici-

pation tracking document are located in Appendix C. 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, provided directly to municipalities to complete and return to the Somerset County Department of Emergency Services or at meetings to solicit information, data and comments from both local municipalities and other key stakeholders. Responses to these worksheets and surveys are available for review at the Somerset County Department of Emergency Services.

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 2015 mitigation opportunity forms that were included in the current HMP were provided to the municipalities for review and amendment. These opportunities are located in Appendix G. The previous mitigation actions were provided and reviewed at update meetings. New 2020 municipal project opportunity forms are included as well, located in Appendix G**.**
4. **National Flood Insurance Program (NFIP) Survey:** The NFIP is managed by the Federal Emergency Management Agency (FEMA) and is designed to provide access to primary flood insurance and to mitigate and reduce the nation's comprehensive flood risk through the development and implementation of floodplain management standards. Municipalities were asked to complete this survey to not only gage which municipalities are participating but also to educate those that may not know about the program.

As a result of COVID-19, the normal approach to engaging public input could not be taken. In an effort to capture public input, in lieu of a traditional approach to hazard mitigation, the Somerset County LPT decided to utilize a virtual survey platform where any member of the public can pose a question or comment regarding the entire HMP document. Members of the public were also encouraged to contact Somerset County Planning Commission, Somerset County Department of Emergency Services or MCM Consulting Group, Inc. with any comments or questions regarding this update. 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.

Somerset County invited all contiguous counties to review the 2020 draft hazard mitigation plan. A letter was sent to the emergency management coordinator in Bedford, Cambria, Westmoreland, and Fayette Counties in Pennsylvania, and Allegany and Garrett Counties in Maryland on July 27, 2020. Copies of these letters are included in Appendix C.

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 them about hazard mitigation planning and its local requirements. 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. *Table 6 - Worksheets, Surveys and Forms Participation* reflects the municipality participation by completing worksheets, surveys and forms.

Table 6 - Worksheets, Surveys and Forms Participation

Municipality Participation in Worksheets, Surveys and Forms				
Municipality	**Capability Assessment Survey**	**Risk Assessment Hazard Identification and Risk Evaluation Worksheet**	**NFIP Survey**	**Hazard Mitigation Opportunity Form Review and Updates**
Addison Borough		X	X	X
Addison Township	X	X		
Allegheny Township	X	X		
Benson Borough				
Berlin Borough	X	X	X	X
Black Township	X	X		
Boswell Borough	X	X	X	
Brothersvalley Township	X	X	X	X
Callimont Borough		X		
Casselman Borough				
Central City Borough		X	X	X
Conemaugh Township	X	X	X	X
Confluence Borough	X	X		
Elk Lick Township	X	X	X	X
Fairhope Township	X	X		
Garrett Borough	X	X		
Greenville Township	X	X		
Hooversville Borough	X	X		X
Indian Lake Borough	X	X		
Jefferson Township	X	X	X	X

Municipality Participation in Worksheets, Surveys and Forms				
Municipality	**Capability Assessment Survey**	**Risk Assessment Hazard Identification and Risk Evaluation Worksheet**	**NFIP Survey**	**Hazard Mitigation Opportunity Form Review and Updates**
Jenner Township	X	X		
Jennerstown Borough	X	X		
Larimer Township		X		
Lincoln Township	X	X	X	X
Lower Turkeyfoot Township	X	X		X
Meyersdale Borough	X	X		
Middlecreek Township	X	X		
Milford Township				
New Baltimore Borough	X	X	X	X
New Centerville Borough	X	X	X	X
Northampton Township	X	X	X	X
Ogle Township	X	X		
Paint Borough	X	X	X	X
Paint Township	X	X	X	X
Quemahoning Township	X	X		
Rockwood Borough	X	X		
Salisbury Borough	X	X	X	X
Seven Springs Borough				
Shade Township	X	X		X
Shanksville Borough	X	X	X	
Somerset Borough	X	X	X	X
Somerset Township	X	X		X
Southampton Township	X			
Stonycreek Township	X	X	X	X
Stoystown Borough	X	X	X	X
Summit Township	X	X		
Upper Turkeyfoot Township				
Ursina Borough	X	X		
Wellersburg Borough	X	X	X	X
Windber Borough	X	X		

In March of 2020, Pennsylvania and the rest of the world experienced a pandemic event titled COVID-19. Unfortunately, because of the pandemic, public meetings were unable to be held as normal during the hazard mitigation planning process. In lieu of a public meeting for the risk assessment portion of the plan update, section 4 was posted to Somerset County's website as well as their social media platforms. Members of the public were encouraged to submit any comments via SurveyMonkey, an online survey platform, or to contact MCM Consulting Group, Inc. with any questions or comments.

Forty-eight municipalities within Somerset County adopted the 2015 Somerset County Hazard Mitigation Plan as the municipal hazard mitigation plan. The Somerset County

Local Planning Team goal is 100% participation by municipalities in adopting the 2020 Somerset County Hazard Mitigation Plan.

4. Risk Assessment

4.1. Update Process Summary

A key component to reducing future losses is to first have a clear understanding of what the current risks are and what steps may be taken to lessen their threat. The development of the risk assessment 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 risk assessment identifies the effects of both natural and human caused hazards and describes each hazard in terms of its frequency, severity and county impact. Numerous hazards were identified as part of the process.

A risk assessment evaluates threats associated with a specific hazard and is defined by probability and frequency of occurrence, magnitude, severity, exposure and consequences. The Somerset County risk assessment provides in-depth knowledge of the hazards and vulnerabilities that affect Somerset County and its municipalities. This document uses an all-hazards approach when evaluating the hazards that affect the county and the associated risks and impacts each hazard presents.

This risk assessment provides the basic information necessary to develop effective hazard mitigation/prevention strategies. Moreover, this document provides the foundation for the Somerset County Emergency Operations Plan (EOP), local EOPs and other public and private emergency management plans.

The Somerset County risk assessment is not a static document, but rather, is an annual review requiring periodic updates. Potential future hazards include changing technology, new facilities and infrastructure, dynamic development patterns and demographic and socioeconomic changes into or out of hazard areas. By contrast, old hazards, such as brownfields and landfills, may pose new threats as county conditions evolve.

Using the best information available and geographic information systems (GIS) technologies, the county can objectively analyze its hazards and vulnerabilities. Assessing past events is limited by the number of occurrences, scope and changing circumstances. For example, ever-changing development patterns in Pennsylvania have a dynamic impact on traffic patterns, population density and distribution, stormwater runoff and other related factors. Therefore, limiting the risk assessment to past events is myopic and inadequate.

The Somerset County Local Planning Team reviewed and assessed the change in risk for all natural and human caused hazards identified in the 2015 hazard mitigation plan. The mitigation planning team then identified hazards that were outlined within the Pennsylvania 2018 Hazard Mitigation Plan but not included in the 2015 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 Steering committee met with municipalities and provided guidance on how to complete the municipal hazard identification and risk evaluation worksheet. Forty-three municipalities returned completed worksheets, along with one completed by county officials. This information was combined with the county information to develop an overall list of hazards that would need to be profiled.

Once the natural and human caused 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. Risk factor 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.

4.2. Hazard Identification

4.2.1. Presidential and Gubernatorial Disaster Declarations

Table 7 - Disaster and Emergency Declarations Affecting Somerset County presents a list of all Presidential and Governor's Disaster Declarations that have affected Somerset County from 1954 through 2020, according to the Pennsylvania Emergency Management Agency.

Table 7 - Disaster and Emergency Declarations Affecting Somerset County

Disaster and Emergency Declarations affecting Somerset County *(PEMA)*		
Date	**Declaration Type**	**Cause**
September, 1963	Presidential Disaster Declaration	Drought
January, 1966	Gubernatorial Disaster Declaration	Heavy Snow
February, 1972	Gubernatorial Disaster Declaration	Heavy Snow
December, 1972	Gubernatorial Disaster Declaration	Heavy Snow/Power Outage
February, 1974	Gubernatorial Disaster Declaration	Truckers Strike
January, 1978	Gubernatorial Disaster Declaration	Heavy Snow
February, 1978	Gubernatorial Disaster Declaration	Blizzard
March, 1993	Presidential Emergency Declaration	Blizzard
January, 1994	Presidential Disaster Declaration	Severe Winter Storms
January, 1996	Presidential Disaster Declaration	Severe Winter Storms
January, 1996	Presidential Disaster Declaration	Flooding
September, 1996	Presidential Disaster Declaration	Flooding
December, 1998	Gubernatorial Disaster Declaration	Drought
July, 1999	Gubernatorial Disaster Declaration	Drought
August, 1999	Presidential Disaster Declaration	Flash Flooding
September, 1999	Presidential Disaster Declaration	Hurricane Floyd
September, 2001	Gubernatorial Disaster Declaration	Terrorism
February, 2003	Presidential Emergency Declaration	Severe Winter Storm

Disaster and Emergency Declarations affecting Somerset County *(PEMA)*		
Date	**Declaration Type**	**Cause**
September, 2003	Presidential Disaster Declaration	Hurricane Isabel/Henri
September, 2004	Presidential Disaster Declaration	Tropical Depression Ivan
September, 2005	Presidential Emergency Declaration	Hurricane Katrina
September, 2006	Gubernatorial Proclamation of Emergency	Tropical Depression Ernesto
June, 2006	Presidential Disaster Declaration	Flooding
April, 2007	Gubernatorial Disaster Declaration	Severe Storm
April, 2007	Gubernatorial Proclamation of Emergency	Severe Winter Storm
February, 2007	Gubernatorial Proclamation of Emergency	Severe Winter Storm
February, 2007	Gubernatorial Proclamation of Emergency	Regulations
February, 2010	Gubernatorial Proclamation of Emergency	Severe Winter Storm
January, 2011	Gubernatorial Proclamation of Emergency	Severe Winter Storm
August, 2011 (amended September 2011)	Gubernatorial Proclamation of Emergency	Severe Storms and Flooding (Lee/Irene)
April, 2012	Gubernatorial Proclamation of Emergency	Spring Winter Storms
October, 2012	Presidential Emergency Declaration	Hurricane Sandy
June, 2013	Gubernatorial Proclamation of Emergency	High Winds, Thunderstorms, Heavy Rain, Tornado, Flooding
January, 2014	Gubernatorial Proclamation of Disaster Emergency	Extreme Weather, Utility Interruption
February, 2014	Gubernatorial Proclamation of Disaster Emergency	Severe Winter Storm
February, 2014	Gubernatorial Proclamation of Disaster	Severe Winter Storm
February, 2014	Gubernatorial Proclamation of Disaster	Severe Winter Storm
January, 2015	Gubernatorial Proclamation of Emergency	Severe Winter Storms
August, 2015	Gubernatorial Proclamation of Emergency	Severe Storms
January, 2016	Gubernatorial Proclamation of Emergency	Severe Winter Storm
March, 2017	Gubernatorial Proclamation of Emergency	Severe Winter Storm
March, 2017	Gubernatorial Proclamation of Emergency	Severe Winter Storm
January, 2018	Gubernatorial Proclamation of Disaster Emergency	Opioid Crisis
March, 2020	Presidential Disaster Declaration	COVID-19

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 2020 HMP Update. Following a review of the hazards considered in the 2015 HMP and the standard list of hazards,

the local planning team decided that the 2020 plan should identify, profile and analyze twenty-three hazards. These hazards include all the hazards profiled in the 2015 plan and five newly profiled hazards. The list below contains the hazards that have the potential to impact Somerset County as identified through previous risk assessments, the Somerset County hazard vulnerability analysis and input from those that participated in the 2020 HMP update. Hazard profiles are included in Section 4.3 for each of these hazards.

Identified Natural Hazards

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).

Flood, Flash Flood, Ice Jam

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 phys-

iography, 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. 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.

Hailstorm

In addition to flooding and severe winds, hail is another potential damaging product of severe thunderstorms. Hailstorms occur when ice crystals form 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 eastern and central Pennsylvania typically experience less than two hailstorms per year while areas in western Pennsylvania experience 2-3 annually.

Hurricanes, Tropical Storms

Hurricanes and tropical storms 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 which is typically June through November (FEMA, 1997).

Invasive Species

An invasive species is a species that is not indigenous to the ecosystem under consideration which thrives in the novel ecosystem. Such species often cause environmental or economic harm. Invasive species can be any type of organism, such as plants, fish, invertebrates, mammals, insects, and even diseases or pathogens. Not all non-native species cause problems, however many can cause agricultural hardships, defoliate and kill native plants and trees and interfere with native ecological systems.

Landslide

A landslide is the downward and outward movement of slope-forming soil, rock and vegetation reacting to the force of gravity. Landslides may be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snow melt, steepening of slopes due to construction or erosion, earthquakes and changes in groundwater levels. Mudflows, mudslides, rock falls, rockslides and rock topples are all forms of a landslide. Areas that are generally prone to landslide hazards include previous landslide areas, the bases of steep slopes, the bases of drainage channels, developed hillsides and areas recently burned by forest and brush fires. (Delano & Wilshusen, 2001).

Pandemic and Infectious Diseases

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). Infectious diseases such as West Nile Virus or Lyme disease are also important to monitor and mitigate.

Radon Exposure

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).

Tornadoes, Windstorm

A windstorm 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 forty 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. Campgrounds and people staying in tents or mobile campers are also vulnerable to severe windstorms. 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 eighty 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 waterspout is a tornado over a body of water (American Meteorological Society, 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). Wildfires can also be natural and important parts of some ecosystems.

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).

Identified Human Caused Hazards

Emergency Services

Emergency medical services (EMS) and fire department services play a crucial role in the emergency response system, and the wellness of these emergency services directly impacts many of the other hazards profiles in this report. Both EMS and fire services face challenges from lack of funding and lower rates of volunteerism.

Environmental Hazards

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:

- Hazardous material releases; at fixed facilities or as such materials are in transit and including toxic chemicals, infectious substances, biohazardous waste and any materials that are explosive, corrosive, flammable, or radioactive (PL 1990-165, § 207(e)).
- Air or Water Pollution; the release of harmful chemical and waste materials into water bodies or the atmosphere, for example (National Institute of Health Sciences, July 2009; Environmental Protection Agency, Natural Disaster PSAs, 2009).
- Superfund Facilities; hazards originating from abandoned hazardous waste sites listed on the National Priorities List (Environmental Protection Agency, National Priorities List, 2009).
- Manure Spills; involving the release of stored or transported agricultural waste, for example (Environmental Protection Agency, Environmental Impacts of…, 1998).
- Product Defect or Contamination; highly flammable or otherwise unsafe consumer products and dangerous foods (Consumer Product Safety Commission, 2003).

Opioid Epidemic

Pennsylvania and the nation at large are experiencing an epidemic of opioid drug addiction. There has been a rapid increase in the use of prescription and non-prescription opioid drugs in the United States beginning in the late 1990s and continuing throughout the first two decades of the 2000s. Opioids are a diverse class of moderately strong painkillers, including oxycodone, hydrocodone, and a very strong painkiller, fentanyl, which is synthesized to resemble other opiates such as opium-derived morphine and heroin. The potency and availability of these substances, despite their high risk of addiction and overdose, have made them popular both as formal medical treatments and as recreational drugs. Due to their sedative effects on the part of the brain which regulates breathing, opioids in high doses present the potential for respiratory depression and may cause respiratory failure and death. It has become more useful to view opioid addiction as a disease rather than an illicit behavior requiring criminal consequences.

The Commonwealth of Pennsylvania, along with other states in the nation has enacted legislation to curb the prescription and distribution of these drugs to try to prevent addiction rising from abuse as a painkiller. This includes but is not limited to restrictions to prescribing to minors, quantity limits, a prescription database with entry requirements and other limits to its availability.

Levees, Dam Failure

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 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. 51 of Pennsylvania's 67 counties have been identified as having at least one levee (FEMA Region III, 2013).

A dam is a barrier across flowing water that obstructs, directs, or slows down water flow. Dams provide benefits such as flood protection, power generation, drinking water, irrigation and recreation. Failure of these structures results in an uncontrolled release of impounded water. Failures are relatively rare, but immense damage and loss of life is possible in downstream communities when such events occur. Aging infrastructure, hydrologic, hydraulic and geologic characteristics, population growth and design and maintenance practices should be considered when assessing dam failure hazards. The failure of the South Fork Dam, located in Johnstown, Pennsylvania, was the deadliest dam failure ever experienced in the United States. It took place in 1889 and resulted in the Johnstown Flood which claimed 2,209 lives (FEMA, 1997). Today there are approximately 3,200 dams and reservoirs throughout Pennsylvania (Pennsylvania Department of Environmental Protection, 2009).

Subsidence, Sinkhole

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. 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). Sinkholes can also be caused by abandoned mined land.

Terrorism

Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include active shooters, 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).

Transportation Accidents

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).

Utility Interruption

Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications and public works and information network sectors. Utility interruption hazards include the following:

- 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.
- 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).

4.2.3. Climate Change

Impacts of Climate Change on Identified Hazards

Humans have become the dominant species on Earth and our society and influence is globalized. Human activity such as the large-scale consumption of fossil fuels and deforestation has caused atmospheric carbon dioxide concentrations to significantly increase and a notable diversity of species to become extinct. The result is rapid climate change unparalleled in Earth's history and an extinction event approaching the level of a mass extinction (Barnosky et al., 2011; Wake & Vredenburg, 2008). The corresponding rise of average atmospheric temperatures is intensifying many natural hazards, and further threatening biodiversity. The effects of climate change on these hazards is expected to intensify over time as temperatures continue to rise, so it is prudent to be aware of how climate change is impacting natural hazards.

The most obvious change is extreme temperature. As average atmospheric temperatures rise, extreme high temperatures become more threatening, with record high temperatures outnumbering record low temperatures in recent years (Meehl et al., 2009). As climate change intensifies, it is expected that the risk of extreme heat will be amplified whereas the risk of extreme cold will be attenuated. Less immediately apparent, climate change could increase the prevalence of the West Nile Virus (Section 4.3.8). Some studies show increased insect activities during a similar rapid warming event in Earth's history (Curano et al., 2008). Other studies make projections that with the warming temperatures and lower annual precipitation that are expected with climate change, there will be an expansion of the suitable climate for mosquitos and West Nile Virus, potentially increasing the risk that the disease poses (Harrigan et al., 2014).

Climate change is likely to increase the risk of droughts (Section 4.3.1). Higher average temperatures mean that more precipitation will fall as rain rather than snow, snow will melt earlier in the spring, and evaporation and transpiration will increase. Along with the prospect of decreased annual precipitation, the risk of hydrological and agricultural drought is expected to increase (Sheffield & Wood, 2008). Correspondingly this will impact wildfires (Section 4.3.12). Drought is accompanied by drier soils and forests, resulting in an elongated wildfire season and more intense and long-burning wildfires (Pechony & Shindell, 2010). However, the Southwest United States is at a greater risk of this increased drought and wildfire activity than Somerset County in the Eastern United States.

While it may seem counterintuitive considering the increased risk of drought, there is also an increased risk of flooding associated with climate change (Section 4.3.3). As previously mentioned, warmer temperatures mean more precipitation will fall as rain rather than snow. Combined with the fact that warmer air holds more moisture, the result is heavier and more intense rainfalls, increasing the risk of flooding and dam and levee failures. Similarly, winter storms are expected to become more intense, if possibly

less frequent (Section 4.3.13). Climate change is also expected to result in more intense hurricanes and tropical storms (Section 4.3.5). With the rise of atmospheric temperatures, ocean surface temperatures are rising, resulting in warmer and moister conditions where tropical storms develop (Stott et al., 2010). A warmer ocean stores more energy, and is capable of fueling stronger storms. It is projected that the Atlantic hurricane season is elongating, and there will be more category 4 and 5 hurricanes than before (Trenberth, 2010).

Climate change is contributing to the introduction of new invasive species (Section 4.3.6). As maximum and minimum seasonal temperatures change, non-native species are able to establish themselves in previously inhospitable climates where they have a competitive advantage. This may shift the dominance of ecosystems in the favor of non-native species, contributing to species loss and the risk of extinction.

This type of sudden global change is novel to humanity. Despite the myriad of well thought out research, there is still much uncertainty surrounding the future of the Earth. All signs point to the intensification of the hazards mentioned above, especially if human society and individuals do not make swift and significant changes to reduce emissions and species losses.

4.3. Hazard Profiles

4.3.1. Drought

4.3.1.1 Location and Extent

While Pennsylvania is generally more water-rich than many U.S. states, the Commonwealth may be subject to drought conditions. A drought is broadly defined as a time period of prolonged dryness that contributes to the depletion of ground and surface water. Droughts are regional climatic events, so when such an event occurs in Somerset County, impacts are not restricted to the county and are often more widespread. The spatial extent of the impacted area can range from localized areas in Pennsylvania to the entire Mid-Atlantic region.

There are three types of drought:

Meteorological Drought – A deficiency of moisture in the atmosphere compared to average conditions. Meteorological drought is defined by the duration of the deficit and degree of dryness and is often associated with below average rainfall. Depending on the severity of the drought, it may or may not have a significant impact on agriculture and the water supply.

Agricultural Drought – A drought inhibiting the growth of crops, due to a moisture deficiency in the soil. Agricultural drought is linked to meteorological and hydrologic drought.

Hydrologic Drought – A prolonged period without rainfall that has an adverse effect on streams, lakes, and groundwater levels, potentially impacting agriculture.

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. There are 1,140 farms consisting of 214,581 acres that produce livestock and crops; the average size of a farm in Somerset County is 190 acres. (source: Comprehensive Plan, 2018). Public safety is an issue in terms of consumable water not being available, as well as water for fire protection and emergency.

4.3.1.2 Range of Magnitude

Somerset County is often referred to as the "Roof Garden of Pennsylvania", boasting beautiful vistas of rolling farms and rich woodlands. Nearly sixty percent of the annual precipitation of 43.80 inches is during the spring/summer. Fall is usually the driest. Average snowfall for the county is 60 inches of snow. Rural farming areas of Somerset County are most at risk when a drought occurs. A drought can be a significant financial burden as approximately 10% of the county land use is devoted to crop cultivation and another 23% to livestock (Comprehensive Plan, 2018). Wildfires are often the most severe secondary effect associated with drought. Wildfires can devastate wooded and agriculture areas, threatening natural resources, structures near high wildfire loads, and farm production facilities. Prolonged drought conditions can have a lasting impact on the economy and can cause major ecological changes, such as increases in scrub growth, flash flooding and soil erosion.

Drought preparation includes three phases: drought watch, drought warning, and drought emergency, as shown in the table below.

Table 8 - Drought Preparation Phases

Drought Preparation Phases *(PA DEP, 2017)*				
Phase	**General Activity**	**Actions**	**Request**	**Goal**
Drought Watch	Early stages of planning and alert for drought possibility	Increased water monitoring, awareness and preparation for response among government agencies, public water suppliers, water users and the public	Voluntary water conservation	Reduce water use by 5%
Drought Warning	Coordinate a response to imminent drought conditions and potential water shortages	Reduce shortages - relieve stressed sources, develop new sources if needed	Continue voluntary water conservation, impose mandatory water use restrictions if needed	Reduce water use by 10-15%
Drought Emergency	Management of operations to regulate all available resources and respond to emergency	Support essential and high priority water uses and avoid unnecessary uses	Possible restrictions on all nonessential water uses	Reduce water use by 15%

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

Long-term water shortages during severe drought conditions can have a significant impact on agribusiness, public utilities, and other industries reliant on water for production services. *Table 8 - Drought Preparation Phases* shows the FEMA defined levels of drought severity along with suggested actions, requests and goals. Drought can cause municipalities to enforce water rationing and distribution.

The Commonwealth uses five parameters to assess drought conditions:

- Stream flows (compared to benchmark records)

- Precipitation (measured as the departure from normal, thirty-year average precipitation)
- Reservoir storage levels in a variety of locations
- Groundwater elevations in a number of counties (comparing to past month, past year and historic record)
- Soil moisture via the Palmer Drought Index (See *Table 9 - Palmer Drought Severity Index*) - a soil moisture algorithm calibrated for relatively homogeneous regions which measures dryness based on recent precipitation and temperature.

Table 9 - Palmer Drought Severity Index

Palmer Drought Severity Index	
Severity Category	**PDSI**
Extremely wet	4.0 or more
Very wet	3.0 to 3.99
Moderately wet	2.0 to 2.99
Slightly wet	1.0 to 1.99
Incipient wet spell	0.5 to 0.99
Near normal	0.49 to -0.49
Incipient dry spell	-0.5 to -0.99
Mild drought	-1.0 to -1.99
Moderate drought	-2.0 to -2.99
Severe drought	-3.0 to -3.99
Extreme drought	-4.0 or less

4.3.1.3 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. 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.

A significant drought occurred in 1963 when precipitation statewide averaged below normal for ten of twelve months. Drought emergency status led to widespread water use restrictions, and reservoirs dipped to record low levels. Corn, hay, and other agricultural products desiccated in parched fields, causing economic losses. Governor William Scranton sought drought aid for Pennsylvania in the face of mounting agricultural losses, and the event became a presidentially declared disaster in September 1963.

Another devastating drought occurred throughout the year in 1999, culminating with the governor of Pennsylvania declaring a drought emergency for most of the Commonwealth on July 21, 1999. Corn crop losses alone were estimated to be approximately

$100 million with total crop losses estimated at over $500 million. Other than agricultural losses, the drought resulted in low stream levels which caused some deaths of fish in abnormally dry streams. The drought emergency was lifted on September 30, 1999 with the arrival of Hurricane Floyd on September 16, 1999.

According to the Pennsylvania Department of Environmental Protection, the last time Somerset County was in any declared drought status (watch) was August 2012. The Commonwealth itself, however, endured three more drought watches through 2017 but dissolved the Commonwealth Drought Task Force on May 17, 2017 after a couple of rainy seasons.

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

Figure 6 - Palmer Drought Severity Index Map

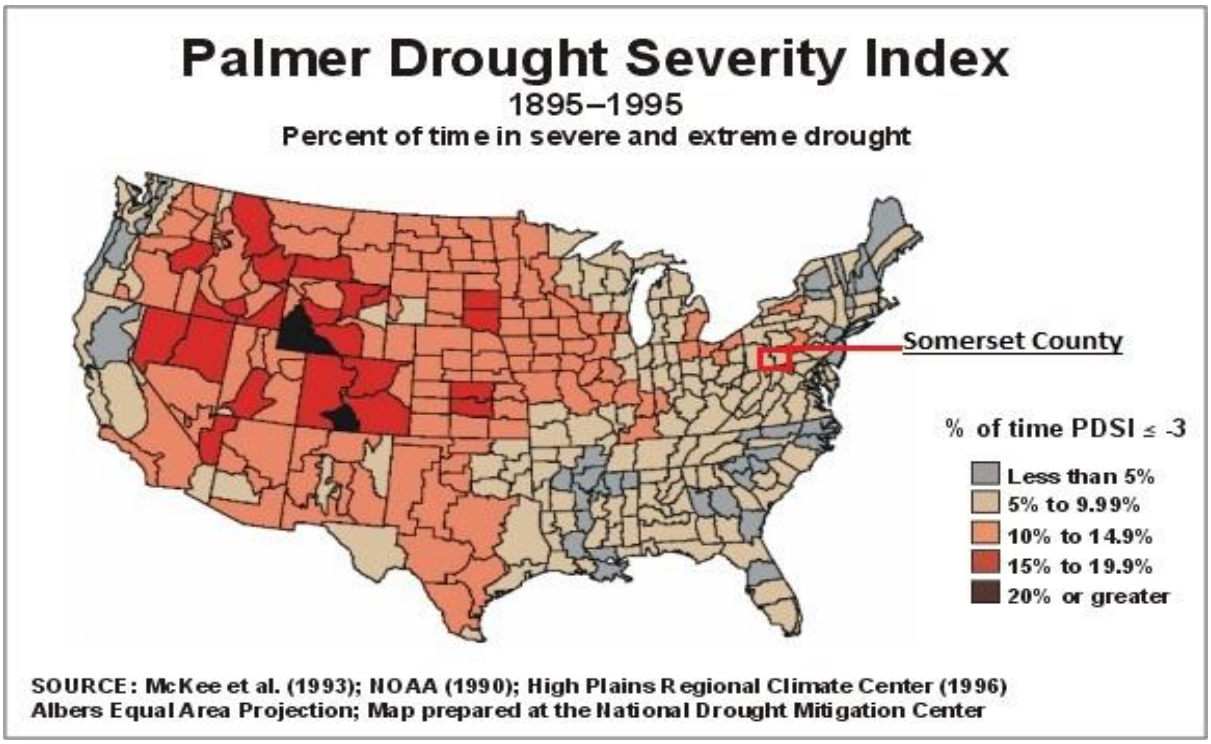


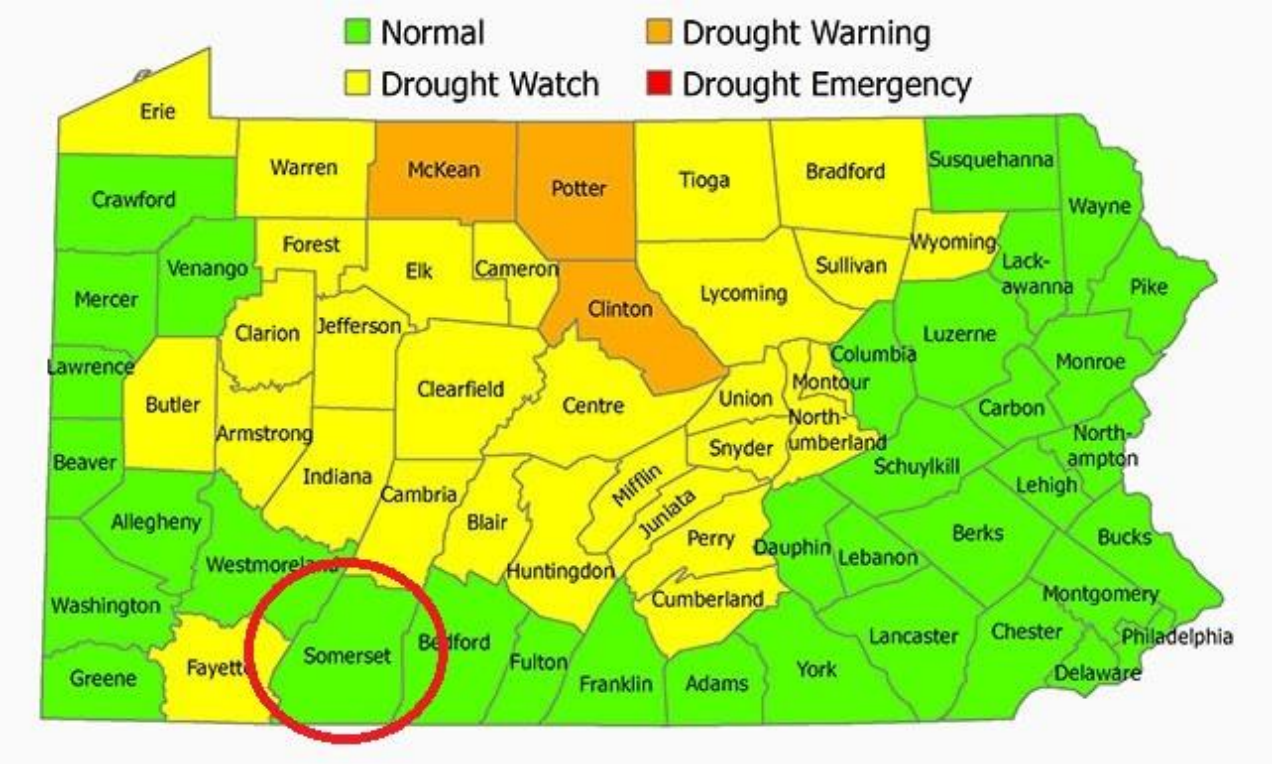
Table 10 - Drought Occurrence in Pennsylvania shows declared drought status for Somerset County from 1980 to January 2020 as reported by the Pennsylvania Department of Environmental Protection (PA DEP) and the table also includes past disaster declarations impacting Somerset County due to drought events.

Table 10 - Drought Occurrence in Pennsylvania

Drought Occurrence in Pennsylvania ***(PA DEP, 2019)***			
Start	**End**	**Status**	**Duration**
11/18/1980	04/20/1982	Emergency	1 year, 5 months, 2 days
04/26/1985	12/19/1985	Watch	7 months, 23 days
07/07/1988	08/24/1988	Watch	10 months, 8 days
08/24/1988	12/12/1988	Warning	
12/12/1988	05/15/1989	Watch	
06/28/1991	07/24/1991	Warning	11 months, 29 days
07/24/1991	04/20/1992	Emergency	
04/20/1992	06/26/1992	Warning	
09/01/1995	09/20/1995	Warning	3 months, 17 days
09/20/1995	11/08/1995	Emergency	
11/08/1995	12/18/1995	Warning	
07/17/1997	01/16/1998	Watch	5 months, 30 days
12/03/1998	12/14/1998	Watch	1 year, 5 months, 2 days
12/14/1998	03/15/1999	Warning	
03/15/1999	06/10/1999	Watch	
06/10/1999	07/20/1999	Warning	
07/20/1999	09/30/1999	Emergency**	
09/30/1999	05/05/2000	Watch	
08/24/2001	06/14/2002	Watch	9 months, 21 days
09/05/2002	11/07/2002	Watch	2 months, 2 days
04/11/2006	06/30/2006	Watch	2 months, 19 days
08/06/2007	01/11/2008	Watch	5 months, 5 days
09/16/2010	11/10/2010	Watch	1 month, 25 days
08/05/2011	09/02/2011	Watch	28 days
03/24/2015	07/10/2015	Watch	3 months, 16 days
08/02/2016	11/03/2016	Watch	3 months, 1 day
12/26/2017	02/06/2018	Watch	1 month, 11 days
**Gubernatorial Disaster Declaration			

Figure 7 - Current Drought Status 2020 shows the current drought status from as of September 30, 2020 throughout the Commonwealth according to the Department of Environment Protection.

Figure 7 - Current Drought Status 2020

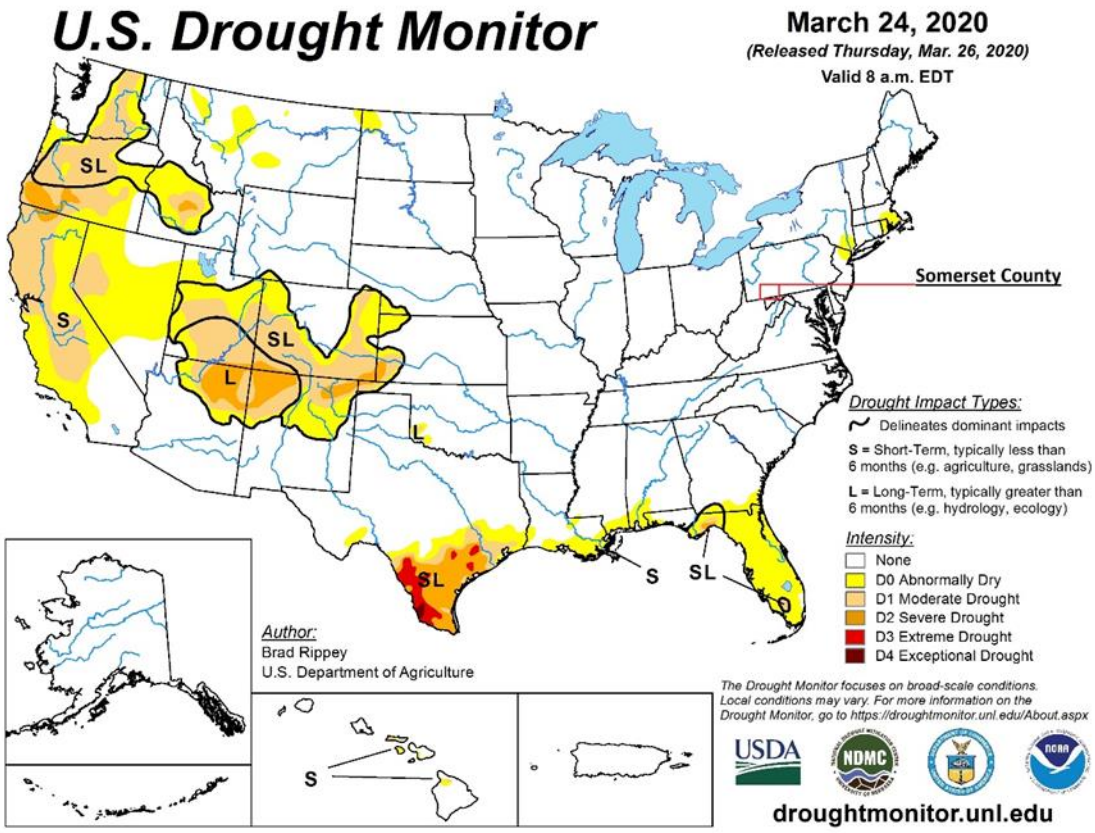


4.3.1.4 Future Occurrence

It is difficult to forecast the exact severity and frequency of future drought events and the future of climate change will lead to increased uncertainty and extremity of climate events, suggesting that it is best to be prepared for potentially adverse conditions. As Somerset County has experienced severe drought between five and ten percent of the time between 1895 and 1995 (*Figure 6 - Palmer Drought Severity Index Map* History – a 100-year data collection), the report can be used to make a rough estimate of the future probability of drought in Somerset County, although it does not account for changes introduced by climate change. Drought conditions are expected to become more severe with climate change, as evaporation and transpiration will increase with higher temperatures (Sheffield & Wood, 2008; EPA, 2016).

The potential for a drought to occur in Somerset County is, nevertheless, high. Given the frequency of drought watches 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.

Figure 8 - U.S. Drought Monitor



4.3.1.5 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.

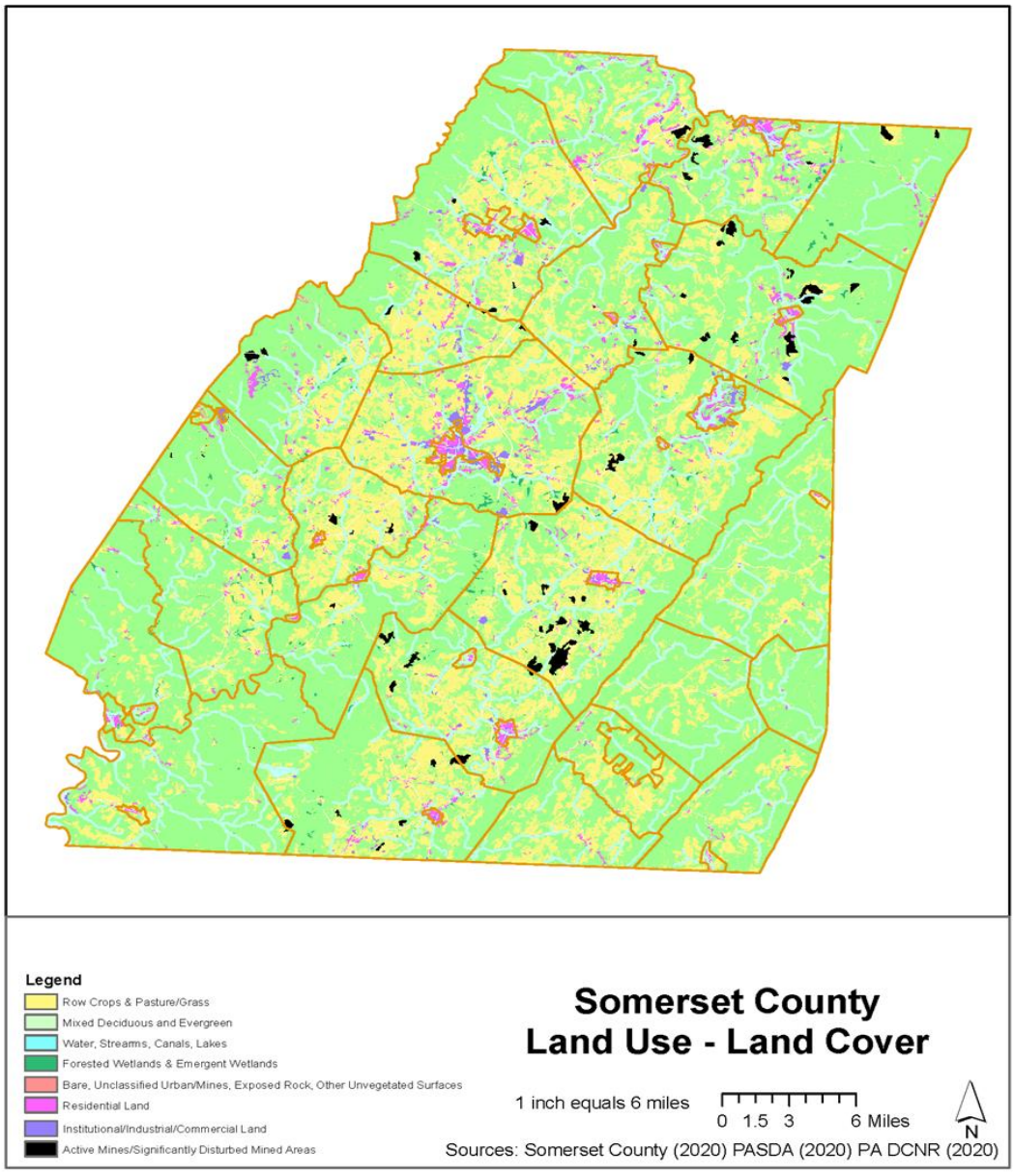
Droughts can have adverse effects on farms and other water-dependent industries. This can result in a local economic loss. The 2017 U.S. Census of Agriculture lists 219,046

acres of prime agricultural land in Somerset County; the planning commission reports 79,788 acres of wooded property; DCNR websites display one State Forest of 15,336 acres (Gallitzin), three and one-half state parks totaling over 5,000 acres and a dozen local parks and open spaces for recreational enjoyment. 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.

The most significant losses resulting from drought events are typically found in the agriculture sector. The 1999 Gubernatorial Proclamation was issued in large part due to significant crop damage. Preliminary estimates by the Pennsylvania Department of Agriculture indicated possible crop losses across the Commonwealth in excess of $500 million. This estimate did not include a twenty percent decrease in dairy milk production which also resulted in million-dollar losses (NCDC, 2009).

While these were statewide impacts, they illustrate the potential for droughts to severely impair the local economy in more agricultural communities. The 2017 Census of Agriculture reports there were 1,152 farms in Somerset County, at an average size of 190 acres. Somerset County ranks 17th of sixty-seven counties in the Commonwealth for agricultural production, totaling over $115 million (USDA, 2017). Most of this production comes from livestock, poultry and their products (~$79 million). The remaining agricultural production comes from crops, including nursery and greenhouse crops (~$36 million). A map of properties with tillable agricultural land use and other land in the county vulnerable to drought is shown at Figure 9 - Land Use - Land Cover.

Figure 9 - Land Use - Land Cover



Public or municipal water supplies are also vulnerable to the effects of drought because supply sources include rivers, reservoirs, and groundwater. Public water service areas cover only some of the land area in the county, as depicted in *Figure 10 - Somerset County Drought Vulnerability.*

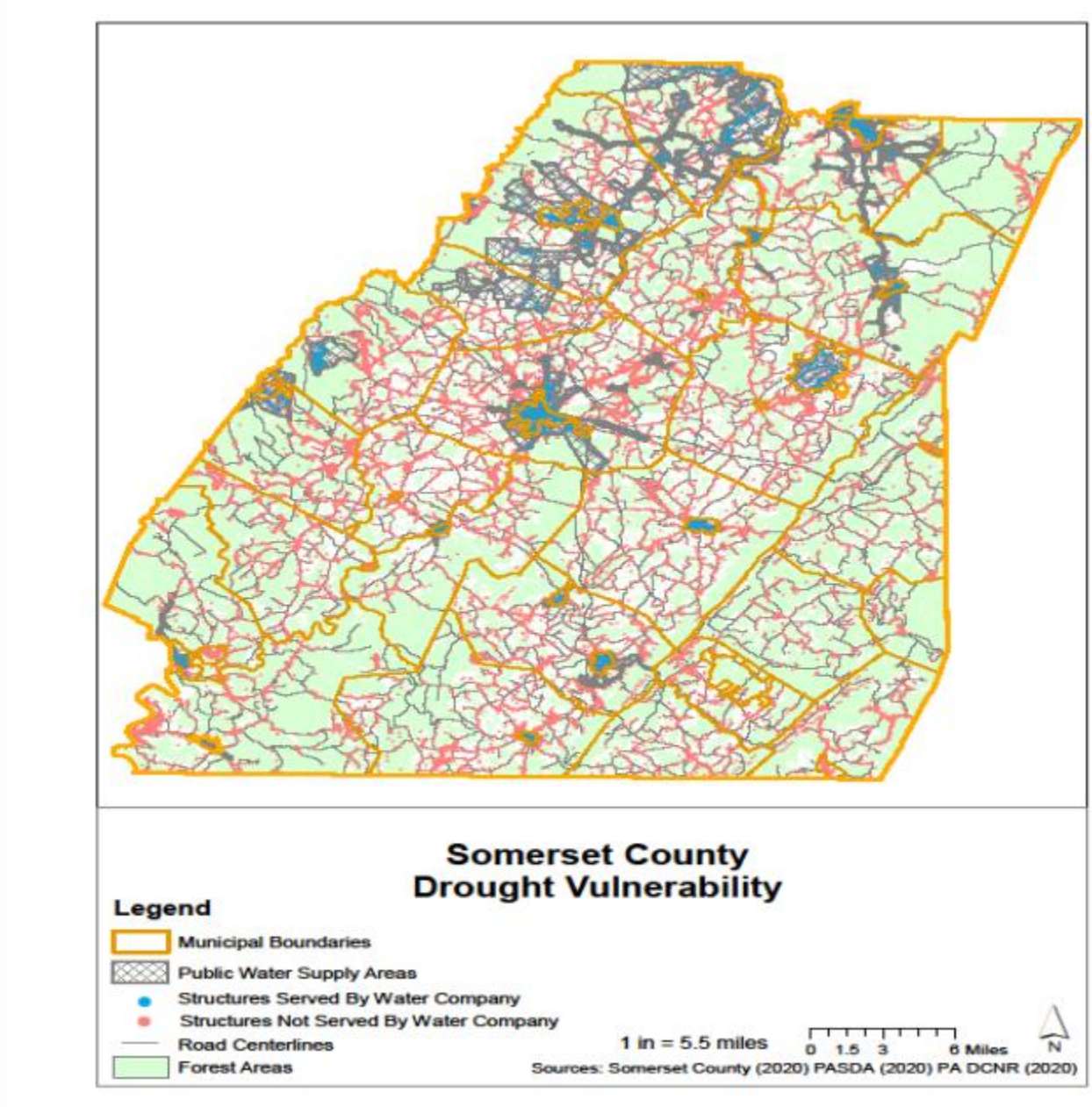
The majority of the county relies on wells for their fresh drinking water. Droughts will quickly affect systems that rely on surface supplies, whereas systems with wells are

more capable of handling short-term droughts without issue. Longer-term droughts inhibit the recharging of groundwater aquifers which has an impact on well owners. Depending on the severity of the drought, this could cause the well to dry up, rendering the well owner at a loss for useable water, meaning Somerset County residents who use private domestic wells are vulnerable to drought events. *Table 11 - Domestic Wells* shows the number of wells in each municipality in Somerset County. Well data was gathered from the Pennsylvania Groundwater Information System (PaGWIS), which relies on voluntary submissions by well drillers. While this is the best dataset of domestic wells available for Somerset County, it is not comprehensive due to the voluntary nature of the data submission, and not all wells were reported including a location designation. The PAGWIS water well data is considered a vastly low estimate of the number of wells throughout Somerset County, meaning the threat that drought poses to water supply from groundwater is much greater than the table initially indicates.

Compared to the information reported in the previous hazard mitigation plan, there has been a significant increase in the number of domestic water wells throughout the county despite a slight population decrease. Considering the vulnerability of domestic wells to drought, their increased prevalence suggests an increase in drought vulnerability for the more rural regions of Somerset County. Through 2017, the USGS has conducted many baseline water quality studies throughout Pennsylvania, but one for Somerset County is not yet completed. The studies comprise a useful reference to get a general sense of the water quality and challenges associated with domestic water wells in the Commonwealth.

The EPA provides a guide published in October 2017 for water utilities to aid in drought response and recovery. The guide outlines what goes into a good drought response plan, how to manage water supply and demand during a drought, best practices for communication and partnerships with other local utilities and provides case studies to discuss examples of drought management practices (EPA, 2017).

Figure 10 - Somerset County Drought Vulnerability



As shown, public water service is not available to most regions of the county. Residents or water authorities that use private domestic wells are more vulnerable to droughts because their drinking water can literally dry up. *Table 11 - Domestic Wells* shows the number of domestic wells per municipality. There are a total of 5,042 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.

Table 11 - Domestic Wells

Domestic Wells per Municipality in Somerset County	
MUNICIPALITY	**DOMESTIC WELLS**
Addison Borough	36
Addison Township	53
Allegheny Township	220
Benson Borough	0
Berlin Borough	64
Black Township	99
Boswell Borough	0
Brothersvalley Township	419
Callimont Borough	8
Casselman Borough	6
Central City Borough	2
Conemaugh Township	125
Confluence Borough	1
Elk Lick Township	337
Fairhope Township	74
Garrett Borough	3
Greenville Township	117
Hooversville Borough	1
Indian Lake Borough	10
Jefferson Township	212
Jenner Township	122
Jennerstown Borough	2
Larimer Township	163
Lincoln Township	131
Lower Turkeyfoot Township	54
Meyersdale Borough	21
Middlecreek Township	129
Milford Township	228
New Baltimore Borough	14
New Centerville Borough	17
Northampton Township	98
Ogle Township	75
Paint Borough	0
Paint Township	73
Quemahoning Township	144
Rockwood Borough	20

Domestic Wells per Municipality in Somerset County	
MUNICIPALITY	**DOMESTIC WELLS**
Salisbury Borough	0
Seven Springs Borough	0
Shade Township	215
Shanksville Borough	3
Somerset Borough	49
Somerset Township	680
Southampton Township	79
Stonycreek Township	310
Stoystown Borough	0
Summit Township	336
Upper Turkeyfoot Township	167
Ursina Borough	19
Wellersburg Borough	4
Windber Borough	57
Unknown	45
TOTAL	**5,042 (2015 plan: 3524)**
Source: Pennsylvania Groundwater Information System February 2020	

4.3.2. Earthquake

4.3.2.1 Location and Extent

An earthquake is sudden movement of the earth's surface caused by the release of stress accumulated within or along the edge off the earth's tectonic plates, a volcanic eruption, or by a human induced explosion (DCNR, 2007). Earthquake events in Pennsylvania, including Somerset County, are usually mild events, impacting areas no greater than sixty-two miles in diameter from the epicenter. A majority of earthquakes occur along boundaries between tectonic plates, and some earthquakes occur at faults on the interior of plates. Today, Eastern North America, including Somerset County, Pennsylvania, is far from the nearest plate boundary. That plate boundary is the Mid-Atlantic Ridge and is approximately 2,000 miles to the east. The Ramapo Fault System runs through New York, New Jersey and eastern Pennsylvania (See

Figure 11 - Ramapo Fault System). This fault system is associated with some small earthquakes, and it is thought unlikely to produce large earthquakes.

When the supercontinent of Pangaea broke apart about 200 million years ago, the Atlantic Ocean began to form. Since then, many faults have developed. Locating all of the faults would be an idealistic approach to identifying the region's earthquake hazard; however, many of the fault lines in this region have no seismicity associated with them.

The best way to determine earthquake history for Somerset County is to conduct a probabilistic earthquake-hazard analysis with the earthquakes that have already happened in and around the county (See *Figure 12 - Earthquake Hazard Zones*).

Natural gas extraction of the Marcellus/Utica Shale formation is possible in Somerset County. Hydraulic fracturing or fracking is used to extract the gas, and the process is thought to lead to an increase seismic activity (Meyer, 2016).

Figure 11 - Ramapo Fault System

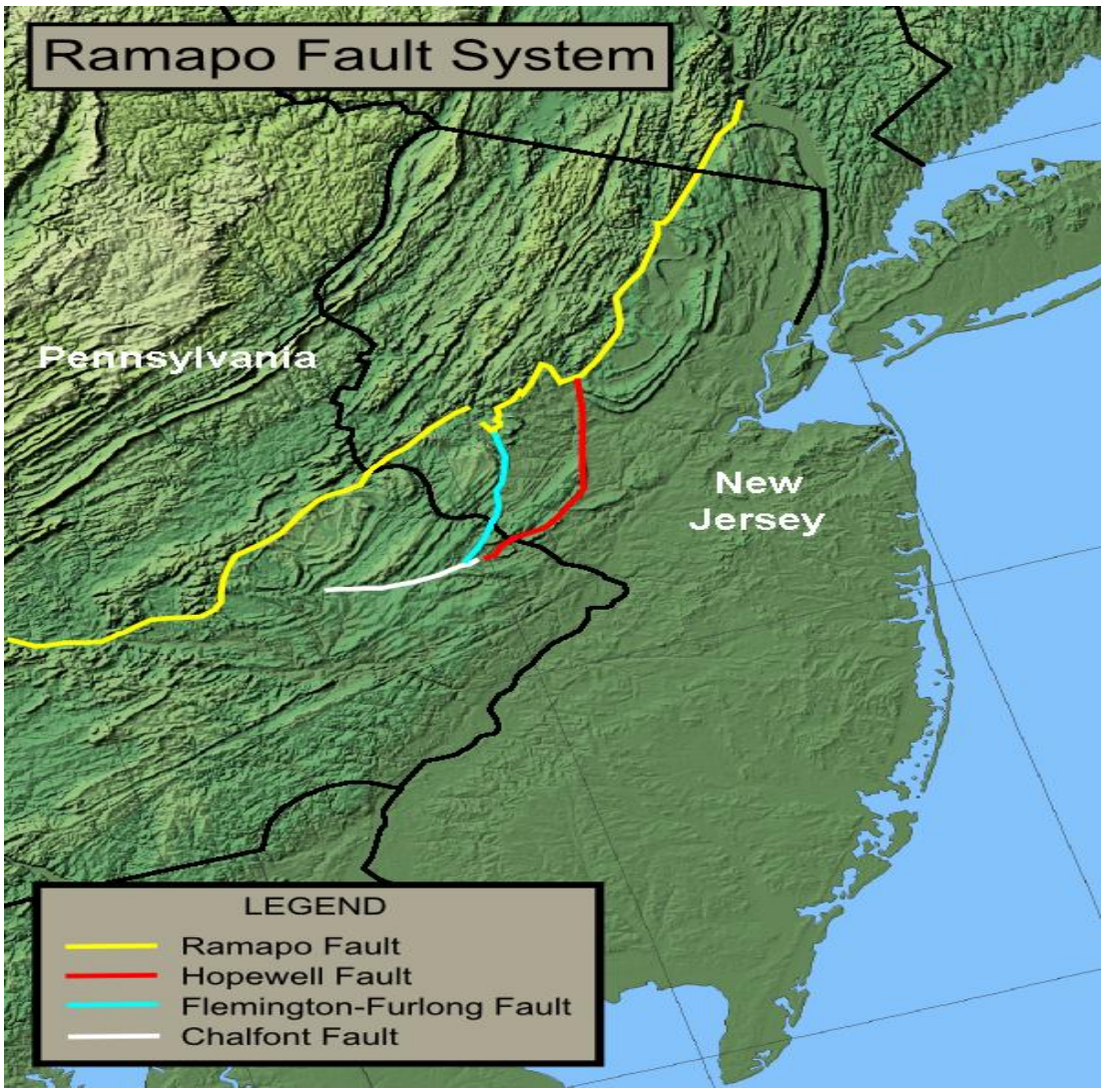
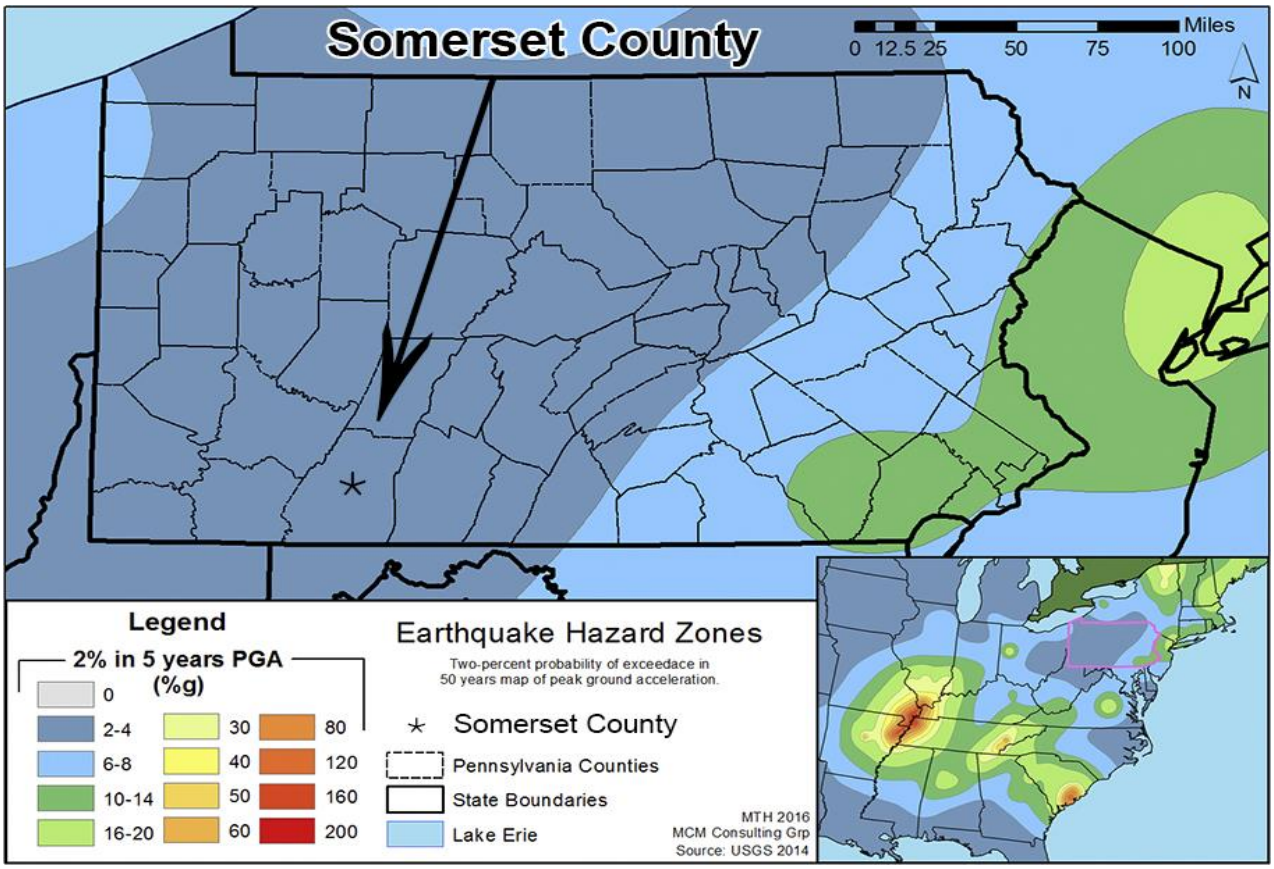


Figure 12 - Earthquake Hazard Zones



4.3.2.2 Range of Magnitude

Earthquakes result in the propagation of seismic waves, which are detected using seismographs. These seismograph results are measured using the Richter Scale, an open-ended logarithmic scale that describes the energy release of an earthquake. *Table 12 - Richter Scale* summarizes Richter Scale magnitudes as they relate to the spatial extent of impacted areas. The Modified Mercalli Intensity Scale *(Table 13 - Modified Mercalli Intensity Scale*) is an alternative measure of earthquake intensity that is broken down by the impacts of the earthquake event. Earthquakes have many secondary impacts, including disrupting critical facilities, transportation routes, public water supplies and other utilities.

Table 12 - Richter Scale

Richter Magnitude	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.

Table 13 - Modified Mercalli Intensity Scale

Scale	Intensity	Earthquake Effects	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

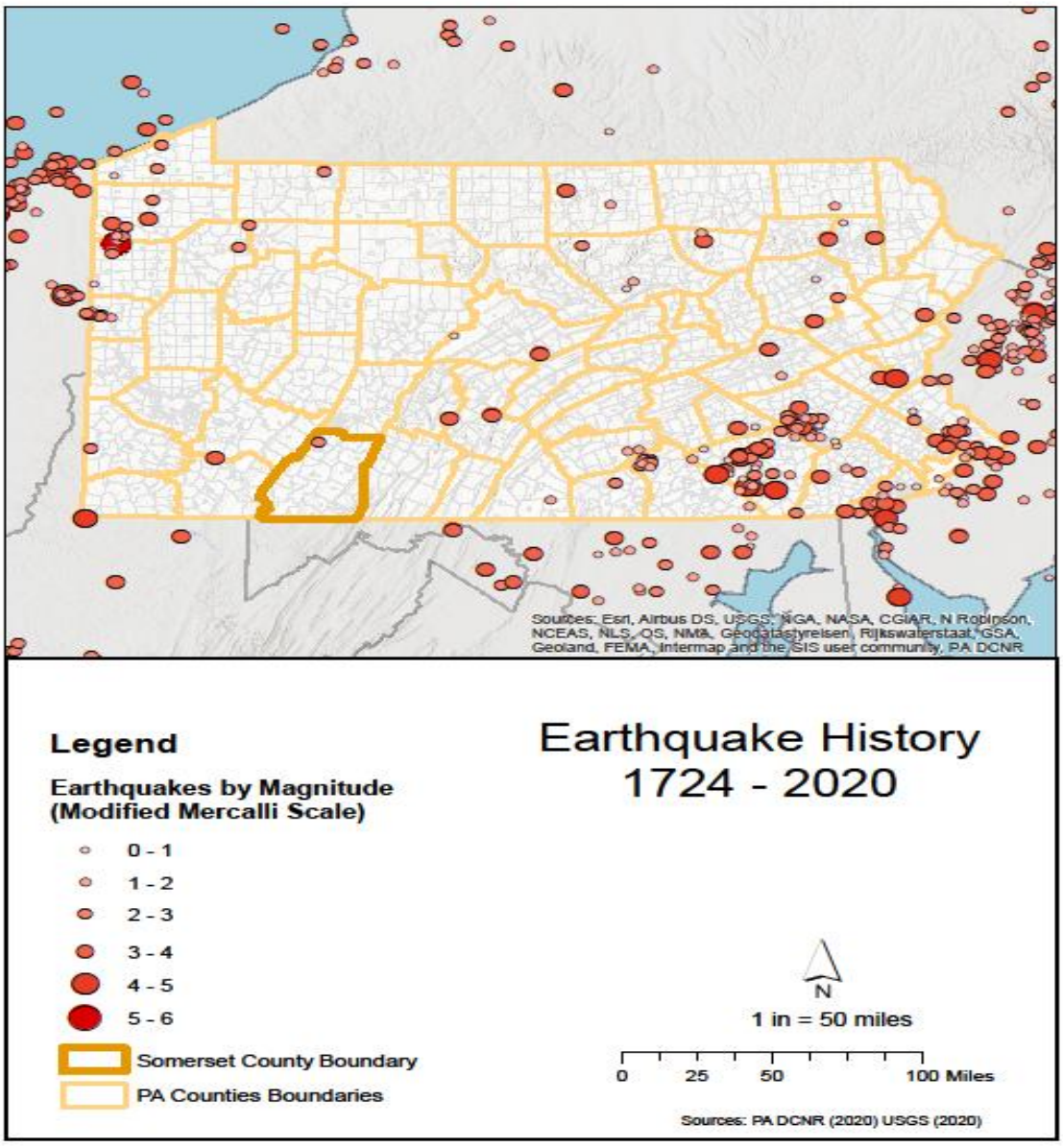
The strongest recorded earthquake in Pennsylvania was a magnitude 5.1 on the Richter Scale, so it could be expected that effects of such an event could be felt in Somerset County from earthquake events that happen around the Commonwealth.

4.3.2.3 Past Occurrence

Only one earthquake has been recorded that originated in Somerset County: a 2.6 tremor in Jenner Township in February 1982. A total of seven earthquake events occurred within 100 miles of Somerset County between 1724 and December 2018 – all events were relatively minor quakes with Modified Mercalli magnitudes less than four.

In the most recently recorded incidents, Somerset felt minor tremors from a 3.4 tremor in 2019 near Mifflintown, Juniata County, a 5.8 quake in 2011 in central Virginia, and in 1938 a 3.3 magnitude earthquake in Blair County. There were no damages or injuries reported in the county from these tremors. All earthquake events that occurred in the area surrounding Somerset County since 1724 can be seen in *Figure 13 - Earthquake History*.

Figure 13 - Earthquake History



4.3.2.4 Future Occurrence

Earthquake activity and intensities are difficult to predict, but a probabilistic analysis of prior earthquakes can assist in gauging the likelihood of future occurrences. *Figure 12 - Earthquake Hazard Zones* shows that Somerset County is in the lowest non-zero hazard zone for earthquake activity according to the USGS (2014), suggesting a low probability of earthquake occurrence. However, according to the USGS, there has been a recent trend increasing the frequency of magnitude 3 and larger earthquakes in the central and eastern US (*Table 14 - Recent Earthquake Trends in Central and Eastern United States*). This uptick in seismicity is considered to be due to hydraulic fracturing activities, and specifically occurs as a result of wastewater from the fracking process being injected into the earth (Meyer, 2016). Recent studies have moved towards being able to predict such induced seismicity by looking at uplift after injections, but more work needs to be done to confirm uplift as a reliable indicator of induced seismicity (Shirzei et al., 2016). As of December 2018, Somerset County has 72 active wells and one Underground Injection Control (UIC) Disposal Well (PA DEP, 2018). It is important to note that seismicity can occur even after wells become inactive and injections rates decline (Shirzaei et al., 2016).

Isostatic Rebound is a hypothesis for earthquake occurrence that has been kicked around for a lot of years, according to Charles Scharnberger, a retired professor of geology at Millersville University, who monitors the seismic station there. Scharnberger said Pennsylvania earthquakes are more of a mystery but could have something to do with the westward shift of the North American tectonic plate. Though the plates meet in California, where most of the seismic activity occurs, that movement still causes stress, squeezing and pressure along the entire length of the plate, reverberating as far back as the East Coast. A 3.4 earthquake like the one in Mifflintown, Juniata County in 2019 is in the medium range for Pennsylvania and may occur every couple of years. According to the USGS, this was the strongest earthquake felt or originating in Pennsylvania last year. It was followed by a 1.3 aftershock.

Table 14 - Recent Earthquake Trends in Central and Eastern United States

Earthquake Trends in Central and Eastern U.S. ***(USGS, 2016)***	
Year	**Number of M3+ Earthquakes (average per year)**
1973-2008	21
2009-2013	99
2014	659
2015	1000+

The chances of a devastating earthquake here are low, but Scharnberger said it's not impossible. His calculations on the probability of that happening based on the historic record indicate it's about a 1 in 200 chance in any given year.

4.3.2.5 Vulnerability Assessment

According to the U.S. Geological Society Earthquake Hazards Program, an earthquake hazard is anything associated with an earthquake that may affect a resident's normal activities. For Somerset County, this could include surface faulting, ground shaking, landslides, liquefaction, tectonic deformation, and seiches (sloshing of a closed body of water from earthquake shaking).

Earthquakes usually occur without warning and can impact areas a great distance from their point of origin (epicenter). Ground shaking is the greatest risk to building damage within Somerset County. Risk to public safety and loss of life from an earthquake is dependent upon the severity of the event. Injury or death to those inside buildings, or people walking below building ornamentation and chimneys is a higher risk to Somerset County's general public during an earthquake.

While historically the risk of earthquakes in southwestern Pennsylvania is low (See *Figure 12 - Earthquake Hazard Zones*), the uptick in seismicity due to hydraulic fracturing increases the likelihood of Somerset County experiencing a damaging earthquake. Marcellus shale exploration for natural gas is widespread throughout Pennsylvania and is moderate in Somerset County, meaning there has been moderate hydraulic fracturing. Considering the current knowledge of increased seismicity due to hydraulic fracturing, and the recent trends in Pennsylvania, Somerset County could expect to experience more magnitude 2 and larger earthquakes. Increased seismic activity is expected to last even after hydraulic fracturing stops, so the increased seismic risk should be expected to last well into the future. This induced seismicity is dependent on local conditions, and the impacts of hydraulic fracturing on earthquakes is variable geographically (Van der Baan & Calixto, 2017). While seismicity is likely to increase, it is thought that regions that before were relatively inactive seismically will not experience uncharacteristically catastrophic earthquakes due to hydraulic fracturing (Zhao et al., 2018).

4.3.3. Flood, Flash Flood and Ice Jams

4.3.3.1 Location and Extent

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. 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. Flash floods are the most common type of flooding in Somerset County. The severity of a flood event is dependent upon a combination of creek, 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.

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 then 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.

Floodplains are lowlands adjacent to rivers, streams and creeks that are subject to re-curring floods. The size of the floodplain is described by the recurrence interval of a given flood. Flood recurrence intervals are explained in more detail in Section 4.3.3.4. However, in assessing the potential spatial extent of flooding, it is important to know that a floodplain associated with a flood that has a 10% chance of occurring in a given year is smaller than the floodplain associated with a flood that has a 0.2% annual chance of occurring. The National Flood Insurance Program (NFIP) publishes digital flood insurance rate maps (DFIRMs). These maps identify the 1% annual chance of flood area.

Figure 14 - Flooding and Floodplain Diagram. Structures located in the SFHA have a 26% chance of flooding in a thirty-year period. The SFHA serves as the primary regulatory boundary used by FEMA, the Commonwealth of Pennsylvania and Somerset County local governments. Federal floodplain management regulations and mandatory flood insurance purchase requirements apply to the following high risk special flood hazard areas in *Table 15 - Flood Hazard High Risk Zones*. Appendix D of this hazard mitigation plan includes a flooding vulnerability map for each municipality in Somerset County with vulnerable structures and functional needs facilities identified using the most current DFIRM data for Somerset County dated September 19, 2012.

Past flooding events have been primarily caused by heavy rains which cause small creeks and streams to overflow their banks, often leading to road closures. Flooding poses a threat to functional needs facilities, agricultural areas, and those who reside or conduct business in the floodplain. The most significant hazard exists for facilities in the floodplain that process, use and/or store hazardous materials. A flood could potentially release and transport hazardous materials out of these areas. As the water recedes it would spread the hazardous materials throughout the area. Most flood damage to property and structures located in the floodplain is caused by water exposure to the interior, high velocity water and debris flow.

Figure 14 - Flooding and Floodplain Diagram

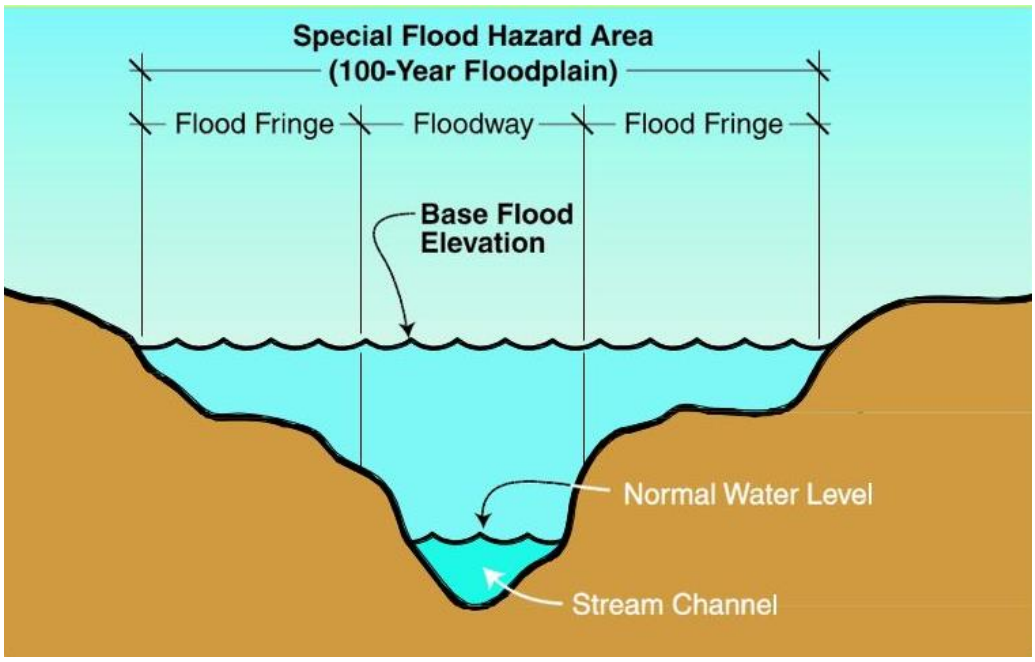


Table 15 - Flood Hazard High Risk Zones

Flood Hazard High Risk Zones *(FEMA, 2017)*	
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.

4.3.3.2 Range of Magnitude

The Ohio River Basin has caused significant flooding in Somerset County, 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

4.3.3.2 Range of Magnitude

Several factors determine the severity of floods, including rainfall intensity and duration, topography, ground cover and rate of snowmelt. Water runoff is greater in areas with steep slopes and little to no vegetative ground cover. The mountainous terrain of Somerset County can cause more severe floods as runoff reaches receiving water bodies more rapidly over steep terrain. Urbanization typically results in the replacement of vegetative ground cover with impermeable surfaces like asphalt and concrete, increasing the volume of surface runoff and stormwater, particularly in areas with poorly planned stormwater drainage systems. A large amount of rainfall over a short time span can cause flash floods. Additionally, small amounts of rain can cause floods in locations where the soil is frozen, saturated from a previous wet period, or if the area is rife with impermeable surfaces such as large parking lots, paved roadways and other developed areas. The county occasionally experiences intense rainfall from tropical storms in late summer and early fall which can potentially cause flooding as well.

Severe flooding can cause injuries and deaths and can have long-term impacts on the health and safety of the citizens. Severe flooding can also result in significant property damage, potentially disrupting the regular function of critical facilities and have long-term negative impacts on local economies. Industrial, commercial and public infrastructure facilities can become inundated with flood waters, threatening the continuity of government and business. The special needs population must be identified and located in flooding situations, as they are often home-bound. Mobile homes are especially vulnerable to high water levels. Flooding can have significant environmental impacts when flood waters release and/or transport hazardous materials and can also result in spreading diseases.

Flash floods can occur very quickly with little warning and can be deadly because of the rapid rises in water levels and devastating flow velocities. The more developed areas in the county can be especially susceptible to flash floods because of the significant presence of impervious surfaces, such as streets, sidewalks, parking lots, and driveways.

Severe flooding also comes with many secondary effects that could have long lasting impacts on the population, economy and infrastructure of Somerset County. Power failures are the most common secondary effect associated with flooding. Coupled with a shortage of critical services and supplies, power failures could cause a public health

emergency. Critical infrastructure, such as sewage and water treatment facilities, can be severely damaged, having a significant effect on public health. High flood waters can cause sewage systems to fail and overflow, contaminating groundwater and drinking water. Flooding also has the potential to trigger other hazards, such as landslides, hazardous material spills and dam failures.

The maximum threat of flooding in Somerset County is estimated by looking at potential loss data and repetitive loss data, both analyzed in the risk assessment portion of the hazard mitigation plan. In these cases, the severity and frequency of damage can result in permanent population displacement, and businesses may close if they are unable to recover from the disaster.

HAZUS software was used to estimate potential losses from a one hundred year flood event, and the full report can be found in Appendix F. Total building related loss from a one hundred year flood is expected to be approximately $203.13 million, with 102.81 million of that coming from residential homes. After adjusting for business interruption and extenuating circumstances after a flood event, total economic loss was estimated at $228.15 million. Residential occupancies account for nearly 29.58 million of all flooding related losses as estimated by HAZUS. In total, building and economic loss would 431.28 million.

Although floods can cause deaths, injuries and damage to property, they are naturally occurring events that benefit riparian systems which have not been disrupted by human actions. Such benefits include groundwater recharge and the introduction of nutrient rich sediment which improves soil fertility. However, human development often disrupts natural riparian buffers by changing land use and land cover, and the introduction of chemical or biological contaminants that often accompany human presence can contaminate habitats after flood events. Hazardous materials facilities are potential sources of contamination during flood events.

4.3.3.3 Past Occurrence

Somerset County has experienced numerous flooding, flash flooding and ice jam flooding events in the past. The flooding and flash flooding were caused by a variety of heavy storms, tropical storms and other issues. A summary of flood event history for Somerset County from 1972 until February 2019 is found in *Table 16 - Flood Event History*. Details of each event can be found in NOAA's NCEI Storm Events Database. Their data shows that the county on average experiences four to five flash floods a year and a significant river flood every other year.

Multiple flooding events took place between July 5th and July 10th, 2019 in Somerset County which affected several municipalities. One municipality, Summit Township, issued a disaster declaration due to such severe flooding. All culverts within a three-quarter mile stretch were completely overwhelmed which contributed to the washout of three different roadways. Summit Township must replace several culverts including a

newly refinished road which will far exceed the township's financial resources. Additionally, a neighboring municipality reported that over forty calls were made to a local volunteer fire department for assistance with flooded basements.

One of the worst floods to impact Somerset County took place in 2004 as a result of Hurricane Ivan. This flood caused approximately fifty million in damages and killed two people. Many parts of the county received over three inches of rain in a period of less than twelve hours. The Youghiogheny River at Confluence Brough reached flood stage, rising approximately ten feet in only twelve hours.

Table 16 - Flood Event History

Flood Event History ***(NOAA, 2019)***			
Location	**Date**	**Type**	**Property Damage**
Hooversville Borough/Meyersdale Borough/Windber Borough/Conemaugh Township/Ogle Township	June 1972	Flooding (Hurricane)	$0*
Countywide	July 1974	Flooding	$0*
Northern Section of County	7/19/1977	Flooding	$12,786
Garrett Borough/Windber Borough/Central City Borough	6/21/1983	Flash Flood	$0*
Summit Township/Northampton Township/Larimer Township/Fairhope Township	8/13/1984	Flooding	$14,728
Elk Lick Township/Garrett Borough/Summit Township/Meyersdale Borough	11/4/1985	Flooding	$17,000
Confluence Borough	7/28/1989	Flooding	$0*
Countywide	1/19/1996	Flooding	$0*
Windber Borough	6/18/1996	Flash Flood	$0*
Countywide	7/19/1996	Flash Flood	$0*
Windber Borough	8/8/1996	Flash Flood	$0*
Meyersdale Borough	9/6/1996	Flash Flood	$0*
Wellersburg Borough	9/12/1996	Flash Flood	$0*
Meyersdale Borough	3/3/1997	Flash Flood	$0*
Windber Borough	5/25/1997	Flash Flood	$0*
Windber Borough	8/12/1997	Flash Flood	$0*
Countywide	11/7/1997	Flash Flood	$0*
Northern Somerset County	5/5/1998	Flash Flood	$0*
Confluence Borough	6/19/1998	Flash Flood	$0*
Countywide	1/23/1999	Flash Flood	$5,000
Meyersdale Borough	2/18/2000	Flash Flood	$0*
Salisbury Borough	7/30/2000	Flash Flood	$0*
Central City Borough	7/31/2000	Flash Flood	$0*

Flood Event History *(NOAA, 2019)*			
Location	**Date**	**Type**	**Property Damage**
Countywide	8/6/2000	Flash Flood	$50,000
Addison Township	6/13/2001	Flash Flood	$0*
Somerset Borough	5/10/2003	Flash Flood	$0*
Somerset Borough	11/19/2003	Flash Flood	$0*
Berlin Borough	5/18/2004	Flash Flood	$0*
Central City Borough	9/8/2004	Flash Flood	$0*
Somerset Borough	5/31/2006	Flash Flood	$0*
Somerset Borough	6/26/2006	Flash Flood	$0*
Somerset Borough	6/2/2007	Flooding	$0*
Conemaugh Township	7/31/2006	Flash Flood	$0*
Somerset Township	11/16/2006	Flash Flood	$0*
Berlin Borough	6/1/2007	Flash Flood	$0*
Somerset Borough	2/6/2008	Flooding	$0*
Somerset Borough	7/7/2008	Flooding	$0*
Countywide	12/19/2008	Flooding	$0*
Southern Somerset County	6/17/2009	Flooding	$0*
Ursina Borough	6/17/2009	Flash Flood	$0*
Somerset Borough	1/25/2010	Flooding	$0*
Confluence Borough	1/25/2010	Flooding	$0*
Countywide	3/12/2010	Flooding	$0*
Countywide	9/30/2010	Flooding	$0*
Meyersdale Borough	5/18/2011	Flash Flood	$0*
Windber Borough	8/19/2011	Flooding	$0*
Shade Township	9/9/2011	Flash Flood	$0*
Shade Township	3/21/2012	Flooding	$0*
Countywide	7/3/2013	Flooding	$0*
Larimer Borough	7/4/2013	Flash Flood	$0*
Countywide	7/7/2013	Flooding	$0*
Somerset Borough	7/9/2013	Flooding	$0*
Somerset Township	7/10/2013	Flooding	$0*
Somerset Borough	7/16/2013	Flooding	$0*
Windber Borough	8/8/2013	Flash Flood	$0*
Boswell Borough	8/28/2013	Flash Flood	$0*
Boswell Borough	8/28/2013	Flash Flood	$0*
Northern Somerset County	9/1/2013	Flooding	$0*
Somerset Borough	6/8/2014	Flooding	$0*
Boswell Borough	6/12/2014	Flash Flood	$0*
Paint Borough	6/12/2014	Flooding	$0*

Flood Event History *(NOAA, 2019)*			
Location	**Date**	**Type**	**Property Damage**
Shade Township	3/18/2015	Flooding	$0*
Countywide	6/20/2015	Flooding	$0*
Somerset Township	7/4/2015	Flooding	$0*
Boswell Borough	8/28/2016	Flooding	$0*
Somerset Borough	8/28/2016	Flooding	$0*
Somerset	12/18/2016	Flooding	$0*
Conemaugh Township	12/18/2016	Flooding	$0*
Somerset Township	12/18/2016	Flooding	$0*
Somerset Township	5/28/2017	Flash Flood	$0*
Somerset	6/15/2017	Flooding	$0*
Northern Somerset County	6/16/2017	Flooding	$0*
Conemaugh Township	6/23/2017	Flooding	$0*
Rockwood Borough	7/15/2017	Flooding	$0*
Upper Turkeyfoot Township	7/15/2017	Flooding	$0*
Countywide	7/15/2017	Flooding	$0*
Southern Somerset County	7/28/2017	Flooding	$0*
Elk Lick Township	7/29/2017	Flooding	$0*
Milford Township	1/12/2018	Flooding	$0*
Paint Township	2/15/2018	Flooding	$0*
Glade Township	6/20/2018	Flash Flood	$0*
Somerset Borough	6/20/2018	Flash Flood	$0*
Lincoln Township	6/20/2018	Flash Flood	$0*
New Baltimore Borough	6/20/2018	Flash Flood	$0*
Hooversville Borough	6/20/2018	Flash Flood	$0*
Lincoln Township	7/5/2018	Flooding	$0*
Wellersburg Borough	8/2/2018	Flash Flooding	$0*
Southern Somerset County	8/31/2018	Flooding	$0*
Quemahoning Township	9/1/2018	Flooding	$0*
Countywide	9/9/2018	Flooding	$0*
Meyersdale Borough	9/9/2018	Flooding	$0*
Meyersdale Borough	9/27/2018	Flooding	$0*
Summit Township	10/11/2018	Flooding	$0*
Jenner Township	5/9/2019	Flooding	$0*
Jerome Township	5/9/2019	Flash Flood	$0*
Shade Township	6/19/2019	Flooding	$0*
Lincoln Township	7/5/2019	Flash Flood	$1,000,000
Wellscreek Borough	7/5/2019	Flash Flood	$0*
Windber Borough	7/7/2019	Flash Flood	$0*

Flood Event History *(NOAA, 2019)*			
Location	**Date**	**Type**	**Property Damage**
Meyersdale Borough	7/7/2019	Flash Flood	$0*
Conemaugh Township	7/7/2019	Flash Flood	$0*
Windber Borough	7/7/2019	Flash Flood	$0*
Somerset Borough	7/10/2019	Flash Flood	$20,000
Summit Township	7/10/2019	Flooding	$0*
Lincoln Township	7/18/2019	Flash Flood	$75,000
** Indicates insufficient data*			
		Total	**$1,193,000**

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. The hazard mitigation assistance (HMA) definition of a repetitive loss property is a structure covered by a contract for flood insurance made available under the NFIP that has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded twenty five percent of the market value of the structure at the time of each such flood event; and at the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.

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. There are eighteen repetitive loss properties in Somerset County. This is an increase from 2015 when there were no repetitive loss properties listed.

Most municipalities in Somerset County participate in the NFIP except for Addison Borough, Berlin Borough, Callimont Borough, New Centerville Township, Seven Springs Borough, and Stoystown Borough. Information on each participating municipality is in *Table 18 - Municipal NFIP Policies & Vulnerability*.

Table 17 - Repetitive Loss Properties

Repetitive Loss Properties *(PEMA, 2018)*					
Community Name	**Comm. Num.**	**Building Payments**	**Contents Payments**	**Losses**	**Properties**
Conemaugh Township	422047	$128,482	$0	5	2
Elk Lick Township	422048	$9,067	$0	2	1
Garrett Borough	420797	$66,083	$16,444	7	3
Meyersdale Borough	422044	$5,292	$571	2	1
Middlecreek Township	422518	$7,115	$.00	2	1

Repetitive Loss Properties *(PEMA, 2018)*					
Community Name	**Comm. Num.**	**Building Payments**	**Contents Payments**	**Losses**	**Properties**
Somerset Borough	420803	$52,851	$4,637	8	2
Summit Township	422056	$140,914	$27,702	20	5
Windber Borough	422046	$41,960	$10,969	7	3
Totals		**$281,810.20**	**$48,432.96**	**53**	**18**

Table 18 - Municipal NFIP Policies & Vulnerability

Municipal NFIP Policies & Vulnerability *(PEMA, 2018; Somerset Co. GIS, 2019)*					
Community Name	**Comm Num.**	**Contract Count**	**Policy Count**	**Total Coverage**	**Premium + Police Fee**
Addison Borough	NA	N/A	N/A	N/A	N/A
Addison Township	422508	1	1	$140,000	$446
Allegheny Township	422509	5	5	$377,500	$4,4,751
Benson Borough	420793	9	9	$433,200	$7,761
Berlin Borough	N/A	N/A	N/A	N/A	N/A
Black Township	422510	3	3	$1,050,000	1,470
Boswell Borough	420794	1	1	$51,700	$342
Brothersvalley Township	422511	N/A	N/A	N/A	N/A
Callimont Borough	N/A	N/A	N/A	N/A	N/A
Casselman Borough	420795	N/A	N/A	N/A	N/A
Central City Borough	420796	9	9	$1,106,000	$5,126
Conemaugh Township	422047	47	47	$5,259,000	$42,765
Confluence Borough	422043	16	16	$2,530,800	$14,811
Elk Lick Township	422048	14	14	$2,238,800	$20,802
Fairhope Township	422049	N/A	N/A	N/A	N/A
Garrett Borough	420797	15	15	$1,239,000	$10,322
Greenville Township	422512	2	2	$186,000	$1,322
Hooversville Borough	420798	11	11	$854,300	$8,299

Municipal NFIP Policies & Vulnerability *(PEMA, 2018; Somerset Co. GIS, 2019)*					
Community Name	**Comm Num.**	**Contract Count**	**Policy Count**	**Total Coverage**	**Premium + Police Fee**
Indian Lake Borough	422513	6	6	$1,309,500	$2,669
Jefferson Township	422050	10	10	$1,646,700	$8,557
Jenner Township	422051	10	10	$1,916,100	$17,226
Jennerstown Borough	422514	1	1	$350,000	$580
Larimer Township	422515	1	1	$80,000	$964
Lincoln Township	422516	7	7	$568,500	$3,507
Lower Turkeyfoot Township	422517	12	12	$1,852,000	$5,342
Meyersdale Borough	422044	8	8	$692,500	$3,329
Middlecreek Township	422518	7	7	$1,082,400	$18.474
Milford Township	422519	1	1	$72,900	$747
New Baltimore Borough	420799	3	3	$240,000	$1,571
New Centerville Borough	N/A	N/A	N/A	N/A	N/A
Northampton Township	422520	2	2	$217,000	$659
Ogle Township	422052	N/A	N/A	N/A	N/A
Paint Borough	420800	3	3	$885,000	$1,334
Paint Township	422521	9	9	$1,762,900	$5,679
Quemahoning Township	422053	12	12	$1,168,900	$8,117
Rockwood Borough	422045	3	3	$1,610,000	$9,706
Salisbury Borough	N/A	N/A	N/A	N/A	N/A
Seven Springs Borough	N/A	N/A	N/A	N/A	N/A
Shade Township	422054	5	5	$371,200	$2,769
Shanksville Borough	420802	4	4	$324,000	$3,336
Somerset Borough	420803	25	25	$5,023,600	$29,365
Somerset Township	422055	34	34	$7,444,900	$29,575

Municipal NFIP Policies & Vulnerability *(PEMA, 2018; Somerset Co. GIS, 2019)*					
Community Name	**Comm Num.**	**Contract Count**	**Policy Count**	**Total Coverage**	**Premium + Police Fee**
Southampton Township	422523	4	4	$507,000	$2,082
Stonycreek Township	422524	20	20	$5,062,200	$18,440
Stoystown Borough	N/A	N/A	N/A	N/A	N/A
Summit Township	422056	22	22	$3,017,600	$17,194
Upper Turkeyfoot Township	422525	1	1	$46,200	$1,421
Ursina Borough	422804	9	9	$1,222,000	$4,667
Wellersburg Borough	422526	2	2	#398,000	$1,641
Windber Borough	422046	72	72	$7,013,100	$89,969
Total		**426**	**426**	**$60,952,500**	**$283,930**

4.3.3.4 Future Occurrence

Flooding is a frequent problem throughout Pennsylvania. Somerset County will certainly be impacted by flooding events in the future – Somerset County experiences some degree of flooding annually. The threat of flooding is compounded in the late winter and early spring months, as melting snow can overflow streams, creeks and tributaries, increasing the amount of groundwater, clogging stormwater culverts and bridge openings. The NFIP recognizes the 1%-annual-chance flood, also known as the base flood or one-hundred-year flood, as the standard for identifying properties subject to federal flood insurance purchase requirements. A 1%-annual-chance flood is a flood which has a 1% chance of occurring over a given year or is likely once every one-hundred years. The digital flood insurance rate maps (DFIRMs) are used to identify areas subject to the 1% annual-chance flooding. A property's vulnerability to a flood is dependent upon its location in the floodplain. Properties along the banks of a waterway are the most vulnerable. The property within the floodplain is broken into sections depending on its distance from the waterway. The ten-year flood zone is the area that has a ten percent chance of being flooded every year. However, this label does not mean that this area can-not flood more than once every ten years. It just designates the probability of a flood of this magnitude every year. Further away from this area is the fifty-year flood plain. This area includes all of the ten-year floodplain plus additional property. The probability of a flood of this magnitude occurring during a one-year period is two percent. A summary of flood probability is shown in *Table 19 - Flood Probability Summary*.

Table 19 - Flood Probability Summary

Flood Probability Summary *(FEMA)*	
Flood Recurrence Intervals	**Annual Chance of Occurrence**
10-year	10.00%
50-year	2.00%
100-year	1.00%
500-year	0.20%

4.3.3.5 Vulnerability Assessment

River and Stream Flooding:

Somerset County is vulnerable to flooding events. Flooding puts the entire population at some level of risk, whether through the flooding of homes, businesses, places of employment, or the road, sewer and water infrastructure. *Table 16 - Flood Event History* includes a metric for estimated economic impact from flooding events and shows how economically damaging flooding events can be. Flooding is also associated with power outages and poor road conditions that can lead to heightened transportation accident risk.

Critical and functional needs facilities are facilities that if damaged would present an immediate threat to life, public health and safety. Facilities that use and store hazardous materials pose a potential threat to the environment during flooding events if flooding causes leaks or equipment failure. Appendix D of this hazard mitigation plan includes a flooding vulnerability map for each municipality in Somerset County with vulnerable structures, functional needs facilities and hazardous material locations identified. There are twenty-two critical and functional needs facilities that are located within the special flood hazard area (*Table 20 – Critical and Functional Needs Facilities Vulnerable to Flooding*.)

Table 20 – Critical and Functional Needs Facilities Vulnerable to Flooding

Critical and Functional Needs Facilities Vulnerable to Flooding *(Somerset Co GIS, 2019; PEMA, 2019)*		
Type	**Name**	**Municipality**
Child Care	Cindy Shafer Daycare	Ursina Borough
Emergency Services	Somerset Ambulance (Kantner Substation)	Stoystown Borough
Emergency Services	Acosta VFD	Jenner Township
Emergency Services	Hooversville VFD	Hooversville Borough
Emergency Services	Paint VFD (Company 2)	Paint Borough

Critical and Functional Needs Facilities Vulnerable to Flooding *(Somerset Co GIS, 2019; PEMA, 2019)*		
Type	**Name**	**Municipality**
Emergency Services	Rockwood VFD	Rockwood Borough
Emergency Services	Central City VFD	Central City Borough
Emergency Services	New Baltimore VFD	New Baltimore Borough
Emergency Services	Garrett Borough PD	Garrett Borough
Emergency Services	Hooversville Borough PD	Hooversville Borough
Emergency Services	Elk Lick Township PD	Elk Lick Township
Emergency Services	Summit Township PD	Summit Township
Emergency Services	Windber Borough PD	Windber Borough
Municipal Building	Benson Borough Municipal Building	Benson Borough
Municipal Building	Casselman Borough Municipal Building	Casselman Borough
Municipal Building	Elk Lick Township Municipal Building	Elk Lick Township
Municipal Building	Garrett Borough Municipal Building	Garrett Borough
Municipal Building	Hooversville Borough Municipal Building	Hooversville Borough
Municipal Building	New Baltimore Borough Municipal Building	New Baltimore Borough
Municipal Building	Shanksville Borough Municipal Building	Shanksville Borough
Municipal Building	Summit Township Municipal Building	Summit Township
School	North Star East Elementary and Middle School	Quemahoning Township

Flash Flooding:

Flash flooding is a common occurrence in Somerset County, with regions that are more populated and have more impervious surfaces are typically more susceptible to flash flooding. According to local reports and data from local subject matter experts, the following locations were identified as most prone to flash flooding: Quemahoning Creek in Boswell Borough, West branch Coxes Creek near Somerset, Laurel Hill Creek in Confluence Borough, and Stonycreek River in Hollsopple. These locations appear highlighted in *Figure 15 - Ice Jam and Flash Flooding Vulnerability*. These locations are only a few that have flooded badly in recent years and does is not a comprehensive list of flooding events.

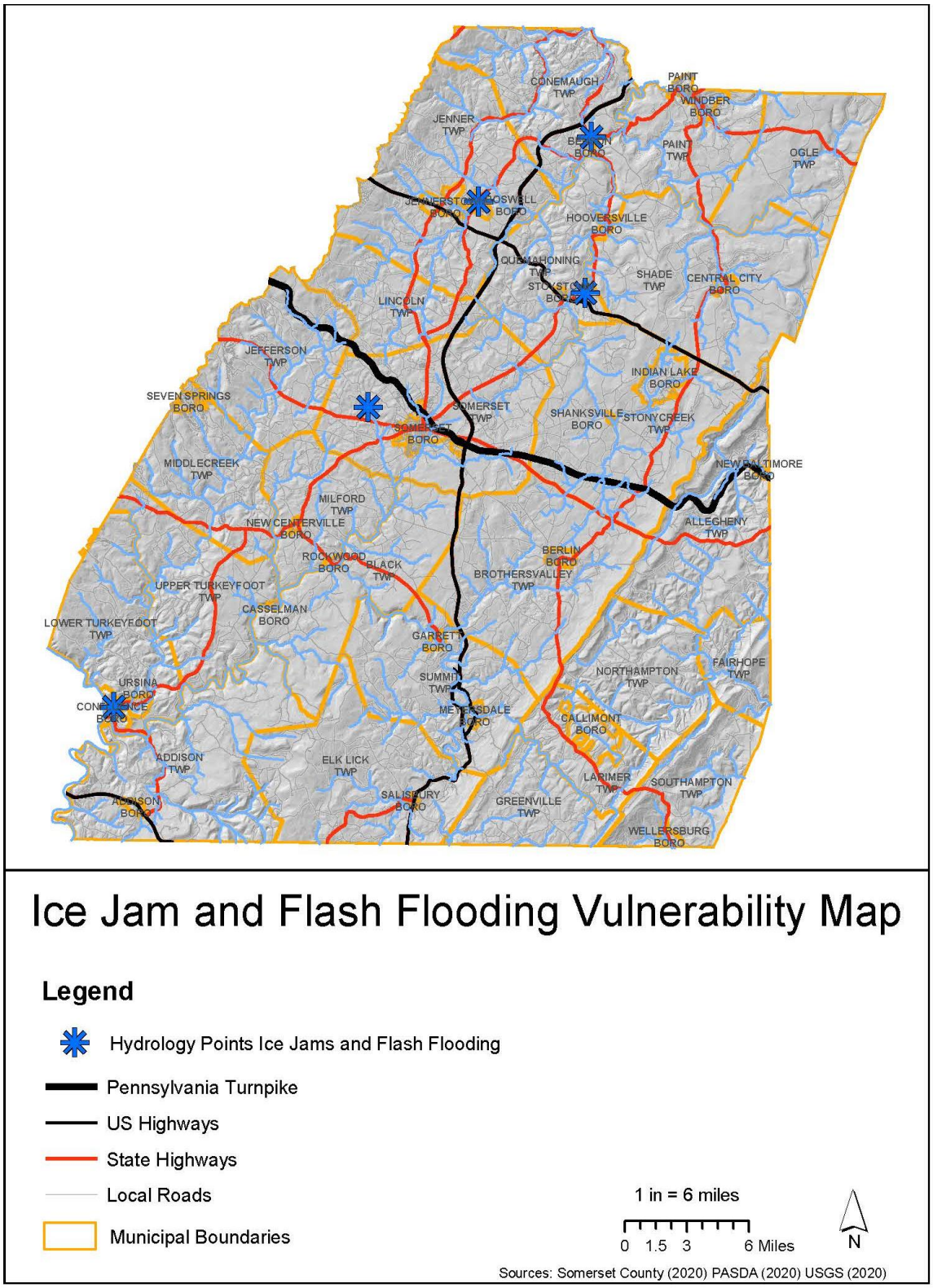
Ice Jam Flooding:

The Somerset County Local Planning Team designated an overall risk factor score of 2.2 for ice jam flooding, making it a moderate hazard to Somerset County. Areas along the Stonycreek, Casselman River and Youghiogheny River are most vulnerable to ice jam flooding. There are few reports of ice jam flooding in Somerset County; however, the county could be directly impacted if an ice jam flood event were to occur in neighboring or nearby counties.

While not apparent in the reported past occurrences from NOAA's Storm Events Database, there is a history of ice jam flooding within Somerset County. Areas most vulnerable to ice jam flooding include the Whistler Street Bridge crossing Stonycreek River in Hollsopple, Whistler Road Bridge crossing Stonycreek River in Kantner, Kring Street Bridge crossing Stonycreek River in Conemaugh Township, and the Park Street Bridge crossing Laurel Hill Creek in Confluence as shown in *Figure 15 - Ice Jam and Flash Flooding Vulnerability.*

The Somerset County Hazard Mitigation Team will continue to work with municipalities to identify vulnerable locations to all types of flooding and identify vulnerable functional needs populations and functional needs facilities. This will be a continuous process during the 2020-2025 mitigation plan period. As new data is developed, and new special needs facilities appear, the interface between flooding locations and the new data will be analyzed to identify new vulnerability.

Figure 15 - Ice Jam and Flash Flooding Vulnerability



4.3.4. Hailstorms

4.3.4.1 Location and Extent

Hail is possible within most thunderstorms. It is produced by cumulonimbus (storm clouds) and within two nautical miles of the parent storm. In the form of solid precipitation, 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 larger, this is also known as a hailstone. The hail will continue to grow in this manner until its weight exceeds the force of the updraft. Hailstones can take the shape of balls or irregular lumps of ice.

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

4.3.4.2 Range of Magnitude

Table 21 - Size of Hail in Related Terms

Size of Hail in Related Terms	
Related Item	**Size of Hail**
BB	Less than 1/4"
Pea	1/4"
Dime	7/10"
Penny	3/4"
Nickel	7/8"
Quarter	1"
Half Dollar	1 1/4"
Walnut or ping-pong ball	1 1/2"
Golf ball	1 3/4"
Lime	2"
Tennis ball	2 1/2"
Baseball	2 3/4"
Large apple	3"
Softball	4"
Grapefruit	4 1/2"

Hailstones can measure between 0.2 inches to six inches in diameter. The METAR (a format for reporting weather information, predominately used by pilots) reporting code for hail 0.20 inches or greater is GR, while smaller hailstones are coded GS. Hail that is larger than 0.80 inches are usually considered large enough to cause damage. The US National Weather Service will issue severe thunderstorm warnings when hail that is 1 inch or greater in diameter is expected.

National Oceanic and Atmospheric Administration Skywarn program requests trained Skywarn Spotters measure hail with a ruler, but if one is not available, related terms can be used. See *Table 21 - Size of Hail in Related Terms* Hail should only be measured when it is safe to do so.

Environmental and other impacts from hailstorms range from:

- Crop production damage
- Flooding caused by accumulation of hail that blocks drains
- Loss of electric power
- Trees brought down
- Flash flooding
- Mudslides

4.3.4.3 Past Occurrence

In the 1960's the National Weather Service (NWS) developed the Skywarn® program. Skywarn® has trained weather spotters who provide reports of severe weather to NWS. These reports assist meteorologists to make life-saving warning decisions. Concerned citizens, amateur radio operators, truck drivers, emergency management personnel and others volunteer their time and energy to report hazardous weather impacting their communities.

Even with data from Doppler radar, satellite, and surface weather stations, NWS technology can't detect every instance of weather such as hail. So, reports from Skywarn® volunteers are a vital service for making warnings to those in the storm's path.

According to the National Center for Environmental Information (NCEI), Somerset County experienced a total of thirty-six hailstorm events between 1950 and 2020. Approximately ninety-six percent of hailstorm events occur during the months of April, May, June, July, August, and September. Additionally, approximately eighty-seven percent of historic hailstorm events have occurred during evening or afternoon. NOAA's National Weather Service storm prediction center reports on hail events for Somerset County are detailed in *Table 22 - National Weather Service Hail Reports.*

Table 22 - National Weather Service Hail Reports

National Weather Service Hail Reports			
Date	**Time**	**Location**	**Size (inches)**
6/6/1971	16:00	Confluence	1.75
7/11/1977	16:45	Meyersdale	1.75
7/12/1985	15:30	Ogletown	1.75
4/1/1990	15:30	Somerset	0.75
9/2/1990	15:05	Somerset	0.75
6/16/1994	17:00	Conemaugh	1.0
6/19/1994	17:20	Conemaugh	1.0
7/20/1994	18:00	Sipesville	0.75
6/24/1996	15:12	Savage	N/A
6/13/1998	10:50	Hooversville	0.88
6/19/1998	02:15	Bakersville	0.88
4/9/1999	15:10	Meyersdale	0.75
4/22/1999	01:10	Ogletown	0.75
7/31/1999	15:35	Salisbury	1.75
7/14/2000	18:10	Comptons Mill	0.88
4/28/2002	15:55	Meyersdale	0.75
7/8/2003	20:40	Lavansville	1.0
5/17/2004	18:00	Shanksville	1.0
7/13/2005	11:00	Acosta	0.75
5/31/2006	16:20	Confluence	0.88
5/14/2010	15:40	Gray	0.75
3/23/2011	15:31	Somerset	0.8
3/23/2011	15:31	Somerset	1.0
3/23/2011	15:31	Somerset	1.0

National Weather Service Hail Reports			
Date	**Time**	**Location**	**Size (inches)**
3/23/2011	16:25	Davidsville	1.75
3/23/2011	16:25	Jerome	2.0
3/23/2011	16:45	Ogletown	1.0
4/3/2011	19:30	Hooversville	1.0
4/27/2011	23:35	Berlin	1.0
7/4/2012	18:00	Thomas Mill	1.75
7/4/2012	18:10	Landstreet	1.0
8/9/2012	13:15	Markleton	0.88
7/4/2013	15:40	Wittenberg	1.0
8/7/2013	18:10	Windber	0.88
4/20/2015	18:36	Gray	0.88

4.3.4.4 Future Occurrence

The local planning team determined an overall risk factor score of 2.1 for this hazard making it a moderate hazard. Hailstorms are also associated with other hazards, such as thunderstorms, making it likely to occur.

4.3.4.5 Vulnerability Assessment

Automobiles, aircraft, skylights, solar panels, livestock, and farmers' crops can all be seriously damaged by hail. Roofs can also be damaged by hail, although it most likely will go undetected until structural damage is seen, such as leaks and cracks. Although it is rare, hail has been known to cause concussions or fatal head traumas to humans. To alleviate damages from hail: automobiles could be placed in garages, grounded aircraft could be placed in a hanger, livestock and people moved inside structures during the storm. Unfortunately crops, skylights, roofs, and flying aircraft are unable to be protected from hail.

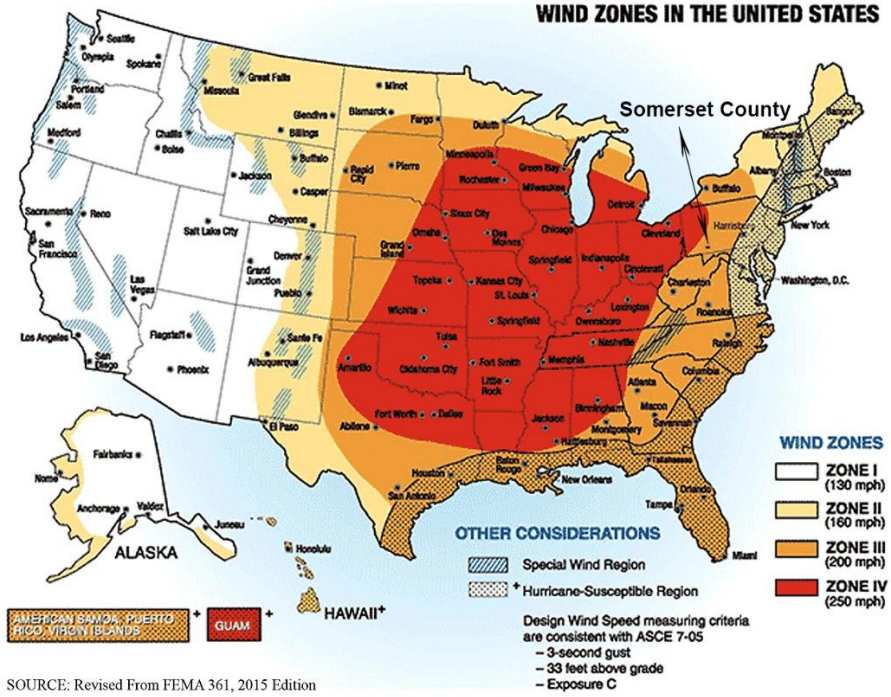
4.3.5. Hurricane, Tropical Storms, Nor'easter

4.3.5.1 Location and Extent

Tropical depressions are cyclones with maximum sustained winds of less than thirty-nine miles per hour (mph). The system becomes a tropical storm when the maximum sustained winds reach between thirty-nine to seventy-four miles per hour. When wind speeds exceed seventy-four mph, the system is considered a hurricane. Tropical storms impacting Somerset County develop in tropical or sub-tropical waters found in the Atlantic Ocean, Gulf of Mexico, or Caribbean Sea. Another type of tropical storm is nor'easters, which are large cyclones that rotate clockwise and are typically associated with the Atlantic Ocean and the East Coast of the United States between North Carolina and Massachusetts. The name nor'easter comes from the direction that the strongest winds typically blow from the cyclone.

Although Somerset County is situated a far distance away from the East Coast of the United States, tropical storms can track inland and cause heavy rainfall and strong winds. Somerset County is located just inland of the East Coast region designated by FEMA as being Hurricane-Susceptible (see *Figure 16 - Wind Zones*). Somerset County falls within the wind Zone III, which suggests that shelters and functional needs facilities should be able to withstand a three-second gust of wind up to two hundred miles per hour (*Figure 16 - Wind Zones*). All communities within Somerset County are equally subject to the impacts of hurricanes and tropical storms that track near the county. Areas in Somerset County which are subject to flooding, wind and winter storm damage are particularly vulnerable.

Figure 16 - Wind Zones



4.3.5.2 Range of Magnitude

The impact tropical storm or hurricane events have on an area is typically measured in terms of wind speed. Expected damage from hurricane force winds is measured using the Saffir-Simpson Scale (*Table 23 - Saffir-Simpson Scale)*. The Saffir-Simpson Scale categorizes hurricane intensity linearly based upon maximum sustained winds, barometric pressure, and storm surge potential (characteristic of tropical storms and hurricanes, but not a threat to inland locations like Somerset County). Categories three, four, and

Table 23 - Saffir-Simpson 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

five are classified as "major" hurricanes. While major hurricanes comprise only twenty percent of all tropical cyclones making landfall, they account for over seventy percent of the damage in the United States. While hurricanes can cause high winds and associated impacts, it is also important to recognize the potential for flooding events during hurricanes, tropical storms and nor'easters; the risk assessment and associated impact for flooding events is included Section 4.3.4.5.

4.3.5.3 Past Occurrence

Table 24 - History of Coastal Storms lists all coastal storms that have impacted Somerset County from 1970 to December 2019. Although impacts of tropical storms are commonly felt in the Commonwealth, it is rare that a hurricane would track through Somerset County.

Hurricane Agnes was a severe coastal storm event in 1972 that impacted the entire state of Pennsylvania. After making first landfall as a hurricane near Panama City, Florida, Agnes weakened and exited back into the Atlantic off the North Carolina coast. The storm skirted along the coast and made a second landfall near New York City as a tropical storm and merged with an extra-tropical low-pressure system over northern Pennsylvania. This brought extremely heavy rains to Pennsylvania, with a concentration of rain in the Susquehanna River Basin. Pennsylvania incurred $2.1 billion in damages and 48 deaths statewide. Fire and flood destroyed 68,000 homes and 3,000 businesses and left 220,000 Pennsylvanians homeless. The event triggered a Presidential Disaster Declaration for the region. Rainfall of seven to ten inches was noted across the Commonwealth, with some areas reporting as much as eighteen inches locally.

During the first week of September in 2011, heavy rain from remnants of Tropical Storm Lee, led to historic flooding and rainfall totals in the Mid-Atlantic Region and especially Central Pennsylvania (see *Figure 17 - Tropical Storm Lee Rainfall Totals*). Somerset County had already been drenched by Hurricane Irene just one week prior to Tropical Storm Lee. In total, fifteen people lost their lives as a result of the flooding caused by Tropical Storm Lee, including seven from Pennsylvania. In Pennsylvania, sixteen thou-

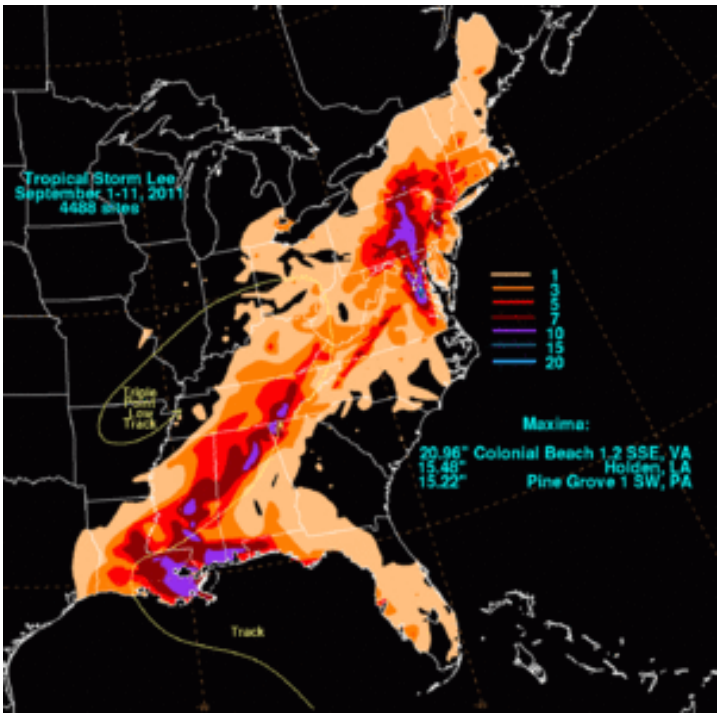
sand homes and businesses received at least minor damage, including over one thousand homes and businesses that were completely destroyed. Total estimated costs from Tropical Storm Lee were over $2 billion.

Hurricane Sandy was the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season, and the second-costliest hurricane in US history. Sandy was a category three storm at its peak intensity when it made landfall in Cuba. It was classified as a category two storm off the coast of the Northeastern United States, but because of the unusual merge with a frontal system, the hurricane was termed "Superstorm Sandy." At least 285 people were killed along the path of the storm in seven countries. In the United States, there were seventy-two people killed with an additional eighty-seven fatalities as indirect result of the storm. Superstorm Sandy caused an estimated $65 billion in damages in the United States alone.

Table 24 - History of Coastal Storms

History of Coastal Storms Impacting Somerset County (NOAA NCEI, 2019)	
Year	**Name**
1954	Hurricane Hazel
1955	Hurricanes Connie & Diane
1972	Tropical Storm Agnes
1999	Hurricane Floyd
2003	Tropical Storm Henri
2003	Tropical Storm Isabel
2004	Tropical Depression Frances
2004	Tropical Depression Ivan
2005	Hurricane Katrina
2006	Tropical Depression Ernesto
2008	Hurricane Ike
2011	Hurricane Irene
2011	Tropical Storm Lee
2012	Hurricane Sandy
2017	Tropical Storm Cindy

Figure 17 - Tropical Storm Lee Rainfall Totals



4.3.5.4 Future Occurrence

Although hurricanes and tropical storms can cause flood events consistent with 100- and 500-year flood levels, the probability of occurrence of hurricanes and tropical storms is measured relative to wind speed. *Table 25 - Annual Probability of Wind Speeds* shows the annual probability of winds that reach the strength of tropical storms and hurricanes in Somerset County and the surrounding areas based on a sample period of forty-six years. NOAA's Hurricane Research Division estimates that Somerset County will experience impacts from a named tropical storm or hurricane up to once every ten years, with a probability between zero and ten percent annually (*Figure 18 - Mean Occurrence of Named Storms 1944-1997)*. However according to FEMA, there is a high probability each year that Somerset County will experience winds from coastal storms that could cause minimal to moderate damages (*Table 25 - Annual Probability of Wind Speeds*). The probability of winds exceeding 118 mph is less than 0.1% annually.

Figure 18 - Mean Occurrence of Named Storms 1944-1997

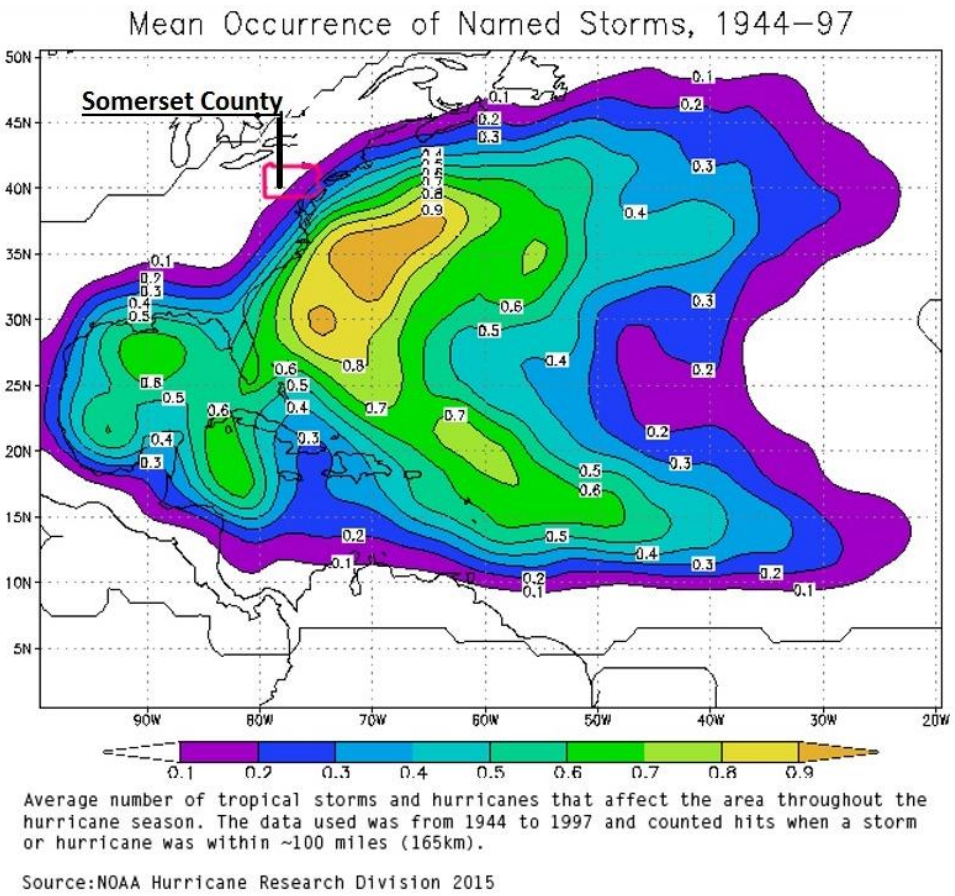


Table 25 - Annual Probability of Wind Speeds

Annual Probability of Wind Speeds ***(FEMA, 2000)***		
Wind Speed (mph)	**Saffir-Simpson Scale**	**Annual Probability of Occurrence (%)**
45-77	Tropical Storms// Category 1 Hurricane	91.59
78-118	Category 1 to 2 Hurricanes	8.32
119-138	Category 3 to 4 Hurricanes	.0766
139-163	Category 4 to 5 Hurricanes	.0086
164-194	Category 5 Hurricanes	.00054
195+	Category 5 Hurricanes	.00001

Climate change is causing atmospheric temperatures to rise, which corresponds to a rise in ocean surface temperatures, resulting in warmer and moister conditions where tropical storms develop (Stott et al., 2010). Warmer oceans store more energy, and are capable of fueling stronger storms and it is projected that Atlantic hurricanes will become more intense and produce more precipitation as ocean surface temperatures rise (Trenberth, 2010). There are expected to be more category four and five hurricanes in

the Atlantic, and the hurricane season may be elongating. Somerset County can be affected by Atlantic coastal storms, so the county should be prepared to deal with impacts of coastal storms more frequently in the near future.

4.3.5.5 Vulnerability Assessment

The impacts of climate change are no longer hypothetical concepts set in the future, but rather tangible and hazardous realities. The unexpectedly devastating Hurricane Harvey in August 2017 in Houston is widely regarded as an example of a hurricane supercharged by warmer ocean temperatures (Trenberth et al., 2018). The damage Harvey caused to Houston was also exacerbated by urbanization, causing the storm system to stall over Houston with few locations where water could naturally sink into the ground (Zhang et al., 2018).

Tropical storms tracking nearby Somerset County can still cause high winds and heavy rains. A vulnerability assessment for hurricanes and tropical storms focuses on the impacts of flooding and severe wind. The assessment for flood-related vulnerability is addressed in Section 4.3.3.5 and discussion of wind related vulnerability is addressed in Section 4.3.10.5.

4.3.6. Invasive Species

4.3.6.1 Location and Extent

An invasive species is a species that is not indigenous to a given ecosystem and that, when introduced to a non-native environment, tends to thrive. The spread of an invasive species often alters ecosystems, which can cause environmental and economic harm and pose a threat to human health. The phenomenon of invasive species is due to human activity. Human society is globalized, and people have the capability to traverse the globe at rates unparalleled in the history of the Earth. Either intentionally or unintentionally, other species may accompany people when they travel, introducing the stowaway species to a novel ecosystem. In a foreign ecosystem, a transported species may thrive, potentially restructuring the ecosystem and threatening its health. Common pathways for invasive species introduction to Pennsylvania include (PA DOA, 2010):

- Contamination of internationally traded products
- Hull fouling
- Ship ballast water release
- Discarded live fish bait
- Intentional release
- Escape from cultivation
- Movement of soil, compost, wood, vehicles or other materials and equipment
- Unregulated sale of organisms
- Smuggling activities
- Hobby trading or specimen trading

Invasive species threats are typically divided into two main subsets:

Aquatic Invasive Species (AIS) are nonnative, invertebrates, fishes, aquatic plants, and microbes that threaten the diversity or abundance of native species, the ecological stability of the infested waters, human health and safety, or commercial, agriculture, or recreational activities dependent on such waters.

Terrestrial Invasive Species (TIS) are nonnative plants, vertebrates, arthropods, or pathogens that complete their lifecycle on land whose introduction does or is likely to cause economic or environmental harm or harm to human health.

The location and extent of invasive threats is dependent on the preferred habitat of the species, as well as the species' ease of movement and establishment. *Table 26 - Prevalent Invasive Species* lists invasive species that have been found in Somerset County.

4.3.6.2 Range of Magnitude

Some invasive species are not considered agricultural pests, and do not harm humans or cause significant ecological problems. Other invasive species can have many negative impacts and cause significant changes in the composition of ecosystems. For example, the Emerald Ash Borer has a ninety-nine percent mortality rate for any ash tree it infects. Didymo, an aggressive form of algae not yet found in Somerset County, can clog waterways and smother native aquatic plants and animals.

The aggressive nature of many invasive species can cause significant reductions in biodiversity by crowding out native species. This can affect the health of individual host organisms as well as the overall well-being of the affected ecosystem. An example of a worst-case scenario for invasive species is the success of the Emerald Ash Borer in Somerset County and the surrounding region. The Emerald Ash Borer has already become established in Somerset County and the surrounding region, and there is a high mortality rate for trees associated with this pest. In recent years, hardwood forests in the county have been increasingly negatively impacted due to this invasive species and there have been many ash tree fatalities. Degradation of forest health cascades into other problems. Among other benefits, forests prevent soil degradation and erosion, protect watersheds, and sequester carbon from the atmosphere. Forests have a key role in hydrologic systems, so losing a forest amplifies the effects of erosion and flooding. Forest degradation also has adverse economic effects, impacting such activities as logging, tourism, foraging and other production activities dependent on lumber.

The magnitude of an invasive species threat is generally amplified when the ecosystem or host species is already stressed, such as in times of drought. The already weakened state of the native ecosystem causes it to more easily succumb to an infestation.

4.3.6.3 Past Occurrence

Invasive species have been entering Pennsylvania since the arrival of European settlers. There are large swatches of public land in Somerset County, including Laurel Ridge State Park, Gallitzin State Forest, Laurel Hill State Park, Flight 93 National Memorial, and several state game-lands. There are many invasive plants that are widespread in

Somerset County that are common problems throughout the Commonwealth, some of the most problematic include:

- Japanese Knotweed
- Garlic Mustard
- Japanese Stiltgrass
- Multiflora Rose
- Japanese Barberry

In the past these species have been cut back to slow their spread and treated with foliar herbicide when they re-sprout. However, when species are so widespread and established, they may not be actively treated unless they are in a project area that is receiving attention otherwise.

There are several invasive pests that have moved through Somerset County and the surrounding region which have resulted in the deaths of many trees. PennDOT summarizes these invasive species:

> *Pennsylvania has been inhabited by an invasive beetle known as the Emerald Ash Borer. This green-colored insect has infested many ash trees, which has resulted in a pandemic level of dead ash trees. In addition, the Gypsy Moth Caterpillar defoliated Western Pennsylvania at least twice within the last twenty years. This insect infested the oak tree species and many of those trees have died as well. The Wooly Adelgid and needle blight fungi are also currently affecting the white pine and hemlock trees, resulting in their premature deaths. (PennDOT, 2017)*

These occurrences represent lost battles to invasive species, and these species are widespread in Somerset County and the surrounding region. Once a species is established in an area and it causes a change in the ecology, it can be quite difficult if somewhat futile to turn back the clock on the prevalence of the species; however, Somerset County can work towards limiting the spread and mitigating the negative impacts of such widespread invasive species. In the case of the Emerald Ash Borer and other tree killing invasive species, PennDOT has identified one way that the threat needs to be mitigated in the wake of the surge of dead trees:

> *[The Emerald Ash Borer, Gypsy Moth and Wooly Adelgid] have left … tens of thousands of dead trees either within the State Department of Transportation's (PennDOT) right-of-way or on private property, but within close proximity to falling on our highways. Although random in nature, several fatalities have been associated with trees falling on motorists or motorists running into downed trees across the highway…*
>
> *PennDOT has been incorporating select tree removal into roadway construction projects using both federal and state funding. Since July 1, 2016, PennDOT Department Force Crews have also increased their efforts in select manual tree removal. This work is often done during the winter when crews are not engaged in snow removal operations. Dead tree removal is quickly becoming a major focus of PennDOT, however a sustained funding source to remove all of these potential hazards*

is simply not available. The PA Department of Agriculture has established strict firewood and lumber quarantine areas in some of these districts so additional costs may be incurred.

Table 26 - Prevalent Invasive Species lists problematic non-native species that are established in Somerset County. While all species listed here are not native to Somerset County, those species highlighted in red are considered to pose a larger ecological threat than some of the others (see 4.3.6.5. Vulnerability Assessment for additional discussion). For some species such as the European Bark Beetle, the Sirex Woodwasp and the Emerald Ash Borer, Somerset County is on the edge of the species range, meaning control efforts taken in the county can help limit the propagation of the threat even beyond the county (*Table 27 - Vulnerable Species*).

Table 26 - Prevalent Invasive Species

Prevalent Invasive Species *(EDDMaps, 2019; PA DCNR, 2019; USDA FS, 2019; iMapInvasives, 2019)*		
Scientific Name	**Common Name**	**Type**
Corbicula fluminea	Asiatic Clam	Aquatic Animal
Cyprinus carpio	Common Carp	Aquatic Animal
Craspedacusta sowerbyi	Freshwater Jellyfish	Aquatic Animal
Etheostoma blennioides	Greenside Darter	Aquatic Animal
Misgurnus anguillicaudatus	Oriental Weatherfish	Aquatic Animal
Orconectes rusticus	Rusty Crayfish	Aquatic Animal
Dreissena polymorpha	Zebra Mussel	Aquatic Animal
Potamogeton crispus	Curly-Leaf Pondweed	Aquatic Plant
Myriophyllum spicatum	Eurasian Water-Milfoil	Aquatic Plant
Hydrilla verticillata	Hydrilla	Aquatic Plant
Persicaria hydropiper	Marshpepper Knotweed, Smartweed	Aquatic Plant
Mentha aquatica	Water Mint	Aquatic Plant
Nasturtium officinale	Watercress	Aquatic Plant
Nymphoides peltata	Yellow Floatingheart	Aquatic Plant
Neonectria (N.) & Cryptococcus fagisuga	Beech Bark Disease Complex	Disease
Sirococcus clavigignenti-juglandacearum	Butternut Canker	Disease
Diaporthales: Cryphonectriaceae	Chestnut Blight	Disease
Discula destructiva	Dogwood Anthracnose	Disease
Hemiptera: Diaspididae	Elongate Hemlock Scale	Disease
Neonectria faginata	Neonectria Canker	Disease
Cronartium ribicola	White Pine Blister Rust	Disease
Coleoptera: Buprestidae	Emerald Ash Borer	Insect
Hymenoptera: Diprionidae	European Pine Sawfly	Insect
Letpidoptera: Tortricidae	European Pine Shoot Moth	Insect

Prevalent Invasive Species (EDDMaps, 2019; PA DCNR, 2019; USDA FS, 2019; iMapInvasives, 2019)		
Scientific Name	**Common Name**	**Type**
Lepidoptera: Lymantriidae	Gypsy Moth	Insect
Adelges tsugae	Hemlock Woolly Adelgid	Insect
Plagiodera versicolora	Imported Willow Leaf Beetle	Insect
Coleoptera: Scarabaeidae	Japanese Beetle	Insect
Sirex noctilio	Sirex Woodwasp	Insect
Lonicera maackii	Amur Honeysuckle	Plant
Elaeagnus umbellata	Autumn Olive	Plant
Ranunculus bulbosus	Bulbous Buttercup	Plant
Cirsium vulgare	Bull Thistle	Plant
Lonicera spp.	Bush Honeysuckles (Exotic)	Plant
Cirsium arvense	Canada Thistle	Plant
Tussilago farfara	Colt's Foot	Plant
Securigera varia	Common Crown-Vetch	Plant
Phragmites australis ssp. australis	European Common Reed	Plant
Alliaria petiolata	Garlic Mustard	Plant
Berberis thunbergii	Japanese Barberry	Plant
Reynoutria japonica	Japanese Knotweed	Plant
Microstegium vimineum	Japanese Stiltgrass	Plant
Sorghum halepense	Johnson Grass	Plant
Lonicera morrowii	Morrow'S Honeysuckle	Plant
Rosa multiflora	Multiflora Rose	Plant
Conium maculatum	Poison Hemlock	Plant
Lythrum salicaria	Purple Loosestrife	Plant
Phalaris arundinacea	Reed Canarygrass	Plant
Acorus calamus	Sweetflag, Calamus	Plant
Ailanthus altissima	Tree-Of-Heaven	Plant
Myosotis scorpioides	True Forget-Me-Not	Plant
Rubus phoenicolasius	Wineberry	Plant
Iris pseudacorus	Yellow Iris	Plant

4.3.6.4 Future Occurrence

According to the Pennsylvania Invasive Species Council (PISC), the probability of future occurrence for invasive species threats is growing due to the increasing volume of transported goods, increasing efficiency and speed of transportation, and expanding international trade agreements. Expanded global trade has created opportunities for many organisms to be transported to and establish themselves in new counties and regions. Climate change is contributing to the introduction of new invasive species. As maximum

and minimum seasonal temperatures change, pests are able to establish themselves in previously inhospitable climates. This also gives introduced species an earlier start and increases the magnitude of their growth, possibly shifting the dominance of ecosystems in the favor of nonnative species.

In order to combat the increase in future occurrences, the PISC (a collaboration of state agencies, public organizations and federal agencies) released the Invasive Species Management Plan in April 2010 and updated the plan in 2017. The plan outlines the Commonwealth's goals for managing the spread of nonnative invasive species and creates a framework for responding to threats through research, action, and public outreach and communication. More information can be found at invasivespeciescouncil.com.

There are several invasive species that are found near Somerset County but have not yet been detected inside the county (see *Table 27 - Vulnerable Species*). Especially in cases like this, control efforts, heightened awareness, and public outreach and education can help prevent an invasive species from becoming established. Once a species is established, it is much more difficult to eradicate it from an ecosystem meaning prevention is very important. Bush Honeysuckle species, the Spotted Lanternfly, Mile-A-Minute Vine and the Asian Long-Horned Beetle are all widespread and highly problematic in nearby counties but have not been reported in Somerset. The forests of Somerset County would greatly benefit if these species can be kept out of the area. For a more inclusive list of invasive plants found in Pennsylvania and a list of invasive plants on the Pennsylvania watch list, see the referenced PA DCNR publication "DCNR Invasive Plants" (PA DCNR, 2016). The Spotted Lanternfly is a harmful invasive pest with a healthy appetite for our plants and can negatively impact the quality of life and enjoyment of the outdoors. If not contained, the Spotted Lanternfly could potentially drain Pennsylvania's economy of at least $324 million. The spotted lantern fly is currently found in twenty-six counties in Pennsylvania, all of which are under a state-imposed quarantine. The Spotted Lanternfly is undoubtedly traveling west as the state department of agriculture announced on March 3, 2020 that an additional twelve counties in Pennsylvania were added to the quarantine area.

Table 27 - Vulnerable Species

Vulnerable Species ***(EDDMaps, 2019; PA DCNR, 2019; USDA FS, 2019; iMapInvasives, 2019)***		
Scientific Name	**Common Name**	**Type**
Nelumbo lutea	American Water Lotus	Aquatic Plant
Veronica anagallis-aquatica	Water Speedwell	Aquatic Plant
Ophiostoma novo-ulmi	Dutch Elm Disease	Disease
Ceratocystis fagacearum	Oak Wilt	Disease
Anoplophora glabripennis	Asian Long-Horned Beetle	Insect
Crytepistomus castaneus	Asiatic Oak Weevil	Insect
Adelges piceae	Balsam Woolly Adelgid	Insect

Vulnerable Species (EDDMaps, 2019; PA DCNR, 2019; USDA FS, 2019; iMapInvasives, 2019)		
Scientific Name	**Common Name**	**Type**
Scolytus schevyrewi	Banded Elm Bark Beetle	Insect
Phyllaphis fagi	Beech Woolly Adelgid	Insect
Fenusa pusilla	Birch Leafminer	Insect
Otiorhynchus sulcatus	Black Vine Weevil	Insect
Dryocosmus kuriphilus	Chestnut Gall Wasp	Insect
Hylastes opacus	European Bark Beetle (H. Opacus)	Insect
Contarinia baeri	European Pine Needle Midge	Insect
Epinotia nanana	European Spruce Needleminer	Insect
Gilpinia hercyniae	European Spruce Sawfly	Insect
Coleophora laricella	Larch Casebearer	Insect
Pristiphora erichsonii	Larch Sawfly	Insect
Homadaula anisocentra	Mimosa Webworm	Insect
Pristiphora geniculata	Mountain-Ash Sawfly	Insect
Asterolecanium minus	Oak Pit Scale A. Minus	Insect
Lepidosaphes ulmi	Oystershell Scale	Insect
Caliroa cerasi	Pear Sawfly	Insect
Taeniothrips inconsequens	Pear Thrips	Insect
Acantholyda erythrocephala	Pine False Webworm	Insect
Trichiocampus viminalis	Poplar Sawfly	Insect
Matsucoccus resinosae	Red Pine Scale	Insect
Hylurgus ligniperda	Redhaired Pine Bark Beetle	Insect
Diaspidiotus perniciosus	San Jose Scale	Insect
Scolytus multistriatus	Smaller European Elm Bark Beetle	Insect
Lycroma delicatula	Spotted Lanternfly (Lycorma)	Insect
Otiorhynchus ovatus	Strawberry Root Weevil	Insect
Lonicera spp. (species unknown)	Bush Honeysuckle (Species Unknown)	Plant
Heracleum mantegazzianum	Giant Hogweed	Plant
Lonicera japonica	Japanese Honeysuckle	Plant
Persicaria perfoliata	Mile-A-Minute Vine	Plant
Celastrus orbiculatus	Oriental Bittersweet	Plant
Cardamine impatiens	Touch-Me-Not Bittercress	Plant

4.3.6.5 Vulnerability Assessment

Somerset County's vulnerability to invasion depends on the species in question. Human activity and mobility are ever increasing, and combined with the prospects of climate change, invasive species are becoming increasingly threatening. Invasive species can have adverse economic effects by impacting agriculture and logging activities. Natural

forest ecosystems provide clean water, recreational opportunities, habitat for native wildlife, and places to enjoy the tranquility and transcendence of nature. The balance of forest ecosystems and forest health are vulnerable to invasive species threats. While there are significant portions of state forest, state parks and game lands in Somerset County where forest managers can impact invasive species, private lands can provide refuge for invasive species if landowners are unaware of or apathetic towards the threat.

An interesting facet of the invasive species problem in Pennsylvania is that deer do not eat many invasive plants, giving invasive species a competitive advantage over the native species that fall prey to deer. As such, the management of deer populations in Somerset County has a significant impact on the vulnerability of an ecosystem to invasive species, where overpopulation of deer favors invasive species.

There are five primary components to managing invasive plants:

Prioritize: Public use areas such as state parks and other healthy forest ecosystems should be prioritized over developed and private areas. Locations with lower densities of invasive plants are often easier to control and should be given quick attention. Locations where humans are disturbing the landscape opens up niche space, and often times the aggressive invasive species move in faster than native species. Such locations include areas around road work, ditch/culvert work, logging activities, stream improvement/stabilization and bridge work. Some species pose a higher risk than others - invasive species are easiest to control before they become widespread and established in an area, and for that reason, species that are less widespread should be prioritized for management.

Species highlighted in red in *Table 26 - Prevalent Invasive Species* and *Table 27 - Vulnerable Species* have been species that have been considered priority species throughout Pennsylvania. Priority species of note for Somerset County include the Emerald Ash Borer, Zebra Mussels, Japanese Knotweed, the Spotted Lanternfly and the Hemlock Woolly Adelgid.

Furthermore, it is best to take action before a species can become established in the county, so management should be aware of invasive species found nearby Somerset County but not yet present in the county (priority species in *Table 27 - Vulnerable Species*). Public outreach and education are important for these species in order to improve identification and prevention of invasion. The Asian Long-horned Beetle first attacks red maple trees, followed by many other hardwoods by boring half inch holes through the trees, weakening them structurally and causing limbs to break off, ultimately killing trees. Somerset County has many red and sugar maple trees, so if the Asian Long-horned Beetle ever became established in the county, it could spread quickly and have a devastating impact.

Locate: Detailed locations should be recorded for invasive plants so sites can be easily relocated, treated and monitored.

Delineate: The scale and extent of the infestation should be recorded and mapped so that the progress of the infestation can be monitored.

Control: Methods of control depend on the specific infestation, but the most common approaches are mechanical (cutting and hand-pulling) and chemical (herbicide treatments).

Monitor: Identified sites should be monitored and revisited as often as several times in a growing season (depending on the location/species). Monitoring can allow for early detection of spreading infestations. Most importantly, it prevents a relapse towards full-blown infestation.

4.3.7. Landslides

4.3.7.1 Location and Extent

Landslides are described as downward and outward movement of slope-forming soil, rock and vegetation reactive to the force of gravity. Rockfalls, rockslides, rock topples, block glides, debris flows, mudflows and mudslides are all forms of landslides. Natural causes of landslides include heavy rain, rapid snow melt, erosion, earthquakes and changes in groundwater levels. Landslides occur most frequently in areas with moderate to steep slopes and high precipitation, and most often slope failures happen during or after periods of sustained above average precipitation or snowmelt events. Human activity can increase the likelihood of landslides by reducing vegetation cover, altering the natural slope gradient or increasing the soil water content. One location where this type of human activity is common are areas that were excavated along highways and other roadways.

Most landslides in Somerset County are slow moving and more often cause property damage rather than causing human injury. These landslides are due to geologic properties of the area that make it easily prone to erosion. Somerset County lies within a region known as the Laurel Highlands of southwestern Pennsylvania. The landscape is composed of aged mountain ridges characterized by rolling hills. Elevation in Somerset County ranges from 3,213 feet to 1,040 feet. Elevation change can be drastic in some areas of the county, and those locations are among the most vulnerable areas in the county to landslides. As displayed in *Figure 20 - Landslide Rock Type*, Somerset County consists of folded sedimentary rocks and colluvial soil on slopes.

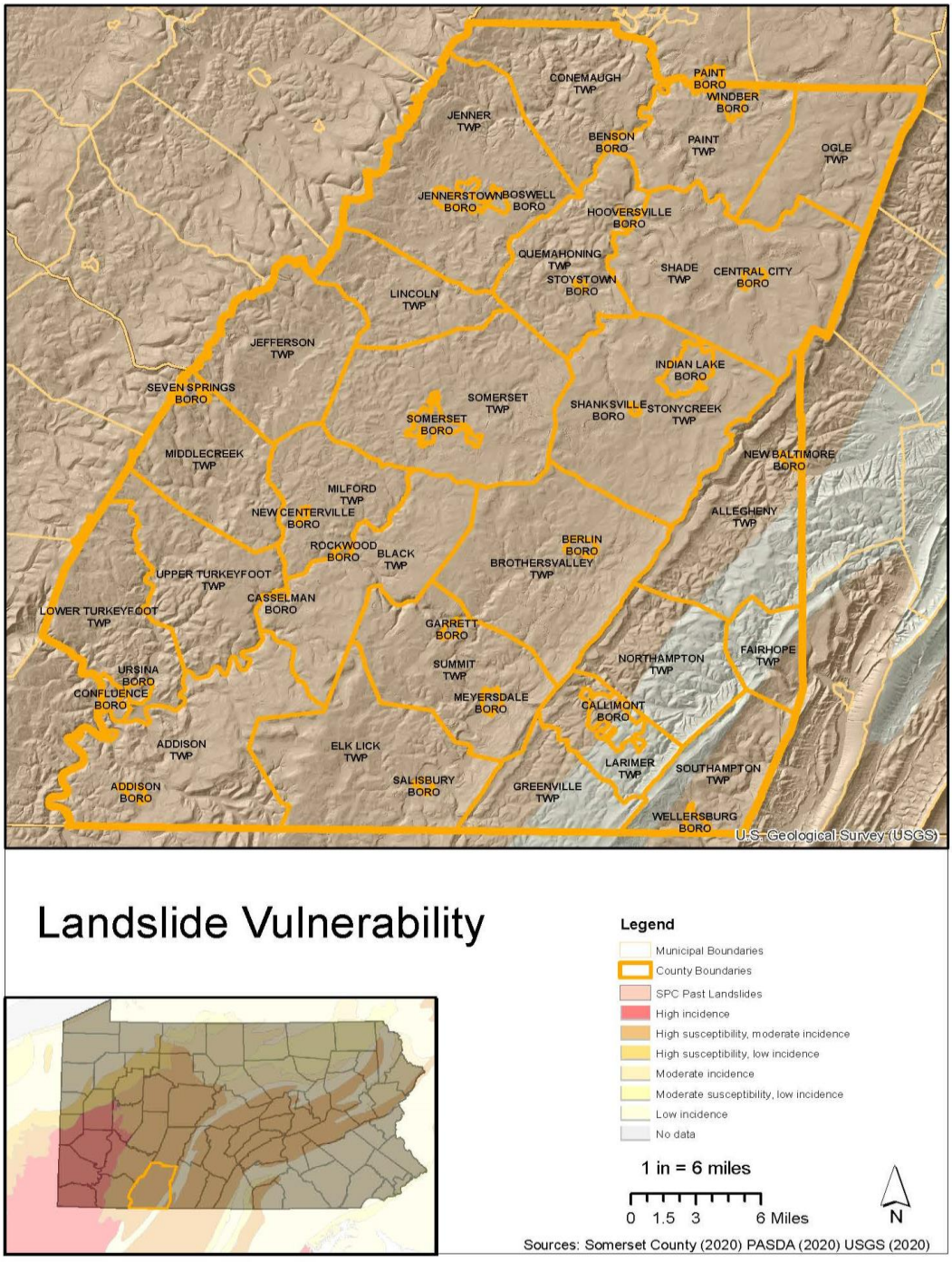
4.3.7.2 Range and Magnitude

Landslides can cause damage to utilities as well as transportation routes, resulting in road closure or travel delays. Fortunately, deaths and injuries due to landslides are rare in Pennsylvania and Somerset County. Most reported deaths due to landslides have occurred when rockfalls or other slides along highways have involved vehicles. The most traveled highways in Somerset County include I-76/70 (The Pennsylvania Turnpike), US Routes 219 and 30, and PA Routes 31, 281, and 403. Storm-induced debris flows

can also sometimes cause death and injury. As residential and recreational development increases on and near steep mountain slopes, the hazard from these rapid events will also increase. Most Pennsylvania landslides are moderate to slow moving and damage property rather than people.

The Pennsylvania Department of Transportation and large municipalities incur substantial costs due to landslide damage and to extra construction costs for new roads in known landslide-prone areas. A 1991 estimate showed an average of ten million per year is spent on landslide repair contracts across the Commonwealth and a similar amount is spent on mitigation costs for grading projects. A number of highway sites in Pennsylvania are in need of permanent repair at estimated costs of $300,000 to $2 million each (DCNR, 2010). The USGS considers the majority of Somerset County in a high susceptibility, moderate incidence zone as displayed in Figure 19 - Landslide Vulnerability. Areas that are susceptible to landslides are geologically prone to giving way after significant precipitation events.

Figure 19 - Landslide Vulnerability



4.3.7.3 Past Occurrence

Two landslide events have taken place both in Conemaugh Township in the last five years. One on June 15, 2015 and again on January 5, 2017 both resulting in closed

roadways. PennDOT and municipal maintenance departments are responsible for slides that inhibit the flow of traffic or damage to roads and bridges, but they can generally only repair the road itself and right-of-way areas.

Pennsylvania is home to steep and rugged topography as well as a great diversity in the erosion and weathering characteristics of near-surface sedimentary rocks which can result in landslide activity. Certain landslide events have taken place in neighboring counties such as Tropical Storm Agnes in June 1972 and the Johnstown storm of July 1977 in Cambria County. More recently, however, the Pittsburgh area experienced a record year for landslides in 2018 which put the City of Pittsburgh five times over budget for landslide remediation by mid-April.

4.3.7.4 Future Occurrence

Somerset County is not at high risk for landslides; however, mismanaged development in steeply sloped areas would increase the frequency of occurrence of landslides. Road cuts are the most common development that puts an area at a heightened probability of a slide. The PA Department of Environmental Protection has an Erosion and Sediment (E&S) Program that sets requirements for development projects of a certain scale that are intended to mitigate erosion, which are similar practices to prevent causing landslides.

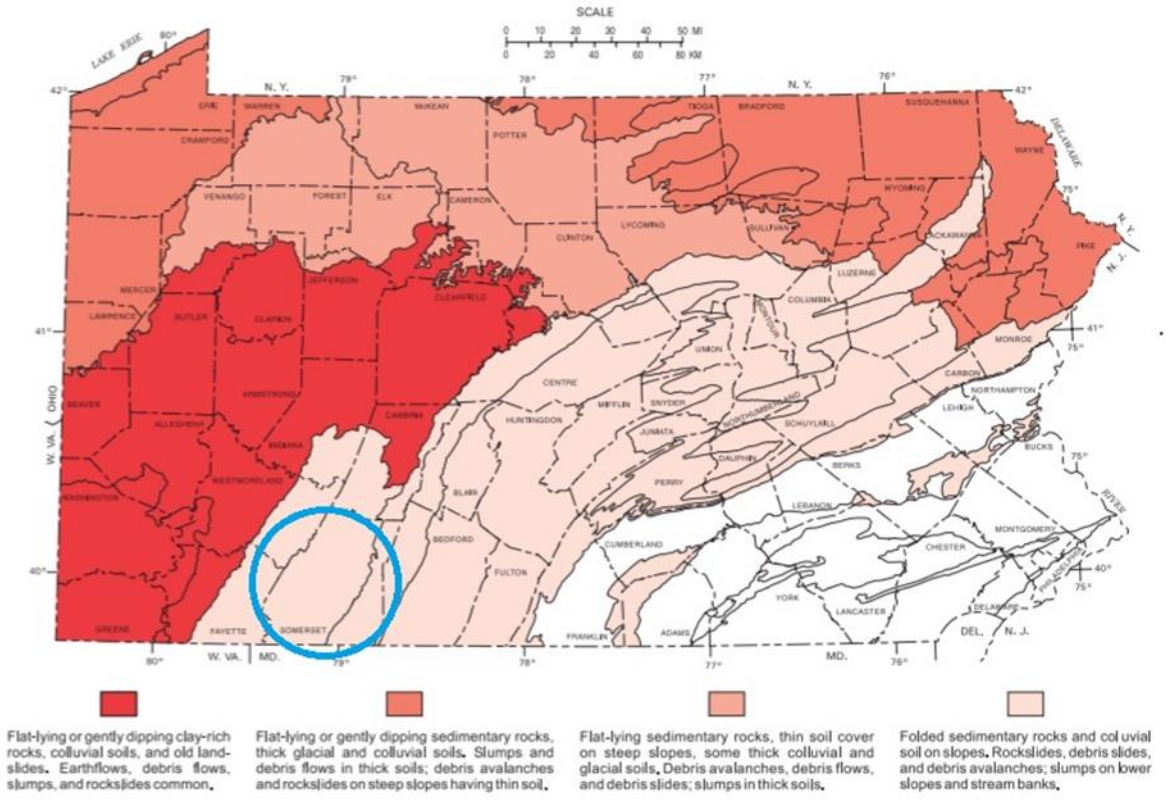
4.3.7.5 Vulnerability Assessment

Landslides are often precipitated by other natural hazards such as earthquakes or floods, and a serious landslide can cause millions of dollars in damages. Continued enforcement of floodplain management and proper road and building construction helps to mitigate the threat of landslides. Floodplain management is important where mining has occurred within close proximity to watercourses and associated flat-lying areas. Surface water may permeate into areas that still have open fractures and the build-up of surface water in fractures could lead to unexpected flood events.

A comprehensive database for land highly prone to erosion and landslides is rare and was not available at the time of this report. Construction projects in Somerset County should be wary of erosion and the potential for landslides. There are several general factors that can be indicators of a landslide prone area:

- On or close to steep hills
- Areas of steep road cuts or excavations
- Steep areas where surface run-off is channeled
- Fan shaped areas of sediment and rock accumulations
- Evidence of past sliding such as tilted utility lines, tilted trees, cracks in the ground and irregularly surfaced ground.

Figure 20 - Landslide Rock Type



The distribution of types of landslides most likely to occur in different geologic settings in Pennsylvania. Stream-bank slumps, soil creep, and rockfall/rockslide combinations on cut slopes can occur throughout Pennsylvania. See Figure 1 for physiographic province and section names.

4.3.8. Pandemic and Infectious Disease

4.3.8.1 Location and Extent

Pandemic & Epidemic

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. Pandemics happen when novel (new) viruses emerge and can infect people easily and spread efficiently and are sustained from person to person. The spread of a disease depends on the mode of transmission of the disease, how contagious it is, and the amount of contact between infected and non-infected persons. In the event of a pandemic occurring in the eastern United States, the entirety of Somerset County would likely be affected. Strains of influenza, or the flu have caused epidemics and pandemics, and they commonly attack the respiratory tract in humans. Influenza pandemic planning began in response to the H5N1 (avian) flu outbreak in Asia, Africa, Europe, the Pacific, and the Near East in the late 1990s and early 2000s. Avian flu did not reach pandemic proportions in the United States, but the county began

planning for flu outbreaks. The Pennsylvania Department of Health (PADOH) Influenza Pandemic Response Plan states that "an influenza pandemic is inevitable and will probably give little warning" (PADOH, 2005).

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. The 2009 H1N1 flu virus resulted in seventy-eight deaths in Pennsylvania by the time the pandemic ended. Studies after the 2009 H1N1 influenza pandemic disproportionately impacted people younger than twenty-four (CIDRAP, 2010). Schools have potential to become outbreak centers due to their large young adult population, high levels of close social contact, and permeable boundaries. During a pandemic or disease outbreak, the population affected may exceed the seasonal norm of one-third of the student population. Because universities and schools can be sites of transmission, they may cause a virus to spread among the surrounding community as well.

On March 11, 2020 the World Health Organization (WHO) characterized the outbreak of a coronavirus disease as a pandemic. The virus has been named "SARS-CoV-2" and the disease it causes is named "coronavirus disease 2019" (COVID-19). Coronaviruses are common in people and many different species of animals to include camels, cattle, cats, and bats. The disease is believed to have started in Wuhan, China in late 2019 and spread around the globe. At the epicenter in China, the virus was linked to a large seafood and live animal market; however, there is now community spread of the virus.

Infectious Disease

Infectious diseases range from influenza, pneumonia, tuberculosis, rabies, MERS, Lyme disease, Zika, Ebola, and HIV/AIDS.

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.

Lyme disease, spread by the bite of infected blacklegged ticks, is a bacterial disease with symptoms including fever, headaches and characteristic skin rash (erythema migrans). Untreated, Lyme disease can spread to joints, the heart and the nervous system (CDC, 2016). To prevent the disease, it is recommended to use insect repellent, removing ticks promptly, applying pesticides, and reducing tick habitat.

The Zika virus is another infectious disease that is spread by mosquito bites and it is related to West Nile virus. Zika virus can also be spread through sexual intercourse, blood transfusion, or passed from mother to child in the womb. The virus was first identified in 1947, but largely came to the attention of the United States public in 2015

when there was an outbreak of Zika in Brazil. The direct illness caused by Zika can include fever, red eyes, joint pain, headache and a rash, or sometimes have no symptoms at all. Zika is troubling for pregnant mothers as the virus can result in microcephaly or cause other problems for brain development. For adults, the virus can be linked to increased incidence of Guillain-Barré syndrome.

4.3.8.2 Range of Magnitude

Pandemic & Epidemic

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, animal market or restaurant.

Advancements in medical technologies have greatly reduced the number of deaths caused by influenza over time. In the early 1900s, flu pandemics could cause tens of millions of deaths, while the 2009 swine flu caused fewer than 20,000 deaths worldwide, and many people infected with swine flu in 2009 have recovered without needing medical treatment. However, the modern flu viruses are still quite dangerous. About seventy percent of those who were hospitalized with the 2009 H1N1 flu virus in the United States belonged to a high-risk group (CDC, 2009). High risk populations for influenza include children, the elderly, pregnant women, and patients with reduced immune system capability. Such high-risk populations are discussed in more detail in Section 4.3.8.5.

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; hoarding of household paper and cleaning supplies; school, business, and government closings; government restrictions on travel; low attendance at places of employment, as well as slowed productivity.

World Health Organization (WHO) 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 28 - Pandemic Influenza Phases*.

Table 28 - Pandemic Influenza Phases

Pandemic Influenza Phases	
Phase	**Characteristics**
Phase 1	No viruses circulating among animals have been reported to cause infections in humans

Pandemic Influenza Phases	
Phase	**Characteristics**
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 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/	

Infectious Disease

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 Somalia. The last reported case in the United States was in 1949. *Variola major* is the more severe and has an overall mortality rate of thirty to thirty-five percent. Variola minor only has a mortality rate of one 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 West Nile infections in humans are subclinical, causing no symptoms. Approximately twenty percent of infections cause symptoms and less than one percent of cases result in severe neurological disease or death. Symptoms typically appear between two and fifteen days after infection and there is currently no vaccine for West Nile virus. Person to person transmission of West Nile is less prevalent than person to person transmission of influenza.

Lyme Disease

Each year since 2005, there are consistently well over 3,000 cases of Lyme disease in Pennsylvania, with 6,470 confirmed cases in 2014 (CDC, 2016). While most cases of Lyme disease can be treated over a few weeks with antibiotics, undetected Lyme disease can seriously damage a body's musculoskeletal and nervous system, sometimes resulting in death.

Zika Virus

Zika virus has spread to Pennsylvania primarily by persons from Pennsylvania traveling to locations where the virus is a transmission risk. These places include certain countries in South America, Central America, the Caribbean, the Pacific Islands, Africa and Southeast Asia. No locations within the United States are considered to have significant risk of Zika virus transmission (PA DOH, 2019). If a Pennsylvania resident does contract Zika virus, preventing the spread of the disease is important. If an infected individual is bitten by a mosquito within three weeks of infection, the mosquito can transmit the virus to anyone else it bites. Infected individuals should strictly avoid any possibility of mosquito bites to prevent the spread of Zika virus. Additionally, Zika can be transmitted through sexual intercourse, so infected individuals should use condoms or abstain from sex while they have the virus.

4.3.8.3 Past Occurrence

Pandemic & Epidemic

Influenza

H1N1

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

Spanish Flu

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 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 reasserted H2N2 and H3N2 viruses). Table 4.3.11-3 lists past Influenza A events.

Table 29 - Notable Influenza A Events

Notable 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"
2020	COVID-19
Source: World Health Organization (WHO) Fact sheet No. 211, Revised March 2003; CDC www.cdc.gov/ncidod/eid/vol12no01/05-0979.htm	

Legionella

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

COVID-19

The first death in Pennsylvania were reported on March 18, 2020 in Northampton County. *Table 30 – Novel COVID-19 Cases in Pennsylvania by County* as of June 2, 2020 details the total number of deaths as a result of COVID-19. According to information provided by the Pennsylvania Department of Health, Somerset County had one death as a result of the virus.

Table 30 – Novel COVID-19 Cases in Pennsylvania by County

Novel COVID-19 Deaths in Pennsylvania by County (as of June 2, 2020)					
County	**Deaths**	**County**	**Deaths**	**County**	**Deaths**
Adams	8	Delaware	567	Monroe	101
Allegheny	165	Elk	0	Montgomery	696
Armstrong	5	Erie	4	Montour	0
Beaver	74	Fayette	4	Northampton	3
Bedford	2	Forest	0	Northumberland	3
Berks	321	Franklin	36	Perry	3
Blair	1	Fulton	1	Philadelphia	1346
Bradford	3	Greene	0	Pike	20
Bucks	515	Huntingdon	2	Potter	0
Butler	12	Indiana	5	Schuylkill	1

Novel COVID-19 Deaths in Pennsylvania by County (as of June 2, 2020)					
County	**Deaths**	**County**	**Deaths**	**County**	**Deaths**
Cambria	2	Jefferson	0	Snyder	1
Cameron	0	Juniata	4	Somerset	1
Carbon	24	Lackawanna	174	Sullivan	0
Centre	7	Lancaster	306	Susquehanna	15
Chester	284	Lawrence	8	Tioga	2
Clarion	2	Lebanon	33	Union	1
Clearfield	0	Lehigh	235	Venango	0
Clinton	3	Luzerne	153	Warren	0
Columbia	31	Lycoming	17	Washington	6
Crawford	0	McKean	1	Wayne	8
Cumberland	52	Mercer	5	Westmoreland	38
Dauphin	77	Mifflin	1	Wyoming	7
				York	26

On March 24, 2020 the first case of COVID-19 was recorded in Somerset County. As of September 1, 2020, there were 130,961 cases and 7,691 deaths related to COVID-19 in Pennsylvania. Somerset County experienced 147 confirmed cases and three deaths. This is an ongoing pandemic and will require further study.

Infectious Disease

2019/2020 Influenza Season

As of week nine, ending February 29, 2020 influenza A(H1N1) pdm09 viruses are the most reported influenza viruses for the 2019/2020 season. The overall cumulative hospitalization rate (nation-wide) for the season increased to 57.9 per 100,000. The percentage of deaths attributed to pneumonia and influenza was 6.9 percent (this is below the epidemic threshold of 7.3 percent). The PA Department of Health reports for the 2019/2020influenza season during week ten ending March 7, 2020 the following cases were reported in Somerset County: 191 influenza A; 239 influenza b; and two cases of unidentified influenza (didn't specify Type A or B). The PA Department of Health also reports that during the same time frame a total of eighty-three Pennsylvanians have died from influenza. Of this number, those aged 65 and older had the highest mortality rate.

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 nineteen 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. *Table 31 - West Nile Virus Control Program in Somerset County* outlines the West Nile Virus within Somerset County over the past nineteen years.

Table 31 - West Nile Virus Control Program in Somerset County

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	
2001	0	0	1	1	0	498	36	0	0
2002	5	0	15	9	5	660	283	0	0
2003	5	0	12	11	5	344	185	0	0
2004	0	0	1	1	0	243	103	0	0
2005	2	0	1	1	0	381	228	0	0
2006	1	0	1	1	1	698	267	0	0
2007	0	0	0	0	0	1033	125	0	0
2008	0	0	1	1	0	1045	125	0	0
2009	0	0	0	0	0	760	104	0	0
2010	0	0	0	0	0	23	14	0	0
2011	1	0	0	0	0	164	107	1	0
2012	0	0	0	0	0	1	0	0	0
2013	1	0	0	0	0	197	81	1	0
2014	0	0	1	1	0	93	36	0	0
2015	1	0			0			1	0
2016	0	0			0			0	0
2017	1	0			0			1	0
2018	3	0			1			2	0
2019	0	0			0			0	0

Source: http://www.depgis.state.pa.us/WNV/index.html

Blacked out sections had no data available during the timeframes indicated.

Lyme Disease

PA Department of Health lists the following information regarding cases in Somerset County, *Table 32 - 2018 Lyme Disease Data for Somerset County*. It should be noted that information represented for each county "may vary with respect to the resources they have to devote to investigation of Lyme cases". It should also be noted that these figures represent a rough estimate of the Lyme disease burden in Somerset County.

Table 32 - 2018 Lyme Disease Data for Somerset County

2018 Lyme Disease Data for Somerset County			
Year	**Number of cases**	**Year**	**Number of cases**
1980	0	2000	<4
1981	0	2001	0
1982	0	2002	0
1983	0	2003	<4
1984	0	2004	<4
1985	0	2005	<4
1986	0	2006	<4
1987	0	2007	4
1988	<4	2008	<4
1989	<4	2009	<4
1990	<4	2010	4
1991	<4	2011	<4
1992	0	2012	5
1993	0	2013	20
1994	<4	2014	14
1995	<4	2015	28
1996	<4	2016	47
1997	<4	2017	60
1998	<4	2018	58
1999	<4	2019	Not available
Totals: Not less than 89 and no more than 117 cases			

4.3.8.4 Future Occurrence

Pandemic & Epidemic

The probability of a widespread pandemic public health emergency is every ten 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.

Infectious Disease

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.

Influenza

The CDC recommends that everyone six months and older get a flu vaccine every season. People who are at a high risk of serious flu illness should take flu antiviral drugs as soon as they get sick.

Lyme Disease

Lyme disease is best combated using insect repellent, removing ticks promptly, applying pesticides, and reducing tick habitat. Once a person realizes they have been bitten by a tick, they should seek medical attention, as undetected Lyme disease can seriously damage a body's musculoskeletal and nervous systems or result in death.

4.3.8.5 Vulnerability Assessment

It is extremely difficult to predict a pandemic. 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, eighteen to forty-two million outpatient visits, and another twenty to forty-seven million sick people in the United States. Between fifteen to thirty-five 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.

On March 12, 2020, according to the Johns Hopkins Coronavirus resource center there were 127,863 confirmed cases of COVID-19 resulting in 4,718 deaths world-wide. The World Health Organization also reports that as of March 12, 2020 there were 118 countries, areas or territories with cases.

Influenza pandemics are different from many of the threats for which public health and health-care systems were 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 three to twelve 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. These limited resources could also be affected by unrelated shortages.

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 functional-needs population present at the facilities. Spread of disease is at an increased risk due to the vulnerability and population density of these populations. Correctional institutions would also be at an increased risk due to the lack of social distancing required to help stop the spread of a pandemic.

It is important to plan preparedness activities that will permit a prompt and effective public health response. During a public health emergency, the Pennsylvania Department of Health (PA DOH) opens emergency medicine centers called "Points of Dispensing (PODs)" to ensure that medicine, supplies, vaccines, and information reach Pennsylvania residents during a public health emergency. An open POD is where the general public goes to receive free emergency medicine and supplies from public health officials, while a closed POD provides free emergency medicine and supplies to a specific community, like a university, including faculty, staff and students. Dispensing of medications/vaccines is a core function of the Strategic National Stockpile's Mass Dispensing of Medical Countermeasures plan, and preparedness of an open POD.

Health-care workers and those working in direct-care situations (such as correctional institutions or those that can't social distance due to their jobs) are more likely to be

exposed to a pandemic disease. Those that work outdoors for extended periods of time in warm months may be more vulnerable to West Nile, Lyme disease or the Zika virus.

4.3.9. Radon Exposure

4.3.9.1 Location and Extent

Airborne radon gas is radioactive and is a step in the radioactive decay of uranium to radium. Radon is a noble gas, cannot be seen and has no odor. Like other noble gasses, radon gas is very stable, so it does not easily combine with other chemicals. Two isotopes of radon are commonly found: 222Rn and 220Rn. The 220Rn isotope has a very short half-life, so it often only exists for fifty-five seconds, not long enough to pose a hazard to humans. The 222Rn isotope has a half-life of 3.8 days which is long enough to pose a threat to humans. Still, due to the relatively short half-life of 222Rn, it only exists in relatively close proximity to its radioactive parent, usually within tens of feet away. Radon is a carcinogen and when inhaled, it causes humans to develop lung cancer.

Radon was discovered as a significant source of natural radiation for humans in 1984 in the Reading Prong geologic province in Eastern Pennsylvania (east of Somerset County), when routine monitoring of employees leaving the not yet active Limerick nuclear power plant showed readings that a construction worker working on the plant frequently exceeded expected radiation levels despite the fact that the plant was not active. The Environmental Protection Agency (EPA) guidelines state that mitigation actions should be taken if levels exceed 4pCi/L in a home, and most uranium miners have a maximum exposure of 67 pCi/L. Subsequent testing of the Limerick power plant worker's home showed high radon levels of 2,500 pCi/L (pico Curies per Liter), triggering the Reading Prong to become the focus of the first large-scale radon scare.

Radon gas is considered ubiquitous and can be found in indoor and outdoor environments, however there is no known safe level of exposure to radon. For most people in Pennsylvania, the greatest risk of radon exposure is from within their home in rooms that are below, directly in contact with, or immediately above the ground. Sources of radon include radon in the air from soil and rock beneath homes, radon dissolved in water from private wells and exsolved during water use (rare in Pennsylvania), and radon emanating from uranium-rich building materials such as concrete blocks or gypsum wallboard (also rare in Pennsylvania). Key factors in radon concentration in homes are the rates of air flow into and out of the house, the location of air inflow, and the radon content of air in the surrounding soil. Because of the flow dynamics of air inside of most houses, even a small rate of soil radon gas inflow can lead to elevated radon concentrations.

There are several factors that contribute to higher radon levels in soil gas:

- Proximity to elevated uranium rich deposits (>50ppm). Areas within a few hundred feet of such deposits are most at risk. Such deposits are rare in Pennsylvania.

- Some more common rocks have higher than average uranium content (5 to 50 ppm), and proximity to such rocks also increases the risk of radon exposure. These rock types include black shales as well as granitic and felsic alkali igneous rocks. This is the most common source of high radon levels in Pennsylvania. The Reading Prong elevated radon levels come from Precambrian granitic gneisses.
- Other soil and bedrock properties that facilitate radon mobility. The amount of pore space in the soil and its permeability – more porous soils will allow radon to travel more easily. Limestone-dolomite soils can also be predisposed to collect radon from radium resultant from weathering of iron oxide or clay surfaces. In some cases (like in State College in Centre County, PA) even with underlying bedrock having normal uranium concentrations (.5 to 5 ppm), the vast majority of locations built on lime-stone-dolomite soils exceed radon concentrations of 4pCi/L, and many exceeded 20 pCi/L.

4.3.9.2 Range of Magnitude

According to the EPA, about 21,000 lung cancer deaths each year in the U.S. are related to radon - it is the second leading cause of lung cancer after smoking and the number one cause of lung cancer among nonsmokers. There is no evidence that children are at a greater risk than adults. Radon causes lung cancer by continuing to radioactively decay after being inhaled, and turning into a daughter product (218Po, 214Pb, 214Bi) which may become attached to lung tissue and induce lung cancer due to their continued radioactive decay. *Table 33 - Radon* Risk (EPA, 2017) describes the relative risk to lung cancer that people experience depending on the radon level and their experience with smoking.

The EPA reports that the national average radon concentration of indoor air of homes is about 1.3 pCi/L, and they recommend that homes be fixed if the radon level is 4pCi/L or more. There is, however, no safe level of radon exposure, so the EPA also recommends to consider fixing a home if the radon level is between 2 pCi/L and 4 pCi/L.

Table 33 - Radon Risk

RADON LEVEL (pCi/L)	IF 1,000 PEOPLE WERE EXPOSED TO THIS LEVEL OVER A LIFETIME...*	RISK OF CANCER FROM RADON EXPOSURE COMPARES TO...***	ACTION THRESHOLD
SMOKERS			
20	About 260 people could get lung cancer	250 times the risk of drowning	Fix structure
10	About 150 people could get lung cancer	200 times the risk of dying in a home fire	
8	About 120 people could get lung cancer	30 times the risk of dying in a fall	
4	About 62 people could get lung cancer	5 times the risk of dying in a car crash	
2	About 32 people could get lung cancer	6 times the risk of dying from poison	Consider fixing structure between 2 and 4 pCi/L

RADON LEVEL (pCi/L)	IF 1,000 PEOPLE WERE EXPOSED TO THIS LEVEL OVER A LIFETIME...*	RISK OF CANCER FROM RADON EXPOSURE COMPARES TO...***	ACTION THRESHOLD
1.3	About 20 people could get lung cancer	(Average indoor radon level)	Reducing radon levels below 2pCi/L is difficult
0.4	About 3 people could get lung cancer	(Average outdoor radon level)	
NON-SMOKERS			
20	About 36 people could get lung cancer	35 times the risk of drowning	Fix structure
10	About 18 people could get lung cancer	20 times the risk of dying in a home fire	
8	About 15 people could get lung cancer	4 times the risk of dying in a fall	
4	About 7 people could get lung cancer	The risk of dying in a car crash	
2	About 4 people could get lung cancer	The risk of dying from poison	Consider fixing structure between 2 and 4 pCi/L
1.3	About 2 people could get lung cancer	(Average indoor radon level)	Reducing radon levels below 2pCi/L is difficult
0.4	-	(Average outdoor radon level)	
*Note: Risk may be lower for former smokers * Lifetime risk of lung cancer deaths from EPA Assessment of Risks from Radon in Homes (EPA 402-R-03-003). ** Comparison data calculated using the Centers for Disease Control and Prevention's 1999-2001 National Center for Injury Prevention and Control Reports.*			

4.3.9.3 Past Occurrence

In 1984, the Pennsylvania Radon Bureau responded to the newly detected high radon levels with a massive radon monitoring, educational, and remediation effort. As of November 1986, over 18,000 homes had been screened for radon and approximately 59% were found to have radon daughter levels in excess of the 0.020 Working Level (WL) guideline. Radon daughter levels ranged up to 13 WL or 2600 pCi/L or radon gas.

The EPA estimates that the average indoor radon concentration in Pennsylvania basements is about 7.1 pCi/L (3.6 pCi/L on the first floor), well above their estimated national average of 1.3 pCi/L. The EPA also states data on abundance and distribution of radon as it impacts individual houses in Somerset County and Pennsylvania at large is incomplete and biased towards higher radon concentrations. Most data is based on test results submitted by concerned homeowners who suspect they might be at risk for high radon levels. Results are skewed to over-represent homes that have high radon levels and under-represent homes with low radon levels. Any homes with high radon levels are problematic, and there are many reported homes in Somerset County with elevated radon concentrations.

The Pennsylvania Department of Environmental Protection (PA DEP) provides information for homeowners about how to test for radon in their homes, and when they

receive a test result over 4 pCi/L, the PA DEP Bureau of Radiation Protection works to help homeowners repair the home and mitigate the hazard. The PA DEP records all the tests they receive and categorize them in a searchable database by zip code. *Table 34 - Radon Level Test Results* shows there are eleven zip codes in Somerset County where enough tests were reported for the PA DEP to report their findings. The highest average radon levels were reported from the 15541 zip code which covers parts of Indian Lake Borough, Shanksville Borough, and Stonycreek Township with maximum and average readings of 185.6 and 11.7 pCi/L respectively. Most reporting zip codes in Somerset County have average basement Radon levels above the suggested EPA action level of 4 pCi/L - The average basement reading for reporting zip codes in the County is 8.1 pCi/L, and the average first floor reading is 3.6 pCi/L.

Table 34 - Radon Level Test Results

Radon Level Test Results (PA DEP, 2018)				
Zip Code	**Location**	**Number of Tests**	**Max Result pCi/L**	**Average Result pCi/L**
15424	Basement	57	76.6	10.6
15501	Basement	735	140.9	8.2
	First Floor	75	40.1	3.3
15530	Basement	125	121.2	8.1
15531	Basement	100	31.6	4.3
15541	Basement	233	185.6	11.7
15552	Basement	63	48.8	6.8
15557	Basement	124	103.4	9.2
15905	Basement	2794	440.6	6.3
	First Floor	182	37.4	4.0
15926	Basement	104	112.6	9.1
15938	Basement	110	123.2	7.5
15963	Basement	578	187.4	7.4

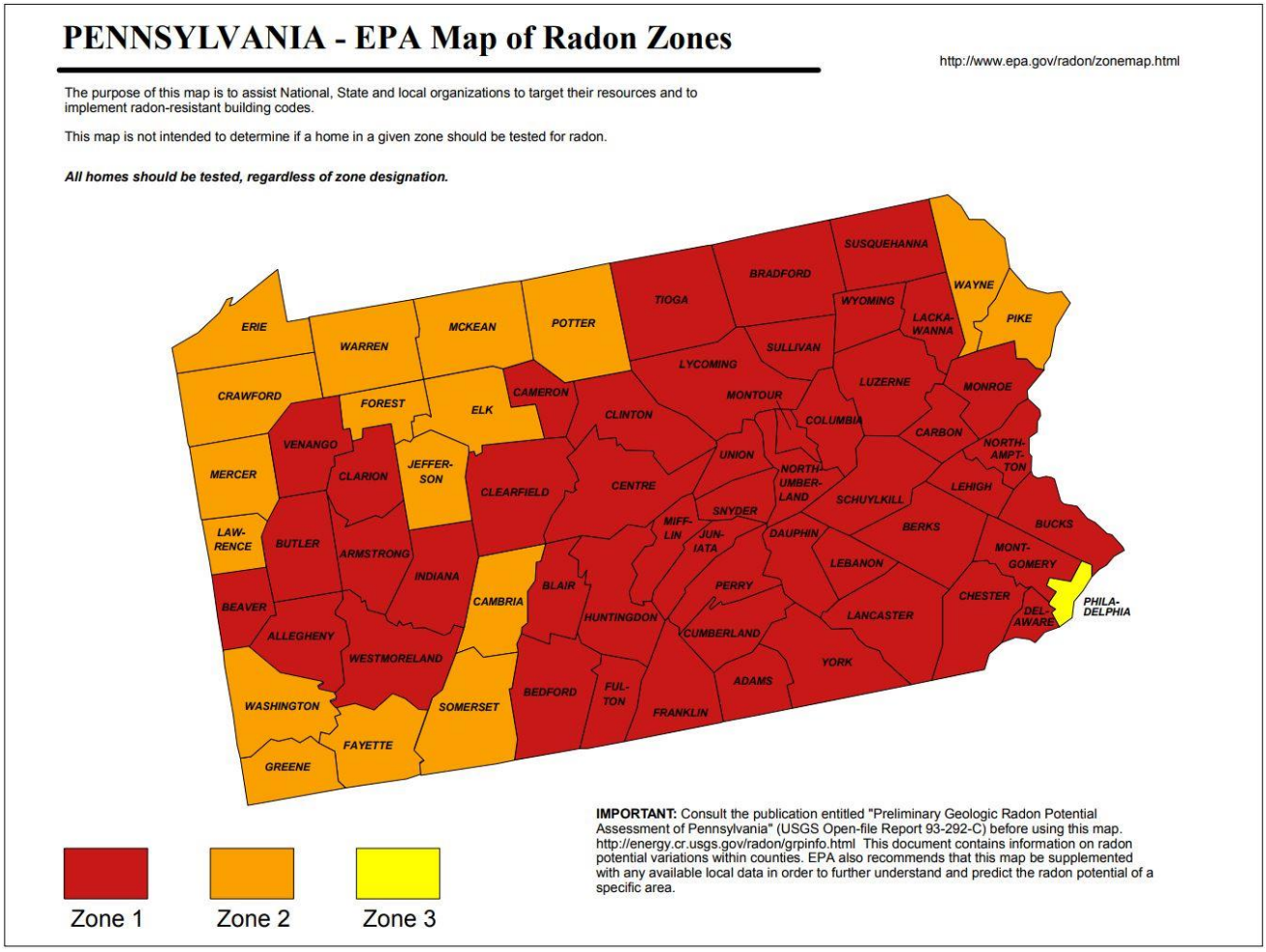
4.3.9.4 Future Occurrence

Radon exposure is inevitable given the geologic and geomorphic conditions in Somerset County. The EPA and USGS have mapped radon potential in the US to help target resources and assist local governments in determining if radon-resistant features are applicable for new construction. The designations are broken down in three zones and are assigned by county, as shown in *Figure 21 – Radon Zones* (EPA, 2017). Each zone reflects the average short-term measurement of radon that can be expected in a building without radon controls. Somerset County is located within Zone 1, with a high potential for radon.

1. Zone 1 has the highest potential and readings can be expected to exceed the 4 pCi/L recommended limit.

2. Zone 2 has a moderate potential for radon with levels expected to be between 2 and 4 pCi/L and
3. Zone 3 has a low potential with levels expected to be less than 2 pCi/L.

Figure 21 – Radon Zones (EPA, 2017)

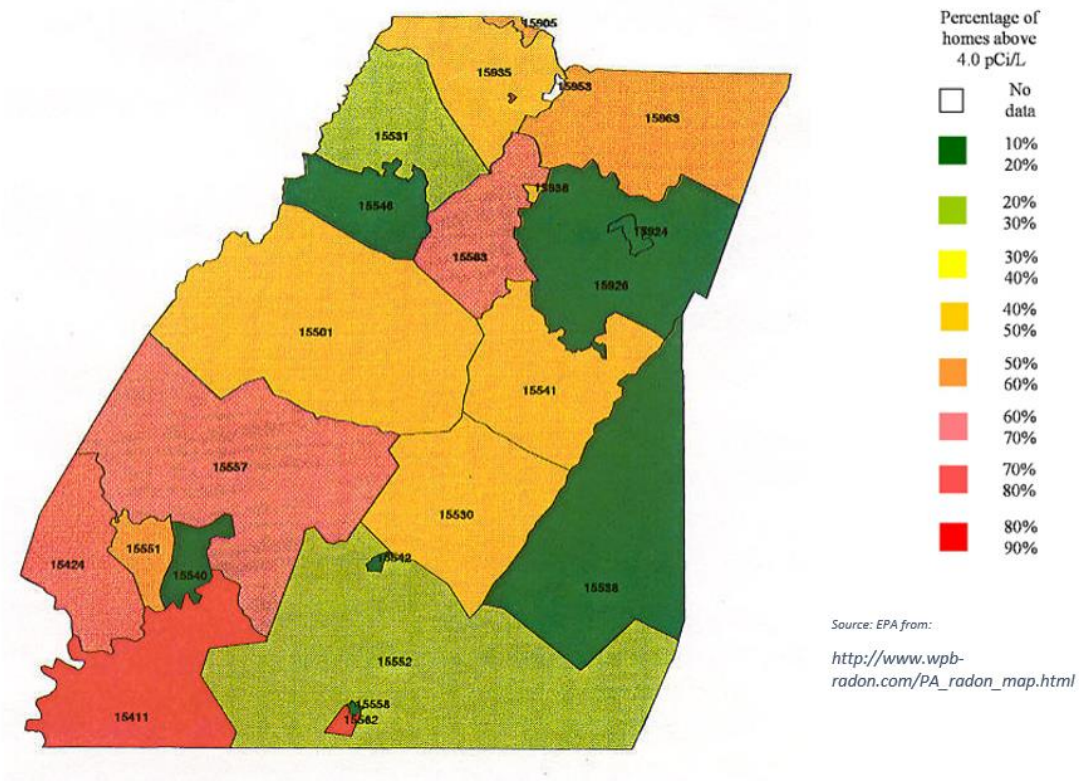


4.3.9.5 Vulnerability Assessment

Somerset County is in the EPA radon hazard zone 2, meaning there is a moderate risk of radon exposure. Older homes that have crawl spaces or unfinished basements are more vulnerable to having high radon levels. Average basement radon levels for homes who reported their results to the PA DEP are often found to be above the EPA action level of 4 piC/L. *Figure 21 – Radon Zones (EPA, 2017)* shows the best available data from the EPA about the percentage of homes with radon levels at or above the EPA action level. Homeowners across Somerset County should test radon levels in their homes in order to determine their level of radon exposure. The EPA estimates that an average radon mitigation system costs approximately $1,200. The PA DEP Bureau of Radiation

Protection provide short- and long-term tests to determine radon levels, as well as information on how to mitigate high levels of radon in a building. The 2018 PA HMP estimates that there are 36,589 buildings in Somerset County that are in areas with high radon test results, and the cost to mitigate the most impacted of those buildings (an estimated 20% of them or 7,317 buildings) would be $8,781,360.

Figure 22 - Radon Vulnerability



4.3.10. Subsidence, Sinkhole

4.3.10.1 Location and Extent

Subsidence refers to gradual caving in, sinking or collapse of an area of land. Many areas of Pennsylvania have bedrock conditions that lend themselves to subsidence events. Carbonate rock like limestone and dolomite is easily eroded and dissolved by water, so if an area has carbonate bedrock, that area is susceptible to subsidence because groundwater may erode and dissolve the carbonate rock, leading to the creation of caves, swales, sinkholes and other forms of subsidence. These types of features are generally referred to as karst topography. 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

Human activity can also increase the risk of subsidence events. Areas with coal or other mineral deposits which have been mined using deep mining techniques may become susceptible to subsidence. Poor engineering practices used at the time of withdrawal or progressive degradation in geological stability can increase the risk of subsidence.

4.3.10.2 Range and 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, 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 wildfires
- Fuel supply lines could be damaged, causing the release of hazardous materials into the environment

4.3.10.3 Past Occurrence

The DCNR provides an online Sinkhole Inventory Database, which lists a total of 3,619 identified natural sinkholes and over 138,000 reported surface depressions in Pennsylvania as of 2016, none of which occur in Somerset County (DCNR, 2016). According to Knowledge Center reporting since 2009, there have been no recorded sinkholes in Somerset County.

4.3.10.4 Future Occurrence

Based on geological conditions, the annual occurrence of subsidence and sinkhole events in Somerset County is considered unlikely. *Figure 23 - Karst Areas in Pennsylvania* shows the areas with porous carbonate rock, or Karst. Karst areas are areas most prone to sinkholes and surface mines and are vulnerable to ground water contamination. These areas are most susceptible to sinkhole development.

4.3.10.5 Vulnerability Assessment

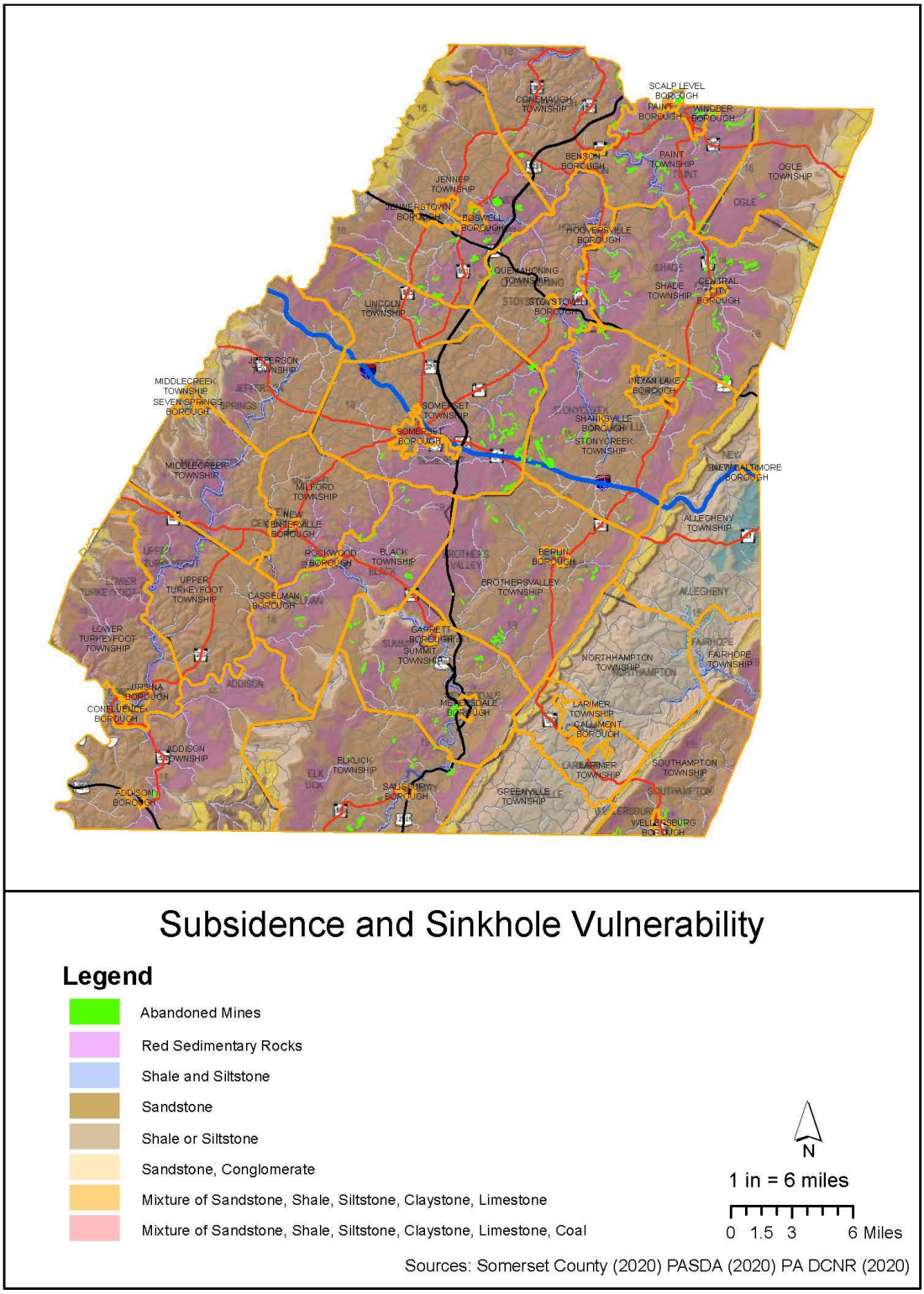
Based on geology, the following municipalities are vulnerable to sinkholes:

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

As depicted in *Figure 23 - Karst Areas in Pennsylvania,* there are minimal areas of Karst in Somerset County. As a result, subsidence and sinkholes are considered to be an unlikely hazard. As determined by the local planning team, an overall risk factor score of 2.4 has been given for this hazard. *Figure 24 - Somerset County Subsidence and Sinkhole Vulnerability* also supports the minimal amount of limestone rock formation in Somerset County

Figure 23 - Karst Areas in Pennsylvania

Figure 24 - Somerset County Subsidence and Sinkhole Vulnerability



4.3.11. Tornadoes and Windstorms

4.3.10.1 Location and Extent

Tornadoes occur in the Commonwealth most frequently during the spring and summer months and are most likely at the warmest times of the day. In the past sixty-nine years, records show that 960 tornadoes have been reported across the sixty-seven counties in Pennsylvania during the period of 1950 – December 2019 (NOAA NCEI, 2019). The National Weather Service estimates that the Commonwealth will experience ten tornadoes annually. According to the National Centers for Environmental Information (NCEI), wind speeds in tornadoes range from values below that of hurricane speeds to more than 300 miles per hour. The NCEI continues by reporting that, "the maximum winds in tornadoes are often confined to extremely small areas and vary tremendously over short distances," which explains why one house may be completely demolished by a tornado and a neighboring house could be untouched. The width of tornadoes can vary greatly, from one hundred feet wide to over a mile, and the forward motion of tornadoes can range from speeds between zero and fifty miles per hour.

Windstorms may be caused by thunderstorms, hurricanes and tornadoes, but the most frequent cause of windstorms in southwestern Pennsylvania is thunderstorms. Straight-line winds and windstorms are experienced on a more regional scale. While such winds usually also accompany tornadoes, straight-line winds are caused by the movement of air from areas of high pressure to low pressure. Windstorms are generally defined with sustained wind speeds of 40 mph or greater, lasting for at least one hour, or winds of 58 mph or greater lasting for any duration. A microburst is a very-localized column of sinking air, capable of producing damaging opposing and straight-line winds at the surface. A wind shear is usually found when a violent weather front is moving through; wind speeds have been recorded up to 100 mph. Wind shear is defined as a difference in wind speed and direction over a relatively short distance in the atmosphere.

Figure 25 - Microburst

The air moves downward until at ground level. It then spreads outward in all directions.

4.3.10.2 Range of Magnitude

Each year, tornadoes account for $1.1 billion in damages and cause over eighty deaths nationally. 2011 was the second worst year on record for deadly tornadoes, the worst being 1936. The number of tornado reports has increased by 14% since 1950. While the extent of tornado damage is usually localized, the vortex of extreme wind associated with a tornado can result in some of the most destructive forces on Earth.

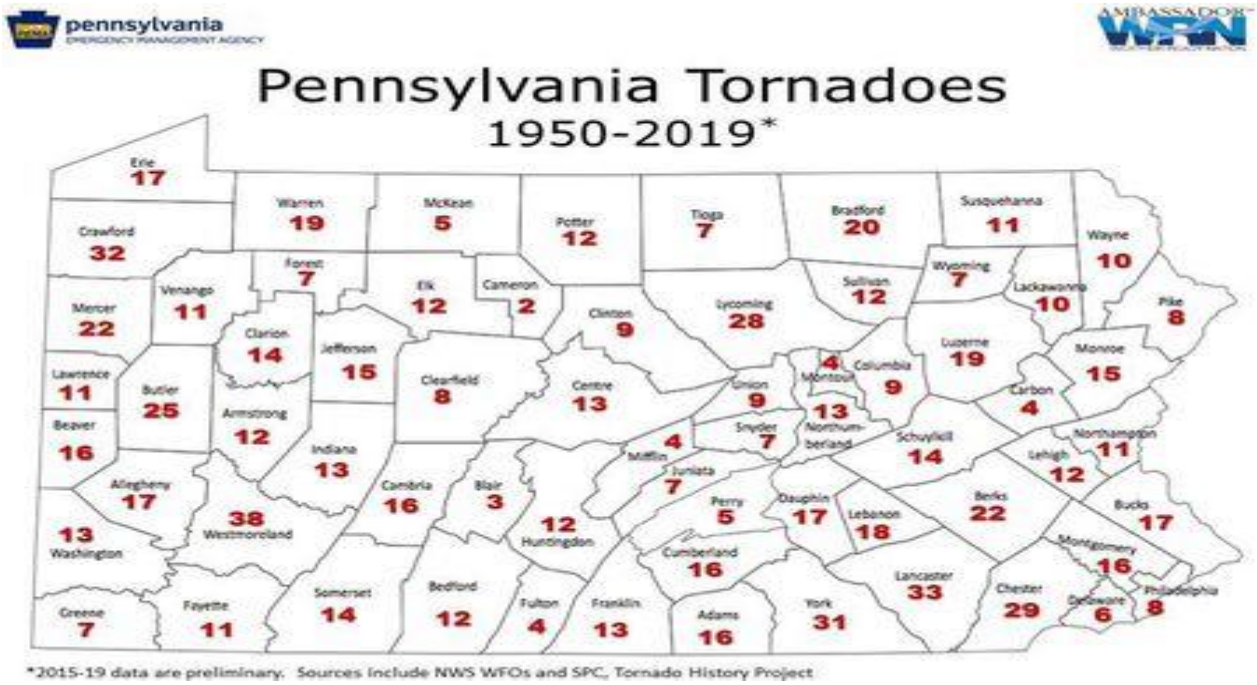
Rotational wind speeds can range from one hundred mph to more than 250 mph. In addition, a tornado's speed of forward motion can range from zero to 50 mph. Therefore, some estimates place the maximum velocity (combination of ground speed, wind speed, and upper winds) of tornadoes at about 300 mph. The damage caused by a tornado is a result of the high wind velocity and wind-blown debris, also accompanied by lightning or large hail. The most violent tornadoes have rotating winds of 250 mph or more and are capable of causing extreme destruction and turning normally harmless objects into deadly projectiles.

Damages and deaths can be especially significant when tornadoes move through populated, developed areas. The destruction caused by tornadoes ranges from light to inconceivable depending on the intensity, size and duration of the storm. Typically, tornadoes cause the greatest damages to structures of light construction. The Enhanced Fujita Scale, also known as the "EF-Scale," measures tornado strength and associated damages. The EF-Scale is an update to the earlier Fujita Scale, also known as the "F-Scale," that was published in 1971. It classifies United States tornadoes into six intensity categories based upon the estimated maximum winds occurring within the wind vortex (*Table 35 - Enhanced Fujita Scale*). Since its implementation by the National Weather Service in 2007, the EF-Scale has become the definitive metric for estimating wind speeds within tornadoes based upon damage to buildings and structures. Previously recorded tornadoes are reported with the older F-Scale values, but *Table 35 - Enhanced Fujita Scale* shows F-Scale categories with corresponding EF-Scale wind speeds.

Figure 16 - Wind Zones in Section 4.3.5 described the wind speed zones developed by the American Society of Civil Engineers based on tornado and hurricane historical events. These wind speed zones are intended to guide the design and evaluation of the structural integrity of shelters and critical facilities. Somerset County falls within Zone

III, meaning shelters and critical facilities should be designed to withstand a three-second gust of up to 200 mph, regardless of whether the gust is the result of a tornado, coastal storm, or windstorm event. Therefore, these structures should be able to withstand the wind speeds experienced in an EF4 tornado event. While it is difficult to pinpoint the exact locations at the greatest risk of a tornado, the southeast, southwest and northwest sectors of the Commonwealth are more prone to tornadoes.

Figure 26 - Pennsylvania Tornadoes 1950-2019



Tornadoes can have varying secondary effects. The most common is power failure. The severe wind can dismantle power sources and cause significant structural damage. Hazardous material spills can occur if a tornado comes near a holding tank, or the spill stems from a traffic accident caused by high winds.

Windstorms of all types have caused the following problems within Somerset County:

- Power failures lasting four hours or longer
- Loss of communications networks lasting four hours or more
- Residents requiring evacuation or provision of supplies or temporary shelter
- Severe crop loss and or damage
- Trees down or snapped off high above the ground/tree debris-fire fuel
- Toppled high profile vehicles, including hazardous materials

Table 35 - Enhanced Fujita Scale

Enhanced Fujita Scale			
EF-Scale Number	**Wind Speed (MPH)**	**F-Scale Number**	**Description of Potential Damage**
EF0	65–85	F0-F1	**Minor damage**: Peels surface off some roofs; some damage to gutters or siding; branches broken off trees; shallow-rooted trees pushed over. Confirmed tornadoes with no reported damage (i.e., those that remain in open fields) are always rated EF0.
EF1	86-110	F1	**Moderate damage**: Roofs severely stripped; mobile homes overturned or badly damaged; loss of exterior doors; windows and other glass broken.
EF2	111–135	F1-F2	**Considerable damage**: Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes completely destroyed; large trees snapped or uprooted; light-object missiles generated; cars lifted off ground.
EF3	136–165	F2-F3	**Severe damage**: Entire stories of well-constructed houses destroyed; severe damage to large buildings such as shopping malls; trains overturned; trees debarked; heavy cars lifted off the ground and thrown; structures with weak foundations blown away some distance.
EF4	166–200	F3	**Devastating damage**: Well-constructed houses and whole frame houses completely leveled; cars thrown and small projectiles generated.
EF5	>200	F3-F6	**Extreme damage**: Strong frame houses leveled off foundations and swept away; automobile-sized projectiles fly through the air in excess of 100 m (300 ft.); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.

4.3.10.3 Past Occurrence

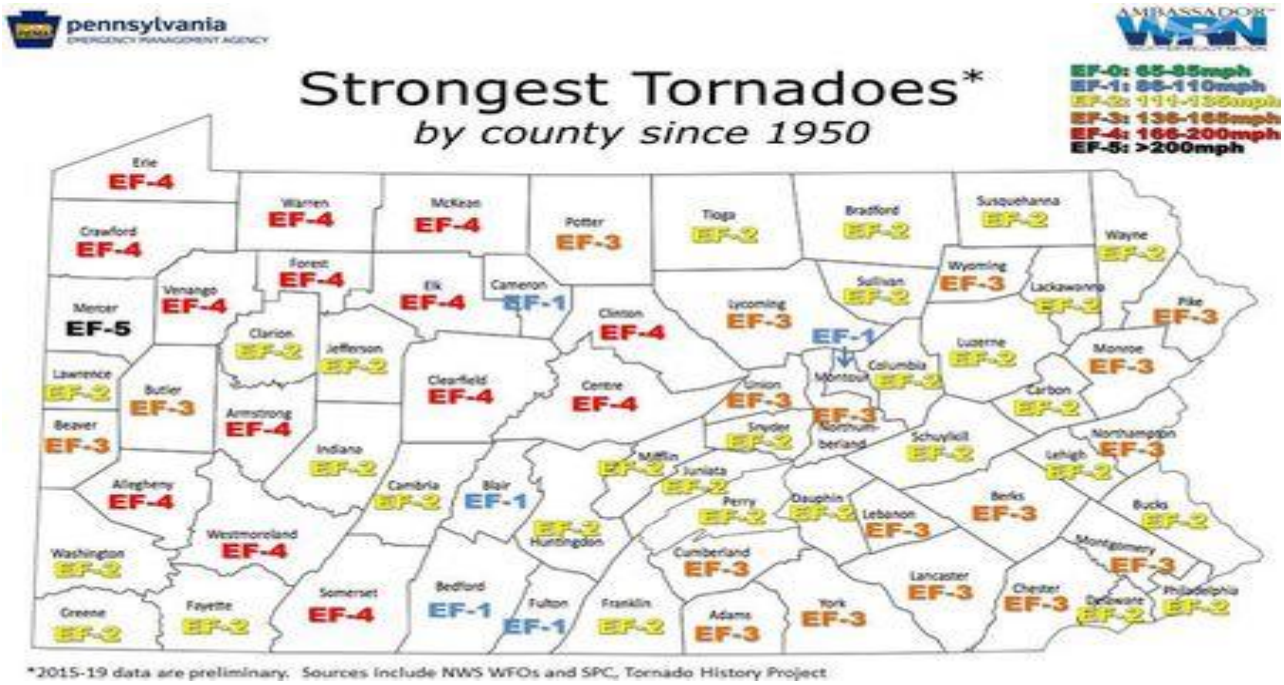
Somerset County has experienced thirteen tornadoes since 1950 (see *Table 36 - Tornado History*). One of the deadliest tornado events in Pennsylvania occurred on May 31, 1985, with a total of twenty-one tornadoes in the Ohio and Northwest Pennsylvania region (none of which tracked through Somerset County). These tornadoes resulted in seventy-six deaths, upwards of 1,000 injuries, and hundreds of millions of dollars in property damage.

The most recent tornado impact in Somerset County occurred on May 13, 2018, when two EF1 tornadoes touched down in the village of Gray and the community of Kantner, respectively. In Gray, the EF 1 tornado was confirmed by a NWS Storm Survey. Maximum wind speeds were estimated at 90 mph, with a path length of one-half to three-quarters of a mile and a maximum path width of 100 yards. The tornado started northwest of the intersection of Beam Church Road and Wigstrom Road where several trees fell, and a house sustained minor siding damage. The tornado crossed Beam Church Road and continued east-southeast into Gray. Several buildings sustained roof or siding damage from downed trees. Many trees were completely uprooted because of saturated soil with standing water underneath the root ball. The tornado crossed West 3rd street

where it flipped a car port and moved a trailer about six feet. A large patch of shingles was tossed over a house and landed on a car windshield. Further east, several healthy trees were snapped 10-30 feet off the ground, consistent with winds of up to 90 mph. Healthy pines fell in a convergent pattern perpendicular to storm motion. The tornado appears to have lifted right before a stream in the block bordered by West 3rd Street, East 1st Street, Main Street and Center Street. Near Kantner, the EF 1 tornado was also confirmed by a NWS Storm Survey and maximum wind speeds were estimated at 100-110 mph, with a path length of one-quarter of a mile and a maximum path width of 100 yards. The tornado started just east of Whistler Road along Koontztown Road. Along Koontztown Road, dozens of trees were uprooted or snapped 20-30 feet off the ground, indicating winds of 100-110 MPH. The trees fell in a convergent pattern, indicating a tornado had occurred. The majority of concentrated damage occurred in a rural area west of Center Street. Total damages from the events were estimated at $50,000.

The *highest rated* tornado in Somerset County was a either an F3 (NCEI) or an F4 (Tornado History Project) on June 2, 1998 (before the F Scale became the EF Scale). Injuries were reported, but crop and property damage are not listed. The *most damaging* tornado to affect Somerset County was an F3 that struck Salisbury on May 31, 1998. The tornado touched down east of Mount Davis and traveled nearly 15 miles through Salisbury and on to Pocahontas. One person was killed, 15 people were injured, and 150 required overnight shelter. Between 10 and 15 businesses suffered significant damage (2015 Hazard Mitigation Plan).

Figure 27 - Strongest Tornadoes sin 1950



Aside from tornadoes, Somerset County has had thirty-seven severe wind reports from 1994 through 2019 causing minor property damage over the years (NOAA NCEI, 2019). Most often these are the result of intense thunderstorms, which often fell trees and damage power lines, causing power outages in some areas.

See *Table 36 - Tornado History* and *Table 37 - High Wind History* and *Figure 28 - Tornado Vulnerability Map* below.

Table 36 - Tornado History

Somerset County Tornado History ***(NOAA NCEI, 2019) and Knowledge Center***					
Location	**Date**	**Magnitude (F/EFScale)**	**Deaths**	**Injury**	**Property Damage**
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	5	Unknown
Markelton	6/2/1998	F2	0	0	Unknown
Buckstown	6/30/1998	F1	0	0	Unknown
Wittenberg	7/31/2000	F0	0	0	$5,000
Ralphton	8/07/2013	EF0	0	0	$2,000
Gray	5/13/2018	EF1	0	0	$50,000
Kantner	5/13/2018	EF1	0	0	0
		Totals	1	22	**$4,082,000**

Table 37 - High Wind History

Somerset County High Wind History ***(NOAA NCEI, 2019) and Knowledge Center***					
Location	**Date**	**Mag. (knots)**	**Deaths**	**Injury**	**Property Damage**
Several counties	4/15/1994	UNK	0	0	$500
Countywide	4/29/1994	UNK	0	0	Unknown
Countywide	6/15/1994	UNK	0	0	Unknown
Kingwood	7/9/1994	UNK	0	0	Unknown
Countywide	7/20/1994	UNK	0	0	Unknown
Several counties	11/6/1994	UNK	0	3	$50

Somerset County High Wind History *(NOAA NCEI, 2019) and Knowledge Center*					
Location	**Date**	**Mag. (knots)**	**Deaths**	**Injury**	**Property Damage**
Several counties	11/27/1994	UNK	0	0	$500
Countywide	11/11/1995	UNK	1	4	Unknown
Countywide	2/27/1997	30	0	0	Unknown
Countywide	11/26/1997	50	0	0	Unknown
Countywide	11/10/1998	51	0	0	Unknown
New Centerville	6/2/1999	UNK	0	0	Unknown
Sipesville	7/9/1999	UNK	0	0	Unknown
Countywide	7/28/1999	UNK	0	0	Unknown
Countywide	9/29/1999	60	0	0	Unknown
Countywide	1/10/2000	50	0	0	Unknown
Countywide	12/12/2000	UNK	0	0	$13,900
Countywide	2/10/2001	UNK	0	0	$5,550
Countywide	12/14/2001	60	0	0	Unknown
Countywide	3/9/2002	50	0	0	Unknown
Countywide	11/13/2003	60	0	0	Unknown
Somerset	9/17/2004	45	0	0	$4,540
Countywide	12/1/2004	60	0	0	Unknown
Countywide	12/23/2004	60	0	0	Unknown
Countywide	2/17/2006	52	0	0	Unknown
Countywide	12/1/2006	45	0	0	Unknown
Countywide	12/23/2007	50	0	0	Unknown
Countywide	1/30/2008	50	0	0	Unknown
Countywide	5/11/2008	50	0	0	Unknown
Countywide	2/12/2009	56	0	0	$300,000
Countywide	2/24/2012	50	0	0	Unknown
Countywide	10/29/2012	50	0	0	Unknown
Somerset & Hooversville	6/27/2015	35	0	0	$2,000
Countywide	4/3/2016	52	0	0	$2,000
Countywide	3/2/2018	52	0	0	Unknown
Countywide	4/4/2018	52	0	0	Unknown
Countywide	2/24/2019	52	0	0	Unknown
	Totals		1	4	**$329,040**

4.3.10.4 Future Occurrence

It is possible for another disastrous tornado to hit Somerset County, given the fact that one EF4 tornado has been recorded in the county. While the chance of being hit by a devastating tornado is somewhat small, the damage that results when the tornado arrives can be catastrophic. An EF5 tornado with a 0.019 percent annual probability of occurring can carry wind velocities of 200 mph, resulting in a force of more than one hundred pounds per square foot of surface area. This is a "wind load" that exceeds the design limits of most buildings.

Based on tornado activity information for Pennsylvania between 1950 and 2002, Somerset County lies within an area that has or will experience less than ten tornado events per square mile, which is equivalent to less than one tornado event per square mile every five years (NCDC 2000). Additionally, based on historic patterns, tornadoes are unlikely to remain on the ground for long distances, especially in areas of the county with hilly terrain. However, the high historical number of windstorms with winds over fifty knots (see Table 3) indicates that the annual chance of a windstorm is higher.

According to FEMA (See the Hurricane Profile, Section 4.3.5 *Table 25 - Annual Probability of Wind Speeds)*, there is high probability (~92%) each year that Somerset County will experience winds of 45-77 mph; however, there is under a 10% chance of winds of 78-118 mph and the risk declines even more dramatically as higher wind speeds are calculated.

The number of days when tornadoes occur in the United States has decreased; however, there has been an increase in tornado activity on those days. The tornado season has also been lengthening, with the season starting earlier than it has historically. Pennsylvania had, for example, a record number of tornadoes in April and May 2019 compared to any other April or May on record. Climate change is causing temperatures and air moisture to increase, and it is thought that these changes could result in an increase in frequency and intensity of tornadoes and severe wind storms; however, there is somewhat low confidence in these conclusions and there is still much uncertainty (Kossin et al., 2017).

4.3.10.5 Vulnerability Assessment

Tornadoes can occur at any time of the year, though they are more likely during peak months, which are during the summer for the northern part of the United States. Tornadoes are most likely to occur between 3 P.M. and 9 P.M. but have been known to occur at all hours of the day or night. 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 such distinct funnel clouds are localized phenomena impacting a small area; however, the high winds of tornadoes make them one of the most destructive natural hazards. There can be many secondary impacts of tornadoes and windstorms, including transportation accidents, hazardous material spills, flooding, and power outages. A

proper warning system is vital for the public to be informed of what to do and where to go.

Dangers that accompany thunderstorms which can produce tornadoes:

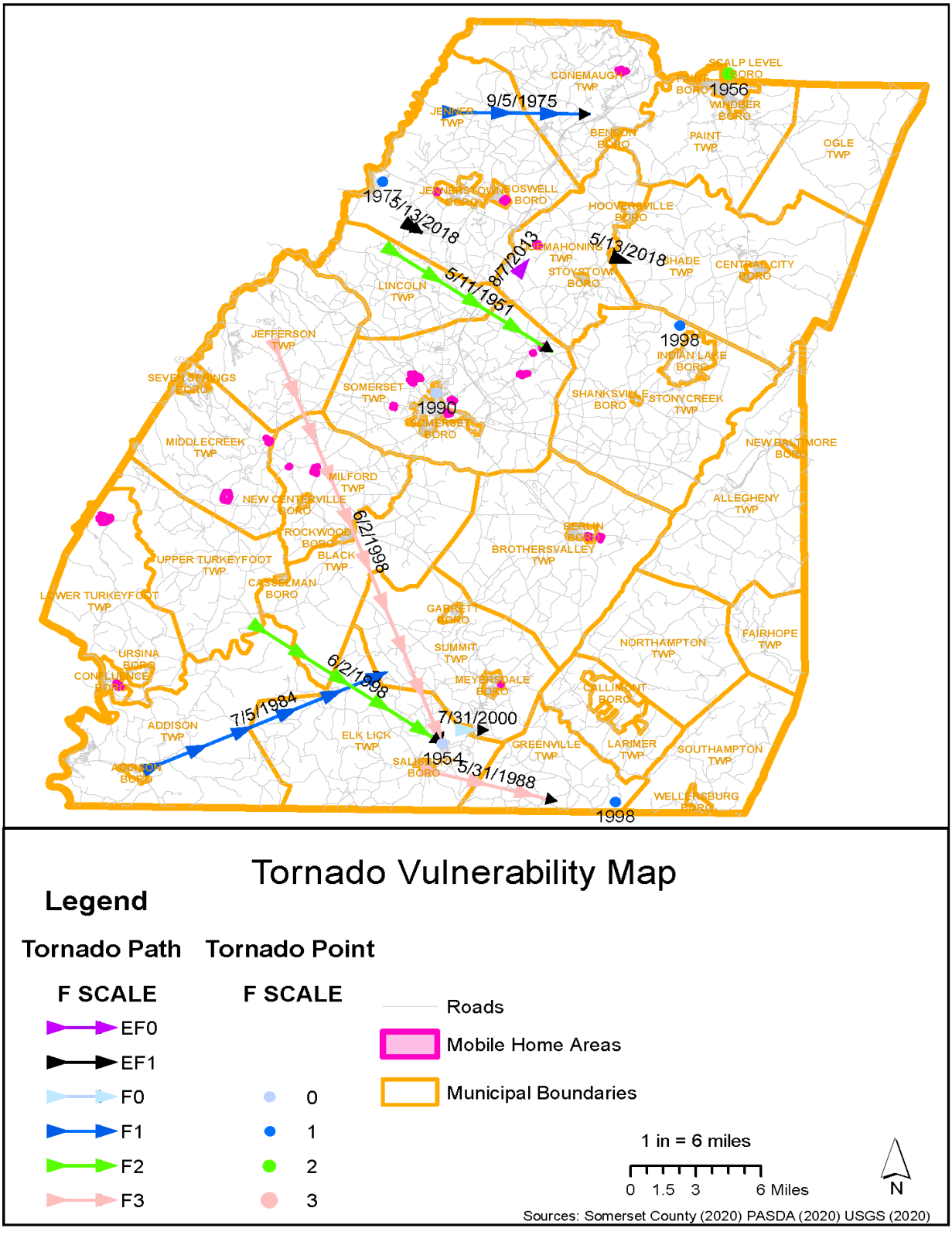
- Flash floods – with 146 deaths annually nationwide
- Lightning – 75 to 100 deaths annually nationwide
- Damaging straight-line winds – reaching 140 mph wind speed
- Large hail – can reach the size of a grapefruit and causes several hundred million dollars in damages annually to property and crops.

Critical facilities are highly vulnerable to high windstorms. While many severe storms can cause exterior damage to structures, tornadoes can also completely destroy structures, along with their surrounding infrastructure, abruptly halting operations. Tornadoes are often accompanied by severe storms which can be threatening to critical facilities. Many critical facilities are particularly vulnerable to power outages which can leave facilities functionless, potentially crippling infrastructure supporting the population of the county. With a storm's ability to destroy structures, citizens and their possessions are often left at the will of the storm. The elderly and disabled people are vitally at risk when faced with tornadoes. Without assistance to evacuate, they may be unable to prepare themselves or their homes and other possessions to safely weather the storm. Campgrounds and mobile homes are also particularly vulnerable to tornadoes and windstorms, and locations of mobile home parks in Somerset County can be found in *Figure 28 - Tornado Vulnerability Map*; however, this is not a comprehensive list of buildings vulnerable to strong windstorms. It should also be noted that the state parks and state forests in Somerset County have designated camping locations where visitors often pitch tents and can be vulnerable to severe windstorms.

The local economy can also be crippled by tornadoes and windstorms and their secondary effects when buildings and supporting infrastructure are destroyed in the storm. Power outages can create work stoppages while transportation accidents and road closings can limit the transportation of goods and services. Additionally, flooding cannot be discounted as it can destroy the physical structures, merchandise and equipment essential for business operation. In the case of hazardous material spills caused by windstorms, the local environment can also be negatively impacted, requiring extensive clean-up and mitigation efforts.

National and inter-national visitors to the 9/11 Flight 93 Memorial at Shanksville can also be at risk; there is limited shelter there and a mix of languages may make advance warnings a challenge.

Figure 28 - Tornado Vulnerability Map



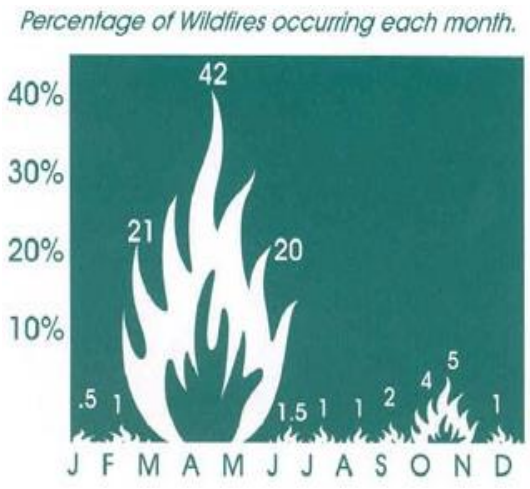
4.3.12. Wildfire

4.3.12.1 Location and Extent

The most prevalent causes of devastating wildfires are droughts, lightning strikes, arson, human carelessness, and in rare circumstances, spontaneous combustion. Most fires in Pennsylvania are caused by anthropogenic fires such as debris burns that spread and get out of control. A fire, started in somebody's backyard, could travel through dead grasses and weeds into bordering woodlands starting a wildfire. Major urban fires can cause significant property damage, loss of life, and residential or business displacement. While wildfires are a natural and essential part of many native Pennsylvania ecosystems (e.g. pitch pine – scrub oak woodlands), wildfires can also cause devastating damage if they are undetected and allowed to propagate unfettered. Wildfires most often occur in less developed areas such as open fields, grass, dense brush or forests where they can spread rapidly by feeding off of vegetative fuels. Wildfires are most prevalent under prolonged dry and hot spells, or generally drought conditions. The greatest potential for wildfires (83% of all Pennsylvania wildfires) occur in the spring months of March, April, and May, and the autumn months of October and November. In the spring, bare trees allow sunlight to reach the forest floor, drying fallen leaves and other ground debris and increasing wildfire vulnerability. In the fall, the surplus of dried leaves is fuel for fires. *Figure 29 - Seasonal Wildfire Percentage* shows the wildfire percentage occurrence during each month occurring in Pennsylvania.

The Somerset County Planning Commission reports 79,788 acres of wooded property in the county; DCNR websites display one State Forest of 15,336 acres (Gallitzin), three and one-half state parks totaling over 5,000 acres, State Game Lands 228 of 3,900 acres and a dozen local parks and open spaces for recreational enjoyment – all at risk for wildfire.

Figure 29 - Seasonal Wildfire Percentage



4.3.11.2 Range of Magnitude

Forested areas, croplands and properties that are at the interface between wild lands and human development are most at risk for being impacted by and causing wildfires. If an urban fire or wildfire is not contained, secondary impacts such as power outages may result. Other negative impacts of wildfires include killing people, livestock, fish and wildlife and destroying valuable property, timber, forage, recreational and scenic values. Wildfires can also cause severe erosion, silting of stream beds and reservoirs, and flooding due to a loss of ground cover.

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 ten 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 if development in or around wildlands increases. (2015 Hazard Mitigation Plan)

The United States Forest Service utilizes the Forest Fire Assessment System to classify the dangers of wildfire. *Table 38 - Wildland Fire Assessment System* identifies each threat classification and provides a description of the level.

Table 38 - Wildland Fire Assessment System

Wildland Fire Assessment System ***(U.S. Forest Service)***	
Rank	**Description**
Low (L)	Fuels do not ignite readily from small firebrands although a more intense heat source, such as lightning, may start fires in duff or punky wood. Fires in open cured grasslands may burn freely a few hours after rain, but woods fires spread slowly by creeping or smoldering and burn in irregular fingers. There is little danger of spotting.
Moderate (M)	Fires can start from most accidental causes, but with the exception of lightning fires in some areas, the number of starts is generally low. Fires in open cured grasslands will burn briskly and spread rapidly on windy days. Timber fires spread slowly to moderately fast. The average fire is of moderate intensity, although heavy concentrations of fuel, especially draped fuel, may burn hot. Short-distance spotting may occur but is not persistent. Fires are not likely to become serious and control is relatively easy.
High (H)	All fine dead fuels ignite readily and fires start easily from most causes. Unattended brush and campfires are likely to escape. Fires spread rapidly and short-distance spotting is common. High-intensity burning may develop on slopes or in concentrations of fine fuels. Fires may become serious and their control difficult unless they are attacked successfully while small.
Very High (VH)	Fires start easily from all causes and, immediately after ignition, spread rapidly and increase quickly in intensity. Spot fires are a constant danger. Fires burning in light fuels may quickly develop high intensity characteristics such as long-distance spotting and fire whirlwinds when they burn into heavier fuels.
Extreme (E)	Fires start quickly, spread furiously and burn intensely. All fires are potentially serious. Development into high intensity burning will usually be faster and occur from smaller fires than in the very high fire danger class. Direct attack is rarely possible and may be dangerous except immediately after ignition. Fires that develop headway in heavy slash or in conifer stands may be unmanageable while the extreme burning condition lasts. Under these conditions the only effective and safe control action is on the flanks until the weather changes or the fuel supply lessens.

4.3.12.3 Past Occurrences

The State Department of Natural Resources (DCNR) has an extensive history of reported wildfires. Somerset County is located in the Forbes Forest District (District 4). Not all the reported fires are necessarily wildfire hazards as many occurred in lightly urban environments.

District 4 reports the following sixteen-year wildfire summary, which indicates a recent trend downward after several years of fluctuation:

- So far in 2020, the county has experienced a handful of brush and field fires.
- In 2019, there were 50 wildfires burning 61.9 acres.
- In 2018 there were 50 wildfires burning 79.6 acres.
- In 2017 there were 52 wildfires burning 74.8 acres.
- In 2016 there were 85 wildfires burning 926.6 acres.
- In 2015 there were 92 wildfires burning 169.9 acres.
- In 2014 there were 104 wildfires burning 176.1 acres.
- 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.

Far and away, the primary cause of the wildfires is listed as “debris burning”. See more detail at the following link:
http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20033433.pdf

In recent years, the number of prescribed burns in Pennsylvania have been increasing. This corresponds to an embrace of the need for fire in many natural ecosystems and management strategies for reducing vulnerability to wildfires. In March 2020 there were dozens of prescribed burns in State Game Lands at the time of the writing of this plan, including four locations on Game Lands in Somerset County (PA Prescribed Fire Council, 2020).

4.3.12.4 Future Occurrence

Annual occurrences of urban and wildfires in Somerset County are expected. Urban fires are most often a result of human errors, outdated wiring or occasionally malintent (arson). The occurrence of large scale and intensity wildfires is somewhat unpredictable

and highly dependent on environmental conditions and human response. Weather conditions play a major role in the occurrence of wildfires, so in the event of drought conditions, wildfire caution should be heightened. Any fire without the quick response or attention of firefighters, forestry personnel, or visitors to the forest, has the potential to become a wildfire. The Somerset County Department of Emergency Services coordinates countywide burn bans when the conditions are ideal for wildfires. Public information and press releases are issued to help decrease the risk of a major fire thus reducing the possibility of future occurrences. Somerset County Department of Emergency Services disseminates all red flag warnings.

There are a few planned prescribed burns in Somerset County, including two locations in State Game Lands 123, and three more locations in State Game Lands 228.

Climate change is expected to bring an elongated wildfire season and more intense and long-burning fires (Pechony & Shindell, 2010). Unfortunately in some regions of the United States, this is not a hypothetical, but a devastating reality – Northern California has experienced unprecedentedly devastating wildfires in 2017, 2018 and 2019, and the fires are thought to be burning faster and hotter due to worsening drought conditions caused by climate change (Cvijanovic et al., 2017). Wildfire conditions in Pennsylvania are not nearly as severe as in Northern California currently, but the intensification is a signal that the changes brought by climate change are not to be ignored. In Pennsylvania, higher air temperatures and earlier warming in the spring are expected to continue, resulting in more wildfire prone conditions in the summer and fall (Shortle et al., 2015).

4.3.12.5 Vulnerability Assessment

The size and impact of a wildfire depends on its location, climate conditions and the response of firefighters. If the right conditions exist, these factors may often mitigate the effects of wildfires; however, during a drought, wildfires can be devastating. The highest risk for wildfires in Pennsylvania occurs during the spring (March–May) and fall (October–November) months and 99 percent of all wildfires in Pennsylvania are caused by people (DCNR). Firefighters and other first responders can encounter life-threatening situations due to forest fires. Traffic accidents during a response and the impacts of fighting the fire once on scene are examples of first responder vulnerabilities.

The Wildland Urban Interface (WUI) was nationally mapped by a United States Department of Agriculture Forest Service effort in 2015 that used data from 1990-2010 to develop a robust dataset that relates housing density and vegetative density. The dataset provides a way to help identify locations where larger numbers of humans are living in or near natural areas that could be at risk in the event of a wildfire. The WUI defines two types of communities – interface and intermix: intermix WUI refers to areas where housing and wildland vegetation intermingle, and interface WUI refers to areas where housing is in the vicinity of a large area of dense wildland vegetation (Martinuzzi et al., 2015). The WUI was the fastest-growing land use type in the United States between

1990 and 2010. Factors behind the growth include population shifts, expansions of cities into wildlands, and new vegetation growth. The primary cause has been migration of people, not vegetation growth. Of new WUI areas, 97% were the result of new housing (Wikipedia, 2019).

Pennsylvania is among the states with the largest area of WUI and the most housing units in a WUI designated area. Pennsylvanians desire the proximity of natural beauty in their daily lives, and the growth in WUI housing noted above shows it. *Table 39 - Buildings in Wildfire Hazard Areas* shows the total Somerset County addressable structures and critical facilities that are located in, near, adjacent to or among state game lands, state parks, state forests and local parks and other locations designated by the Wildland Urban Interface. Wildfire hazard is defined based on conditions that affect wildfire ignition and/or behavior such as fuel, topography and local weather. Cells in the chart that have a zero numerical entry had zero vulnerable addressable structures or critical facilities according to this analysis at that time. The many addressable structures in the Wildland Urban Interface and Intermix zone are broken up by assessed parcel use codes – the "other" land use is comprised of Industrial, Agriculture, Service, Transportation, Communication, Utility, Natural Resources and other Land uses. *Figure 31 - Wildland Urban Interface Locations* depicts the areas where human lives are most vulnerable to wildfires.

Several citations, including one from the U.S. Department of Agriculture Forest Service, indicate a better data-driven WUI model will be available soon; if available, that data will be included in the 2021 Somerset County Hazard Mitigation Plan Annual Update. As a complement to that upcoming data, *Figure 30 - Fire Departments and Forested Areas* shows the locations of fire departments in relative proximity (or lack thereof) to state owned natural areas which represent vast swatches of forests within the county.

There are twenty-seven fire departments that service Somerset County, a list of which can be seen in *Table 40 - Fire Departments of Somerset County*. Each fire department conducts its own schedule of in-house training sessions for its members.

However, the likelihood that fire services will fail is a real threat to county communities' safety. Many communities have already experienced the unfortunate fact that services have failed. It is recommended that each municipality assess their own vulnerabilities by maintaining and building a relationship with their local providers to make the determination and begin to plan accordingly if a local service was to shut down its operation. The statistics, response times and call times associated with all units dispatched are easily obtainable from the local 911 center.

These departments must be supported to create and or discover new ways to not only recruit but to retain volunteers. If left unattended, the issues will continue and the lack of response will grow, leaving the community more vulnerable to loss of life and loss of property to the threat of wildfire.

It is recommended that the entire community be educated on the perpetual needs associated with providing these services. In addition, continued support and efforts to inform the State legislature could prove to be paramount in assuring these services remain in operation into the future. At the time of the writing of this plan, a flurry of bills had been introduced in both the House of Representatives and the Senate as a result of a two-year study initiated by Senate Resolution 6 (SR 6). The final report can be found here: http://pehsc.org/wp-content/uploads/2014/05/SR-6-REPORT-FINAL.pdf

Table 39 - Buildings in Wildfire Hazard Areas

Buildings in Wildfire Hazard Areas
(Somerset Co GIS, 2019; Radeloff et al. 2016)

Municipalities	Wildland Urban Interface			Wildland Urban Intermix		
	High Density	Medium Density	Low Density	High Density	Medium Density	Low Density
Addison Borough	0	56	18	0	54	333
Addison Township	0	83	71	0	158	0
Allegheny Township	0	5	25	0	28	99
Benson Borough	18	62	0	0	25	1
Berlin Borough	169	190	16	0	0	0
Black Township	0	9	39	0	16	216
Boswell Borough	37	53	3	0	230	8
Brothersvalley Township	26	24	198	0	1	345
Callimont Borough	0	20	19	0	0	0
Casselman Borough	0	353	0	0	17	13
Central City Borough	185	0	0	0	58	1
Conemaugh Township	287	744	433	55	624	1198
Confluence Borough	66	290	4	0	18	73
Elklick Township	0	137	341	0	19	218
Fairhope Township	0	18	0	0	9	57
Garrett Borough	46	98	6	0	74	2
Greenville Township	0	23	35	0	0	65
Hooversville Borough	113	152	4	1	65	10
Indian Lake Borough	0	94	35	0	416	96
Jefferson Township	107	88	157	41	750	463
Jenner Township	33	155	371	0	108	509
Jennerstown Borough	54	52	30	0	39	56
Larimer Township	0	8	38	0	10	197
Lincoln Township	0	10	111	0	39	148
Lower Turkeyfoot Township	0	40	19	0	43	218
Meyersdale Borough	544	452	3	39	6	5
Middlecreek Township	96	17	48	0	750	512
Milford Township	0	30	176	0	54	175
New Baltimore Borough	8	60	12	0	0	0
New Centerville Borough	0	4	0	0	0	0
Northampton Township	3	0	7	0	2	51
Ogle Township	0	8	0	0	16	231
Paint Borough	238	71	0	0	73	0
Paint Township	16	387	291	0	33	954
Quemahoning Township	48	91	141	0	40	471

Buildings in Wildfire Hazard Areas (Somerset Co GIS, 2019; Radeloff et al. 2016)						
Municipalities	Wildland Urban Interface			Wildland Urban Intermix		
	High Density	Medium Density	Low Density	High Density	Medium Density	Low Density
Rockwood Borough	183	184	0	0	30	4
Salisbury Borough	57	301	0	0	0	2
Scalp Level Borough	27	87	1	0	0	33
Seven Springs Borough	1	15	1	0	0	9
Shade Township	157	231	74	0	111	632
Shanksville Borough	19	42	0	0	54	0
Somerset Borough	1380	1149	20	0	105	0
Somerset Township	187	1021	530	3	392	535
Southampton Township	0	3	4	0	0	198
Stonycreek Township	0	147	202	0	87	504
Stoystown Borough	55	109	0	0	12	0
Summit Township	0	216	311	0	95	269
Upper Turkeyfoot Township	0	17	124	0	67	321
Ursina Borough	0	73	0	0	54	20
Wellersburg Borough	0	38	3	0	42	28
Windber Borough	1228	484	7	0	136	45
Total	**5388**	**8001**	**3928**	**139**	**4960**	**9325**

Table 40 - Fire Departments of Somerset County

Fire Departments (Somerset County Government Website 2020)		
Municipality	**Station Name**	**Address**
Addison Borough	Addison Vol Fire Dept	7214 National Pike, Addison, PA
Berlin Borough	Berlin Vol Fire Dept	700 North Street, Berlin, PA
Boswell Borough	Boswell Vol Fire Dept	606 Hower Ave, Boswell, PA
Central City Borough	Central City Vol Fire Dept	241 Sunshine Ave, Central City, PA
Conemaugh Township	Conemaugh Vol Fire Dept	1942 Krings St, Tire Hill, PA
Conemaugh/Jenner Twps	Jerome Vol Fire Dept	1885 Penn Ave, Jerome, PA
Confluence Borough	Confluence Vol Fire Dept	11 Baxter Ave, Confluence, PA
Friedens	Friedens Vol Fire Dept	2243 Stoystown Rd, Friedens, PA
Garrett Borough	Garrett Vol Fire Dept	303 Jackson St, Garrett, PA
Hooversville Borough	Hooversville Vol Fire Dept	80 Main St, Hooversville, PA
Jefferson Township	Bakersville Vol Fire Dept	2341 West Bakersville-Edie Rd, Bakersville, PA
Jenner Township	Acosta Vol Fire Dept	428 Acosta Rd, Acosta, PA
Jennerstown Borugh	Jennerstown Vol Fire Dept	1536 Pitt St, Jennerstown, PA
Lincoln Township	Sipesville Vol Fire Dept	968 Schoolhouse Rd, Sipesville, PA
Meyersdale Borough	Meyersdale Vol Fire Dept	202 Main St, Meyersdale, PA
New Baltimore Borough	New Baltimore Vol Fire Dept	526 Juanita St, New Baltimore, PA
New Centreville Borough	New Centerville & Rural Vol Fire Dept	3054 Kingwood Rd, Rockwood, PA
Paint Borough	Scalp Level/Paint Vol Fire Co	807 Main St, Windber, PA
Rockwood Borough	Rockwood Vol Fire Dept	630 Main St, Rockwood, PA
Salisbury Borough	Salisbury Vol Fire Dept	385 Ord St, Salisbury, PA

Fire Departments *(Somerset County Government Website 2020)*		
Municipality	**Station Name**	**Address**
Seven Springs Borough	Seven Springs Vol Fire Dept	Seven Springs, PA
Shanksville Borough	Shanksville Vol Fire Dept	625 North St, Shanksville, PA
Somerset Borough	Somerset Vol Fire Dept	340 West Union St, Somerset, PA
Somerset Township	Listie Vol Fire Co	788 Listie Rd, Friedens, PA
Stoystown Borough	Stoystown Vol Fire Co	141 West Forbes St, Stoystown, PA
Wellersburg Borough	Wellersburg Vol Fire Dept	124 Fire Hall Rd, Wellersburg, PA
Windber Borough	Winber Fire Co #1	1620 Somerset Ave, Windber, PA

Figure 30 - Fire Departments and Forested Areas

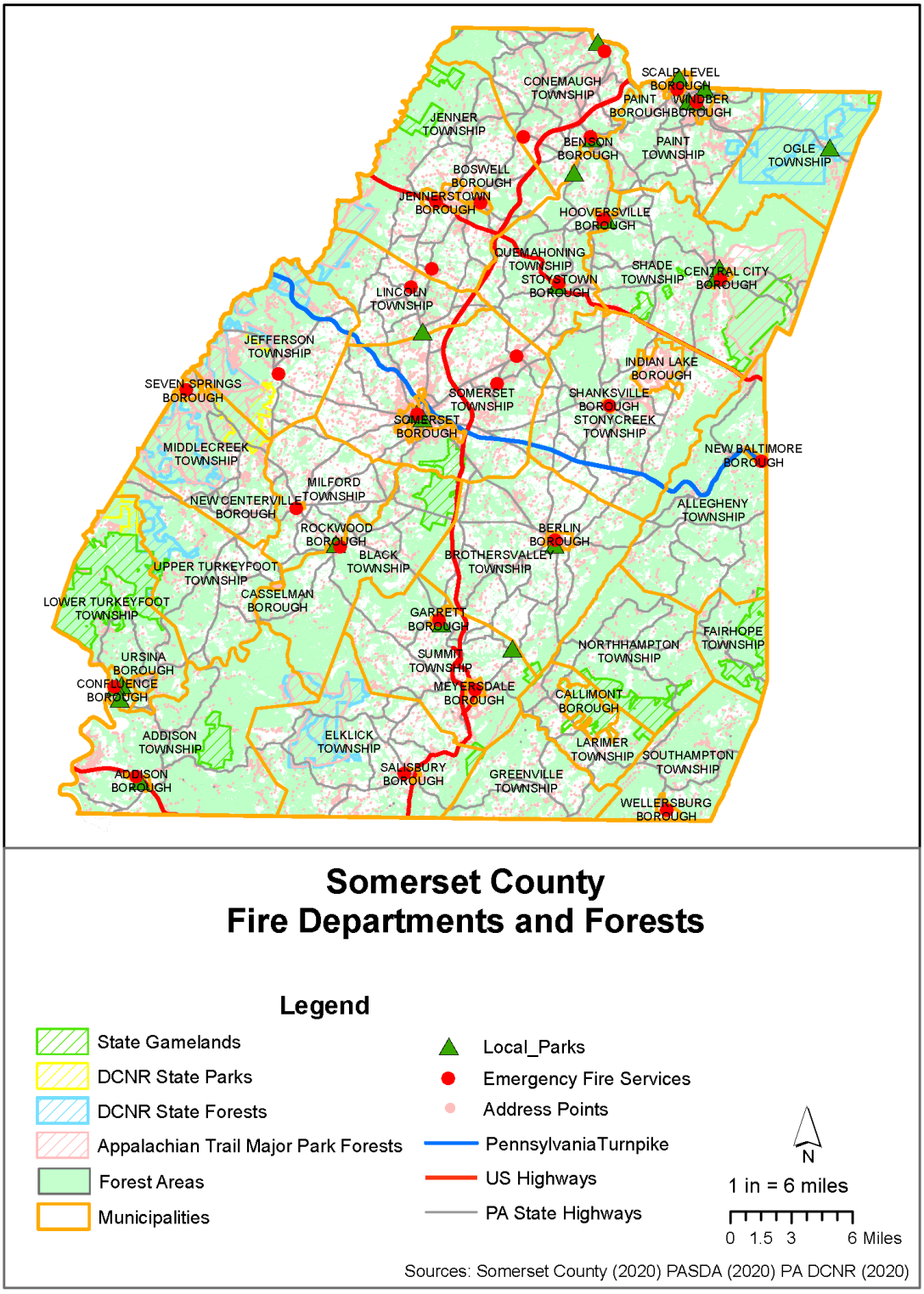
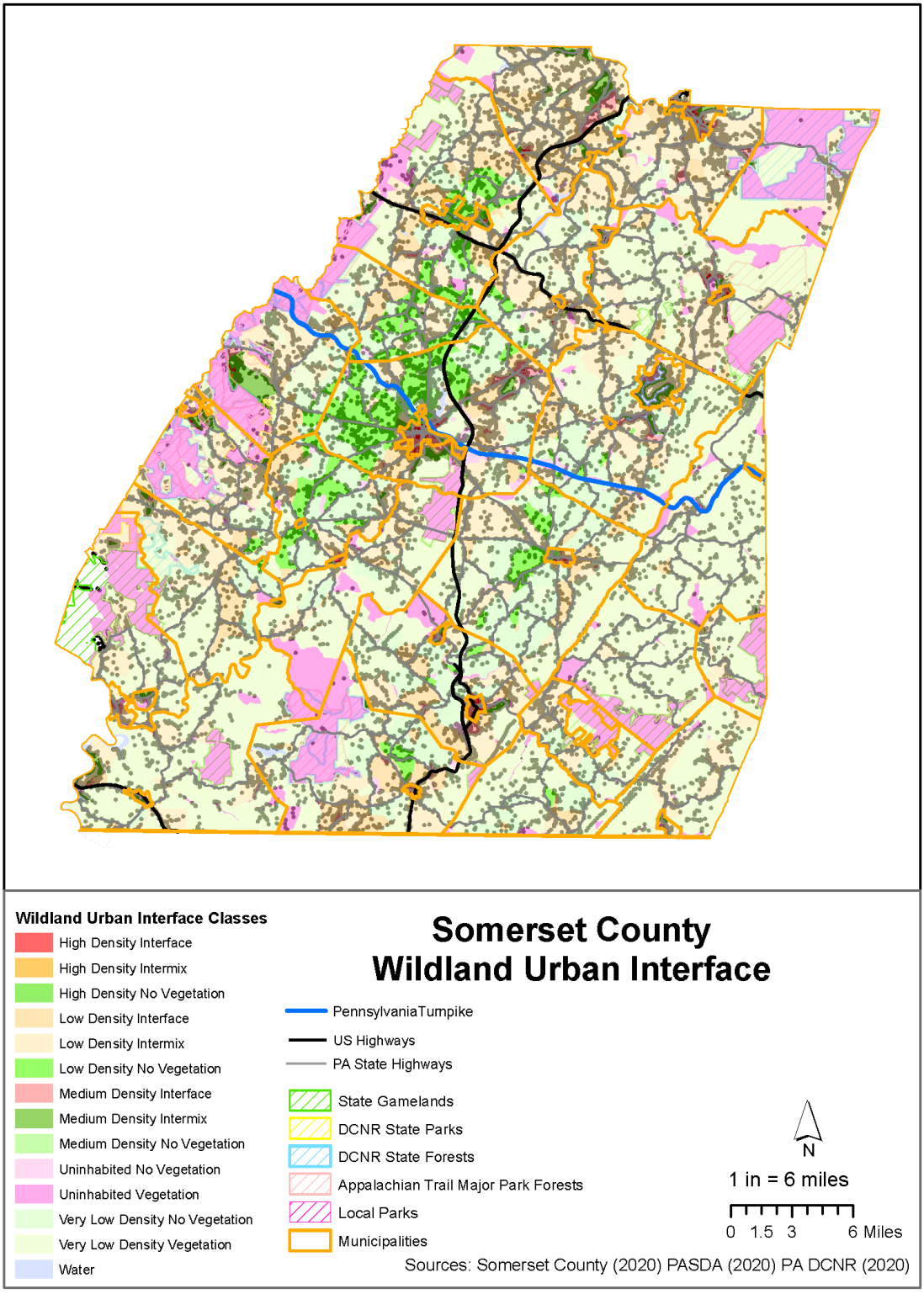


Figure 31 - Wildland Urban Interface Locations



4.3.13. Winter Storms

4.3.13.1 Location and Extent

There is an average of thirty-five winter weather events that impact Pennsylvania each year. Such winter storms are regional events, so each county in Pennsylvania shares these hazards; however, the northern tier, western counties and mountainous regions generally experience storms more frequently and with a greater severity due to lake effects and geographic influence. Within Somerset County there are variations in the average amount of snowfall that is received throughout the county because of differences in terrain; higher elevations experience greater snowfalls than lower-lying areas, especially the Laurel Highlands, home of Mount Davis, the highest point in the Commonwealth.

On occasion Somerset County can be affected by a Nor'easter, depending on its track. A Nor'easter is a storm characterized by a central low-pressure area that deepens dramatically as it moves northward along the U.S. East Coast. The name came from the strong northeast winds that precede and accompany the storm as it passes over New England. Nor'easters are notorious for producing heavy snow in the Central and Northeastern Mountains (including the Alleghenies), but typically make lighter snow (or even no snow) for counties in the west. Nor'easters will ordinarily produce a heavy, wet snow. There is usually a fairly consistent demarcation between rain, mixed precipitation, and snow which moves along with the storm and generally parallel to the track of the surface low. The demarcation typically pivots with the storm as the track changes direction. The mixed precipitation and rainfall are generated when warmer marine air is pulled into the storm. The heaviest snow in a Nor'easter falls to the north and west of the track of the surface low (NWS).

4.3.13.2 Range of Magnitude

Winter storms consist of cold temperatures, heavy snow or ice and sometimes strong winds. Descriptions of types of winter storms can be found in *Table 41 - Winter Weather Events*. In severe cases, secondary effects of winter storms involve flooding, and disruption to traffic, EMS response capabilities, communications, electric power and other utilities. Power outages can be caused by large amounts of snow or ice weighing on and breaking power lines. Especially in rural areas, loss of electric power can result in a loss of heat for residential customers, potentially posing a threat to human life.

Long cold spells can cause rivers and lakes to freeze over. A subsequent thaw and rise in the water level breaks the ice into large chunks and can result in ice jams when the ice begins to flow. The ice jams can act as a dam and result in flooding. Environmental impacts often include damage to shrubbery and trees due to heavy snow loading, ice build-up and/or high winds which can break limbs or even bring down large trees. While gradual melting of snow and ice provides excellent groundwater recharge, high temperatures following a heavy snowfall can cause rapid surface water runoff and severe flooding. *Figure 32 - Pennsylvania Annual Snowfall 1981-2010* shows mean annual snowfall

in Somerset County to be between thirty-one and fifty inches. *Table 43 - Recent Annual Snowfall by Snow Station* summarizes annual snowfall accumulation for recent years not covered in *Figure 32 - Pennsylvania Annual Snowfall 1981-2010* as recorded in the weather stations in Somerset and Laurel Summit.

Table 41 - Winter Weather Events

Winter Weather Events	
Weather Event	**Classification**
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.
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.

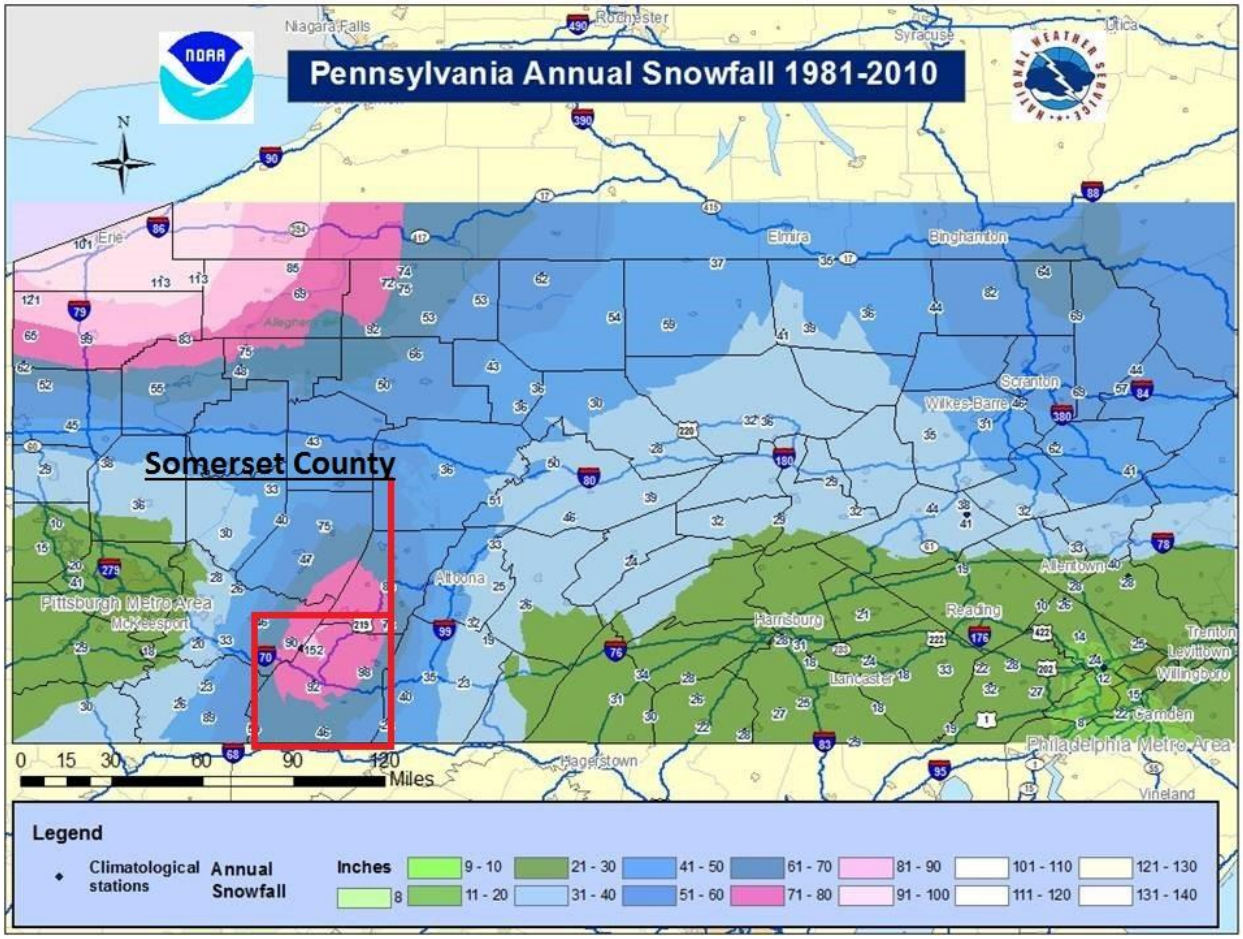
Table 42 - Snowfall by Snow Station

Monthly Snowfall Average by Snow Station *(NOAA, 2020)*		
Month	**Somerset**	**Laurel Summit**
July	0.0”	0.0"
August	0.0”	0.0"
September	0.0”	0.0"
October	0.6”	2.5"
November	5.5”	9.1"
December	20.1”	29.0"
January	26.8”	41.8"
February	21.2”	40.1"
March	14.2”	22.2"
April	3.5”	6.7"
May	0.0”	.2"
June	0.0”	0.0"
Annual	**91.9”**	**151.6"**

Table 43 - Recent Annual Snowfall by Snow Station

Recent Annual Snowfall by Snow Station (NOAA, 2020)		
Winter Season	**Somerset**	**Laurel Summit**
2010-2011	176.7”	222.4”
2011-2012	96.1”	147.0”
2012-2013	55.3”	127.5”
2013-2014	106.9”	173.4”
2014-2015	102.6”	142.1”
2015-2016	68.9”	108.8”
2016-2017	92.8”	107.1”
2017-2018	84.6”	129.4”
2018-2019	101.7”	138.1”
2019-2020	70.9”	84.6”

Figure 32 - Pennsylvania Annual Snowfall 1981-2010



4.3.13.3 Past Occurrence

Historically, average annual snowfall in Somerset County ranges from 30″ (in the southeast and southwest corners) to 80″ (around Somerset Borough).

On January 22, 2016, nearly 500 vehicles were stranded westbound between the Bedford and Somerset exits of the Pennsylvania Turnpike and unable to move for more than 24 hours after more than 36 inches of snow fell unexpectedly. Waves of emergency workers, including turnpike personnel, the National Guard and local firefighters, ambulance crews and tow truck operators eventually got to the scene with food, fuel and equipment to clear the highway. The incident sent shock waves through state government that led to a series of legislative hearings and the hiring of a consultant engineering firm to review the Pennsylvania Turnpike Commission's handling of the storm; the review produced twenty-two recommendations to improve the agency's preparation and response to future incidents.

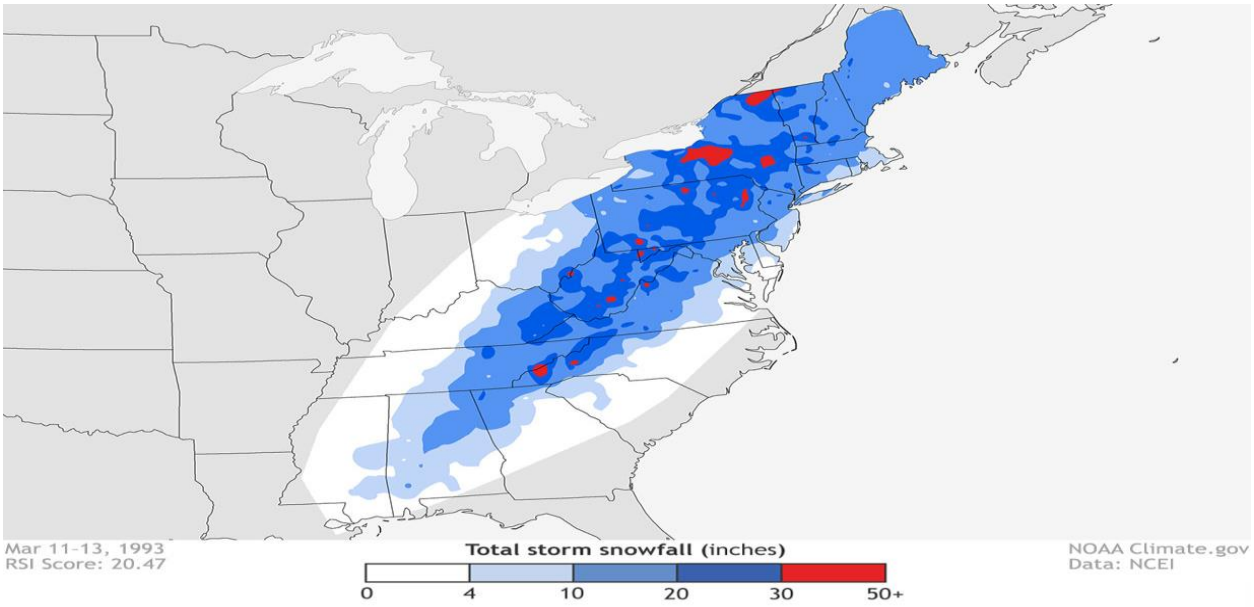
A previous severe winter storm occurred in the county in early February 2010. Over two feet of snow fell throughout Somerset County (30 inches were recorded in Somerset Borough) in a 12-hour period. A Declaration of Disaster Emergency was issued in Somerset County, Central City Borough, Lincoln Township, 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 were reported. (2015 Hazard Mitigation Plan.)

Another one of the most severe winter events in the county's history was in the winter of 1993 – 1994 when 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. One of these devastating winter storms occurred in early January 1994 with record snowfall depths in many areas 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 which closed major arterial roads and downed many trees and power lines. Utility crews from a five-state area were called to assist in power restoration repairs. Officials from PPL Corporation stated that this was the worst winter storm in the history of the company – related damage-repair costs exceeded $5,000,000. Serious and sporadic power supply outages continued through mid-January in many locations due to record cold temperatures. 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 (with temperatures as low as -31˚F) resulted in numerous water-main breaks and interruptions of service to thousands of municipal and city water customers throughout the Commonwealth. The extreme cold in conjunction with accumulations of frozen precipitation resulted in acute shortages of road salt. Trucks were dispatched to haul salt from New York to expedite deliveries to Pennsylvania Department of Transportation storage sites.

The year prior, the country's so-called "Storm of the Century" clobbered the east coast and the red dot in southwestern Pennsylvania on the map below represents part of Somerset County.

Figure 33 - Storm of the Century



On March 12–14, 1993, a massive storm system bore down on nearly half of the U.S. population. Causing approximately $5.5 billion in damages ($9.9 billion in 2020 dollars), America's "Storm of the Century," as it would become known, swept from the Deep South all the way up the East Coast. With a central pressure usually found in Category 3 hurricanes, the storm spawned tornadoes and left coastal flooding, crippling snow, and bone-chilling cold in its wake. Of the more than 250 weather and climate events with damages exceeding $1 billion since 1980, this storm remains the country's most costly winter storm to date.

The great blizzard of January 1978 (also known as The Cleveland Superbomb) dumped nearly 27 inches of snow on southwestern Pennsylvania and closed schools and businesses for days.

All recorded winter weather events in Somerset County from 1966 - 2019 are summarized in *Table 44 – History of Winter Storms in Somerset County*. No direct deaths or injuries were reported for the following winter weather events in Somerset. Detailed reports of each event can be found on NOAA's Storm Events Database (www.ncdc.noaa.gov/stormevents). These storms can result in closure of businesses and schools, blockages and damage to roadways, and loss of electricity and telephone service. The main transportation routes (PA 70-76, US 219, US 30, US 40, PA 31, PA 160) are normally opened immediately for emergency traffic, but secondary roads can remain impassable for days. Most residents and travelers in Somerset County are aware of the winter weather reputation in the county and avoid travel when under a winter storm watch.

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

Table 44 – History of Winter Storms in Somerset County

History of Winter Storms in Somerset County					
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
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

History of Winter Storms in Somerset County					
Location	**Date**	**Type**	**Death**	**Injury**	**Property Damage, $K**
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
Somerset County	2/9/2010	Winter storm	0	0	UNK
Somerset County	2/10/2010	Blizzard conditions	-	-	-
Somerset County	2/25/2010	Winter storm	0	0	UNK
Multiple townships	11/27/2010	Ice storm with road closures	-	-	-
Somerset County	2/01/2011	Winter storm	0	0	UNK
Somerset County	12/6/2011	Winter storm	-	-	-
Somerset County	1/20/2012	Winter storm	0	0	UNK
Somerset County	10/29/2012	Hurricane (Sandy)	-	-	UNK
Somerset County	12/21/2012	Winter storm	0	0	UNK
Somerset County	12/26/2012	Winter storm	0	0	UNK
Somerset County	2/26/2013	Winter storm	0	0	UNK
Somerset County	3/17/2013	Winter storm	0	0	UNK
Somerset County	11/26/2013	Winter storm	0	0	UNK
Somerset County	12/6/2013	Ice and snow weather	-	-	-
Somerset County	12/14/2013	Winter storm	0	0	UNK
Somerset County	12/31/2013	Winter storm	-	-	-
Somerset County	1/6/2014	Winter weather	-	-	-
Somerset County	1/20/2014	Winter storm	-	-	-
Somerset County	1/27/2014	Winter weather	-	-	-
Summit Township	2/5/2014	Winter storm	0	0	UNK
Countywide	2/13/2014	Winter storm event	0	0	UNK
Somerset Borough	2/19/2014	Ice storm with multiple accidents	0	UNK	UNK

History of Winter Storms in Somerset County					
Location	**Date**	**Type**	**Death**	**Injury**	**Property Damage, $K**
Countywide	2/19/2014	Ice storm	0	0	UNK
Countywide	2/27/2014	Winter storm	0	0	UNK
Countywide	3/2/2014	Winter storm	0	0	UNK
Countywide	3/11/2014	Winter weather	0	0	UNK
Somerset County	1/26/2016	Winter storm	0	0	-
Somerset County	2/15/2016	Winter storm	0	0	-
Somerset County	12/5/2016	Ice storm	-	-	-
Somerset County	12/16/2016	Winter storm	0	0	-
Somerset County	2/8/2017	Winter storm	0	0	-
Somerset County	2/7/2018	Winter storm	0	0	-
Somerset County	2/17/2018	Winter storm	0	0	-
Somerset County	3/20/2018	Winter storm	0	0	-
Somerset County	11/15/2018	Winter storm	0	0	-
Somerset County	1/19/2019	Winter storm	0	0	-
Somerset County	2/20/2019	Winter storm	0	0	-
Somerset County	12/01/2019	Ice storm	0	0	-

4.3.13.4 Future Occurrence

Climate change is expected to bring changes to the future of winter storms impacting Pennsylvania. Climate scientists believe that extreme winter storms are expected to occur more frequently – there have been about twice as many extreme snow events in the United States in the latter half of the 20th century as occurred in the first half (NOAA, 2018). This uptick is caused in part by higher than normal ocean surface temperatures that result in an increased source of moisture for storms that develop over the Atlantic Ocean. Conditions for severe winter storms are particularly heightened in the eastern United States due to changes in atmospheric circulation patterns caused by higher temperatures and melting Arctic sea ice (Francis & Vavrus, 2012). Winters in 2000 and 2001 were mild in Pennsylvania and led to spring-like thunderstorms during the winter months rather than snowstorms. Such thunderstorms can be followed by cold fronts and winter storms resulting in temperature drops of 50˚F in a few short hours. With warmer average temperatures, more precipitation is expected to fall as rain rather than snow, and data from NOAA show that Somerset County has experienced a significant decrease in the amount of snowfall relative to the amount of rainfall, with a change of -10% to -20% from 1949 to 2016 (NOAA, 2016; PA HMP, 2018). Even though average temperatures are expected to be higher overall and there are expected to be fewer extreme cold days, those that do occur are expected to more often reach record setting low temperatures (Vose et al., 2017).

Winter storms are a regular, annual occurrence in Somerset County and should be considered highly likely. Approximately thirty-five winter storm events occur across Pennsylvania annually and about five of them are estimated to significantly impact Somerset County each year.

4.3.13.5 Vulnerability Assessment

Winter storms are a frequent event in the county. Detrimental impacts of severe winter storms are mitigated by salting, plowing and snow removal by PennDOT and local municipalities. Icy and snow-covered roads often result in increases in traffic incidents. Swift response to utility outages during winter storms is another significant way to mitigate damages. Residents of the mountainous and more rural areas of the county may be more susceptible during severe storms, especially when emergency medical assistance is required due to the location's potential for isolation. There are rural areas which are susceptible to isolation due to winter storms. Residents in outlying areas often find it beneficial to keep an emergency food and fuel stock in the event of isolation or utility interruption during a winter storm. The economic impacts from snow removal, road and infrastructure repair and other secondary effects impart a great strain on the budgets and material resources of local municipalities.

Even for communities that are prepared to respond to winter storms, severe events involving snow accumulations that exceed six or more inches in a twelve-hour period can cause a large number of traffic accidents, strand motorists due to snow drifts, interrupt power supply and communications, and cause the failure of inadequately designed and/or maintained roof systems. Similar to the vulnerability assessment discussion for tornadoes and severe wind, vulnerability to the effects of winter storms on buildings is dependent on the age of the building, construction material used and condition of the structure. Unfortunately, no comprehensive database of these variables could be identified for Somerset County.

Winter storms also can place a heavy burden on emergency services and public information coordination. The blizzard of January 26, 2016 caught enough drivers by surprise to create a stand-still on a 15-mile stretch of the Pennsylvania Turnpike through Somerset and Bedford counties. Travelers in 500 vehicles were trapped for nearly two days, and emergency services were consumed by the response and recovery.

4.3.14. Emergency Services

4.3.14.1 Location and Extent

Somerset County subdivisions, townships and boroughs have the responsibility of assignment of emergency services for their municipalities. Fire, emergency medical services (EMS), emergency management and law enforcement service agencies are defined per municipality. In addition to the local services, the county hosts numerous special teams. These county-wide special response teams are for those specialty services like

water rescue, hazardous materials incidents and traffic control response. Regional and state-wide services are also available.

The county's vast response areas increase the travel time for responders to an incident. Most areas are served by volunteers versus career personnel to which can add response time by the available volunteers. Public safety agencies do struggle with the availability of personnel depending on the time of day and skills/resources needed. The number of responders in general have decreased due to lack of funds and retention of personnel.

4.3.14.2 Range of Magnitude

Finances, changing political climates, poor leadership, or a significant high-profile event can all trigger a system to be declared as a "success" or a "failure". In some cases, a combination of these factors can create a "perfect storm". Unfortunately, many "failed" systems are measured by recent events, no matter how successful they may have been in the past. Although financial issues are often blamed on poor leadership, they actually have many root causes. Labor rates, benefits, poor productivity, operational design, insurance reimbursements and market regulation all have a significant direct impact on the financial viability of an organization.

Two fundamental yet misunderstood topics are the financial and economic variables that drive emergency service systems. These systems typically generate revenue through tax subsidies, memberships, direct sales, diversification into other lines of business or grants or fundraising. They spend a majority of these revenues on direct and indirect labor and benefits, with the remaining dollars going to infrastructure, fuel, medical supplies, insurances, fleet maintenance, dispatch and other essential items with hopefully some left over for recapitalization or fund balance development.

4.3.14.3 Past Occurrence

Most agencies are private organizations that lack local funding and exist based on tax dollars, fund raisings and donations received from their community. The time demand for fund raising adds to the demands of the struggling availability of volunteers. Past practices are not capable of sustaining the needed funds or manpower.

Without financial support from the communities, services may not be able to remain in operation to serve the same communities they have served for decades. Recruitment and personnel retention are a key to success.

4.3.14.4 Future Occurrence

Volunteerism has been a significant component of the fire services. Most, if not all, members of our community fire departments are volunteers. A common problem is recruitment and retention of volunteers to staff both fire and emergency medical services. There has been a decline in volunteerism due to the training requirements for firefighters and emergency medical technicians (EMTs) in the region.

Today, it is difficult for small communities to have a paid service therefore requiring the use of volunteers. The trend has devastating effects. With a decreased number of volunteers to not only perform the tasks associated with fire and rescue operations it is imperative to facilitate fundraising. If there is a decreased number of volunteers to raise funds then the operational needs are impacted as well. Without fundraising and community support these fire departments will experience broader challenges.

The individual volunteers also face many challenges. Most volunteers have to address their own needs by providing for their family and in many cases, are part of a two-income family. In some cases, they may have to have multiple jobs to sustain their needs. It requires hundreds of hours to become certified as a firefighter. With the limitation of time, most members of our society find it personally challenging to find the time to dedicate to a volunteer position. Volunteers are becoming less reliable. Many current volunteers are aging and unable to perform at the same levels that they once were.

Fire departments perform many tasks, beyond fighting fires. It would perhaps be more appropriate to call these departments "all hazards departments" as they respond to various hazards such as vehicle accidents, commercial accidents, flooded basements, wires down, trees down, trench rescues, hazardous material spills, traffic control and sometimes even standbys to support other agencies or events.

4.3.14.5 Vulnerability Assessment

The likelihood that EMS agencies and fire services will fail is a real threat to our community's safety. Many communities have already experienced the unfortunate fact that services have failed. It is recommended that each municipality assess their own vulnerabilities by maintaining and building a relationship with their local providers to make the determination and begin to plan accordingly if a local service was to shut down the operation. The statistics, response times and all times associated with all units dispatched are easily obtainable from the local 911 center.

These departments must be supported to create and or discover new ways to not only recruit but to also retain volunteers. If left unattended the issues will continue and the lack of response will grow, leaving the community more vulnerable to loss of life and loss of property.

It is recommended that the entire community be educated on the perpetual needs associated with providing these services. In addition, continued support and efforts to inform legislatures could all prove to be paramount in assuring these services remain in operation into the future. At the time of the writing of this plan, a flurry of bills had been introduced in both the House of Representatives and the Senate as a result of a two-year study initiated by Senate Resolution 6 (SR 6). The final report can be found here: http://pehsc.org/wp-content/uploads/2014/05/SR-6-REPORT-FINAL.pdf

Table 45 - Emergency Responders

Emergency Responders (Somerset County)		
Municipality	**Station Name**	**Address**
Addison Borough	Addison Fire Department (613)	7214 National Pike, Addison, PA 15411 Phone 814.395.5719
Berlin Borough	Berlin Area Ambulance Assoc (500)	721 North Street, Berlin, PA 15530 Phone – 814.267.4112
Berlin Borough	Berlin Fire Department (628)	700 North Street, Berlin, PA 15530 Phone - 814.267.4811
Boswell Borough	Boswell Fire Department (605)	606 Hower Avenue, Boswell, PA 15531 Phone - 814.629.9488
Boswell Borough	Boswell Ambulance (605)	606 Hower Avenue, Boswell, PA 15531 Phone – 814.629.9488
Central City Borough	Central City Fire Department/QRS (626)	241 Sunshine Avenue, Central City, PA 15926 Phone - 814.754.5111
Conemaugh and Jenner Townships	Jerome Fire Department (631)	1885 Penn Avenue, Jerome, PA 15937 Phone - 814.479.7578
Conemaugh Township	Conemaugh Fire Department (610)	1942 Kring Street, Johnstown, PA 15905 Phone - 814.288.6145
Conemaugh Township	Conemaugh Township EMS (640)	1942 Kring Street, Johnstown, PA 15905 Phone - 814.288.6145
Confluence Borough	Confluence Fire Department (612)	466 Baxter Avenue, Confluence, PA 15424 Phone 814.395.3422
Friedens	Friedens Fire Department/QRS (603)	2243 Stoystown Road, Friedens, PA 15541 Phone 814.445.2085
Garrett Borough	Garrett Fire Department/QRS (620)	303 Jackson Street, Garrett, PA 15542 Phone - 814.634.8750
Hooversville Borough	Hooversville Fire Department (614)	Main Street, Hooversville, PA 15936 Phone - 814.798.4080
Jefferson Township	Bakersville Fire Department (624)	2143 Sr4001, Somerset, PA 15501 Phone - 814.445.8385
Jenner Township	Acosta Fire Department/QRS (608)	428 Acosta Road, Friedens, PA 15541 Phone - 814.629.5371
Jennerstown Borough	Jennerstown Fire Department (606)	1562 Lincoln Highway, Jennerstown, PA 15547 Phone - 814.629.5371
Jennerstown Borough	Jennerstown Ambulance (606)	1562 Lincoln Highway, Jennerstown, PA 15547 Phone – 814.629.5371
Lincoln Township	Sipesville Fire Department (607)	968 School House Road, Somerset, PA 15501 Phone - 814.445.4899

Emergency Responders (Somerset County)		
Municipality	**Station Name**	**Address**
Meyersdale Borough	Meyersdale Fire Department (617)	202 Main Street, Meyersdale, PA 15552 Phone - 814.634.5454
Meyersdale Borough	Meyersdale Ambulance Service (240)	202 Main Street, Meyersdale, PA 15552 Phone - 814.634.5454
New Baltimore Borough	New Baltimore Fire Department (629)	526 Juniata Street, Berlin, PA 15530 Phone - 814.733.4155
New Centerville Borough	New Centerville Fire Department (622)	3054 Kingwood Road, Rockwood, PA 15557 Phone-814.926.4333
Paint Borough	Scalp Level Fire Department (616)	807 Main Street, Windber, PA 15963 Phone - 814.467.4306
Rockwood Borough	Rockwood Fire Department (623)	630 Main Street, Rockwood, PA 15557 Phone - 814.926.4414
Salisbury Borough	Salisbury Fire Department (618)	385 Ord Street, Salisbury, PA 15558 Phone - 814.662.2430
Seven Springs Borough	Seven Springs Fire Department/QRS (625)	777 Ski Lodge Lane, Rockwood, PA 15557 Phone - 814.352.7777
Shanksville Borough	Shanksville Fire Department/QRS (627)	PO Box 161, Shanksville, PA 15560 Phone - 814.267.4737
Somerset Borough	Somerset Fire Department (601)	340 West Union Street, Somerset, PA 15501 Phone - 814.445.4343
Somerset Borough	Somerset Area Ambulance Association (900)	115 Wood Duck Road, Somerset, PA15501 Phone – 814.445.6141
Somerset County	Somerset County Hazardous Material Response Team (600)	100 East Union Street, Somerset, PA 15501 Phone – 814.445.1515
Somerset County	Somerset County Swiftwater/Flood Response Team (670)	100 East Union Street, Somerset, PA 15501 Phone – 814.445.1515
Somerset County	Somerset County Animal Response Team	N/A
Somerset County	Somerset County Sheriff's Tactical Search Team 400	P.O. Box 150, Somerset, PA, 15501
Somerset Township	Listie Fire Department (602)	788 Listie Road, Friedens, PA 15541 Phone 814.443.4562
Stoystown Borough	Stoystown Fire Department/QRS (604)	141 Forbes Street, Stoystown, PA 15563 Phone 814.893.5111
Wellersburg Borough	Wellersburg Fire Department (630)	Firehouse Road, Hyndman, PA 15545 Phone - 814.324.4444
Windber Borough	Windber Fire Department (611)	1620 Somerset Avenue, Windber, PA 15963 Phone - 814.467.7111
Windber Borough	Northern EMS (655)	1620 Somerset Ave, Windber, PA 15963 Phone – 814.467.9244

4.3.15. Environmental Hazards

4.3.15.1 Location and Extent

Environmental hazards occur when a hazardous material is either spilled or released into the environment. These spills or releases can create direct injuries and/or death and contaminate air, water, and soils. Environmental hazards can be caused as a result of human carelessness, intentional acts, or by natural hazards. When a hazardous material release is caused by a natural hazard, it is known as a secondary hazard.

Hazardous material releases can occur at fixed facilities or along transportation routes. Releases 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 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.

4.3.15.2 Range of Magnitude

Whether accidental or intentional, a hazardous material release has 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.
- 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 varies with the type of material released, and the distance and related response time for emergency response teams to mitigate the situation. The areas within closest proximity to the releases are generally at a greater risk. Although, depending on the hazardous material, 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 from a fixed facility would be the release of a large quantity of chlorine gas from the Jenner Area Joint Sewer Authority, which has the potential to affect a large portion of the town of Boswell. The greatest transportation threat would likely come from tractor trailers carrying hazardous materials, which are not permitted to travel through the Allegheny Mountain Tunnel on the Pennsylvania Turnpike. As a result, hazardous loads must exit the Turnpike in Somerset, and take detours through densely populated areas of Somerset Borough and other small towns in order to avoid these restrictions.

There are 103 SARA facilities listed within Somerset County, according to the Somerset County Commodity Flow Study of 2016. Of these facilities, forty-nine house EHS chemicals (extremely hazardous substance); and throughout all the facilities there are approximately 207 non-EHS chemicals housed. EHS chemicals are broken down by municipality in Table 46.

Table 46 - EHS Chemicals by Municipality in Somerset County

EHS Chemicals by Municipality in Somerset County							
Municipality	**Chlorine**	**Chlorine gas**	**Cyclone SL 2.0**	**Gramoxoe SL 2.0**	**Hydrochloric/Hydrofluoric acid**	**Lead acid batteries**	**Sulfuric acid**
Addison Township						X	
Allegheny Township							X
Berlin Borough	X	X				X	X
Black Township						X	
Boswell Borough		X				X	
Central City Borough						X	
Jefferson Township							X
Jenner Township					X		X
Lincoln Township		X					
Meyersdale Borough						X	X
Ogle Township		X					
Quemahoning Township		X					
Rockwood Borough						X	X

EHS Chemicals by Municipality in Somerset County							
Municipality	**Chlorine**	**Chlorine gas**	**Cyclone SL 2.0**	**Gramoxoe SL 2.0**	**Hydrochloric/Hydro-fluoric acid**	**Lead acid batteries**	**Sulfuric acid**
Salisbury Borough		X			X		X
Seven Springs Borough						X	
Shade Township		X				X	
Somerset Borough	X	X				X	X
Somerset Township		X	X	X		X	X
Stonycreek Township						X	X
Summit Township		X				X	
Ursina Borough						X	
Windber Borough						X	X

Potential impacts from environmental hazards are:

- Contamination to bodies of water and water systems.
- Contamination to soils.
- Affects to air quality.

4.3.15.3 Past Occurrence

Somerset County has numerous facilities that have hazardous materials, and there are several major transportation routes through the county, to include highway and railway. The county has experienced hazardous material release accidents at facilities and along roadways. Most of these past incidents involved a spill of petroleum products or a release of natural gas or propane. Many of the spills were due to tractor trailer fuel tanks rupturing.

Table 47 - Hazardous Materials Incidents in Somerset County lists incidents that involved hazardous materials from January 2009 through January 31, 2020.

Table 47 - Hazardous Materials Incidents in Somerset County

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
01-08-2009	Conemaugh Township	Residential propane leak.
02-14-2009	Somerset Borough	Residential natural gas leak.
03-18-2009	Brothers Valley Township	Carbon monoxide poisoning.
09-28-2009	Brothers Valley Township	Fuel tanker overturned.
10-03-2009	Conemaugh Township	Oil spill.
10-05-2009	Meyersdale Borough	Natural gas main rupture.
11-16-2009	Windber Borough	Possible fuel oil spill.
12-11-2009	Lincoln Township	Fuel spill.
01-16-2010	Somerset Township	Fuel oil spill.
02-03-2010	Meyersdale Borough	Sheared gas line.
04-02-2010	Windber Borough	Gasoline spill.
05-03-2010	Somerset Township	Diesel fuel leaking
11-22-2010	Somerset Borough	Natural gas odor.
12-14-2010	Jefferson Township	Smell of gas in a structure.
12-21-2010	Quemahoning Township	Propane tank on fire.
01-15-2011	Somerset Borough	Chemical suicide in a vehicle with hazardous materials.
03-14-2011	Windber Borough	Natural gas leak.
03-30-2011	Somerset Borough	Fuel spill in a creek.
04-26-2011	Paint Township	Ruptured natural gas line.
06-24-2011	Somerset Township	Diesel fuel spill.
08-31-2011	Somerset Borough	Unknown hazardous material incident.
09-23-2011	Rockwood Borough	Odor of diesel on the railroad.
10-17-2011	Indian Lake Borough	Fuel oil spill.
11-10-2011	Summit Township	Motor oil spill.
01-26-2012	Jenner Township	Fuel spill.
02-29-2012	Somerset Borough	Unknown spill.
03-15-2012	Windber Borough	Oil spill on the roadway.
05-28-2012	Addison Township	500 gallons of Anhydrous Ammonia leak; owned by a local farmer.
06-11-2012	Somerset Township	Ruptured gas line.
07-16-2012	Somerset Borough	Natural gas leak.
08-21-2012	Quemahoing Township	Tractor trailer leaking diesel fuel.
08-26-2012	Jenner Township	Main gas line rupture.
10-17-2012	Somerset Borough	Gas main rupture.
11-05-2012	Stonycreek Township	Tractor trailer fire with hazardous materials.
12-07-2012	Paint Township	Fuel oil spill.
05-29-2013	Quemahoning Township	Hydraulic oil spill.
08-17-2013	Windber Borough	Home heating fuel leak in a basement

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
10-22-2013	Jenner Township	Multi-vehicle accident with hazardous materials, and one fatality.
10-23-2013	Windber Borough	Fuel spill on the roadway.
10-27-2013	Middlecreek Township	Hazardous materials incident (KC event #27932).
10-30-2013	Somerset Township	Fuel spill.
11-05-2013	Somerset Borough	Natural gas release.
11-09-2013	Milford Township	Natural gas odor.
12-06-2013	Conemaugh Township	Fuel spill at the BP gas station.
03-18-2014	Somerset Borough	Heating oil spill.
03-18-2014	Somerset Township	Smell of propane inside of a structure.
04-07-2014	Somerset Borough	Gas meter sheared on Laurel Crest road.
07-30-2014	Rockwood Borough	Fuel leaking from a train.
05-08-2014	Paint Township	Medical call that involved hazardous materials (KC event #31595)
05-19-2014	Somerset Township	Odor investigation.
05-19-2014	Somerset Township	Hazardous material incident. (KC event #31914)
06-29-2014	Somerset Township	Fuel leak from a tractor trailer.
07-31-2014	Somerset Borough	Natural gas leak, meter fell off building.
08-13-2014	Windber Borough	A mixture of aluminum and limestone used for acid mine treatment in Paint Creek.
08-23-2014	Summit Township	A large tire fire at Meyersdale Trucking Company.
09-07-2014	Somerset Township	A 1,000-gallon underground propane tank leak.
11-18-2014	Southampton Township	Hazardous materials event with police standby.
11-19-2014	Somerset Township	Methane alarm at SCI Laurel Highlands.
11-26-2014	Conemaugh Township	Possible carbon monoxide poisoning.
12-18-2014	Casselman Borough	Oil tank leak.
01-03-2015	Somerset Township	Vehicle accident involving hazardous materials.
02-07-2015	Somerset Township	Oil spill.
02-24-2015	Somerset Borough	Carbon monoxide incident.
03-05-2015	Elk Lick Township	Odor investigation.
03-07-2015	Windber Borough	Elderly patients found down, possible carbon monoxide.
03-11-2015	Rockwood Borough	Diesel fuel spill.
03-26-2015	Berlin Brough	Report of an unknown liquid.
04-15-2015	Somerset Township	Quemahoning pipeline break.
04-17-2015	Paint Borough	Fuel spill on the roadway.
04-17-2015	Paint Township	Fuel spill on roadway due to a vehicle accident.
04-20-2015	Windber Borough	Hydraulic fluid spilled.
05-12-2015	Quemahoning Township	Gas well leak.
05-16-2015	Somerset Township	Vehicle accident with a natural gas leak.
07-05-2015	Milford Township	Unknown white powder.
07-19-2015	Somerset Township	Diesel fuel spill.

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
08-17-2015	Somerset Borough	Natural gas line sheared.
08-19-2015	Summit Township	Vehicle accident involving hazardous materials.
08-21-2015	Somerset Township	Vehicle accident involving hazardous materials.
08-25-2015	Summit Township	Diesel fuel spill.
09-04-2015	Somerset Township	Vehicle accident on I-76 Eastbound involving hazardous materials.
09-25-2015	Paint Borough	2000-lb. propane tank leak.
10-05-2015	Brothers Valley Township	Commercial vehicle accident involving hazardous materials.
10-07-2015	Somerset	Carbon monoxide in a building
10-07-2015	Somerset	Hydraulic fluid into an over-flow pond.
11-02-2015	Conemaugh Township	Hydraulic fluid spill on the roadway.
12-07-2015	Meyersdale Borough	Natural gas release.
12-09-2015	Somerset Township	Carbon monoxide poisoning.
12-13-2015	Windber Borough	Odor investigation inside a residence.
01-05-2016	Somerset Borough	Natural gas leak.
01-20-2016	Windber Borough	Odor of heating oil in a structure.
02-16-2016	Somerset Borough	Oil leak.
02-19-2016	Windber Borough	Chemical odor investigation at the hospital.
02-22-2016	Somerset Township	Odor of natural gas inside a building.
02-25-2016	Somerset Township	Diesel fuel spill.
03-04-2016	Meyersdale Borough	Odor investigation inside a residence.
03-05-2016	Middlecreek Township	Natural gas leak.
04-17-2016	Conemaugh Township	Chemical mixture in a residence.
05-09-2016	Somerset Borough	Natural gas leak.
05-26-2016	Summit Township	Odor investigation at Meyersdale School.
06-16-2016	Somerset Borough	Odor investigation.
06-16-2016	Windber Borough	Odor investigation.
07-28-2016	Paint Borough	Road closure due to hazardous materials.
07-30-2016	Somerset Borough	Gas line rupture with evacuation.
08-11-2016	Lincoln Township	Fuel spill on PA Turnpike at mile marker 105.9 EB.
08-23-2016	Windber Borough	Natural gas odor investigation.
10-15-2016	Windber Borough	Odor investigation.
10-29-2016	Somerset Township	Sill on the roadway.
10-31-2016	Somerset Township	Gas blow-off.
11-11-2016	Boswell Borough	Diesel fuel spill.
11-14-2016	Somerset Township	Propane leak at a school.
11-16-2016	Somerset Borough	Possible meth lab.
11-18-2016	Windber Borough	Odor of natural gas outside.
11-20-2016	Greenville Township	Carbon monoxide alarm with symptoms.

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
11-23-2016	Windber Borough	Odor investigation.
12-01-2016	Somerset Township	County hazmat assist PSP.
12-16-2016	Somerset Borough	Chemical fumes in the Area Agency on Aging office.
12-23-2016	Windber Borough	Heating fuel leak in a residence.
12-23-2016	Windber Borough	Odor investigation.
12-25-2016	Jenner Township	Heating fuel leak outside.
12-28-2016	Jefferson Township	Odor investigation.
12-29-2016	Jenner Township	Home heating oil spill.
01-02-2017	Jenner Township	Fuel oil spill.
01-03-2017	Meyersdale Borough	Fuel spill.
02-23-2017	Somerset	Heating oil spill in a basement.
03-01-2017	Central City Borough	Odor investigation in a commercial structure.
03-20-2017	Somerset Borough	Diesel fuel spill.
03-30-2017	Somerset Township	Hazardous material spilled on roadway.
03-31-2017	Salisbury Borough	Odor investigation
04-05-2017	Addison Township	Hazardous materials incident (NRC#1174878)
04-12-2017	Conemaugh Township	Propane leak in a residence.
04-27-2017	Brothers Valley Township	Natural gas flare/pipeline repairs.
05-04-2017	Summit Township	Natural gas leak.
06-06-2017	Windber Borough	Oil spill.
06-19-2017	Wellersburg Borough	Unknown type of oil spilled on roadway.
06-26-2017	Somerset Borough	SARA EHS facility EPA clean-up response.
07-20-2017	Conemaugh Township	Large hydraulic oil spill.
08-21-2017	Somerset Borough	Chemical fire in a residence.
08-24-2017	Windber Borough	Odor investigation.
08-24-2017	Windber Borough	Decon incident.
10-16-2017	Berlin Borough	Four-inch gas line rupture.
10-31-2017	Somerset Township	Propane truck on fire.
11-06-2017	Somerset Township	Unknown type substance in a creek.
11-30-2017	Brothers Valley Township	Gas well fire.
12-16-2017	Addison Township	Diesel fuel spill into a creek.
12-20-2017	Brothers Valley Township	Odor investigation of natural gas outside.
01-13-2018	Conemaugh Township	Tanker leaking.
01-23-2018	Lincoln Township	Fuel tank leaking into a stream.
02-20-2018	Somerset	Gas leak.
02-20-2018	Jenner Township	Gas transmission line leak.
05-02-2018	Jefferson Township	Liquid spill.
05-02-2018	Somerset Township	Hazardous materials incident (NRC#1210961)

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
05-03-2018	Berlin Borough	Gas line struck.
06-08-2018	Shade Township	Fuel leak.
06-08-2018	Somerset Township	Unknown substance on the roadway.
07-09-2018	Windber Borough	Heating oil leak into a building.
07-09-2018	Somerset	Heating fuel leak.
07-10-2018	Hooversville Borough	Propane tank exploded.
08-29-2018	Somerset Township	Hazmat at SCI Somerset and hospital decontamination.
08-30-2018	Somerset Township	Hazmat at the prison.
08-31-2018	Somerset Township	Hazardous materials incident at SCI Somerset.
09-12-2018	Somerset Township	SCI Somerset contamination incident.
09-17-2018	Boswell Borough	Underground fuel spill.
10-01-2018	Windber Borough	Unknown substance on the roadway.
10-10-2018	Addison Township	Disabled vehicle with an oil spill.
10-20-2018	Somerset Township	Contaminated SCI Officer.
10-22-2018	Somerset Township	Pumping station gas leak.
10-31-2018	Somerset Township	SCI Laurel Highlands contaminated.
11-10-2018	Somerset Township	Hazardous materials incident.
11-26-2018	Somerset	Odor of natural gas investigation.
11-30-2018	Seven Springs Borough	Odor investigation at a commercial facility.
12-03-2018	Somerset Township	Tractor trailer accident with an active leak.
12-04-2018	Conemaugh Township	Hazardous materials incident.
12-10-2018	Somerset Township	Possible explosive devise found.
12-12-2018	Berlin Borough	Gas line struck.
01-27-2019	Seven Springs Brough	Carbon monoxide conditions.
02-11-2019	Meyersdale Borough	Gas line break.
02-12-2019	Stonycreek Township	Natural gas odor investigation.
02-14-2019	Somerset Borough	Meth lab.
03-18-2019	Somerset Brough	UPMC Somerset SCI decontamination.
03-25-2019	Somerset Brough	Odor investigation.
03-26-2019	Salisbury Borough	Gas line break.
05-11-2019	Wellersburg Borough	Illegal oil dumping, NRC#1245568.
05-28-2019	Summitt Township	Fuel spill.
06-04-2019	Somerset Borough	Odor of gas in a commercial building.
06-19-2019	Confluence Borough	Hazmat to assist the state police.
06-26-2019	Quemahoning Township	Active natural gas leak.
07-02-2019	Somerset Borough	Gas line struck.
07-02-2019	Somerset Borough	Gas line rupture.
07-09-2019	Conemaugh Township	Natural gas release.

Hazardous Materials Incidents in Somerset County between January 2009 through January 31, 2020		
Date	**Location**	**Incident**
07-17-2019	Stonycreek Township	Diesel fuel spill on PA Turnpike.
07-20-2019	Windber Borough	Odor of natural gas investigation.
07-25-2019	Conemaugh Township	Natural gas leak.
09-15-2019	Conemaugh Township	Gas leak in a commercial business.
09-23-2019	Somerset	Oil spill.
10-10-2019	Somerset Borough	Carbon monoxide situation at the county office annex.
11-10-2019	Somerset Borough	Gas leak.
11-23-2019	Jenner Township	Fuel oil spill.
11-25-2019	Stoystown Borough	Odor investigation in a commercial structure.
12-01-2019	Jenner Township	Fuel in a creek.
12-14-2019	Conemaugh Township	Home heating oil leak.
12-25-2019	Quemahoning Township	Heating fuel leak.
12-25-2019	Quemahoning Township	Fuel spill (NRC#1267295)
01-14-2020	Conemaugh Township	Fluid leaking from a vehicle.

All incidents were identified on Knowledge Center™ for Somerset County.

4.3.15.4 Future Occurrence

Environmental hazards at a SARA Title III facility in Somerset County may occur due to human error, a malicious act, or as a secondary hazard resulting from a natural hazard event. Emergency responders in Somerset County should plan and prepare the chemicals housed at SARA Title III and Tier 2 facilities, by working with the facilities within their jurisdictions, and through the Local Emergency Planning Committee (LEPC).

Hazardous materials are also transported along the PA Turnpike (I-70/76), US Routes 30 and 219, and PA Route 31, as well as local roads leading to businesses throughout the county. The likelihood of hazardous material transportation incidents in the county can be compounded by the fact that eastbound hazmat loads are restricted from the Allegheny Tunnel of the PA Turnpike exit at the Somerset interchange. These loads 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 roadways is responsible for the greatest number of incidents. Hazardous material releases from rail transport are also a concern due to collisions and derailments that result in large spills or releases. There are several points where these transportations routes (highway and rail) cross streams within the watershed that are part of the county's domestic water supply.

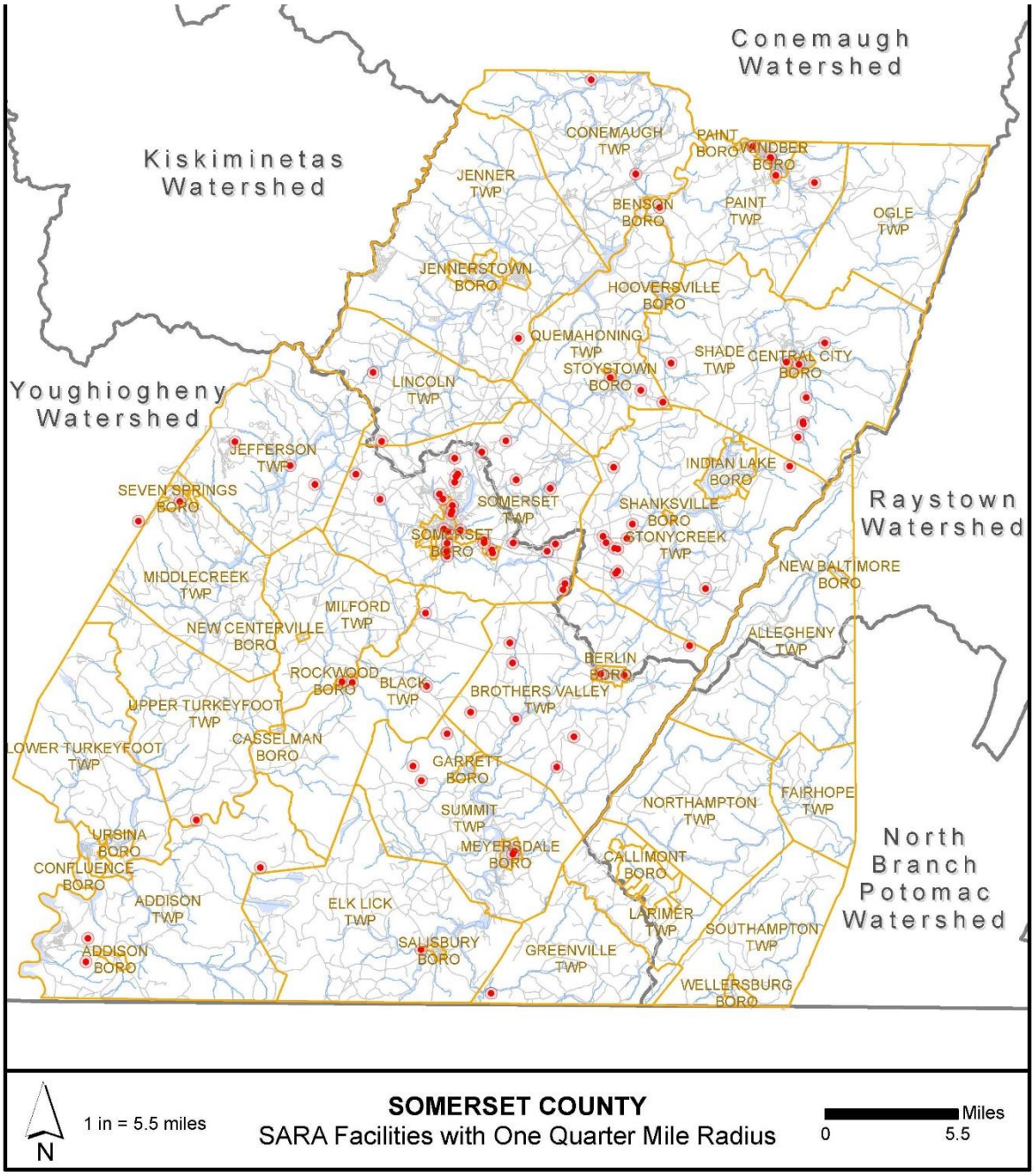
Hazardous material release incidents are often difficult to predict, smaller incidents, such as fuel spills, will affect the county many times each year, most likely along the PA Turnpike or during the refilling of home heating oil tanks. Somerset County anticipates

one significant hazardous material release each year. An occurrence is largely dependent upon the accidental or intentional acts of a person or group. Intentional acts are addressed under the terrorism hazard.

4.3.15.5 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. Much of Somerset County's population live within the vulnerability radius of a SARA Title III facility that stores extremely hazardous substances (EHS). Somerset Borough, Somerset, Jenner, Paint and Jefferson townships are at the greatest risk from a hazardous material release from a SARA Title II Planning Facility. *Figure 34 - SARA Facilities with Vulnerability Radius* shows a map of the SARA facilities with a one quarter mile radius for each.

Figure 34 - SARA Facilities with Vulnerability Radius



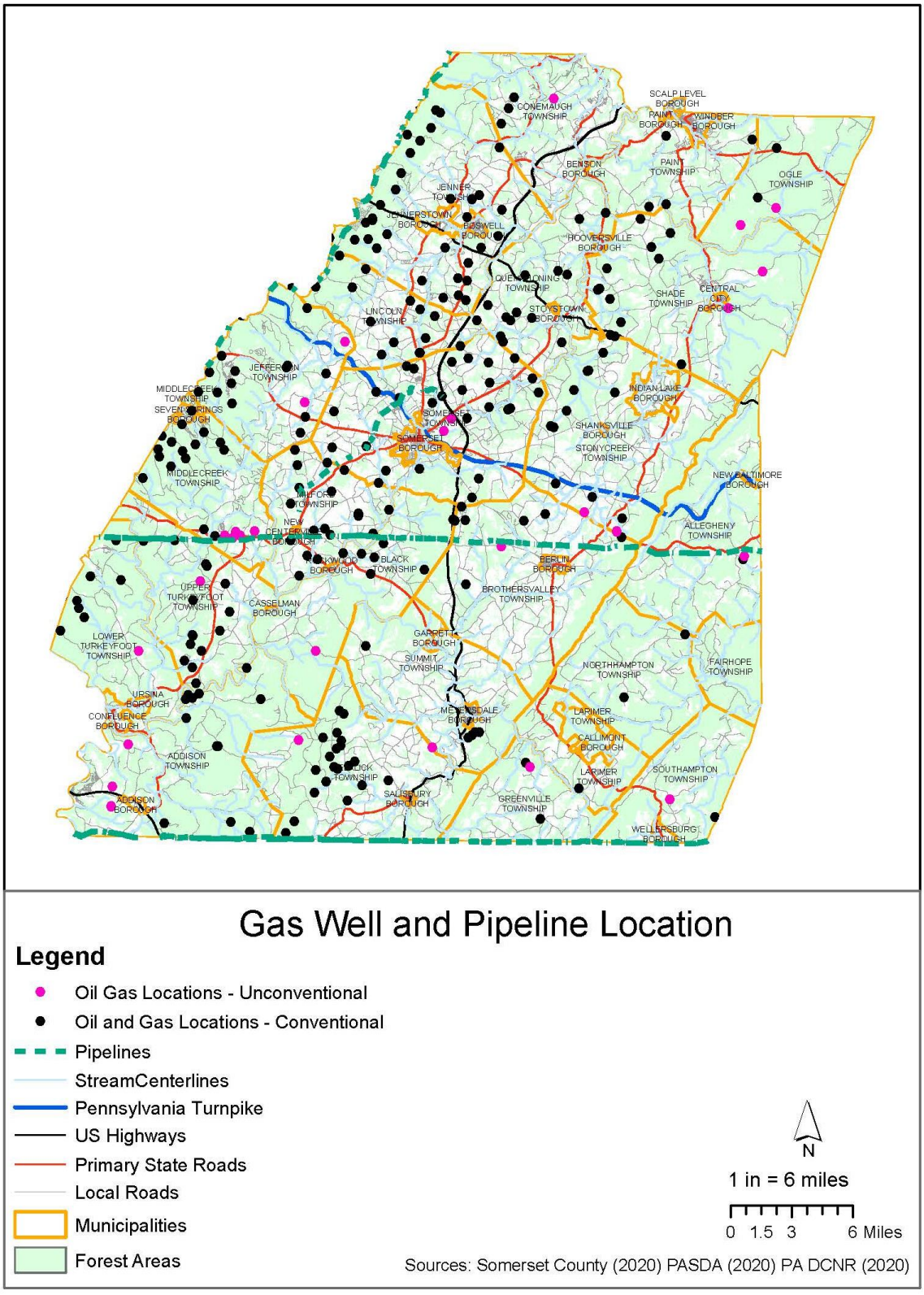
Chlorine poses the most hazard from a fixed site for Somerset County. Chlorine is identified as a yellow-green, noncombustible gas with a pungent, irritating odor. (WISER a wireless information system for emergency responders) Chlorine is heavier than air and may collect in low-lying areas. The gas is classified as toxic and/or corrosive-oxidizing; and can be fatal if inhaled or absorbed through the skin.

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

Crucial factors in a hazardous materials spill or release include location, weather conditions, and response. Factors related to location include populated areas and/or a spill into waterways. Weather conditions play a role with even mild breezes carrying hazardous gases and fumes long distances. Air temperature can be a determining factor on how far the material will travel by air. Contaminated waterways and even rainfall can have a negative impact on the scope of a spill. Finally, the response to the incident can determine the extent of the damage. Regardless, all these factors depend on the type of material that is released.

Somerset County is at risk to gas well leaks and pipeline breaks. *Figure 35 – Gas Well and Pipeline Location* shows a map of the gas well and pipeline locations in Somerset County.

Figure 35 – Gas Well and Pipeline Locations



4.3.16. Levees and Dam Failure

4.3.16.1 Location and Extent

Dams

A dam restricts the flow of water or underground streams. The reservoirs created by these barriers not only suppress floods but also provide water for activities such as irrigation, human consumption, industrial use, aquaculture, and navigability. More than half of the dams in Somerset County are for recreational uses.

FEMA considers the following to be the most frequent causes of dam failure:

- Overtopping caused by floods that exceed the capacity of the dam.
- Deliberate acts of sabotage.
- Structural failure of materials used in dam construction.
- Movement and/or failure of the foundation supporting the dam.
- Settlement and cracking of concrete or embankment dams.
- Piping and internal erosion of soil in embankment dams.
- Inadequate maintenance and upkeep.

Dams are classified based on two factors: class and category. Dam classes are based on the dam specification, and the dam categories are based on potential life and economic loss in the event of a failure. *Table 48 - Somerset County Dams* lists the class and category of the dams located in the county.

Class A: Equal to or greater than 50,000-acre feet of impoundment and is equal or greater than 100 feet in height.

Class B: Less than 50,000 and greater than 1,000-acre feet of impoundment storage and is less than 100 and greater than 40 feet in height.

Class C: Equal to or less than 1,000-acre feet of impoundment storage and equal to or less than 40 feet in height.

Category 1: Substantial potential loss – numerous homes or small businesses or a large business or school.

Category 2: Few potential losses – a smaller number of homes or small businesses.

Category 3: No expected losses – no permanent structures for human habitation or employment with significant damages to public or private property.

Category 4: No expected losses – no permanent structures for human habitation or employment with minimal damage to public or private property.

There are thirty-one dams in Somerset County. See *Table 48 - Somerset County Dams*. The average age of these dams is sixty-one years, according to the US Army Corps of Engineers National Inventory of Dams. Table 49 - Purpose, Type and Hazard Code Key identifies the codes used in *Table 48 - Somerset County Dams*.

State HMP info - A-1=2, A-3=1, B-1=6, B-2=1, B-4=3, C-1=3, C-2=3, C-3=6, C-4=44 sixty-nine. vulnerable populations (est.) 33,076.

Table 48 - Somerset County Dams

Somerset County Dams								
Class	**Dam Name**	**Waterway**	**Municipality**	**Permittee**	**Type**	**Purpose**	**Year completed**	**Hazard Potential**
10' x 170 acre-feet	Bev	TR Casselman River	Upper Turkeyfoot Township	Joseph Bevilacqua	RE	R	1991	S
24' x 210 acre-feet	Bigan	Sandy Run	Paint Township	John R. Merschat	RE	R	1957	H
15' x 43 acre-feet	Clairton Lake	Harbaugh Run	Lower Turkeyfoot Township	Anglers Club of Clairton	RE	R	1952	S
35' x 25 acre-feet	Conemaugh Township Impounding	South Fork Bens Creek	Jenner Township	Conemaugh Township Municipal Authority	RE	R	1961	L
8' x 513 acre-feet	Cranberry Glade Lake	Cranberry Glade Run	Lower Turkeyfoot Township	PA Game Commission	RE	R	1948	L
16' x 58 acre-feet	Crystal Lake	Stamm Run	Greenville Township	Meyersdale Municipal Authority	RE	S	1912	L
61' x 390 acre-feet	Dalton Run	Dalton Run	Conemaugh Township	Greater Johnstown Water Authority	RE	S	1905	H

Somerset County Dams								
Class	**Dam Name**	**Waterway**	**Municipality**	**Permittee**	**Type**	**Purpose**	**Year completed**	**Hazard Potential**
22' x 1,045 acre-feet	Deer Valley Lake	Cove Run	Elk Lick Township	YMCA of Greater Pittsburgh	RE	R	1953	L
46' x 34 acre-feet	Encke	TR Shaffers Run	Allegheny Township	Dr. Ted K. Encke	RE	R	1994	L
21' x 15 acre-feet	Hidden Valley Pond No 1	Gross Run	Jefferson Township	Seven Springs Mountain Resort, Inc.	RE	CI	1987	H
14' x 12 acre-feet	Hidden Valley Pond No 2	Gross Run	Jefferson Township	Seven Springs Mountain Resort, Inc.	RE	CI	1987	H
45' x 6,580 acre-feet	High Point Lake	Glade Run	Addison Township	PA Fish & Boat Commission	RE	R	1965	H
71' x 16,132 acre-feet	Indian Lake	Calendars Run	Indian Lake Borough	Indian Lake Borough	RE	R	1964	H
20' x 570 acre-feet	Isers Run Reservoir	Isers Run	Elk Lick Township	Mount Davis Development Corporation	RE	R	1982	L
26.5' x 71 acre-feet	Kooser Run	Kooser Run	Jefferson Township	DCNR	RE	R	1959	H

Somerset County Dams								
Class	**Dam Name**	**Waterway**	**Municipality**	**Permittee**	**Type**	**Purpose**	**Year completed**	**Hazard Potential**
45' x 92 acre-feet	Lake George	TR Kooser Run	Jefferson Township	Seven Springs Mountain Resourt, Inc	RE	R	1989	H
29' x 440 acre-feet	Lake Gloria	Beaverdam Run	Jenner Township	Christian Camps of Pittsburgh, Inc.	RE	R	1958	S
22.5' x 2,658 acre-feet	Lake Somerset	East Branch Coxes	Somerset Township	PA Fish & Boat Commission	RE	R	1956	H
31' x 6,050 acre-feet	Lake Stonycreek	Rhoads Creek	Stonycreek Township	Stonycreek Valley Development Corporation	RE	R	1960	H
24' x 53 acre-feet	Laurel Highlands Baptist Camp	Gross Run	Jefferson Township	The Buncher Company	RE	R	1982	H
22' x 2,113 acre-feet	Laurel Hill Creek	Laurel Hill Creek	Jefferson Township	Borough of Somerset	RE	S	1954	L
32' x 1,330 acre-feet	Laurel Hill Lake	Laurel Hill Creek	Middlecreek Township	DCNR	RE	R	1940	H
18' x 143 acre-feet	Laurel Ridge Lake	Laurel Hill Creek	Somerset Township	Russell Stern	RE	R	1956	L

Somerset County Dams								
Class	**Dam Name**	**Waterway**	**Municipality**	**Permittee**	**Type**	**Purpose**	**Year completed**	**Hazard Potential**
18' x 270 acre-feet	Lost Creek	Lost Creek	Middlecreek Township	YMCA of Greater Pitts-burgh	RE	R	1954	S
16' x 49 acre-feet	McDonaldton	TR Buffalo Creek	Brothersvalley Township	Berlin Sportsman Association	RE	R	1911	S
22' x 266 acre-feet	Mountain Lake	West Branch Coxes Creek	Somerset Town-ship	Mountain Lakes of Somerset LLC	RE	R	1956	H
105' x 4,316 acre-feet	North Fork	North Fork Bens Creek	Conemaugh Township	Greater Johnstown Water Au-thority	RE	S	1932	H
22' x 36 acre-feet	Penn Scenic View Pond	Unt Laurel Hill CR	Middlecreek Township	DCNR	RE	R	-	H
100' x 57,400 acre-feet	Quemahoning	Quemahoning Creek	Quemahoning Township	Cambria Somerset Au-thority	RE	S	1912	H
23' x 650 acre-feet	Stoughton Lake	Beaverdam Creek	Jennerstown Borough	Stoughton Lake Home-owners Asso-ciation	RE	R	1951	S
20' x 63 acre-feet	Westmoreland-Fayette Council BSA	TR Laurel Hhaill Creek	Jefferson Town-ship	Boy Scouts of America West-moreland-Fayette Coun-cil	RE	R	1987	L

Source: US Army Corps of Engineers National Inventory of Dams/PA National Inventory of Dams

Table 49 - Purpose, Type and Hazard Code Key

Purpose and Type Code Key ***(PA DEP, 2019)***			
Purpose Code	**Description**	**Type Code**	**Description**
A	Ash Basin	CB	Buttress
B	Sediment Basin	CN	Concrete
C	Flood Control	ER	Rockfill
D	Debris Control	MS	Masonry
E	Slurry Impoundment	MV	Multi-arch
F	Stormwater Detention	OT	Other
G	Industrial/Mining Water Supply	PG	Gravity
H	Hydroelectric	QQ	Unpopulated
I	Irrigation	RC	RCC
J	Intake Drinking Water	RE	Earth
K	Intake Non-Drinking Water	RR	Run of River
L	Water Treatment La-goon	SH	Sheetpile
M	Mill Operation	ST	Stone
N	Navigation	TC	Timber Crib
O	Farm Pond	VA	Arch
P	Private Pond	**Hazard Potential**	**Description**
Q	Unpopulated	H	High
R	Recreation	S	Significant
S	Public Water Supply	L	Low
T	Tailings		
U	Snowmaking Water Supply		
V	Diversion		

Purpose and Type Code Key *(PA DEP, 2019)*			
Purpose Code	**Description**	**Type Code**	**Description**
W	Waste Impoundment (Untreated)		
X	Treated Waste Impoundment		
Y	Wetland Mitigation		
Z	Frac Water Lagoon		

Dam failures occur usually as a secondary effect of massive rainfall and flooding, causing too much water to enter the spillway system. This type of failure occurs with little to no warning. Spring thaws, severe thunderstorms, and heavy rainfall are also contributing factors. Depending on the size of the body of water where the dam is constructed, additional water may come from distant upstream locations.

Poor engineering or poor maintenance may also cause dam failures. The Pennsylvania Department of Environmental Protection and the U.S. Army Corps of Engineers award permits for dams and share inspection responsibilities. Inspection results are characterized as either safe or unsafe. Dams are evaluated on categories such as slope instability, excessive seepage, and inadequate spillways.

Levee

Levees and floodwalls are a type of dam and are used to prevent water entering an area that would otherwise be submerged from flooding. This allows for reclaiming land for human use. Failure of these structures occurs when floodwaters exceed the height of the structure, or when the maximum pressure exerted by the floodwaters against the levee/floodwall exceeds its capability.

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 landowners. 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 50 - Levees in Somerset County* lists the US Army Corps of Engineers identified levees in Somerset County. Structures at risk in this table is reflected from data gathered by the Somerset County GIS department.

Table 50 - Levees in Somerset County

Levees in Somerset County					
Levee Name	**Accred-ited**	**Leveed Waterway**	**Risk Classification**	**People at Risk**	**Structures at Risk**
Boynton	No	Right Bank Casselman & Right Bank Piney	Low	60	33
Confluence	No	RB Casselman River LB drainage ditch	Low	390	241
Confluence	No	Right Bank Youghiog-heny River	Low	31	8
Meyersdale – Phase I Levee System	No	(left bank)	-	11	4
Meyersdale – Phase I Levee System	No	(rgt bk, upstrm)	-	68	42
Meyersdale – Phase II Levee System	No		-	71	38
Meyersdale	No	R Bank Casselman & R Bank Flaugherty	Low	378	167
Meyersdale	No	L Bank Flaugherty Creek debris basin	Low	86	30
Meyersdale	No	Left Bank Flaugherty Creek	Low	70	25
Roaring Fork Levee System	No		-	-	0
Rockwood	No	RB Casselman River & RB Coxes Creek	Low	168	80
Unnamed	No	Tributary to Clear Shade Creek Levee	-	-	0
Windber	No	Left Bank Paint Creek	Low	90	55

Levees in Somerset County					
Levee Name	**Accred-ited**	**Leveed Waterway**	**Risk Classification**	**People at Risk**	**Structures at Risk**
Windber	No	Right Bank Paint Creek DS	Low	93	74
Windber	No	Right Bank Pain Creek US	Low	140	62
Windber	No	Right Bank Seese Run	Low	3	0
1,659	**859**				

Source: USACE National Levee Database

*Note: Data marked - was identified as "Data Not Entered, data stewards are working on making the data available in the future".

4.3.16.2 Range of Magnitude

Dam

The municipalities where these dams are located, and the communities downstream are at the greatest risk for a dam failure. Flooding is the most common secondary effect of dam failure. If the dam failure is severe, a large amount of water will enter the downstream body of water and overflow the stream banks for miles. Environmental vulnerability is dependent on the contents of the water and the path it takes. The Department of Environmental Protection defines a high hazard dam as any dam that if it failed would endanger populated areas downstream of the dam.

A catastrophic failure is characterized by the sudden, rapid, and uncontrolled release of water from a dammed impoundment. Seepages in earthen dams usually develop gradually, and if detected early, downstream residents have anywhere from a few hours to a few days to evacuate. Overtopping of a dam normally gives enough time for evacuation.

A dam failure is a sudden, rapid, and uncontrolled release of impounded water. Due to the massive impact of a possible devastation on the civilian population and environment, dams are considered "installations containing dangerous forces" under international humanitarian law.

Some common causes of dam failure are:

- Sub-standard construction materials/techniques
- Spillway design error
- Lowering of dam crest height, which reduces spillway flow
- Geological instability caused by changes to water levels during filling or poor surveying
- Sliding of a mountain into the reservoir

- Poor maintenance
- Extreme inflow
- Human, computer or design error
- Internal erosion or piping
- Earthquakes

Levee

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 wastewater treatments plans, causing raw sewage to contaminate residential and commercial buildings and the flooding waterway.
- Water supplies and wastewater 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 reported levee and/or dam failures through Knowledge Center™. This list is represented in Table 51 - Dam/Levee Failures in Somerset County.

Table 51 - Dam/Levee Failures in Somerset County

Dam/Levee Failures in Somerset County			
Date	**Municipality**	**Dam/Levee**	**Event**
09/03/2018	Elk Lick Township	High Point Lake Dam	Reports of a loud crash from within the dam, and a short time later, heavy flows observed discharging from the dam's principal spillway outlet pipe. Event was closed on 09/26/2018.
06/12/2014	Ogle Township	Pine Lake Dam	Due to adverse/severe weather the dam was thought to be in jeopardy of failure. Water did escape through areas in the dam. The event was closed on 06/13/2014.

The most destructive dam failure in US history took place in Johnstown, Pennsylvania (Cambria County) in 1889, claiming 2,209 lives. Another significant dam failure took place in Austin, Pennsylvania (Potter County) in 1911, claiming seventy-eight lives.

4.3.16.4 Future Occurrence

Minor dam failures occur frequently; however, they often have minimal impact and cause little or no harm to the general population. Significant dam failures occur much less frequently. The probability of a significant dam failure in Somerset County is unlikely to occur. Dam failures are often a secondary effect, resulting from another hazard, such as heavy rainfall from a hurricane or tropical storm.

Dams assigned the significant-hazard potential classification are those dams where failure or incorrect operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, or other concerns. Significant hazard potential classification dams are often located in predominantly rural or agricultural areas but could be in areas with population and significant infrastructure. A high-hazard potential classification assigned to a dam is based on when failure or incorrect operation has a great possibility of causing loss of human life.

Given certain circumstances, a levee or dam 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, dams and their failures will, over time, provide more information on this hazard.

4.3.16.5 Vulnerability Assessment

The environmental impacts of a levee or dam failure result in considerable water quality and debris disposal concerns. Sanitary sewer systems will be backed up with flood waters, and wastewater treatment plans inundated. The contents of unsecured containers of chemicals could be added to flood waters.

The vulnerability for levee/dam failures is directly related to the population in landward areas adjacent to the system. The more populated an area the more vulnerable it is to a 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. *Table 50 - Levees in Somerset County* above identifies the number of residents and structures at risk.

Figure 35 - Dams and Levees

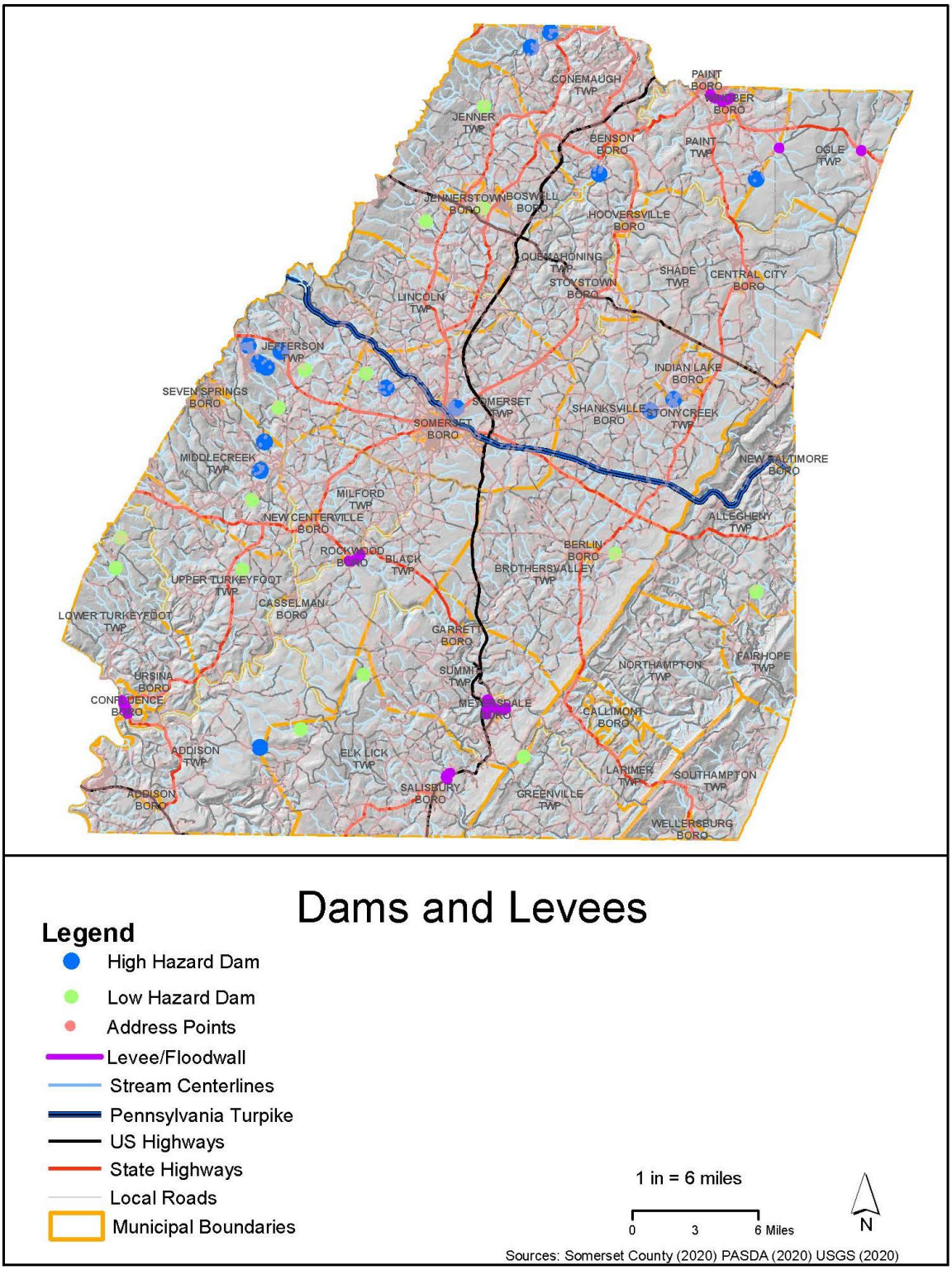


Figure 36 - Inundation Risk Area High Point Lake

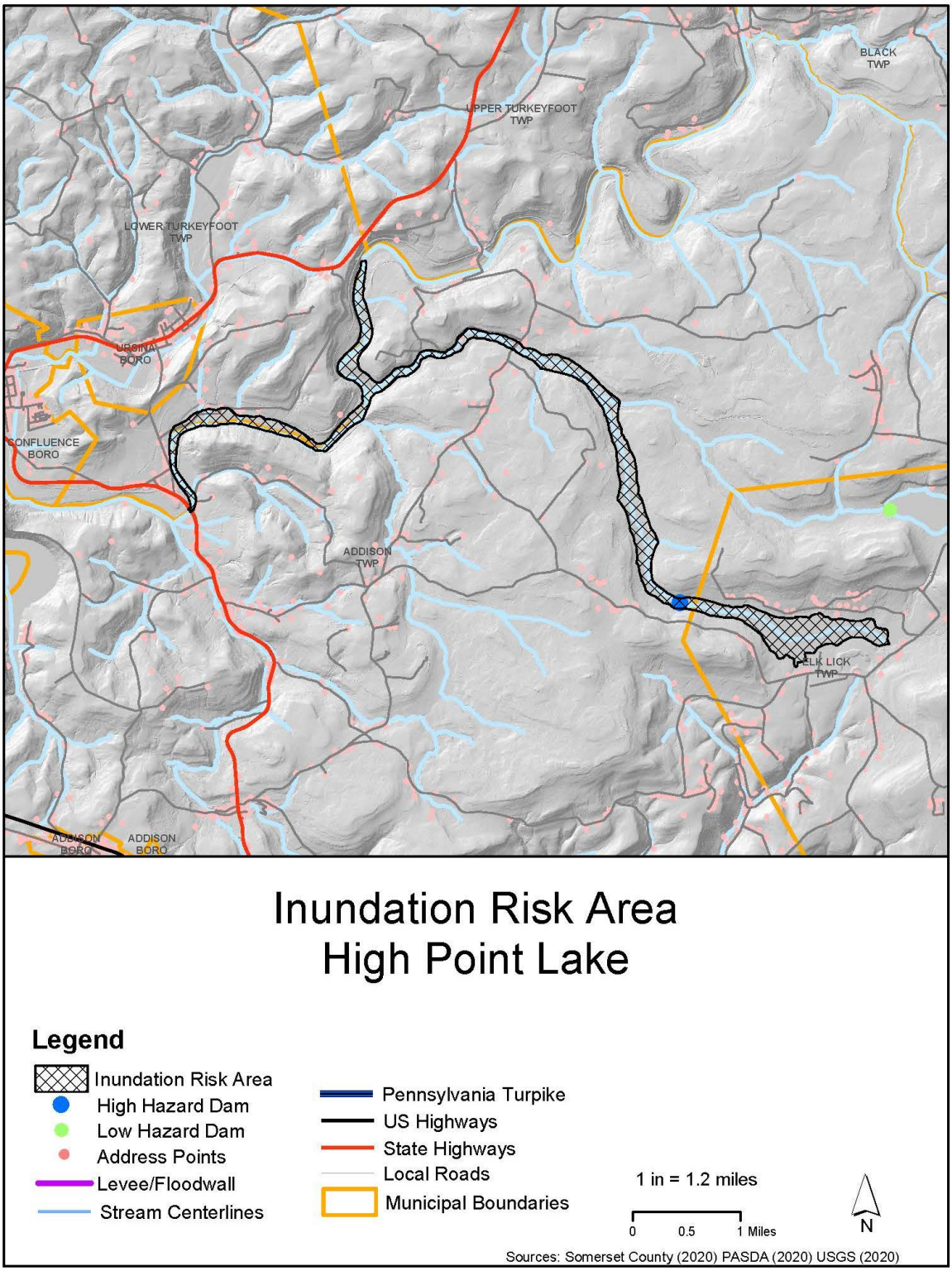


Figure 37 - Inundation Risk Area Lost Creek

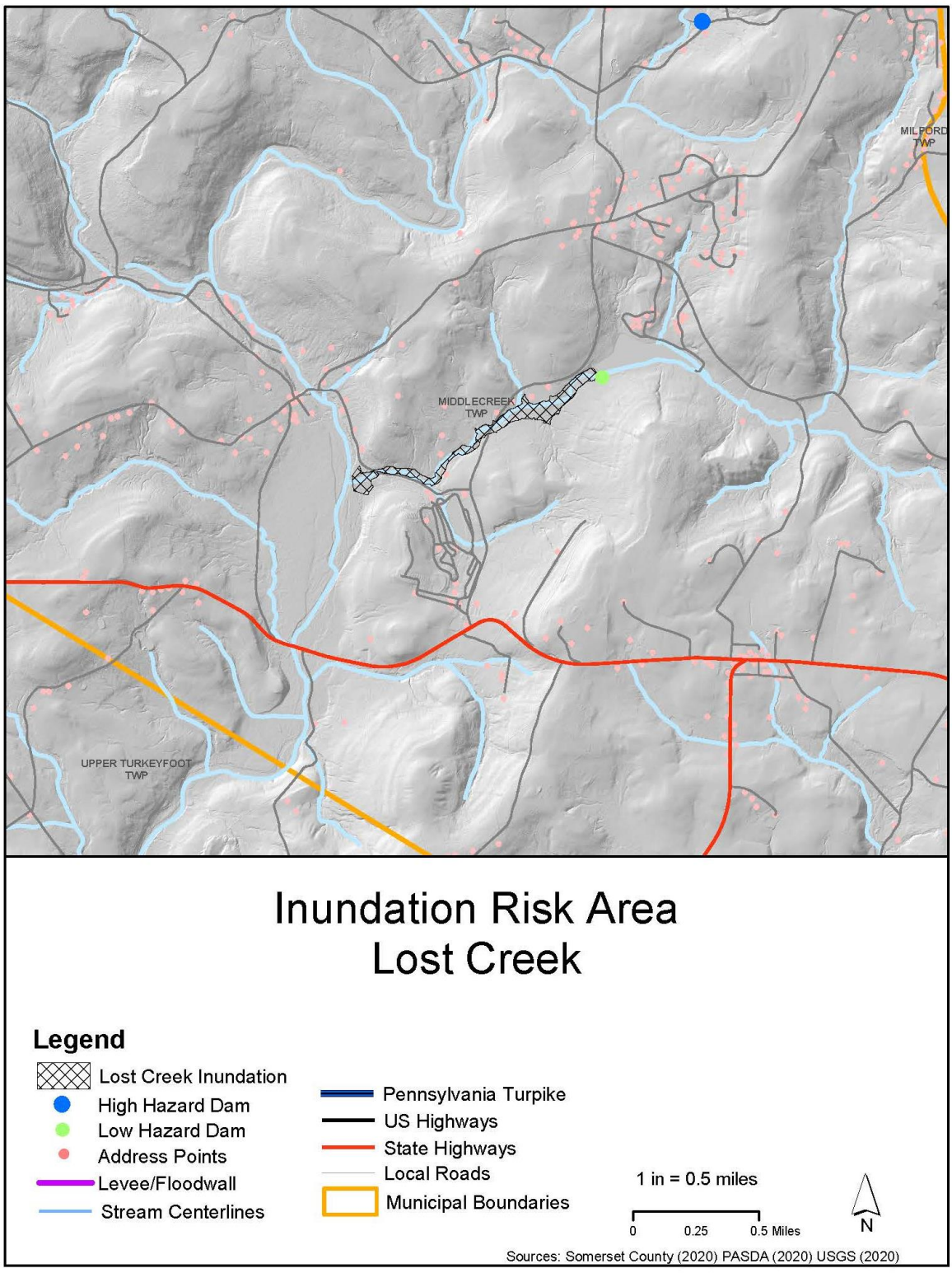


Figure 38 - Inundation Risk Area Penn Scenic PMF

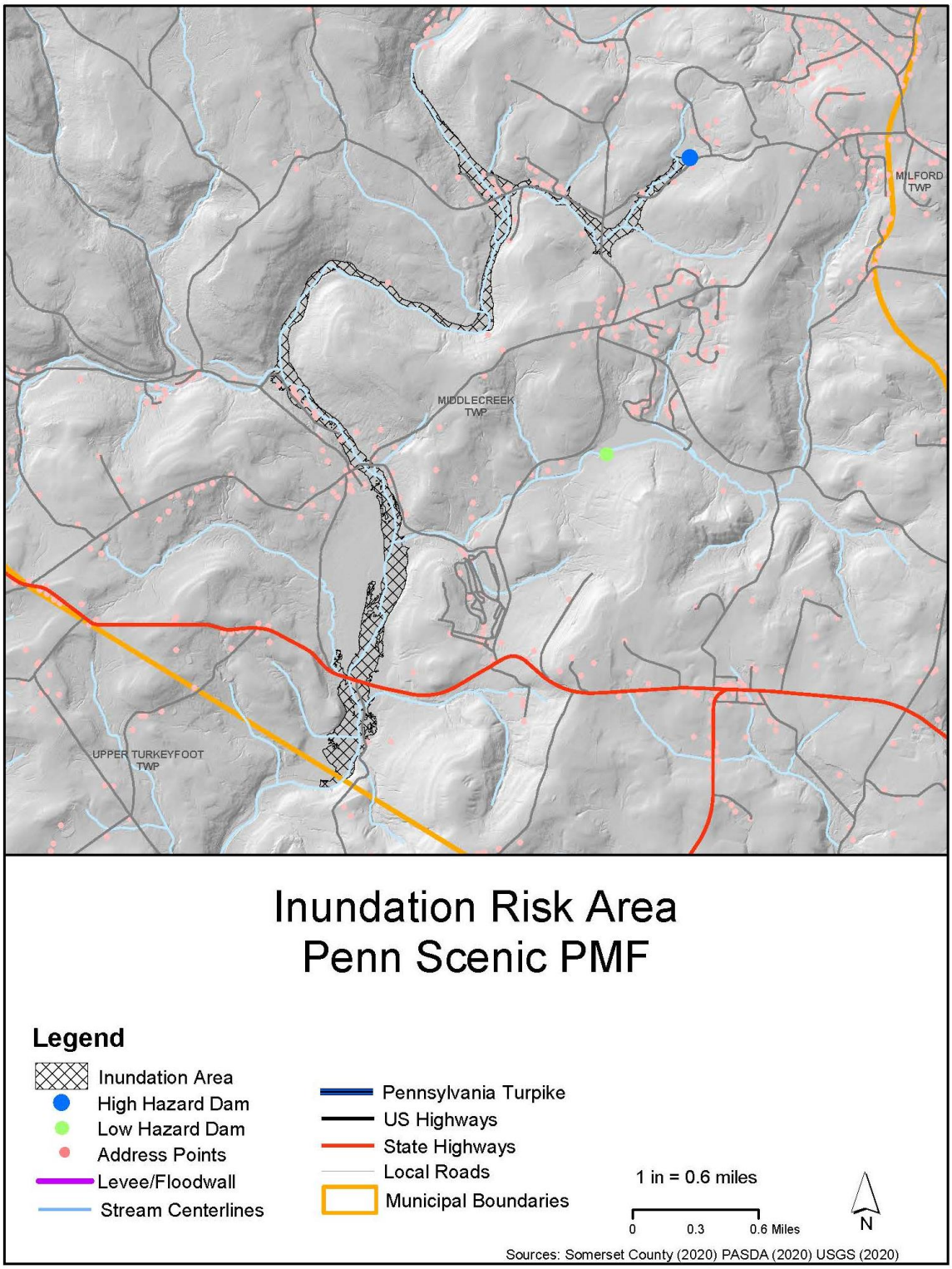


Figure 39 - Inundation Risk Area Quemahoning Reservoir

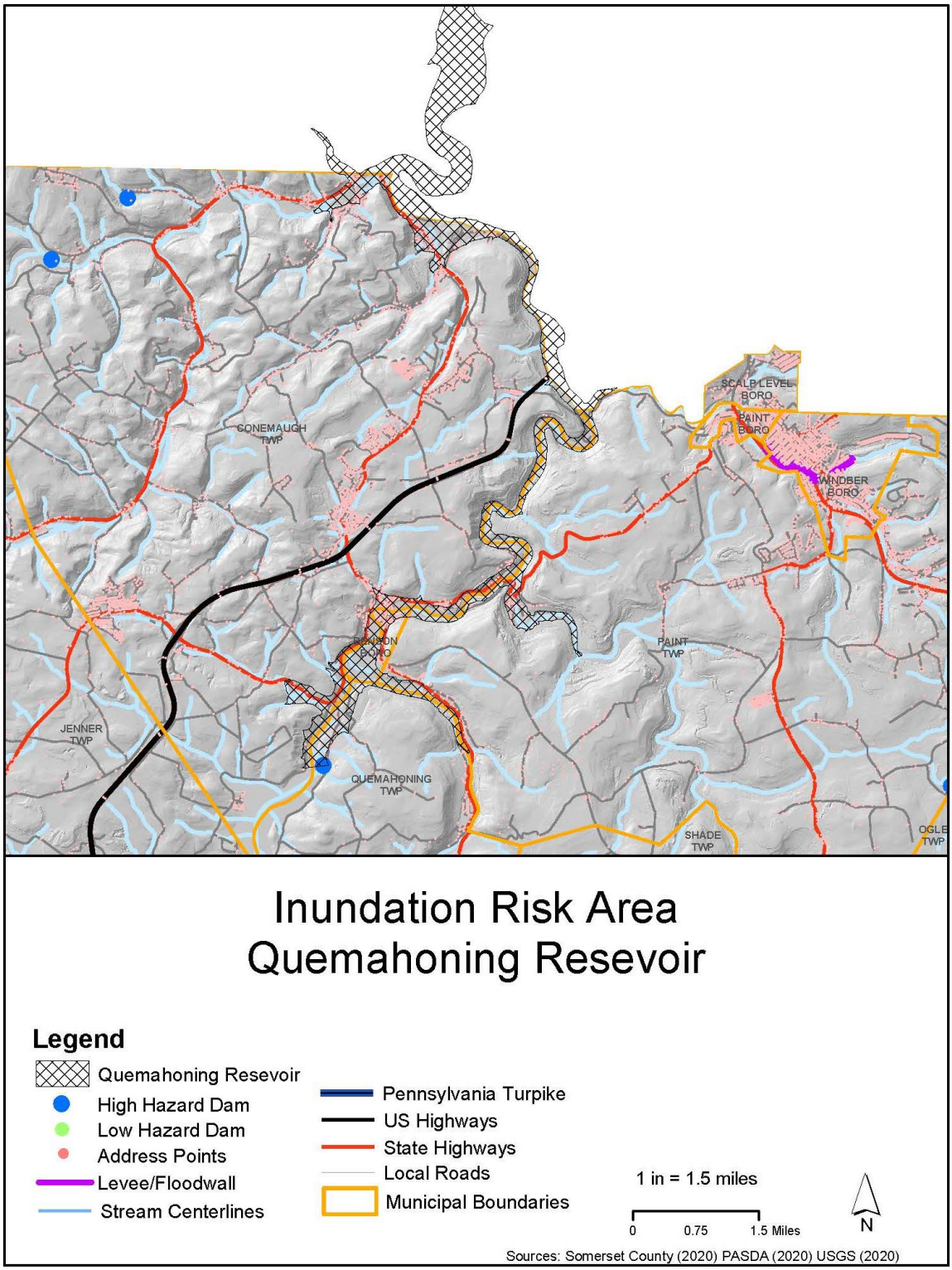


Figure 40 - Inundation Risk Area Yough Lake

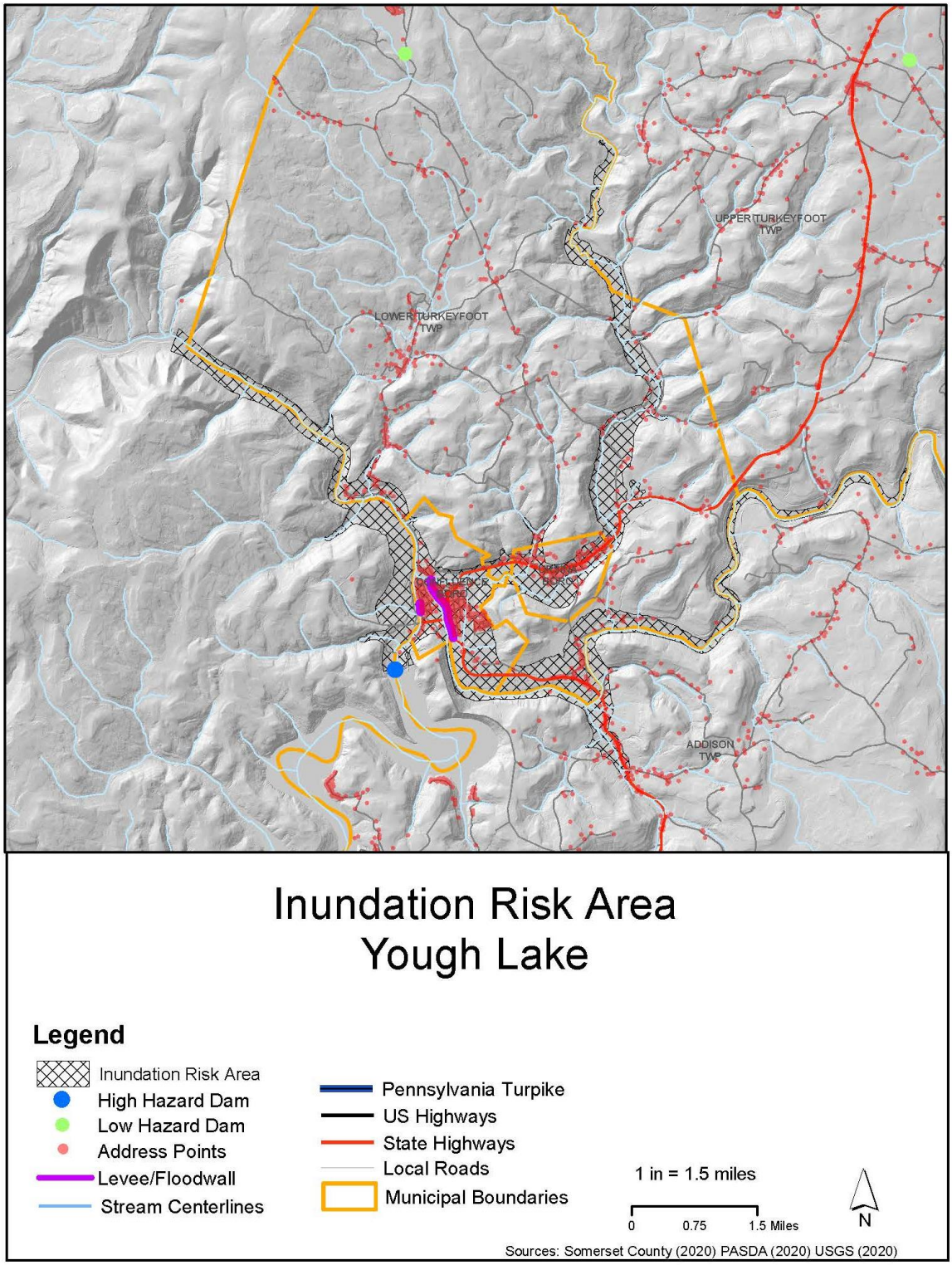


Figure 41 - Confluence Borough Levees

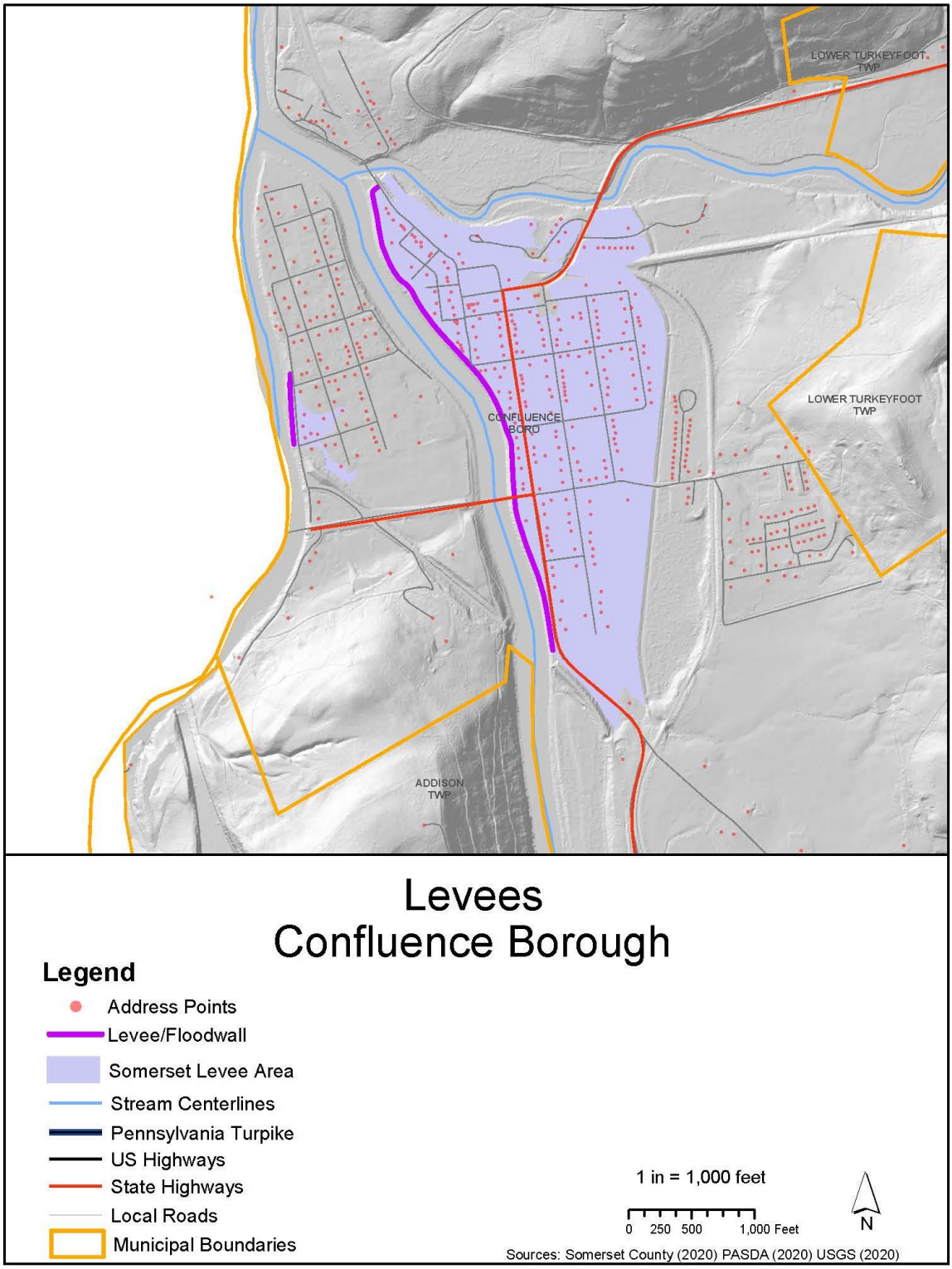


Figure 42 - Elk Lick Township Levees

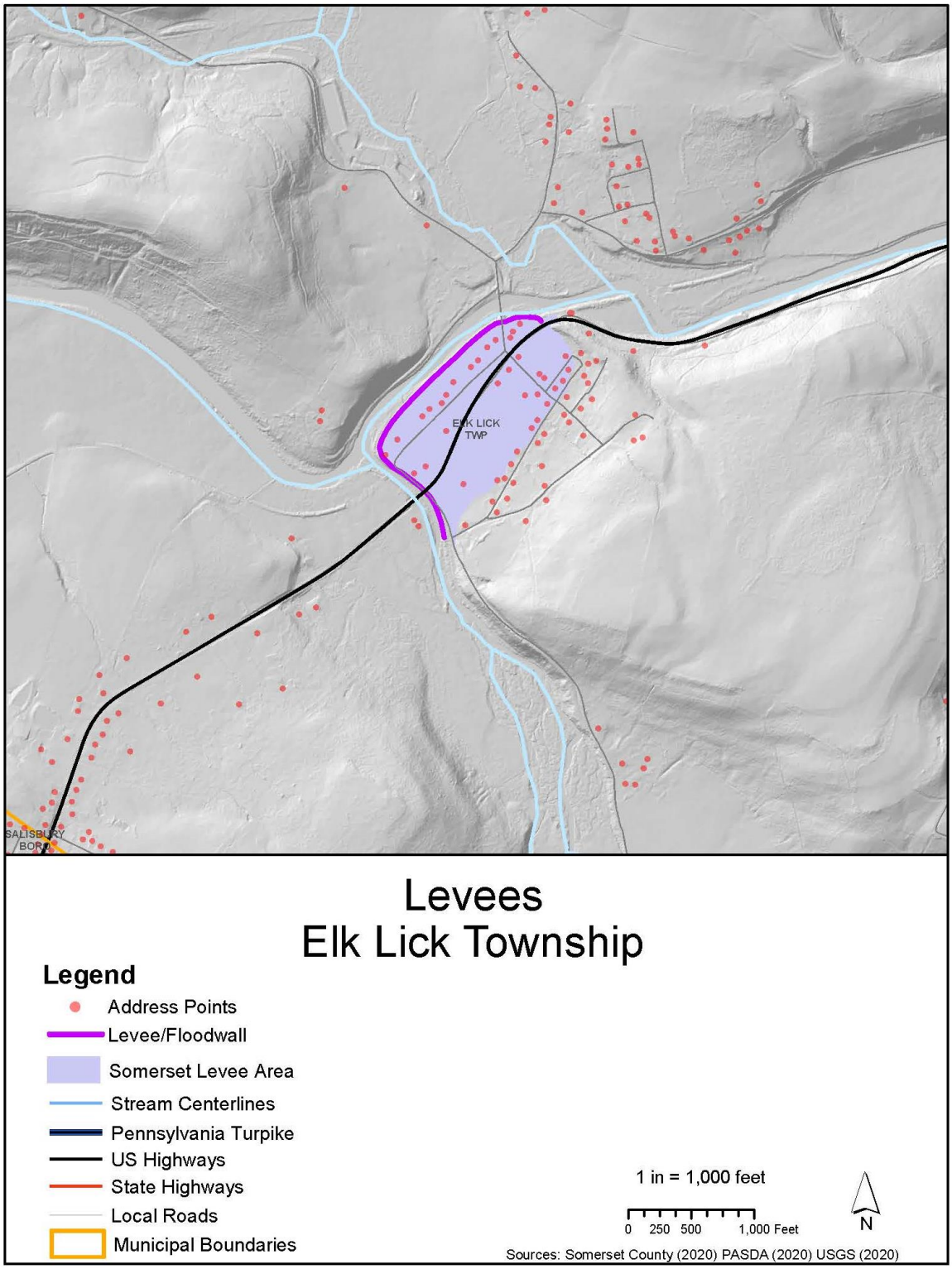


Figure 43 - Meyersdale Borough Levees

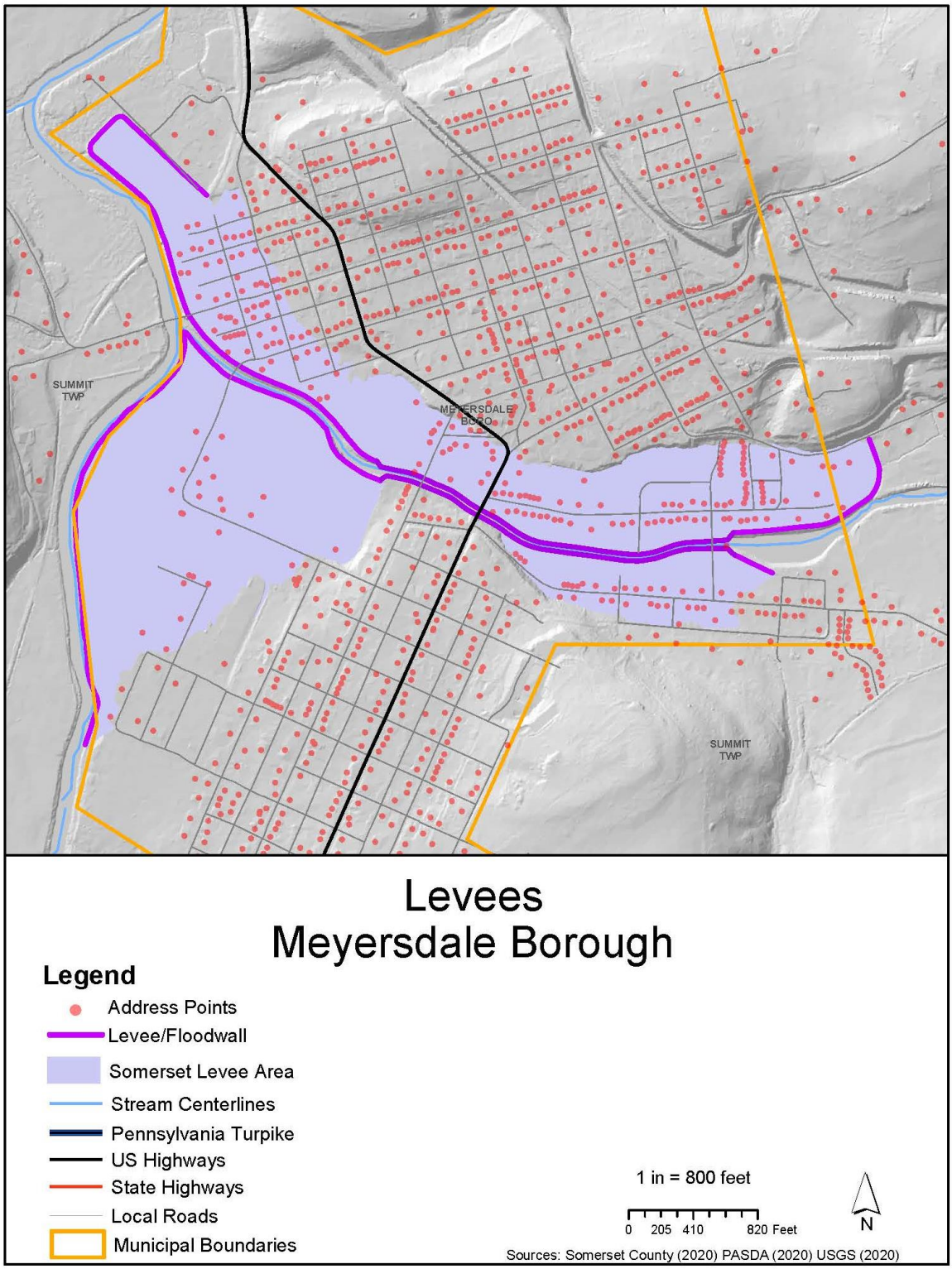


Figure 44 - Rockwood Borough Levees

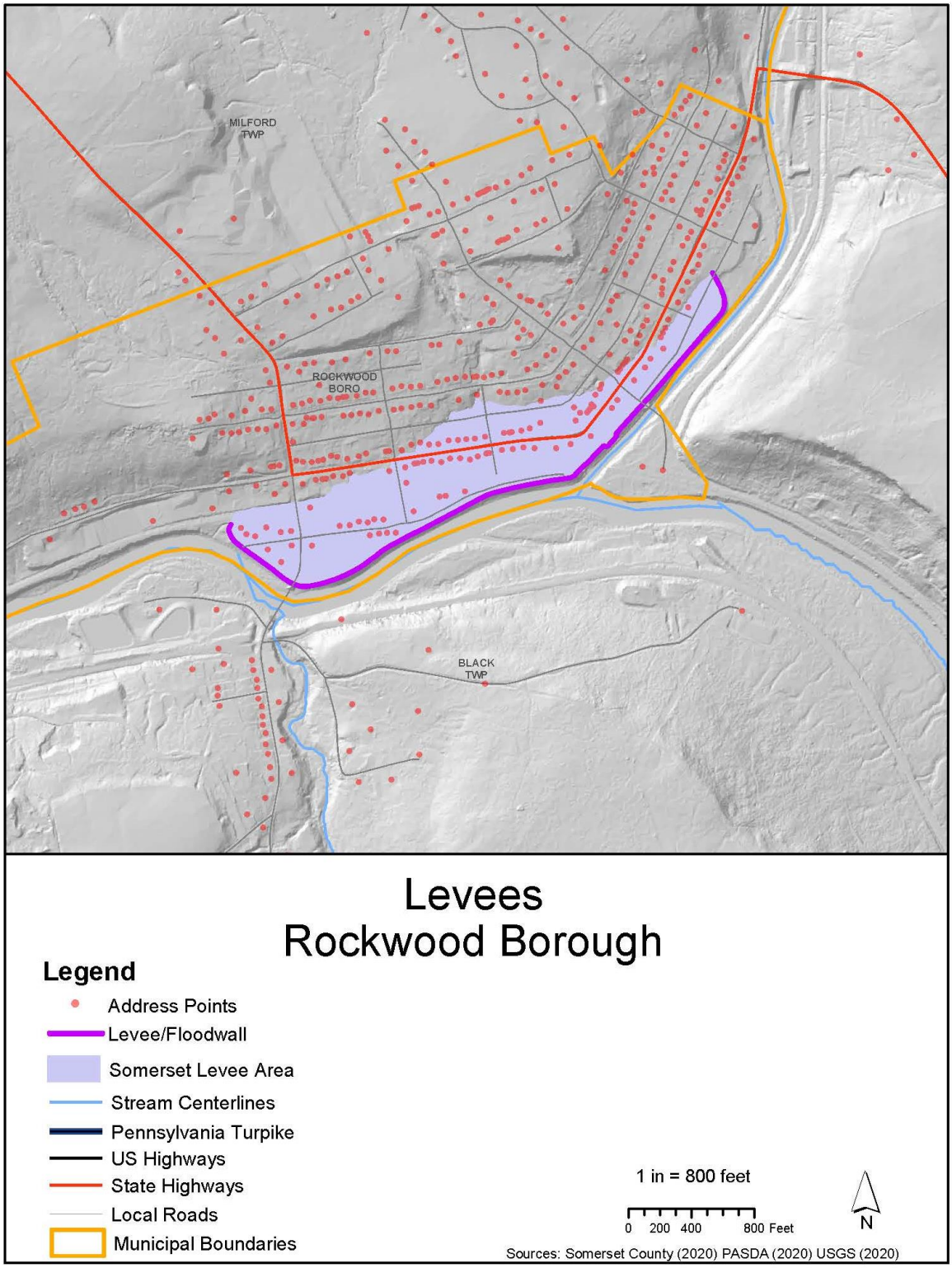
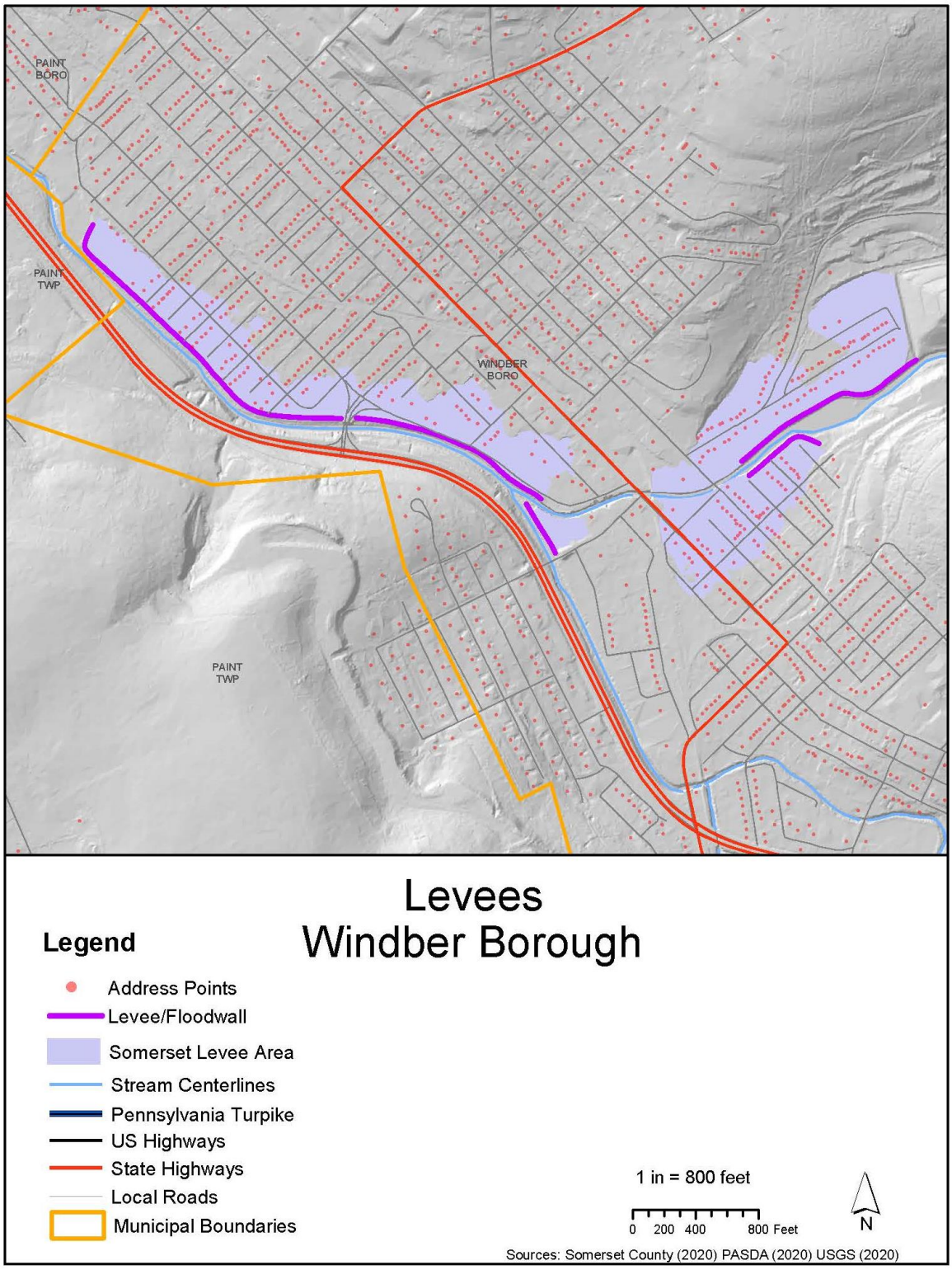


Figure 45 - Windber Borough Levees



4.3.17. Opioid Epidemic

4.3.17.1 Location and Extent

Pennsylvania and the nation at large have been experiencing an epidemic of opioid drug abuse. Opioids are a class of drugs that interact with receptors on nerve cells in the body and brain, producing euphoria and pain relief (NIH, 2017). Opioid drugs are highly addictive, and the Commonwealth and country at large have been experiencing an epidemic of opioid addiction and abuse, resulting in increasing numbers of overdose deaths from both prescribed (e.g. fentanyl) and illicit (e.g. heroine) opioids. Overdose deaths from opioids occur when a large dose slows breathing, which can be especially likely when opioids are combined with alcohol or antianxiety drugs. While generally prescribed with good intentions, opioids can often be over-prescribed, resulting in addiction due to their highly addictive nature.

While other addictive substances such as methamphetamines and alcohol can be problematic for the health of individuals and the community in Somerset County, this profile focuses on opioid drugs and the opioid epidemic.

The opioid crisis was declared to be a public health emergency on October 26, 2017. While the declaration provides validation for the scope and severity of the problem, it was not accompanied by any release of funding for mitigating actions. On January 10, 2018, Governor Wolf declared the opioid epidemic to be a statewide public health disaster emergency for Pennsylvania. The declaration is intended to enhance response and increase access to treatment.

4.3.17.2 Range of Magnitude

According to the CDC, more than 192 Americans die every day from an opioid overdose. In 2014, 2,732 overdose deaths were reported across Pennsylvania. This number increased to 3,264 reported overdose deaths in 2015, an increase of 19.5 percent (DEA, 2015). Reported overdose deaths increased again in 2016 to 4,627, an increase of 41.7 percent from 2015 (DEA & PITT, 2017), then again to a total of 5,388 deaths in 2017. From 2015 to 2017, the increase in reported drug related overdose deaths in Pennsylvania increased sixty-five percent. This increase gave rise to the need for the gubernatorial disaster declaration in Pennsylvania that was made on January 10, 2018. Heroin and Fentanyl are the two drugs most often found in overdose deaths, and they are considered highly available and nearly ubiquitous in Pennsylvania (DEA & PITT, 2018).

4.3.17.3 Past Occurrence

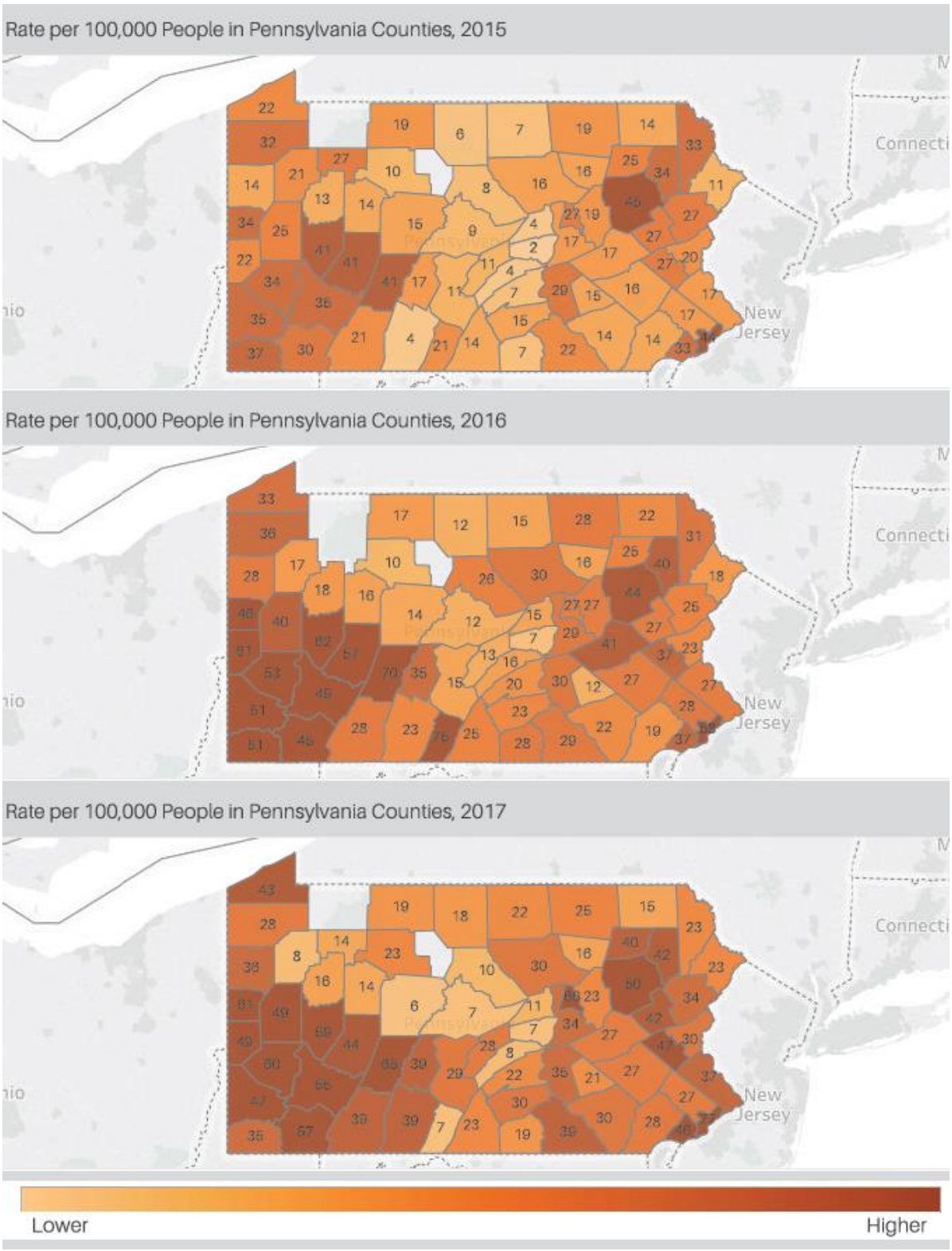
In 2018, there were a total of 67,367 drug-related overdose deaths in the United States. Somerset County experienced a total of sixty-four drug-related overdose deaths from 2016-2018 ranking the county fifty of sixty-seven counties.

In 2017, the national average of drug related overdose deaths was twenty-two deaths per 100,000 people. The death rate in Pennsylvania is nearly double this national average, at almost forty-three deaths per 100,000 people. From 2014 to 2017, opioid related overdose deaths Somerset County increased from fourteen to thirty. The year of 2018 saw a slight decrease to fourteen (DEA & Pitt, 2018). *Figure 46 - Pennsylvania Opioid Overdose Deaths 2015-2017* shows overdose deaths from 2014 to 2017 for Pennsylvania by county. Prescription opioids were the most prevalent drugs present in opioid drug-related overdose deaths that occurred in Somerset County. Fentanyl is the most prevalent opioid drug trafficked, abused and overdosed on in Pennsylvania, and is found in seventy percent of overdose victims in 2018 in Pennsylvania (see *Table 52 - Drugs Present in 2018 PA Overdose Deaths).*

Table 52 - Drugs Present in 2018 PA Overdose Deaths

Drugs Present in 2018 PA Overdose Deaths *(DEA & Pitt, 2018)*	
Drug Category	**Percent Reported Among 2018 Decedents**
Fentanyl	70%
Heroin	35%
Cocaine	33%
Benzodiazepines	28%
Prescription Opioids	23%
Ethanol	18%
FRSs & NPSO	18%
Other Illicit Drugs	14%

Figure 46 - Pennsylvania Opioid Overdose Deaths 2015-2017



4.3.17.4 Future Occurrence

In the event of an opioid overdose, death can sometimes be prevented with the use of the drug naloxone. Emergency medical responders have access to the treatment, and as of 2015, naloxone is available without a prescription in Pennsylvania. Furthermore, with the January 10, 2018 disaster declaration, emergency medical technicians (EMTs) are now allowed to leave naloxone behind at a scene, further increasing distribution and accessibility of this lifesaving medication. According to a study published in September 2018, drug users reported that users often have multiple overdoses in the course of their drug use, and the availability of naloxone has saved many lives (DEA & PITT, 2018). While the introduction of naloxone has been a significant benefit to the fight against opioid abuse, efforts to prevent overdoses are still underway.

Rather than reduce pain, in some cases high doses of opioid painkillers can actually increase pain due to a phenomenon known as opioid-induced hyperalgesia (OIH). It is however difficult to know how much of an influence OIH has on the opioid epidemic. Some researchers think that OIH could be increasing patients' pain and in turn, increasing their dosages and dependence on opioid drugs, suggesting that patients should work with lower dosages of opioids (Servick, 2016). However, other researchers are unsure of the importance of OIH for opioid users (Servick, 2016).

Opioid drugs have been a problematic and addictive solution for patients to deal with pain. Employing alternative approaches to pain management could prevent patients from ever being introduced to addictive opioids, especially considering the most common overdose drug in Somerset County has been prescription opioids (DEA & PITT, 2018). A possible alternative pain treatment comes from hemp extracted cannabidiol, or CBD. Unlike THC (the psychoactive constituent of cannabis) CBD is non-psychoactive and does not have the same intoxicating effect as THC; however, CBD can provide relief from pain (Lynch & Campbell, 2011), inflammation (Burstein, 2015), anxiety (Scuderi et al., 2009) and even psychosis (Iseger & Bossong, 2015). CBD is legal without a prescription throughout the United States of America.

4.3.17.5 Vulnerability Assessment

Deaths from prescription opioid drugs like oxycodone, hydrocodone, and methadone have increased by more than four-fold since 1999. Opioid overdoses have resulted in many tragic deaths in Pennsylvania and most people have been affected by the epidemic through the loss of either a family member, close friend, or member of their community. Opioid addiction is a direct detriment to the personal wellbeing of addicts, a burden to their families and communities, and a strain to the emergency response system that cares for overdose victims.

While opioid addiction is often viewed as a criminal problem, a more productive way to view the epidemic can be to view opioid addiction as a chronic disease. This paradigm shift moves away from faulting the abuser and incentivizing quick cures, to viewing the

abuser as a patient and working towards long-term management of the disease (ASAM, 2014). In general, it is important to consider alternative approaches to pain treatment in order to avoid beginning a dependence on highly addictive prescribed opioids.

There have been several reports nationally of first responders accidentally overdosing on fentanyl or carfentanyl through brief skin contact or the drug becoming airborne. It is best for first responders to err on the side of caution to avoid any potential exposure. The American College of Medical Toxicology (ACMT) and the American Academy of Clinical Toxicology (AACT) suggest that nitrile gloves provide sufficient protection for handling of fentanyl, and for "exceptional circumstances where the drug particles or droplets suspended in the air, an N95 respirator provides sufficient protection" (Moss et al., 2017). Their official position paper suggests that "the risk of clinically significant exposure to emergency responders is extremely low" (Moss et al., 2017).

4.3.18. Terrorism

4.3.18.1 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. 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. Often, the origin of the terrorist or person causing the hazard is far less relevant to mitigation planning than the hazard itself and its consequences. However, it is important to consider that the prevalence of Homegrown Violent Extremists (HVEs) has increased in recent years, with individuals able to become radicalized on the internet. In a speech on August 29, 2018 addressed to the 11th annual Utah National Security and Anti-Terrorism Conference, FBI Director Christopher Wray describes HVEs as "the primary terrorist threat to the homeland here today, without question."

Critical facilities are either in the public or private sector that provide essential products and/or services to the general public. Critical facilities are often necessary to preserve the welfare and quality of life in the county, or fulfill important public safety, emergency response, and/or disaster recovery functions. Critical facilities identified in the county are shelters; gas, electric and communication utilities; hospitals and other health care facilities; water and wastewater treatment plants, hazardous waste sites; and schools.

In addition to critical facilities, the county contains at risk populations that should be factored into a vulnerability assessment. These populations include not only the residents and workforce in the county, but also the tourists that visit the area on a daily basis, those that are traveling through the county on any of the major highways and marginalized groups such as LGBTQ persons and racial minorities. Potential targets for attack include:

- Commercial facilities
- Abortion or family planning clinics and other organizations associated with controversial issues.
- Education facilities
- Events attracting large amounts of people
- Places of worship
- Industrial facilities, especially those utilizing large quantities of hazardous materials
- Transportation infrastructure
- Historical sites
- Government facilities

4.3.18.2 Range of Magnitude

Terrorism refers to the use of weapons of mass destruction (WMD) (including, biological, chemical, nuclear, and radiological weapons) arson, incendiary, explosive, armed attacks, industrial sabotage, intentional hazardous materials releases and cyber-terrorism. Within these general categories, there are many variations. There are a wide variety of agents and ways for them to be disseminated, particularly in the case of biological and chemical weapons. Terrorist methods can take many forms, including:

- Active shooter
- Agri-terrorism
- Arson/incendiary attack
- Armed attack
- Assassination
- Biological agent
- Chemical agent
- Cyber-terrorism
- Conventional bomb or bomb threat
- Hijackings
- Hazardous material release (intentional)
- Kidnapping
- Nuclear bomb
- Radiological agent

The rural areas of Somerset County are most susceptible to agri-terrorism and school bomb threats. Agri-terrorism could have severe impacts on traditional family-operated

farms, commercial agriculture operations, resource production facilities, and small-scale operations. In 2012, Somerset County had a high percentage of farmers that reported their principal occupation was farming. Agri-terrorism typically employ biological agents such as organisms or toxins that cause illnesses in people, livestock or crops. Some agents are difficult to detect and they may only become active over time, so it can be difficult to diagnose a biological attack until victims are already displaying symptoms. Other agents have more apparent and immediate impacts. Individuals affected by a biological agent often require immediate attention from professional medical personnel, and in some cases require the victim to be quarantined.

Bomb threats can disrupt the learning atmosphere in schools, cause traffic to be rerouted, and uses taxpayer assets from deploying police and or fire units. Somerset County has eleven school districts throughout the county and numerous non-public schools.

The areas along major transportation routes including I-76/70 (The Pennsylvania Turnpike), US Routes 219 and 30, and PA Routes 31, 281, and 403 can be susceptible to forms of public transit terrorist attacks. More populated areas of the county can be susceptible to chemical, biological, radiological, nuclear or explosive (CBRNE) events due to the concentration and density of residential communities. Secondary effects from CBRNE incidents can be damaging as well. Mass evacuations could result in congestion of roadways and possibly result in breakdown of civil order, further exacerbating the situation. Government operations may be disrupted due to the need to displace or operate under reduced capacity. Radiation fallout, hazardous chemical introduction into the groundwater, or biologic/germ agents can cause long-term environmental damage.

Cyber terrorism is becoming increasingly prevalent. Cyber terrorism can be defined as activities intended to damage or disrupt vital computer systems. These acts can range from taking control of a host website to using networked resources to directly cause destruction and harm. Protection of databases and infrastructure are the main goals for a safe cyber environment. Cyber terrorists can be difficult to identify because the internet provides a meeting place for individuals from various parts of the world. Individuals or groups planning a cyber-attack are not organized in a traditional manner, as they are able to effectively communicate over long distances without delay. The largest threat to institutions from cyber terrorism comes from any processes that are networked and controlled via computer. Any vulnerability that could allow access to sensitive data or processes should be addressed and any possible measures taken to harden those resources to attack.

4.3.18.3 Past Occurrence

Active shooters, as defined by the US Department of Homeland Security, is an individual actively engaged in killing or attempting to kill people in a confined area; in most cases, active shooters use firearm(s) and there is not necessarily a pattern or method to their selection of victims. Throughout the year in 2018, there were a total of 340 active shooter

incidents in the United States according to the non-profit GunViolenceArchive.org. Often these shooters can be homegrown violent extremists. One significant event that occurred in Pennsylvania happened on October 27, 2018, when eleven people were killed by a gunman in the Pittsburgh, PA neighborhood of Squirrel Hill. The gunman (a HVE) attacked the congregation at the Tree of Life Synagogue in a shooting that targeted the Jewish population and was fueled by the gunman's anti-Semitic, anti-immigrant, and anti-refugee sentiments.

Another high-profile shooting occurred at the Pulse Nightclub in Orlando, Florida on June 12th, 2016 where the LGBTQ community was targeted and forty-nine people were killed and fifty-three were wounded. A few other significant active shooter events include those that occurred at Virginia Tech (April 2007), Sandy Hook Elementary School (December 2012), San Bernardino California (December 2015), an Aurora, Colorado movie theater (July 2012) and a church in Charleston, South Carolina (June 2015). A 2014 study by the FBI concluded that there has been a significant recent increase in frequency of active shooter incidents, and the vast majority (154 of 160 shooters between 2000 and 2013) were male (FBI, 2014). Of these 160 incidents, 45.6% took place in commercial environments, 24.3% took place in an educational environment, and the remaining 30.1% took place at other locations such as open spaces, military and other government properties, residential locations, houses of worship, and health care facilities (FBI, 2014). *Figure 47 - Active Shooter Incidents 2000-2013* (FBI, 2014) summarizes the FBI's findings in the study.

Significant international terrorism incidents in the USA include: the World Trade Center bombing in 1993, the bombing of the Murrow Building in Oklahoma City in 1995, and the September 11, 2001 attack on the World Trade Center. One of the aircrafts hijacked in the September 11, 2001 attack crash landed in Somerset County, Pennsylvania before it reached the intended target. While fatalities and destruction at the intended target were avoided, all passengers on the flight perished.

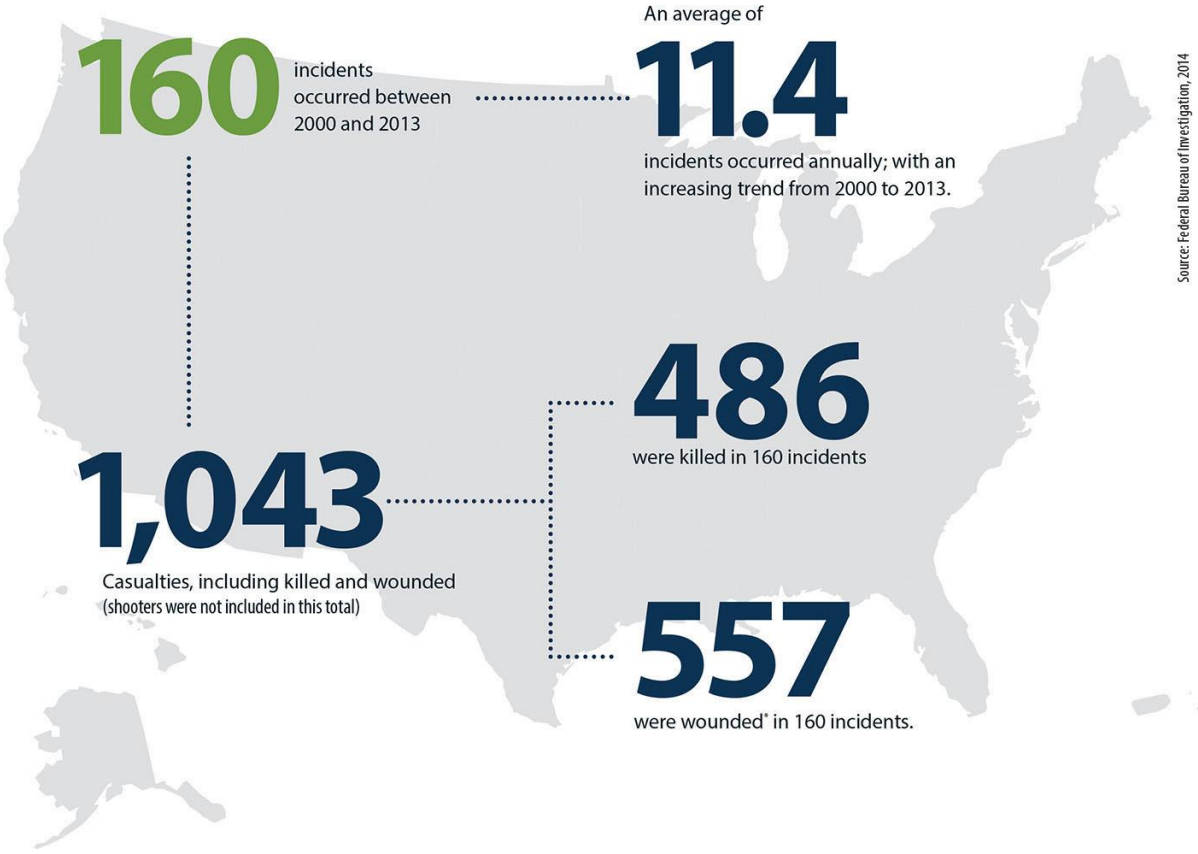
While the largest scale terrorist incidents have often had international stimulus, many other incidents are caused by home grown actors who may have become radicalized through hate groups either in real life or online, and who may struggle with mental health issues. Hate groups such as the Ku Klux Klan (KKK), Aryan Nation and, more recently, the Alt-Reich have been a part of domestic terrorism in different forms.

Knowledge Center reports of terrorist activity in Somerset County as of January 2020 can be found in *Table 53 - Terrorist Activity History*; however, these incidents are not all inclusive of the history of terrorism in the county.

Table 53 - Terrorist Activity History

Terrorist Activity History *(Knowledge Center, 2020)*			
Title	**Location**	**Location Type**	**Date**
KKK Protest/Rally	County Courthouse	County Government	06/26/1999
Bomb Threat Windber Schools	Windber Borough	Education	05/10/2007
Bomb Threat Indian Lake Marina	Indian Lake Borough	Residential/Industry	05/14/2007
Possible School Threat	Boswell Borough	Education	10/30/2007
Bomb Threat	Shade Township	Unknown	01/31/2008
Barricaded Person	Somerset Borough	Residential	07/28/2010
Bomb Threat	Shade Township	Unknown	11/15/2011
Bomb Threat Shade High School	Shade Township High School	Education	11/17/2011
Bomb Threat	Shade Township High School	Education	12/12/2012
Bomb Threat	Berlin Borough	Unknown	10/07/2013
Bomb Threat	Somerset	Unknown	11/06/2013
Terroristic Threats	Shade Township High School	Education	06/06/2014
Terroristic Threats	Somerset County Assistance Office	County Government	07/14/2014
Bomb Threat	Berlin Borough	Unknown	06/16/2015
Bomb Threat	Somerset Borough	Unknown	06/18/2015
Bomb Threat	Berlin Borough	Unknown	07/29/2016
Suspicious Vehicle at School	Berlin Borough	Education	10/03/2016
Bomb Threat at District Judge Office	Meyersdale Borough	County Government	02/22/2017
Bomb Threat/Delayed Entry	Summit Township	Unknown	04/19/2017
Bomb Threat on Hospi-tal	Somerset Borough	Healthcare	06/08/2017
Bomb Threat on School	Berlin Borough	Education	02/20/2018
LODD SCI Officer	Somerset Township	Unknown	02/26/2018
School Shooting Threat	Windber Borough	Education	03/08/2018
Suspicious Package	Somerset Borough	Unknown	12/03/2018
Police Incident at Court House	Somerset Borough	County Government	06/11/2018
Bomb Threat	Somerset Borough	Unknown	06/19/2018
KKK Notes	Somerset Borough/Berlin Borough	Residential	12/12/2018
Barricaded Person	Somerset Borough	Unknown	12/24/2019

Figure 47 - Active Shooter Incidents 2000-2013 (FBI, 2014)



4.3.18.4 Future Occurrence

The likelihood of Somerset County being a primary target for a major international terrorist attack is somewhat small. More likely terrorist activity in Somerset County are bomb threats or other incidents at schools. Somerset County has eleven public school districts, five private schools, and one institution of higher education. Despite the lack of recent events reported in *Table 53 - Terrorist Activity History*, bomb threats at schools are typically experienced at least once a year across the county

4.3.18.5 Vulnerability Assessment

Somerset County has 1,152 farms averaging 190 acres, according to the 2017 Census of Agriculture. Considering the widespread farming taking place in the county and despite the lack of past occurrences, Somerset County should be prepared to handle agri-terrorism incidents. It is important to note that the use and exposure to biological agents can remain unknown for several days until the infected person(s), livestock, or crops begin to experience symptoms. Often such agents are contagious and the infected person must be quarantined, livestock culled, and/or crops destroyed.

The probability of terrorist activity is more difficult to quantify than some other hazards. Instead of considering likelihood of occurrence, vulnerability is assessed in terms of specific assets. By identifying potentially at-risk terrorist targets in a community, planning efforts can be put in place to reduce the risk of attack. Planning should work towards identifying potentially at-risk critical facilities and systems in the community, prioritizing those assets and locations, and identify their vulnerabilities relative to known potential threats.

All communities in Somerset County are vulnerable on some level, directly or indirectly, to a terrorist attack. However, communities with schools and government infrastructure like the county seat of Somerset Borough should be considered more likely to attract terrorist activity. Site-specific assessments should be based on the relative importance of a particular site to the surrounding community or population, threats that are known to exist, and vulnerabilities.

According to the Pennsylvania Commission on Crime and Delinquency, Somerset County ranks thirty-ninth of Pennsylvania's sixty-seven counties in terms of arrest data. In the year 2016, Somerset County had three hundred and ninety-eight arrests, of which sixty-six were considered violent. Somerset County ranks fifty-seventh in terms of crime rates. In 2016, there were eight hundred-fifty-eight offenses of which ninety-two were considered violent. The most current data available for criminal justice crime trends in Somerset County, according to the Pennsylvania Commission on Crime and Delinquency, is 2016.

4.3.19. Transportation Accidents

4.3.19.1 Location and Extent

Transportation across Somerset County takes many forms, from interstate to local roadways, airports, rail and pipelines transport commodities and people in, out and through the county. Transportation accidents have the capacity to claim lives and cause more injuries than any other hazard.

Somerset County is served by Interstate 70/76 (The Pennsylvania Turnpike), US Route 219, US Route 30, along with PA Routes 31, 281, and 403, as main corridors. The Pennsylvania Turnpike consists of thirty miles in Somerset County. The Pennsylvania Department of Transportation owns 889 miles of roadways in the county and 1,259 miles are owned by individual boroughs and townships for a total of 2,264 miles of roadways throughout Somerset County.

One airport serves the county: Somerset County Airport. Somerset County Airport is classified as a business service airport and is publicly owned.

Rail freight traffic enters Somerset County from Pittsburgh through Ohiopyle State Park in the southwestern part of the county, traveling across the state line into Maryland. The rail 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".

Pipelines are continuously being upgraded or newly constructed within Somerset County. Most of the pipelines are located underground but there are locations located above ground.

4.3.19.2 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 and depends upon the number of vehicles involved.

Vehicle accidents can occur on any type of roadway. Typically, the more heavily traveled roads and those with higher posted speed limits experience a higher percentage of the county's vehicle accidents. These traffic accidents are more common during periods of inclement weather.

Airplane accidents are most common during take-off and landing points. Areas near and around airports are most vulnerable.

Railway accidents can occur anywhere along the rail lines and pose a greater threat when it occurs within a populated area.

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 breaks in the pipeline. Pipelines can also rupture due to pipeline integrity failures.

Hazardous material spills are the most common secondary effect of transportation accidents of any type. These types of accidents pose contamination to air, water and/or soil. Traffic accidents involving electric lines pose a wildfire and/or structure fire hazard.

4.3.19.3 Past Occurrence

Table 54 - Transportation Accidents/Incidents in Somerset County lists the transportation accidents/incidents in Somerset County between January 2009 and January 2020, as identified on Knowledge Center™ for all modes of transportation. Accidents were reported in all of Somerset County's municipalities except for Benson Borough, Callimont Borough, Casselman Borough, Central City Borough, Confluence Borough, Greenville Township, Hooversville Borough, Indian Lake Borough, Shankesville Borough, and Stoystown Borough.

Table 54 - Transportation Accidents/Incidents in Somerset County

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	01-03-2009	Berlin Borough	Vehicle accident into a structure.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	01-16-2009	Somerset Township	Vehicle accident with entrapment.
Vehicle	01-29-2009	Somerset Borough	Vehicle accident.
Vehicle	03-05-2009	Summit Township	Vehicle accident.
Aviation	03-30-2009	Seven Springs Borough	Emergency aircraft landing.
Commercial	04-12-2009	Summit Township	Tanker truck overturned.
Vehicle	08-02-2009	Jefferson Township	Fatal vehicle accident on SR 30.
ATV	08-02-2009	Upper Turkeyfoot Township	Fatal ATV accident.
Vehicle	08-02-2009	Middlecreek Township	Fatal vehicle accident on SR 653.
ATV	08-02-2009	Shade Township	ATV accident.
Vehicle	09-18-2009	Jenner Township	Vehicle accident.
Vehicle	09-27-2009	Upper Turkeyfoot Township	Fatal vehicle accident with road closure.
Commercial	09-28-2009	Brothers Valley Township	Fuel tanker overturned.
Vehicle	11-08-2009	Somerset Township	Motorcycle accident.
Vehicle	11-14-2009	Elk Lick Township	Vehicle accident.
Commercial	12-03-2009	Addison Township	A tree on Rt. 40 fell onto a tractor trailer hauling ammonium nitrate.
Vehicle	12-28-2009	Quemahoning Township	School bus accident.
Vehicle	01-11-2010	Summit Township	Vehicle accident with road closure.
Vehicle	01-28-2010	Upper Turkeyfoot Township	Vehicle accident
Rail	02-06-2010	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	02-06-2010	Ursina Borough	Accident involving a train and a car.
Vehicle	02-23-2010	Shade Township	Vehicle accident with injury.
Vehicle	03-17-2010	Jenner Township	Vehicle accident.
Rail	03-25-2010	Upper Turkeyfoot Township	CSX rail car carrying steel derailed. Crossing at Markleton School Road was closed.
Commercial	04-01-2010	Somerset Township	Tractor trailer rollover.
Vehicle	05-04-2010	Paint Township	Vehicle accident.
Vehicle	05-21-2010	Elk Lick Township	Vehicle accident with injury.
Vehicle	05-27-2010	Somerset Township	Vehicle accident.
Vehicle	06-14-2010	Elk Lick Township	Vehicle accident and fire as a result of a police pursuit

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	06-20-2010	Ursina Borough	Vehicle accident.
Vehicle	07-11-2010	Paint Township	Vehicle accident with entrapment.
Vehicle	07-17-2010	Milford Township	Vehicle accident with road closure.
Vehicle	07-30-2010	Shade Township	Vehicle accident with entrapment.
Vehicle	08-11-2010	Somerset Borough	Vehicle accident with road closure.
Vehicle	08-27-2010	Ogle Township	Vehicle accident.
Vehicle	09-07-2010	Somerset Borough	Vehicle accident involving a police car.
Vehicle	09-26-2010	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	12-01-2010	Somerset Township	Vehicle accident.
Vehicle	12-01-2010	Jenner Township	Vehicle accident.
Vehicle	12-06-2010	Somerset Township	Vehicle accident.
Vehicle	12-06-2010	Brothers Valley Township	Vehicle accident.
Vehicle	12-06-2010	Brothers Valley Township	Vehicle accident.
Vehicle	12-06-2010	Paint Township	Vehicle accident.
Vehicle	12-07-2010	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	01-12-2011	Jenner Township	Vehicle accident with a road closure on RT 219 S. at milepost 41.
Commercial	01-17-2011	Summit Township	Tractor trailer into a car on RT 219.
Vehicle	01-21-2011	Somerset Township	Vehicle accident.
Vehicle	02-16-2011	Paint Township	Vehicle accident with traffic delays.
Rail	02-22-2011	Somerset Borough	Train versus car.
Vehicle	03-04-2011	Paint Township	Vehicle accident with entrapment on RT 56.
Commercial	03-07-2011	Wellersburg Borough	Tractor trailer accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	03-14-2011	Shade Township	Fatal vehicle accident on RT 30 in Stoystown.
Vehicle	03-18-2011	Conemaugh Township	Vehicle accident.
Vehicle	03-25-2011	Somerset Township	Vehicle accident with entrapment.
Vehicle	03-26-2011	Somerset Borough	Vehicle accident.
Vehicle	04-10-2011	Jenner Township	Vehicle accident with ejection.
Vehicle	05-02-2011	Salisbury Borough	Vehicle accident with entrapment and road closure.
Vehicle	05-03-2011	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	05-18-2011	Somerset Township	Vehicle accident.
Vehicle	05-27-2011	Shade Township	Vehicle accident.
Vehicle	05-31-2011	Shade Township	Vehicle accident with a fuel spill.
Vehicle	06-17-2011	Milford Township	Police unit in accident on Waterlevel Road.
Vehicle	06-17-2011	Addison Township	Vehicle accident with injuries.
Vehicle	06-25-2011	Ogle Township	Vehicle accident.
Vehicle	07-01-2011	Jefferson Township	Vehicle accident on the PA Turnpike.
ATV	07-03-2011	Stonycreek Township	ATV accident.
Vehicle	08-03-2011	Quemahoning Township	Vehicle accident.
Vehicle	08-29-2011	Somerset Township	Vehicle accident.
Vehicle	09-07-2011	Somerset Borough	School bus accident.
Commercial	09-14-2011	Somerset Township	Coal truck accident with no injury.
Commercial	11-07-2011	Brothers Valley Township	Fatal accident involving a butane tanker.
Vehicle	12-05-2011	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	01-01-2012	Boswell Borough	Fatal ATV accident.
Vehicle	01-18-2012	Jefferson Township	Vehicle accident with minor entrapment.
Vehicle	02-02-2012	Conemaugh Township	Vehicle accident with injury.
Vehicle	020-2-2012	Milford Township	Fatal vehicle accident.
Commercial	02-26-2012	Brothers Valley Township	Milk tanker truck over a bank.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	03-10-2012	Jefferson Township	Vehicle accident with ejection.
Commercial	03-14-2012	Middlecreek Township	Tractor trailer versus bus/Mass Casualty incident.
Vehicle	04-23-2012	Milford Township	Vehicle accident with a transformer down.
Vehicle	05-04-2012	Summit Township	Vehicle accident.
Vehicle	05-15-2012	Lincoln Township	Motorcycle accident.
Vehicle	06-21-2012	Somerset Township	Vehicle accident with entrapment.
Commercial	07-19-2012	Jenner Township	Coal truck accident.
Vehicle	07-19-2012	Quemahoning Township	Vehicle accident with road closure.
Vehicle	07-28-2012	Larimer Township	Vehicle accident with entrapment.
Vehicle	08-31-2012	Shade Township	Vehicle accident.
Rail	09-02-2012	Lower Turkeyfoot Township	Train derailment in Forthill.
Commercial	09-11-2012	Brothers Valley Township	Tractor trailer overturned.
Rail	09-24-2012	Somerset Township	Tractor trailer versus train accident.
Aviation	10-17-2012	Stonycreek Township	Low flying aircraft.
Vehicle	10-20-2012	Somerset Borough	Vehicle accident with ejection and entrapment.
Vehicle	10-22-2012	Upper Turkeyfoot Township	School bus accident in New Lexington.
Vehicle	11-09-2012	Addison Township	Vehicle accident with entrapment.
Vehicle	11-09-2012	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	02-22-2013	Stonycreek Township	Fatal vehicle accident.
Vehicle	03-03-2013	Jenner Township	Vehicle accident with ejection and entrapment.
Vehicle	030-5-2013	Upper Turkeyfoot Township	Vehicle accident.
Vehicle	03-18-2013	Conemaugh Township	School bus accident
Vehicle	07-07-2013	Summit Township	Vehicle accident with entrapment and fire.
Commercial	07-26-2013	Unknown (not listed)	Coal truck rollover.
Vehicle	07-31-2013	Unknown (not listed)	Vehicle accident with entrapment.
Commercial	08-23-2013	Meyersdale Borough	Tri-axle rollover.
Vehicle	09-02-2013	Ursina Borough	Motorcycle accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	09-26-2013	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.
Vehicle	11-15-2013	Windber Borough	Accident involving a school bus.
Commercial	11-18-2013	Quemahoning Township	Fatal commercial vehicle accident.
Vehicle	11-20-2013	Boswell Borough	Two vehicle accident (police car involved) with two injuries.
Commercial	12-05-2013	Somerset Township	Tractor trailer fire.
Vehicle	12-08-2013	Brothers Valley Township	Vehicle accident with entrapment and fire.
Vehicle	01-26-2014	Lower Turkeyfoot Township	Fire truck accident.
Vehicle	01-27-2014	Windber Borough	Police cruiser involved in an accident.
Vehicle	02-03-2014	Garrett Borough	Vehicle accident with entrapment.
Vehicle	02-14-2014	Shade Township	Vehicle fire.
Vehicle	02-19-2014	Black Township	Vehicle accident with entrapment.
Vehicle	02-19-2014	Black Township	Vehicle accident.
Vehicle	02-24-2014	Stonycreek Township	Vehicle accident.
Vehicle	02-27-2014	Brothers Valley Township	Vehicle accident with minor injuries.
Vehicle	02-27-2014	Stonycreek Township	Vehicle accident.
Vehicle	02-28-2014	Somerset Township	Vehicle accident with entrapment.
Vehicle	02-28-2014	Conemaugh Township	Vehicle accident.
Rail	03-04-2014	Somerset Township	Train versus car.
Aviation	03-04-2014	Somerset	Laser incident at the County Airport.
Commercial	03-06-2014	Somerset Township	Commercial vehicle fire.
Vehicle	03-06-2014	Brothers Valley Township	Military vehicle accident.
Vehicle	03-08-2014	Black Township	Vehicle accident at a railroad crossing.
Commercial	03-10-2014	Shade Township	Commercial vehicle accident.
Vehicle	03-26-2014	Upper Turkeyfoot Township	Vehicle accident with entrapment.
Rail	03-27-2014	Northampton Township	Train fire.
Vehicle	04-10-2014	Elk Lick Township	Vehicle versus pedestrian accident.
Vehicle	04-14-2014	Middlecreek Township	Vehicle accident with entrapment.
Rail	04-16-2014	Somerset Borough	CSX train versus tractor trailer hauling coal.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	04-16-2014	Lower Turkeyfoot Township	Vehicle rollover on railroad tracks.
Vehicle	04-20-2014	Somerset Township	Vehicle versus pedestrian accident.
ATV	04-27-2014	Elk Lick Township	ATV accident with injury.
Commercial	05-01-2014	Quemahoning Township	Commercial vehicle accident.
Vehicle	05-02-2014	Addison Township	Vehicle accident with entrapment.
Commercial	05-09-2014	Elk Lick Township	Commercial vehicle accident.
Vehicle	05-21-2014	Jefferson Township	Vehicle accident.
Vehicle	05-21-2014	Somerset Township	Vehicle accident.
Vehicle	05-25-2014	Somerset Borough	Vehicle accident involving a police unit.
Vehicle	06-01-2014	Lower Turkeyfoot Township	Vehicle accident involving a pedestrian and a motorcycle.
Vehicle	06-20-2014	Jenner Township	Fatal vehicle accident at RT 30 and RT 219.
Vehicle	06-23-2014	Conemaugh Township	Fatal vehicle accident.
Vehicle	06-23-2014	Paint Township	Motorcycle accident.
Vehicle	06-24-2014	Milford Township	Vehicle accident.
Vehicle	07-05-2014	Somerset Township	Vehicle versus pedestrian accident.
ATV	07-06-2014	Stonycreek Township	ATV accident with a hand amputation.
Commercial	07-07-2014	Somerset Township	Tractor trailer fire.
Commercial	07-07-2014	Black Township	Commercial vehicle accident.
Vehicle	07-14-2014	Somerset Township	Vehicle accident.
ATV	08-02-2014	Somerset Township	Fatal ATV versus a car on Geiger Road.
Rail	08-09-2014	Fairhope Township	CSX train versus vehicle. There was no one in the vehicle.
Rail	08-15-2014	Conemaugh Township	CSX trail derailment (minor) at Thomas Street crossing.
Vehicle	08-24-2014	Shade Township	Fatal vehicle accident.
Vehicle	08-24-2014	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	08-25-2014	Somerset	Vehicle accident.
Vehicle	09-02-2014	Jenner Township	Vehicle accident with entrapment.
Vehicle	09-03-2014	Jenner Township	Vehicle accident with entrapment.
Rail	09-15-2014	Conemaugh Township	Minor train derailment.
Vehicle	09-27-2014	Somerset	Accident involving EMS unit.
Vehicle	10-18-2014	Allegheny Township	Truck over embankment on PA Turnpike.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	10-19-2014	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	10-23-2014	Somerset Borough	Vehicle accident with injury.
Vehicle	11-10-2014	Somerset Township	Fatal vehicle accident.
Vehicle	11-11-2014	Somerset Borough	Vehicle accident with entrapment.
Vehicle	11-14-2014	Shade Township	School bus accident.
Vehicle	11-20-2014	Somerset Township	Vehicle accident with entrapment.
Vehicle	11-25-2014	Stonycreek Township	Vehicle accident with entrapment.
Vehicle	11-29-2014	Shade Township	Vehicle accident involving a postal carrier.
Vehicle	12-05-2014	Somerset Township	Vehicle accident.
Vehicle	12-20-2014	Somerset	Vehicle accident with ejection.
Vehicle	12-23-2014	Shade Township	Vehicle accident into a house with entrapment.
Vehicle	12-23-2014	Shade Township	Vehicle accident with entrapment.
Vehicle	12-23-2014	Stonycreek Township	Vehicle accident.
Vehicle	12-28-2014	Somerset	Multiple vehicle accident on PA Turnpike.
Vehicle	01-01-2015	Paint Township	Vehicle accident with entrapment.
Commercial	01-03-2015	Somerset Township	Accident involving hazardous materials.
Vehicle	01-25-2015	Conemaugh Township	Fatal vehicle accident.
Vehicle	01-26-2015	Somerset Township	Vehicle accident.
Commercial	01-29-2015	Addison Township	Commercial vehicle accident.
Commercial	01-30-2015	Elk Lick Township	Milk tanker roll-over.
Vehicle	02-02-2015	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	02-02-2015	Milford Township	Three vehicle accident.
Vehicle	02-13-2015	Shade Township	Vehicle accident.
Vehicle	02-13-2015	Somerset Township	Vehicle accident.
Vehicle	02-14-2015	Lincoln Township	Vehicle accident.
Vehicle	02-16-2015	Jefferson Township	Accident involving a school bus.
Vehicle	02-16-2015	Ogle Township	Vehicle accident with injury.
Vehicle	03-01-2015	Somerset Township	Vehicle accident.
Commercial	03-12-2015	Brothers Valley Township	Commercial vehicle accident with US 219 closed.
Vehicle	03-14-2015	Somerset Township	Vehicle versus pedestrian accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	03-28-2015	Jefferson Township	Vehicle accident with entrapment.
Vehicle	04-11-2015	Somerset	Vehicle accident with ejection on Mason Dixon Highway.
Commercial	04-14-2015	Brothers Valley Township	Commercial vehicle accident.
ATV	04-26-2015	Summit Township	ATV accident.
Vehicle	05-05-2015	Somerset Township	Vehicle accident.
Vehicle	05-06-2015	Somerset Borough	Vehicle accident.
Vehicle	05-07-2015	Jenner Township	Vehicle accident with live wires down.
Vehicle	05-16-2015	Somerset Township	Vehicle accident with a natural gas leak.
Vehicle	05-16-2015	Windber Borough	Vehicle accident with entrapment.
Vehicle	05-23-2015	Brothers Valley Township	Vehicle accident.
Pipeline	06-03-2015	Jenner Township	Quemahoning pipeline break.
Vehicle	06-04-2015	Somerset	Vehicle accident with entrapment.
Vehicle	06-10-2015	Windber Borough	Vehicle accident with entrapment.
Vehicle	06-15-2015	Quemahoning Township	Fatal vehicle accident.
Vehicle	07-02-2015	Jefferson Township	Vehicle accident with entrapment.
Commercial	07-06-2015	Windber Borough	Commercial vehicle accident.
Vehicle	07-06-2015	Somerset Township	Vehicle accident with multiple injuries.
Vehicle	07-11-2015	Conemaugh Township	Fatal motorcycle accident.
Vehicle	07-15-2015	Somerset	Motorcycle accident.
Vehicle	07-21-2015	Milford Township	Vehicle accident with entrapment and fatality.
ATV	07-26-2015	Upper Turkeyfoot Township	ATV accident with injuries.
Commercial	08-05-2015	Shade Township	Tractor-trailer rollover.
Vehicle	08-06-2015	Stonycreek Township	Vehicle accident with entrapment.
Pipeline	08-17-2015	Somerset Borough	Natural gas line sheared.
Vehicle	08-19-2015	Upper Turkeyfoot Township	Fatal vehicle accident.
Vehicle	08-19-2015	Summit Township	Vehicle accident with hazardous materials.
Vehicle	08-21-2015	Somerset Township	Vehicle accident with hazardous materials.
Vehicle	08-23-2015	Milford Township	Fatal vehicle accident.
Vehicle	09-04-2015	Somerset Township	Accident with hazardous materials on I-76 Eastbound.
Vehicle	09-20-2015	Stonycreek Township	Motorcycle accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	09-30-2015	Somerset Township	Vehicle accident.
Commercial	10-05-2015	Brothers Valley Township	Commercial vehicle accident with hazardous materials.
Vehicle	10-07-2015	Jefferson Township	Vehicle accident.
Vehicle	10-11-2015	Somerset Borough	Vehicle accident with road closure.
Vehicle	10-22-2015	Jefferson Township	Vehicle accident.
Vehicle	10-24-2015	Somerset	Vehicle accident at the 102 Eastbound on the PA Turnpike.
Vehicle	11-24-2015	Somerset Township	Vehicle accident.
Commercial	11-25-2015	Somerset Township	Commercial vehicle accident with entrapment.
Vehicle	12-01-2015	Somerset	Vehicle accident on railroad tracks.
Vehicle	12-07-2015	Conemaugh Township	School bus accident with no injuries.
Commercial	12-28-2015	Stonycreek Township	Tractor-trailer fire.
Vehicle	12-30-2015	Milford Township	Vehicle accident with a pole down.
Vehicle	01-08-2016	Somerset	Multiple vehicle accidents.
Commercial	01-12-2016	Somerset	Commercial vehicle fire on the PA Turnpike.
Vehicle	01-13-2016	Milford Township	Vehicle accident with pole and wires down.
Vehicle	01-21-2016	Somerset Borough	Vehicle accident.
Vehicle	02-05-2016	Rockwood Borough	Vehicle accident with pole and wires down.
Commercial	02-05-2016	Allegheny Township	Commercial vehicle with entrapment.
Vehicle	02-09-2016	Windber Borough	Vehicle accident with entrapment.
Vehicle	02-10-2016	Somerset Township	Vehicle accident with injuries.
Vehicle	02-11-2016	Brothers Valley Township	Vehicle accident.
Vehicle	02-11-2016	New Centerville Borough	Vehicle accident into a structure with collapse.
Vehicle	02-16-2016	Addison Township	Vehicle accident with entrapment.
Vehicle	03-05-2016	Paint Township	Vehicle accident with entrapment.
Commercial	03-07-2016	Southampton Township	Tractor trailer accident with road closure.
Vehicle	03-09-2016	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	03-19-2016	Wellersburg Borough	Vehicle accident with entrapment.
Vehicle	03-25-2016	Somerset	Vehicle accident at 102 Eastbound PA Turnpike.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	04-01-2016	Jefferson Township	Vehicle accident with entrapment.
Vehicle	04-03-2016	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	04-04-2016	Windber Borough	Vehicle accident involving police.
Vehicle	04-05-2016	Somerset	Vehicle accident with ejection.
Vehicle	04-07-2016	Allegheny Township	Vehicle accident with entrapment.
Commercial	04-12-2016	Jenner Township	Commercial vehicle accident with entrapment and road closure.
Vehicle	04-17-2016	Lower Turkeyfoot Township	Motorcycle accident.
Commercial	04-19-2016	Elk Lick Township	Coal truck accident.
Commercial	04-21-2016	Somerset Borough	Commercial vehicle accident.
Vehicle	05-02-2016	Lower Turkeyfoot Township	Fire truck accident.
Commercial	05-04-2016	Somerset Borough	Commercial vehicle accident with entrapment.
Commercial	05-05-2016	Allegheny Township	Commercial vehicle accident with entrapment and on fire.
Vehicle	05-05-2016	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	05-06-2016	Ogle Township	Vehicle accident with entrapment.
Vehicle	05-13-2016	Jefferson Township	Vehicle accident at 101.9 Eastbound on PA Turnpike.
Vehicle	05-15-2016	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	05-16-2016	Summit Township	Vehicle accident with entrapment.
ATV	05-24-2016	Stonycreek Township	ATV accident with multiple patients.
Vehicle	05-29-2016	Paint Township	Vehicle accident with entrapment.
Rail	06-16-2016	Fairhope Township	Train engine fire.
Vehicle	06-17-2016	Jefferson Township	Vehicle accident with entrapment.
Vehicle	06-21-2016	Black Township	Vehicle versus pedestrian accident.
Rail	06-30-2016	Rockwood Borough	Train derailment.
Vehicle	06-30-2016	Somerset Township	Vehicle accident with entrapment.
ATV	07-01-2016	Somerset	ATV accident with individual pinned.
Vehicle	07-05-2016	Seven Springs Borough	Vehicle accident causing a power outage.
Vehicle	07-09-2016	Jenner Township	Vehicle accident with entrapment.
Commercial	07-13-2016	Wellersburg Borough	Tractor trailer accident.
Vehicle	07-16-2016	Somerset	Vehicle fire on PA Turnpike at 105 Westbound.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	07-17-2016	Elk Lick Township	Vehicle versus horse and buggy.
Pipeline	07-30-2016	Somerset Borough	Gas line rupture with evacuation.
Vehicle	08-02-2016	Shade Township	Vehicle rollover with entrapment.
Vehicle	08-06-2016	Milford Township	Vehicle accident with ejection.
Vehicle	08-07-2016	Lincoln Township	Vehicle accident with injuries.
Vehicle	08-11-2016	Shade Township	Vehicle accident with ejection and entrapment.
Vehicle	08-11-2016	Brothers Valley Township	Vehicle accident with entrapment.
Vehicle	08-13-2016	Windber Borough	Vehicle versus pedestrian accident.
Vehicle	08-14-2016	Somerset Township	Vehicle accident.
Commercial	08-15-2016	Stonycreek Township	Commercial vehicle accident with wires down.
Vehicle	08-15-2016	Somerset Borough	Vehicle versus pedestrian (child) accident.
Commercial	08-17-2016	Allegheny Township	Commercial vehicle accident.
Vehicle	08-22-2016	Windber Borough	Vehicle accident with entrapment and on fire.
Vehicle	08-26-2016	Quemahoning Township	Vehicle accident with entrapment.
Vehicle	08-27-2016	Jenner Township	Vehicle accident with entrapment.
Vehicle	08-28-2016	Jefferson Township	Vehicle accident on the PA Turnpike.
Commercial	09-05-2016	Somerset	Commercial vehicle accident.
Vehicle	09-11-2016	Somerset Township	Vehicle accident on RT 281 South.
ATV	09-17-2016	Summit Township	ATV accident.
Vehicle	09-21-2016	Somerset Township	Vehicle accident with ejection.
Vehicle	09-22-2016	Somerset	Motorcycle versus bicycle accident.
Vehicle	09-24-2016	Jefferson Township	Vehicle accident with entrapment.
Vehicle	09-26-2016	Middlecreek Township	Vehicle versus motorcycle accident.
Vehicle	09-27-2016	Summit Township	Vehicle accident with injuries.
ATV	09-28-2016	Somerset Township	ATV accident.
Vehicle	09-30-2016	Elk Lick Township	Vehicle accident.
Vehicle	09-30-2016	Somerset Township	Multiple vehicles involved in an accident.
Vehicle	10-03-2016	Somerset	Vehicle accident with injuries.
Vehicle	10-05-2016	Paint Township	Vehicle accident with entrapment.
Commercial	10-11-2016	Elk Lick Township	Tractor-trailer hauling livestock accident.
Vehicle	10-21-2016	Summit Township	Vehicle accident with entrapment.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	10-30-2016	Lower Turkeyfoot Township	Vehicle accident with entrapment.
Vehicle	11-03-2016	Brothers Valley Township	Vehicle accident with road closure.
Vehicle	11-03-2016	Somerset Township	School van versus passenger vehicle.
Vehicle	11-08-2016	Larimer Township	Vehicle accident with live wires down.
Vehicle	11-12-2016	Jenner Township	Vehicle accident with entrapment.
Vehicle	11-15-2016	Berlin Borough	Vehicle accident into a garage with collapse.
Vehicle	11-15-2016	Conemaugh Township	Vehicle accident into a house.
Vehicle	11-26-2016	Southampton Township	Vehicle accident involving a utility pole.
Vehicle	12-05-2016	Shade Township	Vehicle accident with utility lines down and a road closure.
Vehicle	12-09-2016	Brothers Valley Township	Multiple vehicles involved in an accident.
Commercial	12-12-2016	Summit Township	Commercial vehicle accident.
Vehicle	12-14-2016	Allegheny Township	Vehicle accident with entrapment.
Vehicle	12-16-2016	Elk Lick Township	Vehicle accident with multiple injuries.
Vehicle	12-29-2016	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	12-30-2016	Brothers Valley Township	Fatal vehicle accident with entrapment.
Vehicle	01-01-2017	Upper Turkeyfoot Township	Police pursuit with vehicle accident.
Vehicle	01-01-2017	Lower Turkeyfoot Township	Vehicle accident with entrapment.
Vehicle	01-10-2017	Brothers Valley Township	Vehicle accident with possible fatality.
Vehicle	01-11-2017	Middlecreek Township	Fatal vehicle accident
Vehicle	01-11-2017	Jenner Township	Vehicle accident with road closure.
Vehicle	01-26-2017	Stonycreek Township	Commercial vehicle fire.
Vehicle	01-31-2017	Addison Borough	Vehicle accident with road closure.
Vehicle	02-02-2017	Larimer Township	Vehicle accident.
Vehicle	02-08-2017	Summit Township	Vehicle accident with entrapment.
Vehicle	02-10-2017	Windber Borough	Emergency medical services unit accident.
Commercial	02-15-2017	Allegheny Township	Commercial vehicle accident.
Vehicle	02-15-2017	Black Township	Fire unit involved in a vehicle accident.
Vehicle	02-16-2017	Somerset	Vehicle accident with road closure.
Vehicle	02-19-2017	Black Township	Vehicle accident.
Vehicle	02-19-2017	Somerset Borough	Vehicle accident into a building.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	02-22-2017	Elk Lick Township	Vehicle accident with a pole down and power outages.
Rail	02-23-2017	Upper Turkeyfoot Township	Vehicle versus train.
Rail	03-09-2017	Lower Turkeyfoot Township	Train engine fire.
Vehicle	03-10-2017	Brothers Valley Township	Vehicle accident.
Vehicle	03-10-2017	Conemaugh Township	Vehicle off the roadway, no injuries.
Vehicle	03-10-2017	Middlecreek Township	Multiple vehicle accident.
Vehicle	03-10-2017	Addison Township	Vehicle accident on Route 40.
Vehicle	03-16-2017	Conemaugh Township	Vehicle accident with a pole sheared and a partial road closure.
Vehicle	03-18-2017	Somerset Borough	Vehicle versus pedestrian accident.
Vehicle	03-26-2017	Conemaugh Township	Vehicle accident with ejection.
Vehicle	04-01-2017	Somerset	Vehicle accident into a structure.
Vehicle	04-01-2017	Middlecreek Township	Vehicle accident with entrapment.
Vehicle	04-02-2017	Somerset Township	Vehicle rollover accident.
Vehicle	04-04-2017	Wellersburg Borough	Vehicle accident into a structure.
Vehicle	04-12-2017	Rockwood Borough	Vehicle accident into a commercial structure.
Rail	04-22-2017	Meyersdale Borough	Train versus pedestrian accident.
Commercial	05-04-2017	Southampton Township	Commercial vehicle accident.
Vehicle	05-06-2017	Somerset Township	Vehicle accident with entrapment.
Commercial	05-08-2017	Summit Township	Commercial vehicle accident.
Commercial	05-09-2017	Shade Township	Commercial vehicle accident with entrapment.
Commercial	05-14-2017	Wellersburg Borough	Commercial vehicle accident with rollover.
Vehicle	05-17-2017	Conemaugh Township	Fire unit involved in a vehicle accident.
Commercial	05-23-2017	Brothers Valley Township	Commercial vehicle accident.
Vehicle	06-09-2017	Conemaugh Township	Vehicle accident on Route 219.
ATV	06-10-2017	Brothers Valley Township	ATV accident with injury.
ATV	06-10-2017	Addison Township	ATV accident with two injured.
Vehicle	06-12-2017	Middlecreek Township	Vehicle accident with entrapment.
Commercial	06-23-2017	Conemaugh Township	Commercial vehicle fire.
Vehicle	06-27-2017	Somerset	Vehicle accident with entrapment.
Vehicle	06-29-2017	Somerset Borough	School van involved in an accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	07-03-2017	Somerset Borough	Vehicle versus pedestrian accident.
Rail	07-08-2017	Northampton Township	Train engine on fire.
Commercial	07-11-2017	Somerset	Commercial vehicle accident.
Vehicle	07-12-2017	Shade Township	Vehicle accident with entrapment.
ATV	07-13-2017	Elk Lick Township	Fatal ATV accident.
Rail	07-19-2017	Lower Turkeyfoot Township	Train derailment.
Commercial	08-16-2017	Jefferson Township	Commercial vehicle accident.
Vehicle	08-16-2017	Lower Turkeyfoot Township	Motorcycle accident with injuries.
Commercial	08-17-2017	Somerset	Commercial vehicle accident with fire.
Vehicle	08-18-2017	Allegheny Township	Vehicle on fire on the PA Turnpike.
Vehicle	08-29-2017	Somerset Township	Motorcycle versus car accident.
Commercial	09-02-2017	Allegheny Township	Tractor trailer accident on I-76 Eastbound.
ATV	09-03-2017	Shade Township	ATV accident.
Vehicle	09-11-2017	Quemahoning Township	Vehicle accident into a river.
Vehicle	09-11-2017	Conemaugh Township	Vehicle accident with an officer assaulted.
Commercial	09-13-2017	Paint Township	Commercial vehicle accident with ejection.
Vehicle	09-14-2017	Paint Township	Fire truck involved in a vehicle accident.
Vehicle	09-17-2017	Garrett Borough	Vehicle accident involving a motorcycle.
Vehicle	09-23-2017	Larimer Township	Vehicle fire on railroad tracks.
ATV	09-25-2017	Addison Township	ATV accident.
Commercial	09-30-2017	Brothers Valley Township	Commercial vehicle accident.
Commercial	10-02-2017	Shade Township	Commercial vehicle accident with entrapment.
Vehicle	10-06-2017	Paint Township	Vehicle accident with fire.
Vehicle	10-13-2017	Upper Turkeyfoot Township	Vehicle accident with ejection.
Pipeline	10-16-2017	Berlin Borough	Four-inch gal line rupture
ATV	10-21-2017	Somerset	Fatal ATV accident.
Vehicle	10-28-2017	Ogle Township	Vehicle accident.
Commercial	10-31-2017	Somerset Township	Propane truck on fire.
Commercial	11-29-2017	Brothers Valley Township	Tank-truck accident.
Vehicle	12-05-2017	Conemaugh Township	Vehicle accident involving a bus.
Vehicle	12-13-2017	Somerset Township	Vehicle accident with a road closure.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	12-18-2017	Ogle Township	Vehicle accident with entrapment.
Vehicle	12-23-2017	Somerset	Vehicle accident with entrapment.
Commercial	12-27-2017	Conemaugh Township	Commercial vehicle accident.
Vehicle	12-28-2017	Black Township	Vehicle accident with entrapment.
Commercial	12-28-2017	Jefferson Township	Tractor-trailer overturned on the PA Turnpike.
Commercial	12-29-2017	Conemaugh Township	Tanker truck versus box truck.
Vehicle	01-01-2018	Jefferson Township	Multiple vehicle accident.
Vehicle	01-13-2018	Summit Township	Vehicle accident with entrapment.
Vehicle	01-14-2018	Conemaugh Township	Fatal vehicle accident with a road closure.
Vehicle	01-17-2018	Somerset	Vehicle accident with a road closure.
Vehicle	01-29-2018	Somerset Township	Vehicle versus pedestrian.
Vehicle	01-29-2018	Meyersdale Borough	Vehicle accident into a structure.
Commercial	02-02-2018	Brothers Valley Township	Commercial vehicle accident.
Vehicle	02-03-2018	Jefferson Township	Vehicle accident on I-76 with road closure.
Commercial	02-03-2018	Somerset	Commercial vehicle accident.
Vehicle	02-04-2018	Somerset Borough	Vehicle accident with road closure.
Commercial	02-06-2018	Jefferson Township	Commercial vehicle accident with ejection.
Commercial	02-07-2018	Somerset Township	Commercial vehicle accident.
Vehicle	02-17-2018	Somerset	Vehicle accident with road closure.
Vehicle	02-17-2018	Somerset Borough	Ambulance involved in a vehicle accident.
Vehicle	03-11-2018	Stonycreek Township	Vehicle accident.
Commercial	03-29-2018	Somerset Township	Commercial vehicle fire involving hazardous materials.
Vehicle	04-03-2018	Brothers Valley Township	Vehicle accident with ejection.
Vehicle	04-13-2018	Somerset Township	Vehicle accident with entrapment.
Vehicle	04-15-2018	Somerset Township	Vehicle accident with entrapment.
Vehicle	04-23-2018	Middlecreek Township	Vehicle accident with entrapment.
Vehicle	04-25-2018	Stonycreek Township	Vehicle accident with entrapment.
Pipeline	05-09-2018	Lincoln Township	Pipeline break.
Air	05-11-2018	Somerset Township	ELT activation at Somerset County Airport. The aircraft was under maintenance and activated in error. No aircraft in distress.
Rail	05-24-2018	Somerset Borough	Train versus pedestrian.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Commercial	06-08-2018	Conemaugh Township	Commercial vehicle fire.
Commercial	06-13-2018	Southampton Township	Commercial vehicle accident.
Transportation	06-20-2018	New Baltimore Borough	Covered bridge damage.
Commercial	06-22-2018	Stonycreek Township	Commercial vehicle accident with entrapment on the PA Turnpike.
Vehicle	06-23-2018	Jenner Township	Vehicle accident with road closure.
Vehicle	06-27-2018	Somerset Township	Vehicle accident with entrapment.
Commercial	07-03-2018	Wellersburg Borough	Commercial vehicle accident with entrapment.
Vehicle	07-21-2018	Addison Township	Fatal motorcycle accident.
Vehicle	07-29-2018	Shade Township	Motorcycle versus van accident.
Rail	08-13-2018	Windber Borough	Train derailment.
Vehicle	08-19-2018	Southampton Township	Vehicle accident with road closure.
Vehicle	08-24-2018	Summit Township	Head-on vehicle accident.
Vehicle	08-25-2018	Brothers Valley Township	Two-vehicle accident with ejection.
Vehicle	08-28-2018	Windber Borough	Vehicle accident.
Vehicle	09-10-2018	Jefferson Township	Police unit involved in an accident.
Commercial	09-11-2018	Brothers Valley Township	Commercial vehicle accident with entrapment.
Commercial	09-12-2018	Somerset Township	Commercial vehicle accident.
Commercial	09-13-2018	Conemaugh Township	Commercial vehicle accident.
Vehicle	09-30-2018	Conemaugh Township	Vehicle accident with road closure.
Air	09-30-2018	Somerset Township	Aircraft down at the airport.
Vehicle	09-30-2018	Jefferson Township	Motorcycle accident.
Vehicle	10-09-2018	Paint Township	Fatal motorcycle accident.
Vehicle	10-11-2018	Quemahoning Township	Vehicle versus pedestrian accident.
ATV	10-11-2018	Southampton Township	ATV accident.
Rail	10-26-2018	Northampton Township	CSX train on fire.
Rail	11-04-2018	Summit Township	Train engine on fire.
Vehicle	11-08-2018	Quemahoning Township	Vehicle accident with entrapment.
Commercial	11-08-2018	Somerset	Commercial vehicle accident.
Vehicle	11-09-2018	Quemahoning Township	Vehicle accident with injuries.
Vehicle	11-09-2018	Larimer Township	Vehicle accident with ejection.
Vehicle	11-14-2018	Jenner Township	Fatal vehicle accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Commercial	11-15-2018	Somerset	Commercial vehicle fire.
Commercial	11-19-2018	Wellersburg Borough	Commercial vehicle accident.
Vehicle	11-19-2018	Somerset Borough	Vehicle accident into a structure.
Vehicle	12-02-2018	Brothers Valley Township	Vehicle accident into a structure.
Commercial	12-03-2018	Somerset Township	Tractor trailer accident with an active leak.
Vehicle	12-10-2018	Brothers Valley Township	Vehicle accident with roll-over.
Vehicle	12-12-2018	Somerset Township	Vehicle accident with ejection.
Vehicle	12-12-2018	Brothers Valley Township	Vehicle accident into a structure.
Rail	01-12-2019	Fairhope Township	Train versus vehicle accident.
Commercial	01-14-2019	Shade Township	Commercial vehicle accident.
Commercial	01-14-2019	Salisbury Borough	Commercial vehicle accident.
Commercial	01-15-2019	Summit Township	Commercial vehicle accident.
Vehicle	01-24-2019	Ogle Township	Vehicle accident with entrapment.
Commercial	02-06-2019	Stonycreek Township	Commercial vehicle accident.
Commercial	02-11-2019	Elk Lick Township	Commercial vehicle accident.
Commercial	02-15-2019	Paint Township	Commercial vehicle accident.
Vehicle	02-15-2019	Somerset Township	Vehicle accident.
Vehicle	03-10-2019	Somerset	Vehicle accident with entrapment.
Vehicle	03-18-2019	Somerset	Vehicle accident with possible ejection.
Vehicle	03-22-2019	Paint Township	Vehicle accident.
Pipeline	03-26-2019	Salisbury Borough	Gas line break.
Vehicle	03-29-2019	Somerset Township	Vehicle accident near the railroad tracks.
Vehicle	04-01-2019	Conemaugh Township	Vehicle accident on Route 219.
Commercial	04-03-2019	Quemahoning Township	Commercial vehicle accident with entrapment.
Commercial	04-04-2019	Windber Borough	Propane tanker stuck on the railroad tracks.
Rail	04-18-2019	Somerset Township	Train versus passenger vehicle accident.
Vehicle	04-18-2019	Somerset Township	Vehicle accident with entrapment.
Vehicle	04-22-2019	Somerset Township	Vehicle accident.
Vehicle	04-24-2019	Lincoln Township	Vehicle accident.
Vehicle	04-26-2019	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	05-02-2019	Elk Lick Township	Vehicle accident with road closure.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Commercial	05-06-2019	Shade Township	Commercial vehicle accident.
Rail	05-07-2019	Somerset Township	Train versus pedestrian.
Vehicle	05-09-2019	Larimer Township	Ambulance accident.
Vehicle	05-16-2019	Stonycreek Township	Vehicle accident with injuries.
Vehicle	05-18-2019	Somerset	Vehicle accident with entrapment.
Vehicle	05-19-2019	Confluence Borough	Fatal motorcycle accident.
Rail	05-19-2019	Garrett Borough	Train engine fire.
Vehicle	05-24-2019	Somerset	Motorcycle accident on PA Turnpike.
Vehicle	05-24-2019	Larimer Township	Motorcycle versus passenger vehicle accident.
Vehicle	05-25-2019	Jenner Township	Vehicle accident.
Vehicle	05-29-2019	Conemaugh Township	Vehicle accident with entrapment.
Vehicle	06-02-2019	New Baltimore Borough	Vehicle accident with entrapment.
Vehicle	06-03-2019	Salisbury Borough	Vehicle fire with injuries.
Vehicle	06-04-2019	Allegheny Township	Motorcycle accident with injuries.
ATV	06-05-2019	Allegheny Township	ATV accident.
Vehicle	06-09-2019	Allegheny Township	Vehicle accident with entrapment.
Vehicle	06-14-2019	Somerset Townsip	Vehicle accident.
Vehicle	06-16-2019	Upper Turkeyfoot Township	Vehicle accident with ejection.
Vehicle	06-18-2019	Somerset Township	Vehicle accident.
Vehicle	06-20-2019	Shade Township	Police unit involved in an accident with minor injuries.
Vehicle	06-21-2019	Somerset Township	Vehicle accident with entrapment.
ATV	06-22-2019	Somerset	ATV accident.
Rail	06-24-2019	Windber Borough	Train derailment.
Vehicle	06-27-2019	Milford Township	Vehicle accident with roll-over.
Pipeline	07-02-2019	Somerset Borough	Gas line ruptured.
Commercial	07-03-2019	Stonycreek Township	Commercial vehicle accident.
ATV	07-07-2019	JennerTownship	ATV accident.
Commercial	07-10-2019	Somerset Township	Commercial vehicle fire.
Commercial	07-10-2019	Windber Borough	Commercial vehicle accident.
Rail	07-12-2019	Windber Borough	Train derailment.
Vehicle	07-16-2019	Meyersdale Borough	Vehicle on the railroad tracks.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	07-20-2019	Conemaugh Township	Vehicle accident with injuries.
Vehicle	07-25-2019	Summit Township	Vehicle accident with roll-over.
ATV	07-27-2019	Stonycreek Township	ATV accident.
Vehicle	07-31-2019	Conemaugh Township	Vehicle accident with road closure.
Commercial	08-01-2019	Stonycreek Township	Commercial vehicle fire.
Commercial	08-05-2019	Milford Township	Commercial vehicle accident.
Commercial	08-08-2019	Somerset Borough	Commercial vehicle accident.
Vehicle	08-18-2019	Allegheny Township	Motorcycle accident.
Commercial	08-19-2019	Somerset Borough	Commercial vehicle fire.
Vehicle	08-21-2019	Berlin Borough	Vehicle accident.
Vehicle	08-23-2019	Jenner Township	Vehicle versus pedestrian accident.
Vehicle	08-24-2019	Milford Township	Vehicle accident with road closure.
Vehicle	08-26-2019	Paint Borough	School bus involved in an accident.
Vehicle	08-27-2019	Conemaugh Township	Fatal vehicle accident with entrapment.
Commercial	08-29-2019	Somerset	Commercial vehicle fire.
Vehicle	08-30-2019	Summit Township	Vehicle versus pedestrian accident.
Vehicle	08-31-2019	Jefferson Township	Vehicle accident with entrapment.
Vehicle	09-01-2019	Larimer Township	Fatal motorcycle accident.
Vehicle	09-10-2019	Somerset Township	Vehicle accident with a cardiac arrest.
Vehicle	09-10-2019	Conemaugh Township	Vehicle fire.
Vehicle	09-12-2019	Stonycreek Township	Vehicle accident with injuries.
Vehicle	09-12-2019	Conemaugh Township	Vehicle versus pedestrian accident.
Vehicle	09-24-2019	Windber Borough	Vehicle accident into a structure.
Commercial	09-25-2019	Elk Lick Township	Commercial vehicle accident.
Vehicle	09-29-2019	Jennerstown Borough	Vehicle accident into a commercial building.
Vehicle	09-29-2019	Jefferson Township	Motorcycle accident.
Vehicle	10-01-2019	Somerset Township	Vehicle accident with injuries.
Vehicle	10-04-2019	Milford Township	Vehicle accident with ejection.
Vehicle	10-04-2019	Milford Township	Vehicle accident on Waterlevel Road.
Vehicle	10-04-2019	Elk Lick Township	Vehicle accident with injury.
Vehicle	10-06-2019	Shade Township	Vehicle accident into a river.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	10-07-2019	Somerset Borough	Vehicle accident with injury.
Vehicle	10-07-2019	Elk Lick Township	Vehicle accident with entrapment.
Vehicle	10-07-2019	Somerset Township	Multiple vehicle accident.
Vehicle	10-08-2019	Conemaugh Township	Vehicle accident with a road closure.
Vehicle	10-09-2019	Conemaugh Township	Vehicle accident with injuries.
Vehicle	10-11-2019	Shade Township	Single vehicle accident involving a police officer.
Commercial	10-16-2019	Allegheny Township	Commercial vehicle accident.
Vehicle	10-16-2019	Allegheny Township	Fatal vehicle accident.
Vehicle	10-31-2019	Conemaugh Township	Vehicle accident with injuries.
Vehicle	10-31-2019	Black Township	Vehicle accident with entrapment.
Rail	11-07-2019	Somerset	Train versus car.
Vehicle	11-23-2019	Summit Township	Vehicle accident with ejection.
Vehicle	11-25-2019	Somerset Borough	Police cruiser involved in an accident.
Vehicle	12-13-2019	Upper Turkeyfoot Township	Vehicle accident with a roll-over.
Vehicle	12-13-2019	Jennerstown Borough	Vehicle accident with a roll-over.
Vehicle	12-13-2019	Paint Borough	Vehicle accident on SR 56.
Commercial	12-19-2019	Jefferson Township	Commercial vehicle accident.
Vehicle	12-24-2019	Lincoln Township	Multiple vehicle accident on the PA Turnpike.
Commercial	12-27-2019	Somerset	Commercial vehicle fire.
Vehicle	01-01-2020	Somerset Township	Police vehicle versus a deer.
Vehicle	01-03-2020	Quemahoning Township	Vehicle accident.
Commercial	01-05-2020	Somerset Township	Commercial vehicle fire.
Vehicle	01-05-2020	Salisbury Borough	Vehicle fire.
Vehicle	01-07-2020	Somerset Borugh	Vehicle accident with entrapment.
Vehicle	01-07-2020	Jennerstown Borough	Vehicle accident with entrapment.
Vehicle	01-09-2020	Conemaugh Township	Police vehicle versus a deer.
Vehicle	01-11-2020	Lower Turkeyfoot Township	Vehicle accident with injury.
Vehicle	01-15-2020	Somerset Township	Vehicle accident with entrapment.
Vehicle	01-18-2020	Allegheny Township	Vehicle accident on the PA Turnpike.
Vehicle	01-21-2020	Somerset Township	Vehicle accident.
Vehicle	01-22-2020	Conemaugh Township	Police cruiser accident.

Transportation Accidents/Incidents in Somerset County			
Classification	**Date**	**Location**	**Information**
Vehicle	01-22-2020	Upper Turkeyfoot Township	Vehicle accident with entrapment.
ATV	01-25-2020	Shade Township	ATV roll-over.
Vehicle	01-26-2020	Conemaugh Township	Vehicle accident with a roll-over.
Vehicle	01-29-2020	Middlecreek Township	Vehicle accident with entrapment.
Rail	01-31-2020	Northampton Township	Train locomotive on fire.

According to the National Transportation Safety Board (NTSB), since 1964 there have been seventy-four airplane crashes in Somerset County. A breakdown of this information can be found in *Table 55 - Total Airplane Crashes from 1964 - Current.*

Table 55 - Total Airplane Crashes from 1964 - Current

Total Airplane Crashes from 1964 - Current	
Municipality	**Total**
Berlin Borough	4
Central City Borough	10
Lincoln Township	2
Meyersdale Borough	2
New Baltimore Borough	2
Rockwood Borough	1
Seven Springs Borough	9
Shanksville Borough	2
Somerset Borough	32
Somerset Township	8
Windber Borough	2

4.3.19.4 Future Occurrence

The probability of a transportation accident is highly likely. During a ten-year period (between January 2010 and December 2019), there were 557 accidents within Somerset County. On average there were, 49.2 vehicle accidents, 2.4 ATV accidents, 3 railway accidents, 0.4 airport accidents, and 0.7 pipeline accidents per year. Vehicle accidents, to include passenger, commercial vehicles, and motorcycle accidents will occur more

frequently than a rail, aviation or pipeline incident. Table 56 shows a breakdown of these events per year.

Table 56 - Breakdown of Accidents Over a Ten-Year Period

Breakdown of Accidents Over a Ten-Year Period						
Year	**Vehicle**	**ATV**	**Rail**	**Air**	**Pipeline**	**Total**
2010	31	1	3	0	0	35
2011	30	1	1	0	0	32
2012	22	1	2	1	0	26
013	17	0	0	0	0	17
2014	56	4	6	1	0	67
2015	54	2	0	0	2	58
2016	84	4	2	0	1	91
2017	70	6	5	0	1	82
2018	54	1	4	2	1	62
2019	74	4	7	0	2	87
TOTALS	492	24	30	4	7	

According to Pennsylvania Department of Transportation between 2013 and 2017 there were 126,019 reportable vehicle crashes within the Commonwealth. This number increased from 123,280 reported vehicle crashes between 2009 and 2013.

4.3.19.5 Vulnerability Assessment

The vulnerability for highway accidents is directly related to the population and traffic density of that area. The more populated an area the more vulnerable it is to have accidents. Limited access highways are also more vulnerable to accidents due to the higher speed limits on those roadways. According to the 2018 State of Highway Safety Summary Report in 2017 almost eleven percent of all fatalities in Pennsylvania involved aggressive driving, while forty percent of all fatalities were related to speeding. This report goes on to state that in 2017, fifteen percent of fatalities and twenty-five percent of reportable crashes occurred on local roads in Pennsylvania.

There were numerous incidents of vehicles into structures. Although there was only one incident of damage to a covered bridge, the ten covered bridges in Somerset County could be damaged due to a vehicle striking them.

All-terrain vehicle (ATV) accident incidents were at an increased yearly rate between 2010 and 2019. As people visit recreational spots within the county and use this type

of transportation, accidents can occur. With unexperienced ATV operators trying unfamiliar maneuvers or operating in areas that are shared with passenger vehicles; accidents will occur.

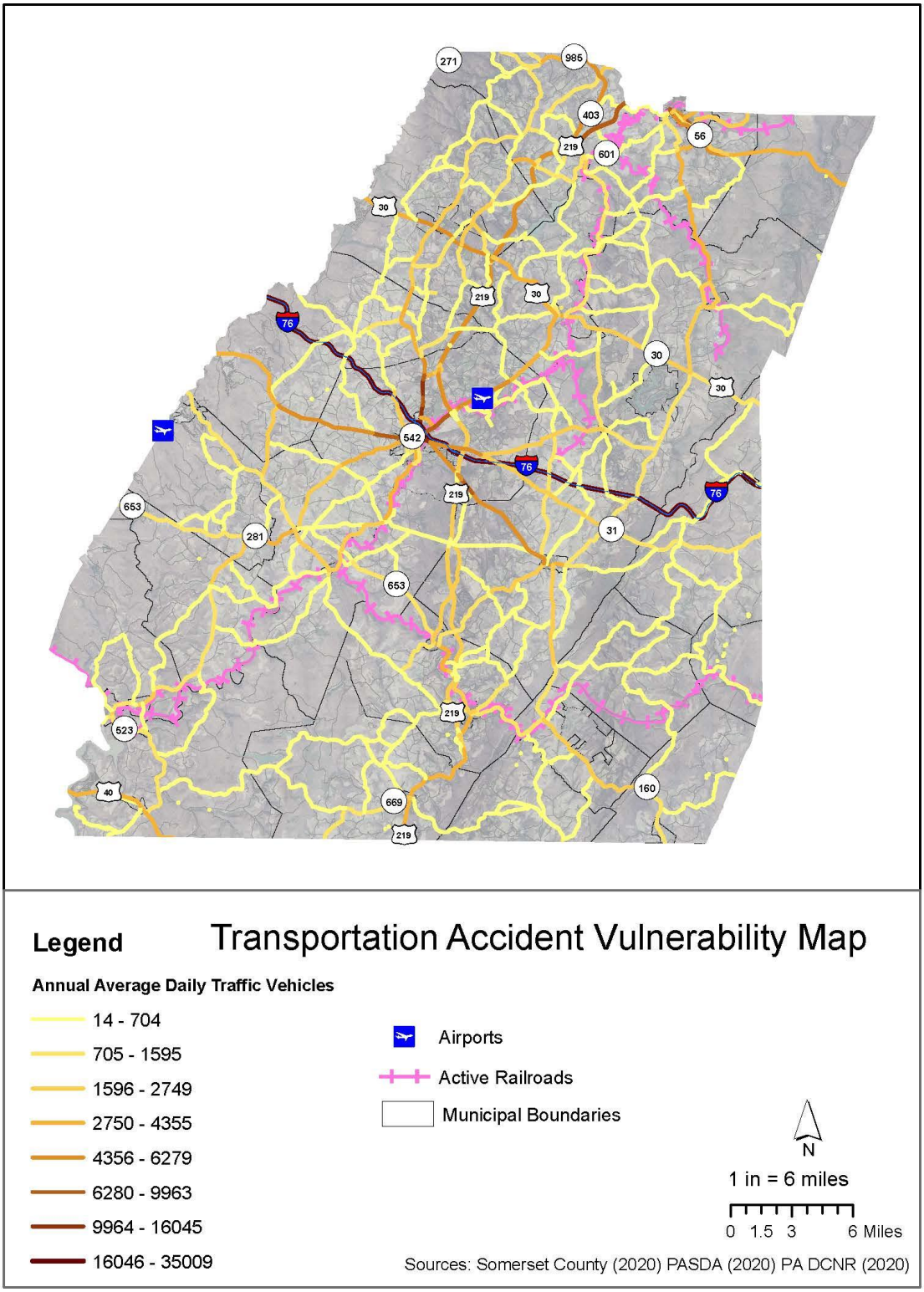
Fatalities are an unfortunate outcome of accidents. Between January 2009 and December 2019 there were thirty-five fatalities noted in the Knowledge Center™ events for Somerset County. These figures may not represent the official death toll of accidents within Somerset County due to transportation accidents as the Knowledge Center™ reporting tool doesn't capture those that died at a medical facility or due to complications from their injuries.

Railway incidents have also increased over the years, these incidents ranged from trains versus vehicles or pedestrians to derailments. Drivers and pedestrians need to be aware of the dangers associated with a passing train. Derailments can be caused by the engineer exceeding speed limits for the locomotive or degradation of the rail line and bed. Railcars that derail can cause numerous secondary hazards to include hazardous materials spills and releases, buildings sustaining structural damage, vehicles near the rail line and along the derailment field damaged, and the possibility of injuries or lives lost.

Air accidents at the Somerset County Airport are few and far between incidents. However, Somerset County should not discount an airplane flying over the county causing a catastrophe. On September 11, 2001, Flight 93 was heroically and purposely crashed into the quiet community of Shankesville Borough by the forty passengers and crew.

Pipeline incidents are also few and far between incidents. Those pipelines that are most vulnerable are the ones running through or along hillsides. Mudslides and falling rocks can cause breaks in the pipeline. Subsidence incidents are discussed in section 4.3.10 Subsidence and Sinkholes. Pipelines can also rupture due to pipe integrity failures.

Figure 48 - Transportation Accident Vulnerability Map



4.3.20. Utility Interruptions

4.3.20.1 Location and Extent

Utility interruptions in Somerset County are described as disruptions in fuel, water, electric and telecommunications capabilities. Interruptions to the utilities within Somerset County are often a secondary impact from another hazard like severe storms, tornadoes, winter or tropical storms, or transportation accidents. Severe thunderstorms, tornadoes, and winter storms can 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. Utility interruptions have the potential to take place throughout the county. A list of utility providers in Somerset County is listed in *Table 57 - Somerset County Municipal Utility Provider Summary*.

Solar flares are concentrated releases of magnetic energy that emanate from sunspots, and can last for minutes or hours. Solar flares can also cause coronal mass ejections (CME) from the outer solar atmosphere which are large clouds of plasma and magnetic field which induce geomagnetic currents when they reach the surface of Earth. A combination of these events can be referred to as solar storms or solar weather. Solar weather only impacts Earth when it occurs on the side of the sun that is actively facing Earth. A severe solar storm can have a geographically wide-ranging impact that can last for days or weeks (NASA, 2016).

Table 57 - Somerset County Municipal Utility Provider Summary

Somerset County Municipal Utility Provider Summary	
Electric	First Energy Corporation (subsidiaries of Penelec and West Penn Power) Somerset Rural Electric Cooperative 8 active wind farms with 198 wind turbines
Water and Sewer	43 active community water systems and 20 public sewer systems
Natural Gas (Providers & Pipelines*)	Columbia Natural Gas of Pennsylvania Peoples Natural Gas Company Texas Eastern Transmission Corporation TransCanada/Columbia Gas Transmission
Telephone	Verizon
Internet	Comcast Corporation and others A broad selection of national Internet service providers
Cable television	Comcast Corporation and others

Sources: Alleghenies Ahead – Comprehensive Pan for the Southern Alleghenies Region June 2018;
* CORE – Coordinated Response Exercise for First Responders Emergency Response Manual 2018.

4.3.20.2 Range of Magnitude

Loss of utilities, i.e., electricity, communications, gas and water supply could have serious effects on the health, safety, and general welfare of Somerset County citizens, with functional needs populations the most vulnerable. Special needs populations can be vulnerable to loss of heat or air conditioning during extreme weather events.

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

Efficient and effective communications and adequate water supply are critical resources for first responders. Potential environmental impacts from utility interruptions could include:

- Downed power lines pose a wildfire or structure fire hazard.
- Water line breaks could have hazardous materials infiltrate potable water systems.
- A breakdown of communications could cause emergencies to be mitigated improperly and not in a timely manner.

Minor solar flares have no negative impacts on Earth thanks to the protection afforded by Earth's magnetic field and atmosphere, but cause beautiful visual displays known as the Northern Lights or Aurora Borealis. However, severe solar storms can cause an electromagnetic pulse (EMP) that is able to break through Earth's magnetic field and send current to Earth's surface, inducing geomagnetic currents. Geomagnetically induced currents (GICs) impact the electrical grid and can cause transformers to burn and fail, potentially knocking out wide swatches of electricity infrastructure resulting in blackouts (Phillips, 2009). Electricity blackouts have many secondary effects, including limited water distribution capabilities, losing perishable foods and medicines, heating and air conditioning as well as communication services. A solar EMP would also contribute to corrosion of oil and gas pipelines, disrupt high-frequency signals from global positioning system (GPS) satellites, and require aircrafts to avoid polar-routes to avoid communication malfunctions (Baker et al., 2008). Industries that are most impacted by severe space weather are: electric power, spacecraft, aviation, and other industries relying on GPS.

4.3.20.3 Past Occurrence

Utility failures occur on an annual basis. The continued documentation of these failures may provide opportunities for the county to mitigate such service failures. Utility outages that have occurred between January 01, 2009 and January 31, 2020 are documented in *Table 58 - Utility Outages for Somerset County*. These reports are generated from Knowledge Center™ reports for Somerset County.

Table 58 - Utility Outages for Somerset County

Utility Outages for Somerset County			
Utility	**Date(s) of outage**	**Municipality**	**Contributing/other factors**
Electric	01-16-2009	Hooversville Borough	Power outage
Communications	01-17-2009	County-wide	911 ANI/ALI outage
Electric	01-17-2009	Somerset Borough	Power outage
Water	01-25-2009	Somerset Borough	Water line break
Electric	01-25-2009	Windber Borough	Power outage
Electric	01-32-2009	Conemaugh Township	Power outage
Communications	02-05-2009	County wide	Cell and landline phone outage
Water	02-11-2009	Stoystown Borough	Water main break – water shortage
Electric	02-12-2009	County-wide	Weather related incident
Electric	09-28-2009	Meyersdale Borough	Power outage
Water	01-11-2010	Addison Borough	Water outage
Electric	02-26-2010	Somerset Borough	Power outage
Electric	09-22-2010	County-wide	Power outage from Severe thunderstorms and winds
Communications	12-23-2010	County wide	911 center phone problems
Communications	05-11-2011	County wide	911 center phone problems
Natural Gas	05-31-2011	Windber Borough	Gas line rupture.
Electric	09-23-2011	Somerset Township	Power outage
Water	01-12-2012	Lincoln Township	Water main break
Natural Gas	01-22-2012	Somerset Borough	4” gas main break
Water	05-09-2012	Lincoln Township	Water line break
Natural Gas	06-11-2012	Somerset Township	Ruptured gas line
Natural Gas	07-16-2012	Somerset Borough	Natural gas leak
Water	07-13-2012	Upper Turkeyfoot Township	Mobile home development water shortage
Water	08-13-2012	Addison Borough	Water outage/shortage

Utility Outages for Somerset County			
Utility	**Date(s) of outage**	**Municipality**	**Contributing/other factors**
Electric	10-29-2012	County wide	Major damage to electrical infrastructure at Somerset Rural Electric Co-Op caused by Hurricane Sandy ice storm.
Communications	11-27-2012	County wide	Non-911 phone lines outs at the 911 center
Water	11-27-2012	Jenner Township	Water line break
Water	01-23-2013	Somerset Township	Water break/heat loss at SCI-Somerset
Electric	02-04-2013	County wide	Power outages
Water	03-05-2013	Lincoln Township	Water line break
Telephone	04-19-2013	County wide	911-nonemergency phone line down
Water	06-18-2013	Somerset Borough	Water main break
Electric	06-26-2013	Somerset Borough	Substation short/power outage
Communications	09-21-2013	County wide	Phone malfunction at the 911 center
Natural Gas	11-05-2013	Somerset Borough	Natural gas release
Electric	12-31-2013	Berlin Borough	Power outage
Electric	01-02-2014	Shade Township	Wire arcing at power substation
Water	01-08-2014	Central City Borough	Water supply outage
Communications	03-21-2014	County wide	Phone outage
Natural Gas	04-07-2014	Somerset Borough	Gas meter sheared on Laurel Crest Road
Communications	04-23-2014	Summit Township	Landline phone outage
Electric	06-19-2014	Somerset Borough	Power outage at County buildings
Electric	07-08-2014	County wide	Electrical power outages
Natural Gas	07-31-2014	Somerset Borough	Natural gas leak/meter fell from a building
Communications	08-27-2014	County wide	County network down to include Internet, county phones and internal systems
Water	09-27-2014	Somerset Township	Water line break
Electric	01-07-2015	Somerset Township	Power outage
Water	01-09-2015	Somerset Township	Water line break
Electric	02-16-2015	Hooversville Borough	Power outage
Electric	02-16-2015	Salisbury Borough	Power outage
Water	02-16-2015	Somerset	Water line break
Lights	02-23-2015	Somerset Township	SCI Laurel Highlands light failure
Electric	02-24-2015	Berlin Borough	Power outage
Electric	02-24-2015	Brothers Valley Township	Power outage
Water	02-25-2015	Somerset Borough	Water line break

Utility Outages for Somerset County			
Utility	**Date(s) of outage**	**Municipality**	**Contributing/other factors**
Communications	04-08-2015	Somerset Borough	Phone outage affecting 911 access
Water	04-15-2015	Somerset Township	Quemahoning pipeline break
Communications	05-18-2015	Somerset	Communications failure
Water	06-03-2015	Jenner Township	Quemahoning pipeline break
Electric	06-12-2015	Jenner Township	Power outage due to a transformer fire
Communications	10-27-2015	Somerset	Phone outage at 911 Center
Water	01-04-2016	Somerset Borough	Water line break
Communications	02-02-2016	Somerset	Radio system down
Electric	02-15-2016	Somerset	Power outage
Electric	02-16-2016	Somerset Township	Power outage
Electric	03-02-2016	Paint Township	Road closed due to pole and wires down
Electric	03-02-2016	Windber Borough	Power outage at Windber Middle School
Water	03-02-2016	Jenner Township	Water line break
Electric	03-28-2016	Jefferson Township	Road closed due to wires down
Communications	04-16-2016	Conemaugh Township	Landline phone outage
Electric	07-05-2016	Seven Springs Borough	Power outage as a result of a vehicle accident
Water	09-01-2016	Lincoln Township	Water line break
Water	09-19-2016	Somerset Township	Water line break
Electric	10-12-2016	Somerset	Power outage
Communications	10-17-2016	Somerset	Comcast down
Electric	10-24-2016	Summit Township	Power outage
Water	11-03-2016	Somerset Borough	Water line damage
Electric	12-15-2016	Somerset	Power outage
Electric	01-08-2017	Somerset Borough	Road closed due to wires down
Sewer	01-11-2017	Somerset Borough	MHP sewage problem
Water	03-12-2017	Somerset Township	Water line break
Communications	04-25-2017	Somerset	County phones down
Water	05-01-2017	Somerset	Water main break
Water	05-10-2017	Jenner Township	Residential water shortage
Water	05-15-2017	Somerset Borough	Water line break
Water	08-05-2017	Jenner Township	Large water main break
Water	08-26-2017	Somerset Township	Water main break

Utility Outages for Somerset County			
Utility	**Date(s) of outage**	**Municipality**	**Contributing/other factors**
Water	09-13-2017	Somerset Township	Water outage at SCI Somerset
Communications	09-28-2017	Somerset	Phone system outage
Water	10-11-2017	Somerset Township	Quemahoning water break
Fuel	10-16-2017	Berlin Borough	4" gas line rupture
Water	10-30-2017	Somerset Borough	Water outage at Somerset Hospital
Communications	11-05-2017	Somerset Borough	911 Center phone line problems
Water	11-11-2017	Somerset Township	Water line break
Communications	11-14-2017	Somerset Borough	Momentary loss of phones and radios
Electric	11-18-2017	Jennerstown Borough	Power outage
Communications	12-01-2017	County-wide	Intermittent Verizon wireless 911 outage
Electric	12-05-2017	Summit Township	Road closed due to wires down
Water	12-07-2017	Lincoln Township	Water pipeline break
Water	01-11-2018	Stoystown Borough	Water main break
Water	01-12-2018	Stoystown Borough	Water line break
Fuel	02-20-2018	Jenner Township	Gas transmission line leak
Communications	03-14-2018	Somerset	County network issues
Water	03-16-2018	Somerset Township	Water shortage
Water	03-21-2018	Lincoln Township	Water line break
Communications	03-31-2018	Somerset	Wireless phone issue
Water	05-09-2018	Lincoln Township	County Quemahoning pipeline break
Water	05-14-2018	Jenner Township	Boil water advisory 05-14-2018 to 05-18-2018)
Water	05-23-2018	Jenner Township	Water outage (05-23-2018 to 10-25-2018)
Water	05-29-2018	Addison Borough	Water outage (05-29-2018 to 06-18-2018)
Water	06-09-2018	Somerset	Water outage
Communications	06-29-2018	Somerset	Phone outage
Water	07-02-2018	Jenner Township	Boil water advisory (07-02-2018 to 07-04-2018)
Water	08-19-2018	Somerset	Water pressure decreased
Communications	11-26-2018	Somerset	Comcast outage
Water	12-06-2018	Berlin Borough	Water line break
Water	12-14-2018	Lincoln Township	Water main break
Water	01-07-2019	Somerset	Water main break

Utility Outages for Somerset County			
Utility	**Date(s) of outage**	**Municipality**	**Contributing/other factors**
Communications	01-09-2019	Somerset	Cell phone outage
Water	02-11-2019	Windber Borough	Water main break
Fuel	02-11-2019	Meyersdale Borough	Gas line break
Electricity	02-25-2019	Somerset	Radio tower on back-up power
Communications	03-03-2019	Somerset	Phone lines down to the county jail
Water	03-16-2019	Lincoln Township	Water line break to Quemahoning pipeline
Water	03-31-2019	Somerset Township	Low water pressure at SCI Laurel Highlands
Electricity	04-02-2019	Conemaugh Township	Power outage at LVV
Communications	05-29-2019	Somerset Borough	911 phone issues
Utilities	05-29-2019	Conemaugh Township	Road closure due to wires down
Electricity	05-30-2019	Somerset	Road closure due to power lines down
Water	06-03-2019	Somerset Borough	Water main break
Water	06-24-2019	Jenner Township	Water main break with roadway affected
Water	06-25-2019	Seven Springs Borough	Water line break
Electricity	06-25-2019	Stoystown Borough	Power outage
Communications	07-02-2019	Somerset	Wireless phone outage
Communications	07-05-2019	Somerset	Radio tower site failure
Electricity	07-20-2019	Somerset Township	Power outage
Water	08-15-2019	Lower Turkeyfoot Township	Water outage
Water	08-29-2019	Jenner Township	Quemahoning water pipeline break
Communications	09-16-2019	Windber Borough	Landline phone outage
Electricity	10-02-2019	Somerset Township	Power outage at SCI Somerset
Water	10-08-2019	Meyersdale Borough	Water main break
Water	11-14-2019	Berlin Borough	Boil water advisory (11-14-2019 to 11-18-2019)
Water	11-20-2019	Stoystown Borough	Boil water advisory (11-20-2019 to 11-22-2019)
Water	11-21-2019	Jenner Township	Boil water advisory (11-21-2019 to 11-27-2019)
Water	12-04-2019	Jenner Township	Boil water advisory (12-04-2019 to 12-07-2019)
Water	12-15-2019	Somerset Borough	Large water line break with a road closure
Communications	01-27-2020	Windber Borough	Phone outage

4.3.20.4 Future Occurrence

Utility interruptions are difficult to predict, with most as a secondary hazard from severe weather. Citizens should always be prepared for these types of hazards. An aging infrastructure also poses a threat to potential utility interruptions. Constant wear and tear of the service deteriorates equipment. There is often a mix of new and old equipment along the line, as total replacement is not a feasible solution for any utility company.

Somerset County worked on infrastructure that will have a significant impact on the future of the county's water system. The Quemahoning Pipeline was a $23.1 million project that started in 2001 and was dedicated in June 2009. There are six municipalities that have water agreements with the Quemahoning Pipeline, these are: Somerset Borough, and Conemaugh, Lincoln, Somerset, Jenner and Jefferson townships. The Somerset County General Authority purchases the raw surface water from the Quemahoning Reservoir, which is owned by the Cambria-Somerset Authority.

4.3.20.5 Vulnerability Assessment

Electric

Severe weather is one of the largest causes of power loss. The electric power grid infrastructure can be damaged by snow, ice, high winds, lightning, flooding, falling tree limbs and vehicle accidents involving utility poles. Small animals can also cause minor power outages by climbing the lines and shorting out the power supply.

Causes of a regional scale power shortage or failure would be from infrastructure failure, sabotage, human error, and worker strikes.

Water

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 system. The quantity of water depends on nature. Humans are primarily responsible for the maintenance of water quality. Well contamination or water shortages due to drought would pose a high vulnerability.

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 times when accidental spills and releases of hazardous materials contaminate water supplies, thereby, water supplies along transportation routes may be affected.

Gas and liquid pipelines

Interruptions to natural gas distribution lines could be affected by:

- 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.

Communications

Interruptions in communications could be caused as a secondary effect of storms or high winds, infrastructure failure, or by humans (intentional or accidental). A loss of communications by emergency services would be devastating to the population of Somerset County as 9-1-1 calls could not be received, nor could emergency units be dispatched properly.

4.4. Hazard Vulnerability Summary

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.

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 59 - Risk Factor Approach Summary*. 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:

Risk Factor Value =
[(Probability x .30) + (Impact x .30) +(Spatial Extent x .20) + (Warning Time x .10) + (Duration x .10)]

Table 59 - Risk Factor Approach Summary 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 59 - Risk Factor Approach Summary

Summary of Risk Factor Approach Used to Rank Hazard Risk.					
RISK ASSESSMENT CATEGORY	**DEGREE OF RISK**				**WEIGHT VALUE**
	LEVEL	**CRITERIA**		**INDEX**	
PROBABILITY *What is the likelihood of a hazard event occurring in a given year?*	**UNLIKELY**	LESS THAN 1% ANNUAL PROBABILITY		1	30%
	POSSIBLE	BETWEEN 1 & 10% ANNUAL PROBABILITY		2	
	LIKELY	BETWEEN 10 &100% ANNUAL PROBABILITY		3	
	HIGHLY LIKELY	100% ANNUAL PROBABILTY		4	
IMPACT *In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?*	**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 *How large of an area could be impacted by a hazard event? Are impacts localized or regional?*	**NEGLIGIBLE**	LESS THAN 1% OF AREA AFFECTED		1	20%
	SMALL	BETWEEN 1 & 10% OF AREA AFFECTED		2	
	MODERATE	BETWEEN 10 & 50% OF AREA AFFECTED		3	
	LARGE	BETWEEN 50 & 100% OF AREA AFFECTED		4	
WARNING TIME *Is there usually some lead time associated with the hazard event? Have warning measures been implemented?*	**MORE THAN 24 HRS**	SELF-DEFINED	*(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)*	1	10%
	12 TO 24 HRS	SELF-DEFINED		2	
	6 TO 12 HRS	SELF-DEFINED		3	
	LESS THAN 6 HRS	SELF-DEFINED		4	
DURATION *How long does the hazard event usually last?*	**LESS THAN 6 HRS**	SELF-DEFINED	*(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)*	1	10%
	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 60 - Risk Factor Assessment* lists the risk factor calculated for each of the twenty-three potential hazards identified in the 2020 HMP. *It should be noted that the tornado hazard and windstorm hazard were ranked individually instead of together. Additionally, so were flash flooding, flooding, and ice jam flooding as well as environmental hazards – transportation and fixed facility.* 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 60 - Risk Factor Assessment

Somerset County Hazard Ranking Based on RF Methodology.							
HAZARD RISK	HAZARD NATURAL(N) OR MANMADE(M)	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	ECONOMIC IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Opioid Epidemic (M)	4	4	4	1	4	3.7
	Invasive Species (N)	4	3	4	1	4	3.4
	Emergency Services (M)	4	3	4	1	4	3.4
	Flash Flood (N)	4	3	3	4	3	3.4
	Environmental Hazards – Transportation (M)	4	3	2	4	3	3.2
	Tornadoes (N)	2	4	3	4	4	3.2
	Environmental Hazards - Fixed Facility (M)	3	3	3	4	3	3.1
	Terrorism (M)	3	3	2	4	4	3
	Levee/Dam Failure (M)	2	4	3	2	4	3
	Utility Interruptions (M)	4	2	2	4	3	2.9
	Flood (N)	3	3	3	1	4	2.9
	Winter Storms (N)	3	2	4	2	3	2.8
	Pandemic and Infectious Disease (M)	2	3	4	1	4	2.8
	Wildfire (N)	3	2	2	4	2	2.5
	Windstorms (N)	3	2	3	1	3	2.5
	Drought (N)	2	2	4	1	4	2.5
	Transportation Accidents (M)	4	1	2	4	2	2.5
MODERATE	Subsidence and Sinkholes (N)	2	2	2	4	4	2.4
	Radon Exposure (N)	2	2	3	1	4	2.3
	Ice Jam Flooding (N)	2	2	2	3	3	2.2
	Hurricane/Tropical Storm (N)	2	2	3	1	3	2.2

Somerset County Hazard Ranking Based on RF Methodology.							
HAZARD RISK	HAZARD NATURAL(N) OR MANMADE(M)	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	ECONOMIC IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
	Hailstorms (N)	2	2	2	4	1	2.1
LOW	Landslides (N)	2	1	1	4	3	1.8
	Earthquake (N)	1	1	1	4	1	1.3

Based on these results, there are seventeen *high* risk hazards, five *moderate* risk hazards and two *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 61 - Countywide Risk Factor by Hazard* shows the different municipalities in Somerset County and whether their risk is greater than (>), less than (<), or equal to (=) the risk factor assigned to the county as a whole. This table was developed by the consultant based on the findings in the hazard profiles located in sections 4.3.1 through 4.3.20.

Table 61 - Countywide Risk Factor by Hazard

Calculated Countywide Risk Factor by Hazard and Comparative Jurisdictional Risk										
IDENTIFIED HAZARD AND CORRESPONDING COUNTYWIDE RISK FACTOR										
JURISDICTION	Opioid Epidemic (M)	Invasive Species (N)	Emergency Services (M)	Flash Floods (N)	Environmental Hazards – Transportation (M)	Tornadoes (N)	Environmental Hazards – Fixed Facility (M)	Terrorism (M)	Levee/Dam Failure (M)	Utility Interruption (M)
	3.7	3.4	3.4	3.4	3.2	3.2	3.1	3	3	2.9
Addison Borough	>	=	<	=	<	=	<	>	>	<

Calculated Countywide Risk Factor by Hazard and Comparative Jurisdictional Risk										
IDENTIFIED HAZARD AND CORRESPONDING COUNTYWIDE RISK FACTOR										
JURISDICTION	Opioid Epidemic (M)	Invasive Species (N)	Emergency Services (M)	Flash Floods (N)	Environmental Hazards – Transportation (M)	Tornadoes (N)	Environmental Hazards – Fixed Facility (M)	Terrorism (M)	Levee/Dam Failure (M)	Utility Interruption (M)
	3.7	***3.4***	***3.4***	***3.4***	***3.2***	***3.2***	***3.1***	***3***	***3***	***2.9***
Addison Township	>	=	=	>	>	<	=	<	<	>
Allegheny Township	>	=	=	>	>	<	=	<	<	>
Benson Borough	Not completed by municipality									
Berlin Borough	>	<	<	<	>	<	<	<	<	>
Black Township	Not completed by municipality									
Boswell Borough	=	<	=	>	=	=	<	<	<	=
Brothersvalley Township	=	=	=	=	=	=	=	=	=	=
Callimont Borough	=	=	=	=	=	=	=	=	=	=
Casselman Borough	Not completed by municipality									
Central City Borough	=	=	=	=	=	=	=	=	=	=
Conemaugh Township	=	<	>	=	=	=	=	=	=	>
Confluence Borough	Not completed by municipality									
Elk Lick Township	=	=	=	=	=	=	=	=	=	=
Fairhope Township	>	=	=	>	>	<	>	=	<	<
Garrett Borough	Not completed by municipality									
Greenville Township	=	=	=	=	=	=	=	=	=	=
Hooversville Borough	Not completed by municipality									
Indian Lake Borough	Not completed by municipality									
Jefferson Township	=	=	=	=	=	=	=	=	=	=
Jenner Township	Not completed by municipality									
Jennerstown Borough	Not completed by municipality									
Larimer Township	=	=	=	=	=	=	=	=	=	=
Lincoln Township	<	<	=	=	<	=	<	<	<	=
Lower Turkeyfoot Township	Not completed by municipality									
Meyersdale Borough	=	=	=	=	=	=	=	=	=	=
Middlecreek Township	Not completed by municipality									
Milford Township	Not completed by municipality									
New Baltimore Borough	=	=	=	>	>	=	=	=	=	=
New Centerville Borough	=	=	=	=	=	=	=	=	=	=
Northampton Township	=	=	=	=	=	=	=	=	=	=
Ogle Township	Not completed by municipality									

Calculated Countywide Risk Factor by Hazard and Comparative Jurisdictional Risk										
IDENTIFIED HAZARD AND CORRESPONDING COUNTYWIDE RISK FACTOR										
JURISDICTION	Opioid Epidemic (M)	Invasive Species (N)	Emergency Services (M)	Flash Floods (N)	Environmental Hazards – Transportation (M)	Tornadoes (N)	Environmental Hazards – Fixed Facility (M)	Terrorism (M)	Levee/Dam Failure (M)	Utility Interruption (M)
	3.7	***3.4***	***3.4***	***3.4***	***3.2***	***3.2***	***3.1***	***3***	***3***	***2.9***
Paint Borough	=	=	=	=	=	=	=	=	<	=
Paint Township	=	=	=	=	=	=	=	=	=	=
Quemahoning Township	Not completed by municipality									
Rockwood Borough	Not completed by municipality									
Salisbury Borough	=	=	=	=	=	=	=	=	=	=
Seven Springs Borough	Not completed by municipality									
Shade Township	=	=	=	=	=	=	=	=	=	=
Shanksville Borough	<	<	<	=	<	=	<	<	>	=
Somerset Borough	=	=	=	=	=	=	=	=	=	=
Somerset Township	=	=	=	=	=	=	=	=	=	=
Southampton Township	Not completed by municipality									
Stonycreek Township	=	=	=	=	=	=	=	=	>	=
Stoystown Borough	=	=	=	=	=	=	=	=	=	=
Summit Township	=	=	=	=	=	=	=	=	=	=
Upper Turkeyfoot Township	Not completed by municipality									
Ursina Borough	Not completed by municipality									
Wellersburg Borough	=	=	=	=	>	=	<	<	<	=
Windber Borough	Not completed by municipality									

Calculated Countywide Risk Factor by Hazard and Comparative Jurisdictional Risk														
IDENTIFIED HAZARD AND CORRESPONDING COUNTYWIDE RISK FACTOR														
JURISDICTION	Flood (N)	Winter Storms (N)	Pandemic and Infectious Disease (M)	Wildfire (N)	Wind Storms (N)	Drought (N)	Transportation Accidents (M)	Subsidence and Sinkholes (N)	Radon Exposure (N)	Ice Jam Flooding (N)	Hurricane/Tropical Storm (M)	Hailstorm (N)	Landslides (N)	Earthquake (N)
	2.9	***2.8***	***2.8***	***2.5***	***2.5***	***2.5***	***2.5***	***2.4***	***2.3***	***2.2***	***2.2***	***2.1***	***1.8***	***1.3***
Addison Borough	>	<	=	<	=	=	=	=	=	>	=	=	=	=
Addison Township	>	>	>	=	=	=	=	=	<	=	<	<	=	<
Allegheny Township	>	>	>	=	=	=	=	=	<	=	<	=	=	<
Benson Borough		Not completed by municipality												
Berlin Borough	<	>	>	<	>	>	>	>	>	<	<	>	<	<
Black Township		Not completed by municipality												
Boswell Borough	>	=	<	<	>	<	=	=	<	<	<	<	<	<
Brothersvalley Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Callimont Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Casselman Borough		Not completed by municipality												
Central City Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Conemaugh Township	>	=	>	=	>	=	=	>	=	=	=	=	>	=
Confluence Borough		Not completed by municipality												
Elk Lick Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Fairhope Township	>	>	>	=	=	=	<	=	<	=	<	=	=	=
Garrett Borough		Not completed by municipality												
Greenville Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Hooversville Borough		Not completed by municipality												
Indian Lake Borough		Not completed by municipality												
Jefferson Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Jenner Township		Not completed by municipality												
Jennerstown Borough		Not completed by municipality												
Larimer Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Lincoln Township	=	=	=	=	>	=	<	>	<	=	=	=	=	>
Lower Turkeyfoot Township		Not completed by municipality												
Meyersdale Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Middlecreek Township		Not completed by municipality												
Milford Township		Not completed by municipality												
New Baltimore Borough	>	=	=	=	=	=	=	=	=	=	=	=	>	=
New Centerville Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=

Calculated Countywide Risk Factor by Hazard and Comparative Jurisdictional Risk														
IDENTIFIED HAZARD AND CORRESPONDING COUNTYWIDE RISK FACTOR														
JURISDICTION	Flood (N)	Winter Storms (N)	Pandemic and Infectious Disease (M)	Wildfire (N)	Wind Storms (N)	Drought (N)	Transportation Accidents (M)	Subsidence and Sinkholes (N)	Radon Exposure (N)	Ice Jam Flooding (N)	Hurricane/Tropical Storm (M)	Hailstorm (N)	Landslides (N)	Earthquake (N)
	2.9	***2.8***	***2.8***	***2.5***	***2.5***	***2.5***	***2.5***	***2.4***	***2.3***	***2.2***	***2.2***	***2.1***	***1.8***	***1.3***
Northampton Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Ogle Township		Not completed by municipality												
Paint Borough	=	=	=	>	=	=	=	=	=	<	=	=	<	<
Paint Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Quemahoning Township		Not completed by municipality												
Rockwood Borough		Not completed by municipality												
Salisbury Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Seven Springs Borough		Not completed by municipality												
Shade Township	>	>	=	=	=	=	=	=	=	=	=	=	=	=
Shanksville Borough	>	=	=	=	=	=	=	=	=	=	=	=	=	=
Somerset Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Somerset Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Southampton Township		Not completed by municipality												
Stonycreek Township	>	>	=	=	=	=	=	=	=	>	=	=	=	=
Stoystown Borough	<	=	=	<	=	=	=	=	=	<	=	=	=	=
Summit Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Upper Turkeyfoot Township		Not completed by municipality												
Ursina Borough		Not completed by municipality												
Wellersburg Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Windber Borough		Not completed by municipality												

4.4.3. Potential Loss Estimates

Based on various kinds of available data, potential loss estimates were established for flooding. Estimates provided in this section are based on HAZUS-MH, version MR4, geospatial analysis, and previous events. Estimates are considered *potential* in that they generally represent losses that could occur in a countywide hazard scenario. In events that are localized, losses may be lower, while regional events could yield higher losses.

Potential loss estimates have four basic components, including:

- Replacement Value: Current cost of returning an asset to its pre-damaged condition, using present-day cost of labor and materials.
- Content Loss: Value of building's contents, typically measured as a percentage of the building replacement value.
- Functional Loss: The value of a building's use or function that would be lost if it were damaged or closed.
- Displacement Cost: The dollar amount required for relocation of the function (business or service) to another structure following a hazard event.

Flooding Loss Estimation:

Flooding is a high risk natural hazard in Somerset County. The estimation of potential loss in this assessment focuses on the monetary damage that could result from flooding. The potential property loss was determined for each municipality and for the entire county. The quantity of commercial and residential structures in each Somerset County municipality is outlined in section 4.3.3 of the flooding hazard profile.

MCM Consulting Group, Inc. conducted a countywide flood study using the Hazards U.S. Multi-Hazard (HAZUS-MH) software that is provided by the Federal Emergency Management Agency. software is a standardized loss estimation software deriving economic loss, building damage, content damage and other economic impacts that can be used in local flood mitigation planning activities. Additionally, this report was conducted utilizing the census block data supplied with the HAZUS-MH software.

Using HAZUS-MH, total building-related losses from a 1%-annual-chance flood in Somerset County are estimated to equal $203,130,000. Residential occupancies make up 50.6% of the total estimated building-related losses. Total economic loss, including replacement value, content loss, functional loss and displacement cost, from a countywide 1%-annual-chance flood are estimated to equal $431,280,000.

4.4.4. Future Development and Vulnerability

Total population in Somerset County increased 1.5 percent between 2000 and 2010 from 76,529 to 77,742. The 2019 estimated population for Somerset County is 73,447 which is 4,295 less than the 2010 census. There was an overall decrease of 5.5% in population based on the estimate. All municipalities, with the exception of one, have

seen population decreases in the period between 2010 and the 2019 estimate as identified in *Table 62 - 2010-2019 Population Change*.

Somerset County has several goals related to growth and development that can be found in Alleghenies Ahead, the multi-jurisdictional comprehensive plan written in 2018. Somerset County's boroughs have the potential to be vital centers of culture and small business activity that contribute substantially to the county's attractiveness to tourists and residents. Getting to that level will require a higher level of programming, marketing, investment, and planning that currently exists through a coalition titled "Main Street Coalition" and is comprised of organizations and groups dedicated to the betterment of Somerset County.

Another way Somerset County plans to address decreasing development statistics is through an economic diversification and growth strategy implementation. This strategy was adopted in 2016 in the wake of continued job losses in the energy sector and provides guidance on specific collaborative efforts to bolster business development in the tourism, agriculture, healthcare, and manufacturing sectors – with a particular focus on cultivating entrepreneurs and small businesses. This strategy will be completed by the Somerset County Economic Development Council and public and private sector partners.

Although these goals are identified in the adopted comprehensive plan, Alleghenies Ahead, the local planning team will take into consideration this updated hazard mitigation plan and ensure that development is not taking place in high-hazard areas.

Table 62 - 2010-2019 Population Change

Population Change in Somerset County from 2010-2019				
Municipality	**2010 Census**	**2015 Estimates**	**2019 Estimates**	**Percent of Change 2010-2019 Estimate**
Addison Borough	207	198	206	-0.4
Addison Township	974	941	924	-5.1
Allegheny Township	692	682	662	-2.9
Benson Borough	191	192	186	-2.6
Berlin Borough	2,104	2,001	1,941	-7.7
Black Township	926	885	863	-6.8
Boswell Borough	1,277	1,223	1,186	-7.1
Brothersvalley Township	2,398	2,344	2,284	-4.7
Callimont Borough	41	39	38	-7.3
Casselman Borough	94	92	93	-1.0
Central City Borough	1,124	1,070	1,029	-8.4
Conemaugh Township	7,279	7,023	6,848	-5.9
Confluence Borough	780	746	727	-6.7
Elk Lick Township	2,241	2,155	2,087	-6.8

Population Change in Somerset County from 2010-2019				
Municipality	**2010 Census**	**2015 Estimates**	**2019 Estimates**	**Percent of Change 2010-2019 Estimate**
Fairhope Township	134	119	115	-1.4
Garrett Borough	456	445	432	-5.2
Greenville Township	668	653	632	-5.4
Hooversville Borough	645	617	594	-7.9
Indian Lake Borough	394	390	378	-4.0
Jefferson Township	1,423	1,367	1,330	-6.5
Jenner Township	4,122	3,940	3,792	-8.0
Jennerstown Borough	695	664	640	-7.9
Larimer Township	595	573	553	-7.0
Lincoln Township	1,519	1,462	1,413	-6.9
Lower Turkeyfoot Township	603	578	564	-6.4
Meyersdale Borough	2,184	2,083	2,019	-7.5
Middlecreek Township	875	838	810	-7.4
Milford Township	1,553	1,522	1,476	-4.9
New Baltimore Borough	180	174	168	-6.7
New Centerville Borough	133	132	128	-3.8
Northampton Township	343	332	323	-5.8
Ogle Township	501	485	472	-5.7
Paint Borough	1,023	966	935	-8.6
Paint Township	3,149	3,081	3,019	-4.1
Quemahoning Township	2,025	1,966	1,904	-6.0
Rockwood Borough	890	849	820	-7.9
Salisbury Borough	727	699	675	-7.1
Seven Springs Borough	11	11	10	-9.1
Shade Township	2,774	2,656	2,568	-7.4
Shanksville Borough	237	220	212	-10.5
Somerset Borough	6,277	6,015	5,855	-6.7
Somerset Township	12,122	12,245	12,174	0.4
Southampton Township	630	615	600	-4.7
Stonycreek Township	2,237	2,142	2,084	-0.6
Stoystown Borough	355	329	319	-10.0
Summit Township	2,271	2,183	2,117	-6.7
Upper Turkeyfoot Township	1,119	1,088	1,047	-6.4
Ursina Borough	225	213	208	-7.5
Wellersburg Borough	181	177	171	-5.5
Windber Borough	4,138	3,963	3,816	-7.7
TOTAL	**77,742**	**75,383**	**73,447**	**-5.5**

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, regulations 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. 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 survey was provided to the municipalities during the planning process at meetings held with 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 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.

The evaluation of the following categories – political framework, legal jurisdiction, fiscal status, policies and programs and regulations 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

Forty-one municipalities completed and submitted a capability assessment survey. The results of the survey were collected, aggregated and analyzed.

5.2.1. Planning and Regulatory Capability

Municipalities have the authority to govern more restrictively than 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, building codes, building permits, floodplain management and/or stormwater management ordinances. When effectively prepared and administered, these regulations can lead to an opportunity for hazard mitigation. For example, the National Flood Insurance Program (NFIP) established minimum floodplain management criteria. Adoption of the Pennsylvania Floodplain Management Act (Act 166 of 1978) 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.

Building Codes

Building codes are important in mitigation because they are developed for a region of the country in respect to 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). Forty-seven municipalities use a third-party agency for building code enforcement. Somerset Borough, Seven Springs Borough, and Wellersburg Borough enforce their own building code ordinance.

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. Nine of the fifty municipalities in Somerset County have zoning regulations. These nine municipalities are: Callimont Borough, Conemaugh Township, Indian Lake Borough, Jennerstown Borough, Meyersdale Borough, Paint Borough, Boswell Borough, Somerset Borough, and Windber Borough.

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. All municipalities in Somerset County utilize some form of land use and land development regulation. The Somerset County Subdivision and Land Development Ordinance provides regulatory guidance for forty-six of the fifty municipalities.

Stormwater Management Plan/Stormwater Ordinance

The proper management of stormwater runoff can improve conditions and decrease the chance of flooding. Pennsylvania's Stormwater 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 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. Somerset County has two approved Act 167 Stormwater Management Plans in place: Coxes Creek and Stonycreek.

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 ten 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.

Somerset County recently updated their comprehensive plan in 2018. This comprehensive plan was in conjunction with five other counties and is titled Alleghenies Ahead.

Article III of the MPC enables municipalities to prepare a comprehensive plan; however, development of a comprehensive plan is voluntary. Eight municipalities in Somerset County have adopted their own comprehensive plan. The remaining forty-two fall under the county plan.

Capital Improvements 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. Somerset County has capital improvement plans in place for the airport and county-owned bridges through PennDOT.

Participation in the National Flood Insurance Program (NFIP)

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 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 DCED provides communities, based on their CFR, Title 44, Section 60.3 level of regulations, with a suggested ordinance document to assist municipalities in meeting the minimum requirements of the NFIP along with the Pennsylvania Flood

Plain Management Act (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:

1. Prohibiting manufactured homes in the floodway.
2. Prohibiting manufactured homes within the area measured 50 feet landward from the top-of bank of any watercourse within a special flood hazard area.
3. Special requirements for recreational vehicles within the special flood hazard area.
4. Special requirement for accessory structures.
5. 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.
6. 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 receive credit for more restrictive regulations; acquisition, relocation, 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.

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:

1. Reduce flood losses
2. Protect public health and safety

3. Reduce damage to property
4. Prevent increases in flood damage from new construction
5. Reduce the risk of erosion damage
6. Protect natural and beneficial floodplain functions
7. Facilitate accurate insurance rating
8. Promote the awareness of flood insurance

There are ten 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% for Class 1 communities. The CRS recognizes 18 credible activities, organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction and Flood Preparedness.

FEMA Region III makes available to communities, an ordinance review checklist which lists required provisions for floodplain management ordinances. This checklist helps communities develop an effective floodplain management ordinance that meets federal requirements for participation in the NFIP. The Pennsylvania Department of Community and Economic Development (DCED) provides communities, based on their 44 CFR 60.3 level of regulations, with a suggested ordinance document to assist municipalities in meeting the minimum requirements of the NFIP and the Pennsylvania Flood Plain Management Act (Act 166). Act 166 mandates municipal participation in and compliance with the NFIP. It also establishes higher regulatory standards for hazardous materials and high-risk land uses. As new Digital Flood Insurance Rate Maps (DFIRMs) are published, the Pennsylvania State NFIP Coordinator at DCED works with communities to ensure the timely and successful adoption of an updated floodplain management ordinance by reviewing and providing feedback on existing and draft ordinances.

Forty-nine of the fifty municipalities that reside in Somerset County have floodplain regulations in place that meet requirements set forth by the NFIP. Currently, no municipalities have completed or started to complete the CRS program. Additional research will be conducted on the CRS program and mitigation actions will be developed in support of the CRS.

In an effort to spread awareness as well as capture participation levels, all municipalities were instructed to complete an NFIP survey provided by the Federal Emergency Management Agency. In total, twenty municipalities submitted an NFIP survey. These surveys can be found in Appendix C of this plan.

5.2.2. Administrative and Technical Capability

There are twenty-five boroughs and twenty-five townships 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 municipal-

ities 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.

County Planning Commission

In Pennsylvania, planning responsibilities traditionally have been delegated to each county and local municipality through the Municipalities Planning Code (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 or 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 Somerset Planning Commission assists all municipalities in the county as needed. The county employs a county planner on an annual basis.

Municipal Engineer

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 prepares plans, specifications and estimates of the work undertaken by the township. Currently, there aren't any municipalities within Somerset County that employ a municipal engineer.

Personnel Skilled in GIS or FEMA HAZUS Software

A geographic information system (GIS) is an integrated, computer-based system designed to capture, store, edit, analyze and display geographic information. Some examples of uses for GIS technology in local government are land records management, land use planning, infrastructure management and natural resources planning. A GIS automates existing operations such as map production and maintenance, saving a great deal of time and money. The GIS also includes information about map features such as the capacity of a municipal water supply or the acres of public land. GIS data is managed, maintained and developed by the Somerset County GIS Department. There are currently no members of the Somerset County GIS Department that have completed Basic HAZUS-MH.

Emergency Management Coordinator

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.

A municipal emergency management coordinator is responsible for emergency management – preparedness, response, recovery and mitigation within his/her respective authority having jurisdiction (AHJ). The responsibilities of the emergency management coordinator are outlined in PA Title 35 §7503:

- Prepare and maintain a current disaster emergency management plan
- Establish, equip and staff an emergency operations center
- 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.

The Somerset County Department of Emergency Services coordinates countywide emergency management efforts. Each municipality has a designated local emergency management coordinator who possesses a unique knowledge of the impact 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. All fifty municipalities have adopted the county EOP. The notification and resource section of the plan was developed individually by each municipality.

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 municipalities that responded, none of the municipalities completed this section with a numerical response. *Table 63 - Somerset County Community Political Capability* summarizes the results of political capability.

Table 63 - Somerset County Community Political Capability

Somerset County Community Political Capability						
Municipality Name	**Capability Ranking**					
	0	**1**	**2**	**3**	**4**	**5**
Addison Borough	Not completed by municipality					
Addison Township				X		
Allegheny Township				X		
Benson Borough	Not completed by municipality					
Berlin Borough			X			
Black Township				X		
Boswell Borough				X		
Brothersvalley Township				X		
Callimont Borough					X	
Casselman Borough	Not completed by municipality					
Central City Borough	Not completed by municipality					
Conemaugh Township						X
Confluence Borough				X		
Elk Lick Township						X
Fairhope Township				X		
Garrett Borough				X		
Greenville Township					X	
Hooversville Borough				X		
Indian Lake Borough				X		
Jefferson Township				X		
Jenner Township					X	
Jennerstown Borough				X		

Somerset County Community Political Capability						
Municipality Name	Capability Ranking					
	0	1	2	3	4	5
Larimer Township					X	
Lincoln Township					X	
Lower Turkeyfoot Township					X	
Meyersdale Borough					X	
Middlecreek Township					X	
Milford Township	Not completed by municipality					
New Baltimore Borough			X			
New Centerville Borough				X		
Northampton Township				X		
Ogle Township	X					
Paint Borough				X		
Paint Township				X		
Quemahoning Township				X		
Rockwood Borough						X
Salisbury Borough				X		
Seven Springs Borough	Not completed by municipality					
Shade Township						X
Shanksville Borough	Not completed by municipality					
Somerset Borough						X
Somerset Township				X		
Southampton Township				X		
Stonycreek Township	X					
Stoystown Borough	X					
Summit Township					X	
Upper Turkeyfoot Township	Not completed by municipality					
Ursina Borough				X		
Wellersburg Borough				X		
Windber Borough					X	

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."

Table 64 - Capability Self-Assessment Matrix summarizes the results of the self-assessment survey. All municipalities returned this section of the assessment completed.

Table 64 - Capability Self-Assessment Matrix

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	Not completed by municipality			
Addison Township	M	M	L	M
Allegheny Township	L	L	L	L
Benson Borough	Not completed by municipality			
Berlin Borough	M	L	M	L
Black Township	L	L	L	L
Boswell Borough	L	L	L	L
Brothersvalley Township	L	L	L	L
Callimont Borough	M	M	M	M
Casselman Borough	Not completed by municipality			
Central City Borough	Not completed by municipality			
Conemaugh Township	H	H	H	H
Confluence Borough	L	L	L	L
Elk Lick Township	M	M	M	M
Fairhope Township	L	L	L	L
Garrett Borough	M	M	M	M
Greenville Township	M	M	M	M
Hooversville Borough	M	M	M	M
Indian Lake Borough	M	M	L	M
Jefferson Township	M	M	M	L
Jenner Township	M	M	M	M
Jennerstown Borough	L	L	L	L
Larimer Township	M	M	M	M
Lincoln Township	M	L	L	M
Lower Turkeyfoot Township	M	M	L	M

Somerset County Capability Self-Assessment Matrix				
Municipality Name	Capability Category			
	Planning and Regulatory Capability	Administrative and Technical Capability	Fiscal Capability	Community Political Capability
Meyersdale Borough	M	M	M	M
Middlecreek Township	L	L	L	L
Milford Township	Not completed by municipality			
New Baltimore Borough	L	L	L	L
New Centerville Borough	L	L	L	L
Northampton Township	M	L	M	L
Ogle Township	L	L	L	L
Paint Borough	M	L	L	L
Paint Township	M	M	L	M
Quemahoning Township	M	M	L	M
Rockwood Borough	M	M	M	M
Salisbury Borough	L	L	L	L
Seven Springs Borough	Not completed by municipality			
Shade Township	L	L	L	L
Shanksville Borough	Not completed by municipality			
Somerset Borough	L	L	L	L
Somerset Township	M	L	M	M
Southampton Township	M	M	M	M
Stonycreek Township	L	L	L	L
Stoystown Borough	L	L	L	L
Summit Township	M	M	M	M
Upper Turkeyfoot Township	Not completed by municipality			
Ursina Borough	L	L	L	L
Wellersburg Borough	M	M	M	M
Windber Borough	M	H	M	H

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.

5.2.3. Financial 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 relevant to hazard mitigation.

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."

Capital Improvement Financing

Because most capital investments 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 government to pay for capital improvements over a time period exceeding one year. Public finance literature and state laws governing local government finance classify techniques that are used to finance capital improvements. The techniques include revenue bonds; lease-purchase, authorities and special district; current revenue (pay-as-you-go); reserve funds; and tax increment financing. Most municipalities have very limited local tax funds for capital projects. Grants and other funding are always a priority.

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.

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. Joint authorities

have the power to receive grants, borrow money and operate revenue generating programs. Municipal authorities 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 Pennsylvania Public Utility Commission. The Pennsylvania Department of Environmental Protection has a program to assist with consolidating small water systems to make system upgrades more cost effective.

Circuit Riding Program (Engineer)

The Circuit Riding 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 offers. Municipalities can jointly obtain what no one municipality could obtain on its own.

5.2.4. Education and Outreach

Somerset County has a limited education and outreach program. The Somerset County Office of Emergency Services conducts some public outreach at public events to update the citizens and visitors of the county on natural and human-caused hazards. The county conservation district also conducts outreach on various activities and projects in the county. Many of these projects are related to or directly impact hazard mitigation projects.

Educational activities that directly impact hazard mitigation in Somerset County predominantly revolve around the first responders. Providing fire, medical and search and rescue training and education enhances the response and recovery capabilities of response agencies in the county. Additional training is always a goal within Somerset County.

Education and outreach on the NFIP is necessary. With new regulations in flood-plain management, updated digital flood insurance rate maps and new rate for insurance policies, education and outreach on the NFIP would assist the program. The Somerset County Local Planning Team will identify actions necessary to complete this.

5.2.5. Plan Integration

The multi-county comprehensive plan for Somerset County, titled Alleghenies Ahead, was utilized for various sections of the 2020 Somerset County HMP Update. Section 2 – Trends and Conditions provided valuable information which was utilized within section 2 – Community Profile, of the 2020 Somerset County HMP Update. Within section 2 of this plan contains 2.2 – community facts, 2.3 population and development, and 2.4 – land use and development, all of which applied information derived from Alleghenies Ahead.

Section 6 of Alleghenies Ahead - Taking Action, identifies an implementation plan for various projects and actions that support updates and growth for each of the counties represented in Alleghenies Ahead. Identified goals and actions in Alleghenies Ahead ranged from immediate, short-term, mid-term, long-term, and continuing. This plan was an important chapter from the comprehensive plan as it provided numerous actions and projects that were integrated into the 2020 Somerset HMP Update, section 6 – mitigation strategy. The following are some of the goals and actions from the 2018 comprehensive plan, followed by the 2020 HMP mitigation actions that were developed or supported by the goals and actions from the 2018 comprehensive plan:

- An identified action in Alleghenies Ahead mentions negotiated sale of endangered but salvageable properties. The 2020 HMP local planning team developed mitigation actions 1.1.1, and 1.2.1 which acknowledges the need for property acquisition.
- An identified action in Alleghenies Ahead mentions corridor development and enhancement plan. The 2020 HMP local planning team developed mitigation action 2.5.2 which relates to the roadway studies and the transportation of hazardous materials.

Although specific portions of the comprehensive plan outlined projects, actions or specific planning items that would support hazard mitigation, the information will be more comprehensive with the integration of new hazard mitigation principals and data from the 2020 Somerset County HMP Update. During discussions with county planning per-

sonnel as part of this hazard mitigation plan update, the importance of hazard mitigation integration during the next comprehensive plan update was expressed. Specifically, sections 4.3 - risk assessment and section 6.4 - mitigation strategy hold vital information that requires integration into the next plan update. Identification of hazard areas, vulnerable structures and developments and future risk is critical in the determination of and management of economic growth and development areas in the county. Numerous mitigation opportunity forms have been received during the planning period and would provide beneficial information for the next comprehensive plan update as well. The local planning team determined objective 3.2 to maintain the county comprehensive plan regularly which identifies this crucial step with integration of various planning documents.

Somerset County Emergency Operations Plan

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). Somerset County Department of Emergency Services is responsible for preparing and maintaining the county's EOP, which applies to both the county and municipal emergency management operations and procedures.

The EOP is reviewed at least annually. 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 municipalities.

The complete risk assessment section, mitigation actions and mitigation project opportunities identified in the Somerset County Hazard Mitigation Plan will assist with decreasing hazard specific risk and vulnerability. Understanding the risks and vulnerability in the county and municipalities will allow for emergency management and other response agencies to better direct planning, response and recovery aspects.

Somerset County Department of Emergency Services will consider the Somerset County Hazard Mitigation Plan during its annual review of the county EOP. Recommended changes to the HMP will then be coordinated with the hazard mitigation local planning team.

Plan Interrelationships

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."

To that end, Somerset County and its municipalities must ensure that the components of the hazard mitigation plan are integrated into existing community planning mechanisms and are generally consistent with goals, policies and recommended actions. Somerset County and the hazard mitigation planning team will utilize the existing maintenance schedule of each plan to incorporate the goals, policies and recommended actions as each plan is updated.

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 six goals and twenty-four objectives identified in the 2015 hazard mitigation plan. The 2020 Somerset County Hazard Mitigation Plan Update has six goals and twenty-three objectives. Objectives have been added and arranged in order to associate them with the most appropriate goal. These changes are noted in *Table 65 - 2015 Mitigation Goals and Objectives Review*. 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 65 – 2015 Mitigation Goals and Objectives Review*. These reviews are based on the five-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 forty-six actions identified in the 2015 mitigation strategy. A review of the 2015 mitigation actions was completed by the local planning team. The results of this review are identified in *Table 66 – 2015 Mitigation Actions Review.* 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 65 - 2015 Mitigation Goals and Objectives Review

2015 Mitigation Goals and Objectives Review		
GOAL Objective	**Description**	**Review**
GOAL 1	***Reduce potential injury/death and damage to existing community assets due to floods, flash floods, and ice jams.***	Roll forward to 2020 plan.

2015 Mitigation Goals and Objectives Review		
GOAL Objective	**Description**	**Review**
Objective 1.1	Identify and evaluate strategies for repetitive-loss and severe repetitive loss properties.	Add the word "implement". "Identify, evaluate, and implement 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).	Change to "Provide public outreach/education to decrease the impact of flooding, flash flooding and ice jam flooding."
Objective 1.3	Address identified data limitations regarding lack of detailed information about individual structures located in the special flood hazard area (SFHA).	Roll forward to 2020 plan.
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.	Change to "complete actions and projects to acquire, elevate, demolish or demolish/reconstruct properties, repetitive loss properties and severe repetitive loss properties."
Objective 1.5	Minimize the financial impact of personal mitigation measures on residents.	Roll forward to 2020 plan.
GOAL 2	***Reduce potential injury/death and damage to existing community assets due to high risk and moderate risk hazards.***	Change to *all* risk hazards.
Objective 2.1	Identify communities that do not have warning systems and storm shelters.	Get rid of storm.
Objective 2.2	Address identified data limitations regarding lack of detailed information about characteristics of individual structures	Duplication of 1.3. Get rid of.
Objective 2.3	Implement measures to reduce the likelihood of all natural and manmade hazards affecting structures.	Change man-made to human caused. Take out affecting structures.
Objective 2.4	Develop a comprehensive approach to reducing potential injury/damages for critical facilities and vulnerable populace in hazard areas.	Roll forward to 2020 plan.
Objective 2.5	Evaluate potential contamination of drinking water sources along transportation corridors.	Roll forward to 2020 plan. Evaluate water sources that could be impacted by contamination.
Objective 2.6	Ensure that key roadways are adequate to support vehicles transporting hazardous materials.	Take out ensure, change to Identify.
Objective 2.7	Enhance response capability of county and municipal services.	Roll forward to 2020 plan.
GOAL 3	***Promote disaster-resistant future development.***	Roll forward to 2020 plan.

2015 Mitigation Goals and Objectives Review		
GOAL Objective	**Description**	**Review**
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.	Somerset County's comprehensive plan was updated in 2018. County has limited zoning in effect. A mostly county-wide SALDO ordinance. Change to "Review and maintain comprehensive plan and encourage municipalities to implement zoning/land use ordinances that avoid 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.	Building codes are adopted and enforced by townships and boroughs. Not a county function. Needs to be facilitated through municipalities. Change to "Encourage municipalities to enforce 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.	Roll forward to 2020 plan.
GOAL 4	***Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.***	Roll forward to 2020 plan.
Objective 4.1	Provide public education to increase awareness of hazards and opportunities for mitigation.	Roll forward to 2020 plan.
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.	Roll forward to 2020 plan.
Objective 4.3	Continue the promotion of disaster resistance in the business community via the hazard mitigation planning initiative.	Roll forward to 2020 plan.
GOAL 5	***Improve response and recovery capabilities.***	Roll forward to 2020 plan.
Objective 5.1	Increase awareness by residents (e.g., through public outreach/education) of actions to take during an emergency.	Roll forward to 2020 plan.
Objective 5.2	Enhance response capability of county and municipal fire, police, and emergency medical services personnel to special populations.	Roll forward to 2020 plan.

2015 Mitigation Goals and Objectives Review		
GOAL Objective	**Description**	**Review**
Objective 5.3	Ensure adequate emergency planning is conducted.	Roll forward to 2020 plan.
GOAL 6	***Protect critical infrastructure in hazard areas.***	Roll forward to 2020 plan.
Objective 6.1	Identify and evaluate protection of existing critical structures and infrastructure in the special flood hazard area (SFHA).	Eliminate. Duplication of objectives in goal 1.
Objective 6.2	Identify the most vulnerable and critical structures and infrastructure due to the effects of natural and man-made hazards.	Change to human caused.
Objective 6.3	Protect utilities from natural and man-made hazards.	Change to human caused.

Table 66 - 2015 Mitigation Actions Review

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 1.1.1 - Identify existing repetitive loss and severe repetitive loss properties.			**X**			Properties identified through Knowledge Center entries. Lincoln Township Municipal Shed (garage) has been significantly flooded twice since 2018. Should request updated NFIP repetitive and severe repetitive loss property list annually from PEMA.
Action 1.1.2 - Investigate options for mitigating repetitive-loss properties within the floodplain.			**X**			

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 1.2.1 - 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: • Acquiring and minimizing the cost of flood insurance coverage • Property acquisition, relocation, elevation, dry flood proofing, and wet flood proofing.			**X**			Could be included in a yearly meeting with township/borough officials SM This could be broken into a couple of actions actually. May want to consider the least invasive way to complete the action or actions. Requires funding and staffing.
Action 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: • Lowest-floor elevation • Number of stories • Presence of a basement • Market and/or replacement value	**X**					This is a great action for PDM grant or FMA grant Requires funding and staffing.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 1.3.2 - Obtain information for all re-maining structures in the special flood hazard area (SFHA) to determine the best property protec-tion methods to promote with individual property owners. Techniques for gathering information over time should include developing and imple-menting a program for integrated information "capture" at key points in normal township admin-istrative procedures, in-cluding applications for building permits at town-ship/borough offices.	**X**					This is a great action for PDM grant or FMA grant Requires funding and staffing.
Action 1.3.3 - Apply to PEMA for funding to un-dertake detailed flood studies for County's high-hazard areas to deter-mine base flood elevation (BFE) and a full range of flood- recurrence inter-vals (50%, 20%, 10%, 4%, 2% and 1% chance events) for use in future re-finements of the mitigation plan.	**X**					This is a great action for PDM grant or FMA grant Requires funding and staffing.
Action 1.4.1 - Evaluate and refine the County's prioritized list of proper-ties for buyout opportuni-ties.	**X**					Is there a list? Maybe the action should read to de-velop a list and maintain annually. Change to "Engage or collaborate with municipali-ties to identify repetitive flood properties that do not qualify as a severe repetitive or repetitive loss prop-erties."

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 1.4.2 - Develop a fund to relocate structures out of the special flood hazard area (SFHA).					**X**	Requires funding and staffing.
Action 1.4.3 - Elevate structures to above the base flood elevation.			**X**			Requires funding and staffing. Good action for munis to work with homeowners and do PDM and FMA funding apps
Action 1.5.1 - Encourage participation of all municipalities in the National Flood Insurance Program (NFIP).			**X**			This is a PEMA and FEMA responsibility. Must stay and must have progress. This does not have to be a county employee or department. Can leverage NFIP and PEMA for assistance and guidance. Need to update this and add 1.5.2 that is encompassing of NFIP, CRS…etc
Action 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**	This is a PEMA and FEMA responsibility. Still can be an action in the plan, just need to show the local champion as PEMA and FEMA Combine with 1.5.1
Action 2.1.1 - Identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.			**X**			Can we incorporate 2.1.4 and make this more generic to include all hazards? Change to "identify the at-risk populations…" Change to an all hazards approach.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 2.1.2 - Conduct qualitative evaluation process for managing stranded travelers (e.g., temporary shelters).			**X**			EMA will need to weigh in on this to determine validity. Requires funding and staffing.
Action 2.1.3 - If warranted, implement additional storm shelters and warning systems, including: • Community sirens • Real-time weather data for emergency management personnel National Oceanic and Atmospheric Administration (NOAA) weather radios. "Reverse 911" systems					**X**	Code Red alerting system put into place to notify residents in specific geographic areas of impending weather emergencies or other public safety threats. May need to reevaluate and determine how this action needs changed. I would recommend a Code Red action to maintain and/or do outreach so public know about it and how to sign up, etc. Requires funding and staffing.
Action 2.1.4 - Identify residents with the highest relative vulnerability to the effects of wildfires and prepare implementation plan.					**X**	See 2.1.1 statement Requires funding and staffing.
Action 2.2.1 - 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 is no longer applicable. Remove. Requires funding and staffing.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 2.2.2 - 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.	**X**					Could this be done within Pictometry? Requires funding and staffing.
Action 2.3.1 - Retrofit manufactured homes with anchors or tie-down straps.	**X**					Requires funding.
Action 2.4.1 - 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.					**X**	Code Red impact with this? Requires funding.
Action 2.5.1 - 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**			Requires funding and staffing.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 2.6.1 - Maintain the county's Commodity Flow Study to identify those roadways most travelled by vehicles transporting hazardous materials.	**X**					The last commodity flow study was done in conjunction with the previous Hazard Mitigation Plan. Grants were applied for to conduct a current study but plans to do this are presently on hold due to the pandemic situation.
Action 2.6.2 - Perform studies on roadways used to transport hazardous materials to ensure that they are adequate for this purpose.	**X**					Requires funding and staffing.
Action 2.7.1 - 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**			Somerset County participates in the Region 13 Fire & Hazmat sub-committee monthly meetings, where training activities and exercises are discussed and planned. Members of Somerset County specialty teams also participate in Region 13 sponsored exercises both inside and outside of our county.
Action 3.1.1 - Ensure that land use, zoning, and related regulations require an adequate setback of structures from the edge of wild lands.	**X**					Somerset County has limited zoning and land development regulations.
Action 3.1.2 - Create regulations governing controlled burns on private property.					**X**	This would occur at the municipal level. May want to update action language.
Action 3.1.3 - Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.			**X**			Could be part of Yearly meeting with township/borough folks. Change wording so it is all-inclusive of government/private sector…etc. Requires funding and staffing.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 3.1.4 - Present cost/benefit analysis to townships/boroughs that do not have comprehensive plans and/or zoning/land use ordinances.	**X**					Requires funding and staffing.
Action 3.1.5 - Integrate evaluation of snow removal and emergency access logistics with new development planning.			**X**			
Action 3.1.6 - 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**					Requires funding and staffing. Municipal involvement to complete
Action 3.2.1 – Ensure that building codes include the use of roofing shingles that are less likely to be blown off of roofs.			**X**			This is a PA Bureau of Labor and Industry responsibility. Enforce building codes. Does code already have this requirement?
Action 3.2.2 - Ensure that building codes include the use of fire-resistant materials for structures near wild lands.			**X**			This is a PA Bureau of Labor and Industry responsibility Change to enforce. Municipal involvement to complete
Action 3.2.3 - Evaluate continued adequacy of township/borough building codes.			**X**			Enhance building codes at the municipal level. This is a PA Bureau of Labor and Industry responsibility

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 3.2.4 - Encourage all townships/boroughs to maintain adoption of International Building Code.					**X**	No longer valid. Get rid of. This is a PA Bureau of Labor and Industry responsibility
Action 3.3.1 – Provide updated training to municipal building inspectors.			**X**			This is a municipal responsibility
Action 3.3.2 - 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**					Good outreach action This is a municipal responsibility
Action 4.1.1 - Identify and publicize success stories as part of an overall consistent public relations program.			**X**			The Somerset County Department of Emergency Services recently began publishing a quarterly newsletter to enhance public relations. May want to update this action with language about the newsletter. Especially if there is a mitigation section quarterly Requires funding and staffing.
Action 4.1.2 - Encourage all residents to receive immunizations recommended by their primary care physicians.			**X**			Change to "educate residents to follow recommendations made by healthcare professionals to protect themselves from current risks." Requires funding and staffing. Not a county responsibility. Does not have to be a county responsibility to be an action in the plan as this is a multi-jurisdictional plan

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 4.1.3 - Identify and publicize easily prevented reasons for emergencies (e.g., careless smoking resulting in fires).			**X**			The Somerset County Department of Emergency Services sets up an informational display table in the Somerset County Annex building for Emergency Preparedness Month annually in September. The DES also participates in senior fairs, National Night Out and other related events as requested.
Action 4.2.1 - Convene regular meetings of the LEPC to discuss issues and progress related to the implementation of the hazard mitigation plan.			**X**			LEPC meetings are currently held on a quarterly basis. Our LEPC is growing in size and has included members from the community from entities not previously represented (ie. Media, industry, law enforcement, etc.) Replace LEPC with LPT
Action 4.3.1 - Renew and expand commitments to hazard mitigation planning among partner organizations through the local planning team.			**X**			
Action 5.1.1 - 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: • 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**			The LEPC currently maintains off-site response plans for 27 facilities within Somerset County that report having Extremely Hazardous Substances (EHS) above the reporting threshold quantity (TPQ). Plans include emergency contacts, reporting procedures, immediate evacuation distances and other chemical specific information relevant to the site. This action could be updated or split into numerous actions. Requires funding and staffing. Get rid of bulleted items.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 5.1.2 - In-crease awareness by residents of actions to take during an emer-gency, including shelter-ing and evacuation pro-cedures. Methods to be used can include public outreach and education.			**X**			Code red??
Action 5.2.1 – Identify and maintain lists of special populations re-quiring additional emer-gency response.	**X**					Requires funding and staffing. High-hazard multi-residential facilities are included in the draft version of Somerset County's updated emergency operations plan. This is a local and county EMA requirement. Should change special needs comments to func-tional needs
Action 5.2.2 - Evalu-ate means to enhance response capability for special needs residents.			**X**			Requires funding and staffing. Should change special needs comments to func-tional needs
Action 5.3.1 – Ensure that the County main-tains a current all-haz-ards Emergency Opera-tions Plan (EOP)		**X**				There is currently a working group that meets on a weekly basis to review, revise and update the cur-rent EOP for Somerset County. As a result, several additional hazard specific annexes are being added to the plan (ex. mass fatality plan). This is a requirement of Title 35 for the county. I would remove "Ensure that" and update to state Maintain the emergency operations plans in accord-ance with Title 35 requirements.
Action 5.3.2 – Ensure that each municipality maintains a current all-hazards EOP.					**X**	A list of municipalities and their EOP adoption dates is maintained at the Somerset County EMA office. This list is reviewed at each meeting of the Somerset County Local Emergency Management Coordina-tors and shared with municipalities. Same as above. Remove

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 5.3.3 - Encourage organizations responsible for critical infrastructure to maintain current Continuity of Operations (COOP) plans.			**X**			Requires funding and staffing.
Action 5.3.4 - Ensure that a current emergency plan is in place for each facility that uses, manufactures, or stores hazardous materials.			**X**			The LEPC currently maintains off-site response plans for 27 facilities within Somerset County that report having Extremely Hazardous Substances (EHS) above the reporting threshold quantity (TPQ). Plans include emergency contacts, reporting procedures, immediate evacuation distances and other chemical specific information relevant to the site.
Action 5.3.5 - Conduct post-disaster community recovery planning.		**X**				It is on the list to do for the Emergency Operations Plan Workgroup.
Action 5.3.6 - Update debris management plan			**X**			It has been completed but not promulgated yet. May want to change the action to maintain now
Action 5.3.7 - Enhance the public safety agency personnel and equipment update system to allow input of data from first responders and public works			**X**			Both municipal and first responder agency contact update forms are accessible online. The quality of the input data is directly the result of each individual agency, so some discrepancies in provided information do exist.
Action 5.3.8 - Evaluate means to enhance response capability for special needs residents.					**X**	Duplicate Action Number—same content as 5.2.2 Requires funding and staffing.
Action 6.1.1 - Investigate options for protecting critical infrastructure within the floodplain.			**X**			Requires funding and staffing. If there is a specific goal for flooding, I would add this there. Make this all-hazard in nature.

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Un-known	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 6.1.2 - Conduct cost-benefit analysis of protection of critical in-frastructure.			**X**			Requires funding and staffing.
Action 6.1.3 - Provide regular maintenance on stormwater management structures (culverts, drainage ditches, etc.)			**X**			Take out provide regular maintenance and encour-age. Encourage regular maintain as needed.
Action 6.1.4 - Replace any stormwater manage-ment structures that re-quire it					**X**	Requires funding. If there is a specific goal for flooding, I would add this there Roll into 6.1.3
Action 6.1.5 - Raise roadways that routinely flood to above the base flood elevation			**X**			Requires funding. If there is a specific goal for flooding, I would add this there
Action 6.1.6 - Upgrade and replace manholes to prevent the release of sewage during a flood.			**X**			Requires funding. If there is a specific goal for flooding, I would add this there
Action 6.1.7 - Protect natural wetlands that may absorb floodwaters.			**X**			PA DEP and Conservation District responsibility. If there is a specific goal for flooding, I would add this there

2015 Somerset County Mitigation Actions Review Worksheet						
Existing Mitigation Actions	***Status***					***Review Comments***
	No Progress / Unknown	**In Progress / Not Yet Complete**	**Continuous**	**Completed**	**Discontinued**	
Action 6.2.1 - Conduct qualitative evaluation process for critical facilities and residents to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan			**X**			Requires funding and staffing.
Action 6.2.2 - Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.			**X**			
Action 6.3.1 - Bury above ground power and telephone transmission lines.			**X**			Cost prohibitive.
Action 6.3.2 - Amend development regulations to require below ground power and telephone transmission lines.					**X**	Combine with 6.3.1 Cost prohibitive.

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 goals and twenty-three corresponding objectives was developed.

Table 67 - 2020 Goals and Objectives details the mitigation goals and objectives established for the 2020 Somerset County Hazard Mitigation Plan.

Table 67 - 2020 Goals and Objectives

2020 Somerset County Goals and Objectives	
GOAL Objective	***Description***
GOAL 1	***Reduce potential injury/death and damage to existing community assets due to floods, flash floods, and ice jams.***
Objective 1.1	Identify, evaluate, and implement strategies for repetitive loss and severe repetitive loss properties.
Objective 1.2	Provide public outreach/education to decrease the impact of flooding, flash flooding, and ice jam flooding.
Objective 1.3	Address identified data limitation regarding lack of detailed information about individual structures located in the special flood hazard area (SFHA).
Objective 1.4	Complete actions and projects to decrease the impact of flooding and to acquire, elevate, demolish or demolish/reconstruct properties, repetitive loss properties and severe repetitive loss properties.
Objective 1.5	Minimize the financial impact of personal mitigation measures on residents.
GOAL 2	***Reduce potential injury/death and damage to existing community assets due all hazards.***
Objective 2.1	Identify communities that do not have warning systems and shelters.
Objective 2.2	Implement measures to reduce the likelihood of all natural and human caused hazards.
Objective 2.3	Develop a comprehensive approach to reducing potential injury/damages for critical facilities and vulnerable populace in hazard areas.
Objective 2.4	Evaluate water sources that could be impacted by contamination.
Objective 2.5	Identify key roadways that are adequate to support vehicles transporting hazardous materials.
Objective 2.6	Enhance response capability of county and municipal services.
GOAL 3	***Promote disaster-resistant future development.***
Objective 3.1	Review and maintain comprehensive plan and encourage municipalities to implement zoning/land use ordinances that avoid high-hazard areas.

2020 Somerset County Goals and Objectives	
Objective 3.2	Encourage municipalities to enforce 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	***Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.***
Objective 4.1	Provide public education to increase awareness of hazards and opportunities for mitigation.
Objective 4.2	Promote partnerships between 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	***Improve response and recovery capabilities.***
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 capabilities of county and municipal fire, police, and emergency medical services personnel to special populations.
Objective 5.3	Ensure adequate emergency planning is conducted.
GOAL 6	***Protect critical infrastructure in hazard areas.***
Objective 6.1	Identify the most vulnerable and critical structures and infrastructure due to the effects of natural and human caused hazards.
Objective 6.2	Protect utilities from natural and human caused hazards.
Objective 6.3	Enhance planning and mitigation strategy development for high hazard dams and levees.

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. 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 are techniques that remove or divert the hazard from structures or protect 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

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 68 - Mitigation Strategy Technique Matrix* provides a matrix identifying the mitigation techniques used for all low, moderate and high-risk hazards in the county. The specific actions associated with these techniques are included in *Table 69 - 2020 Mitigation Action Plan*.

Table 68 - Mitigation Strategy Technique Matrix

Somerset County Mitigation Strategy Technique Matrix				
HAZARD	**MITIGATION TECHNIQUE**			
	Local Plans and Regulations	**Structural and Infra-structure**	**Natural Systems Protection**	**Education and Awareness**
Drought	X		X	X
Earthquake	X	X		X
Landslides	X	X		X
Flooding, Flash Flood & Ice Jam	X	X	X	X
Invasive Species	X		X	X
Pandemic, Epidemic, In-fectious Disease	X		X	X
Radon Exposure	X	X		X
Tornado/Windstorm	X	X		X
Wildfires	X	X		X
Winter Storms	X	X		X
Hurricane/Tropical Storm	X	X		X
Hailstorm	X	X		X
Subsidence and Sink-holes	X	X		X
Levee/Dam Failure	X	X		X
Emergency Services	X			X
Environmental Hazard: Hazardous Materi-als/Transportation	X	X		X
Opioid Epidemic	X			X
Terrorism	X	X		X
Transportation Accidents	X	X		X
Utility Interruptions	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 2020 hazard mitigation plan (HMP) update after the risk assessment section was completed. The LPT started this section by reviewing the 2015 HMP mitigation strategy section. A review of the previous goals, objectives, actions and project opportunities documented in the 2015 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.

MCM Consulting Group, Inc. completed municipality meetings at various time periods via conference calls due to COVID-19. 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. Municipalities that couldn't join conference calls were contacted individually.

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

Mitigation measures for the 2020 Somerset County HMP are listed in the mitigation action plan. *Table 69 - 2020 Mitigation Action Plan* is the 2020 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 were completed using the Pennsylvania Emergency Management Agency recommended analysis tool. The completed analysis is located in Appendix H. *Table 70 - Municipal Hazard Mitigation Actions Checklist* is a matrix that identifies the county and/or municipalities responsible for mitigation actions in the new mitigation action plan.

Table 69 - 2020 Mitigation Action Plan

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
1.1.1	Structure and Infrastructure	Identify existing repetitive loss and severe repetitive loss properties	Flooding		**X**		2020 - 2024	Local	Somerset County EMA
1.1.2	Structure and Infrastructure	Investigate options for mitigating repetitive-loss properties within the floodplain.	Flooding		**X**		2020 - 2024	Local	Somerset County EMA
1.1.3	Structure and Infrastructure	Protect natural wetlands that may absorb floodwaters.	Flooding		**X**		2020 - 2024	Local, FMA and PDM	Somerset County EMA/Municipalities

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
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: • Acquiring and minimizing the cost of flood insurance coverage • Property acquisition, relocation, elevation, dry flood proofing, and wet flood proofing.	Flooding		**X**		2020 - 2024	Local and FMA	Somerset County EMA/Planning
1.3.1	Structure and Infrastructure	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: • Lowest-floor elevation • Number of stories • Presence of a basement • Market and/or replacement value	Flooding		**X**		2020 - 2024	Local	Somerset County EMA/Planning
1.3.2	Structure and Infrastructure	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**		2020 - 2024	Local	Somerset County EMA/Planning
1.3.3	Planning 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**		2020 - 2024	Local/FMA/PDM	Somerset County EMA/Planning

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
1.4.1	Structure and Infrastructure	Engage or collaborate with municipalities to identify repetitive flood properties that do not qualify as a severe repetitive or repetitive loss properties.	Flooding		**X**		2020 - 2024	Local	Somerset County Planning/EMA
1.4.2	Structure and Infrastructure	Elevate structures to above the base flood elevation.	Flooding		**X**		2020 - 2024	Local/FMA/PDM	Somerset County Planning/EMA
1.4.3	Structure and Infrastructure	Encourage regular maintenance on stormwater management structures (culverts, drainage ditches, etc.) and replace any stormwater management structures as needed.	Flooding		**X**		2020 - 2024	Local	Somerset County EMA/planning
1.4.4	Structure and Infrastructure	Raise roadways that routinely flood to above the base flood elevation	Flooding		**X**		2020 - 2024	Local/FMA/PDM	Somerset County Municipalities
1.4.5	Structure and Infrastructure	Upgrade and replace manholes to prevent the release of sewage during a flood.	Flooding		**X**		2020 - 2024	Local/FMA/PDM	Somerset County Municipalities
1.5.1	Education and Awareness	Encourage participation of all municipalities in the National Flood Insurance Program (NFIP).	Flooding		**X**		2020 - 2024	Local	Somerset County EMA
2.1.1	Education and Awareness	Identify at risk populations with the highest relative vulnerability to all hazards impacting Somerset County.	All-Hazards		**X**		2020 - 2024	Local/EMPG	Somerset County EMA
2.1.2	Structure and Infrastructure	Conduct qualitative evaluation process for managing stranded travelers (e.g., temporary shelters).	All-Hazards			**X**	2020 - 2024	Local/EMPG	Somerset County EMA

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
2.2.1	Structure and Infrastructure	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**	2020 - 2024	Local	Somerset County GIS
2.3.1	Structure and Infrastructure	Retrofit manufactured homes with anchors or tie-down straps.	All-Hazards		**X**		2020 - 2024	PDM/ FMA Funds	Somerset County municipalities
2.4.1	Structure and Infrastructure	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.	Utility Interruption/Environmental hazard – Transportation Accidents/Drought			**X**	2020 - 2024	Local/EMPG	Somerset County EMA/GIS
2.5.1	Planning and Regulations	Maintain the county's commodity flow study to identify those roadways most travelled by vehicles transporting hazardous materials.	Environmental Hazards - Transportation	**X**			2020 - 2024	Local/EMPG/ LEPC/ HMEP	Somerset County LEPC
2.5.2	Planning and Regulations	Perform studies on roadways used to transport hazardous materials to ensure that they are adequate for this purpose.	Environmental Hazards - Transportation	**X**			2020 - 2024	Local/EMPG/ LEPC/ HMEP	Somerset County LEPC
2.6.1	Planning 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**			2020 - 2024	Local/EMPG	Somerset County EMA
3.1.1	Planning and Regulations	Ensure that land use, zoning, and related regulations require an adequate setback of structures from the edge of wild lands.	Wildfire		**X**		2020 - 2024	Local	Somerset County Planning/Somerset municipalities

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
3.1.2	Education and Awareness	Distribute and promote the inclusion of vulnerability analysis information as part of the periodic plan review to all at the public/private levels.	All-Hazards		**X**		2020 - 2024	Local	Somerset County EMA/Planning/municipalities
3.1.3	Education and Awareness	Present cost/benefit analysis to townships/boroughs that do not have comprehensive plans and/or zoning/land use ordinances.	All-Hazards			**X**	2020 - 2024	Local	Somerset County Planning
3.1.4	Planning and Regulations	Integrate evaluation of snow removal and emergency access logistics with new development planning.	Winter Storms		**X**		2020 - 2024	Local	Somerset County Planning/municipalities/
3.2.1	Planning and Regulations	Enforce building codes include the use of roofing shingles that are less likely to be blown off of roofs.	Tornado/Winter Storm/Windstorm/Hailstorm/Hurricane		**X**		2020 - 2024	Local	Somerset County Municipalities
3.2.2	Planning and Regulations	Enforce building codes include the use of fire-resistant materials for structures near wild lands.	Wildfire		**X**		2020 - 2024	Local	Somerset County Municipalities
3.2.3	Planning and Regulations	Enhance building codes at the municipal level.	All-Hazards		**X**		2020 - 2024	Local	Somerset County Planning/municipalities
3.2.4	Planning 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.	Wildfire		**X**		2020 - 2024	Local	Somerset County Planning/Municipalities
3.3.1	Education and Awareness	Provide updated training to municipal building inspectors.	All-Hazards			**X**	2020 - 2024	Local	Somerset County Planning/municipalities

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
3.3.2	Planning and Regulations	Work with township/borough officials to increase awareness among mobile homeowners (i.e., informational mailings, workshops) about requirements for proper anchoring for wind protection.	Windstorms/Tornado/Hurricane/Flooding/Flash flooding		**X**		2020 - 2024	Local	Somerset County Planning
4.1.1	Education and Awareness	Continue to distribute quarterly newsletter to members of the public on current EMA projects hazard mitigation efforts.	All-Hazards		**X**		2020 - 2024	Local/EMPG	Somerset County EMA
4.1.2	Education and Awareness	Educate residents to follow recommendations made by healthcare professionals to protect themselves from current risks.	Pandemic and Infectious Disease	**X**			2020 - 2024	Local	PADOH
4.1.3	Education and Awareness	Identify and publicize easily prevented reasons for emergencies (e.g., careless smoking resulting in fires).	All-Hazards		**X**		2020 - 2024	Local	Somerset County EMA
4.2.1	Planning and Regulations	Convene regular meetings of the LPT to discuss issues and progress related to the implementation of the hazard mitigation plan.	All-Hazards		**X**		2020 - 2024	Local	Somerset County EMA/Planning
4.3.1	Education and Awareness	Renew and expand commitments to hazard mitigation planning among partner organizations through the local planning team.	All-Hazards	**X**			2020 - 2024	Local	Somerset County EMA/Planning
5.1.1	Planning and Regulations	The LEPC should work with SARA facility owners and operators to ensure compliance with the emergency off-site response plan.	Environmental Hazards Fixed Facility	**X**			2020 - 2024	Local, HMERP	Somerset County EMA/LEPC
5.1.2	Education and Awareness	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**		2020 - 2024	Local, EMPG	Somerset County EMA

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
5.1.3	Education and Awareness	Continue to collaborate with local law enforcement and authorities to promote public awareness of the prevention, intervention, and treatment of drug abuse.	Opioid Epidemic		**X**		2020 - 2024	Local	Somerset County EMA
5.1.4	Education and Awareness	Collaborate with partnering agencies to promote awareness of invasive species (i.e. spotted lantern fly)	Invasive Species		**X**		2020 - 2024	Local	Somerset County EMA
5.2.1	Planning and Regulations	Identify and maintain lists of functional needs populations requiring additional emergency response.	All-Hazards		**X**		2020 - 2024	Local/EMPG	Somerset County EMA and municipal EMA
5.2.2	Planning and Regulations	Evaluate means to enhance response capability for functional needs residents.	All-Hazards		**X**		2020 - 2024	Local/EMPG	Somerset County EMA and municipal EMA
5.2.3	Education and Awareness	Continue to actively engage with the first responder community through outreach to enhance and secure our local level emergency service capabilities.	Emergency Services		**X**		2020 - 2024	Local Grants	Somerset County EMA
5.3.1	Planning and Regulations	Maintain county and municipal emergency operations plans in accordance with Title 35 requirements.	All-Hazards			**X**	2020 - 2024	Local/EMPG	Somerset County EMA and Municipal EMA
5.3.2	Planning and Regulations	Encourage organizations responsible for critical infrastructure to maintain current Continuity of Operations (COOP) plans.	All-Hazards	**X**			2020 - 2024	Local	Somerset County EMA and municipalities
5.3.3	Planning and Regulations	Ensure that a current emergency plan is in place for each facility that uses, manufactures, or stores hazardous materials.	All hazards		**X**		2020 - 2024	Local/HMERP	Somerset County EMA and municipalities

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
5.3.4	Planning and Regulations	Conduct post-disaster community recovery planning.	All-Hazards		X		2020 - 2024	Local/EMPG	Somerset County EMA
5.3.5	Education and Awareness	Maintain debris management plan.	Flash Flood/Tornadoes/Dam Failure/Flood/Winter Storms/Wildfire/Wind Storms/Ice Jam Flooding/Hurricane/Tropical Storm/Hailstorms/Landslides/Earthquake	X			2020 - 2024	Local/EMPG	Somerset County EMA
5.3.6	Education and Awareness	Enhance the public safety agency personnel and equipment update system to allow input of data from first responders and public works	All-Hazards		X		2020 - 2024	Local/Grants	Somerset EMA and municipalities
6.1.1	Education and awareness	Investigate options for protecting critical infrastructure impacted by all-hazards.	All-Hazards	X			2020 - 2024	Local	Somerset County EMA/Planning
6.1.2	Planning and Regulations	Conduct cost-benefit analysis of protection of critical infrastructure.	All-Hazards	X			2020 - 2024	Local/FMA	Somerset County EMA
6.1.3	Planning 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		2020 - 2024	Local/PDM	Somerset County EMA/Planning

Somerset County 2020 Mitigation Action Plan									
Action Number	Mitigation Actions			Prioritization			Implementation		
	Category	Description/ Action Items	Hazard Vulnerability	High	Medium	Low	Schedule	Funding	Local Champion
6.1.4	Planning and Regulations	Develop action plan for reducing potential damage and loss of function at identified critical facilities and infrastructure.	All-Hazards		**x**		2020 - 2024	Local	Somerset County EMA and business owners
6.2.1	Structure and Infrastructure	Amend development regulations to require below ground power and telephone transmission lines and bury lines already in existence.	Utility Interruptions		**x**		2020 - 2024	Local	Somerset County Planning/municipalities
6.3.1	Planning and Regulations	Review, update and exercise high hazard dam plans.	Dam Failure	**x**			2020 - 2024	Local/EMPG/HHPD	High-hazard dam owner
6.3.2	Education and awareness	Further examine inundation areas and how to better-inform and protect vulnerable populations.	Dam Failure		**x**		2020 - 2024	Local/EMPG/HHPD	Somerset County EMA

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

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

HMERP: Hazard Mitigation Emergency Response Program by the Pennsylvania Emergency Management Agency
HHPD: High-hazard potential dam by the Federal Emergency Management Agency

Table 70 - Municipal Hazard Mitigation Actions Checklist

Municipal Hazard Mitigation Actions Checklist										
Municipality	**1.1.1**	**1.1.2**	**1.1.3**	**1.2.1**	**1.3.1**	**1.3.2**	**1.3.3**	**1.4.1**	**1.4.2**	**1.4.3**
Addison Borough			x	x	x	x	x	x	x	x
Addison Township			x	x	x	x	x	x	x	x
Allegheny Township			x	x	x	x	x	x	x	x
Benson Borough			x	x	x	x	x	x	x	x
Berlin Borough			x	x	x	x	x	x	x	x
Black Township			x	x	x	x	x	x	x	x
Boswell Borough			x	x	x	x	x	x	x	x
Brothersvalley Township			x	x	x	x	x	x	x	x
Callimont Borough			x	x	x	x	x	x	x	x
Casselman Borough			x	x	x	x	x	x	x	x
Central City Borough			x	x	x	x	x	x	x	x
Conemaugh Township	x	x	x	x	x	x	x	x	x	x
Confluence Borough			x	x	x	x	x	x	x	x
Elk Lick Township	x	x	x	x	x	x	x	x	x	x
Fairhope Township			x	x	x	x	x	x	x	x
Garrett Borough	x	x	x	x	x	x	x	x	x	x
Greenville Township			x	x	x	x	x	x	x	x
Hooversville Borough			x	x	x	x	x	x	x	x
Indian Lake Borough			x	x	x	x	x	x	x	x
Jefferson Township			x	x	x	x	x	x	x	x
Jenner Township			x	x	x	x	x	x	x	x
Jennerstown Borough			x	x	x	x	x	x	x	x
Larimer Township			x	x	x	x	x	x	x	x
Lincoln Township			x	x	x	x	x	x	x	x
Lower Turkeyfoot Township			x	x	x	x	x	x	x	x
Meyersdale Borough	x	x	x	x	x	x	x	x	x	x
Middlecreek Township	x	x	x	x	x	x	x	x	x	x
Milford Township			x	x	x	x	x	x	x	x
New Baltimore Borough			x	x	x	x	x	x	x	x
New Centerville Borough			x	x	x	x	x	x	x	x
Northampton Township			x	x	x	x	x	x	x	x
Ogle Township			x	x	x	x	x	x	x	x
Paint Borough			x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**1.1.1**	**1.1.2**	**1.1.3**	**1.2.1**	**1.3.1**	**1.3.2**	**1.3.3**	**1.4.1**	**1.4.2**	**1.4.3**
Paint Township			x	x	x	x	x	x	x	x
Quemahoning Township			x	x	x	x	x	x	x	x
Rockwood Borough			x	x	x	x	x	x	x	x
Salisbury Borough			x	x	x	x	x	x	x	x
Seven Springs Borough			x	x	x	x	x	x	x	x
Shade Township			x	x	x	x	x	x	x	x
Shanksville Borough			x	x	x	x	x	x	x	x
Somerset Borough			x	x	x	x	x	x	x	x
Somerset Township	x	x	x	x	x	x	x	x	x	x
Southampton Township			x	x	x	x	x	x	x	x
Stonycreek Township			x	x	x	x	x	x	x	x
Stoystown Borough			x	x	x	x	x	x	x	x
Summit Township			x	x	x	x	x	x	x	x
Upper Turkeyfoot Township			x	x	x	x	x	x	x	x
Ursina Borough			x	x	x	x	x	x	x	x
Wellersburg Borough			x	x	x	x	x	x	x	x
Windber Borough	x	x	x	x	x	x	x	x	x	x
Somerset County	x	x	x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**1.4.4**	**1.4.5**	**1.5.1**	**2.1.1**	**2.1.2**	**2.2.1**	**2.3.1**	**2.4.1**	**2.5.1**	**2.5.2**
Addison Borough	x		x	x			x			x
Addison Township	x		x	x			x			x
Allegheny Township	x		x	x			x			x
Benson Borough	x		x	x			x			x
Berlin Borough	x		x	x			x			x
Black Township	x		x	x			x			x
Boswell Borough	x		x	x			x			x
Brothersvalley Township	x		x	x			x			x
Callimont Borough	x		x	x			x			x
Casselman Borough	x		x	x			x			x
Central City Borough	x		x	x			x			x
Conemaugh Township	x		x	x			x			x
Confluence Borough	x		x	x			x			x
Elk Lick Township	x		x	x			x			x
Fairhope Township	x		x	x			x			x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**1.4.4**	**1.4.5**	**1.5.1**	**2.1.1**	**2.1.2**	**2.2.1**	**2.3.1**	**2.4.1**	**2.5.1**	**2.5.2**
Garrett Borough	x		x	x			x			x
Greenville Township	x		x	x			x			x
Hooversville Borough	x		x	x			x			x
Indian Lake Borough	x		x	x			x			x
Jefferson Township	x		x	x			x			x
Jenner Township	x		x	x			x			x
Jennerstown Borough	x		x	x			x			x
Larimer Township	x		x	x			x			x
Lincoln Township	x		x	x			x			x
Lower Turkeyfoot Township	x		x	x			x			x
Meyersdale Borough	x		x	x			x			x
Middlecreek Township	x		x	x			x			x
Milford Township	x		x	x			x			x
New Baltimore Borough	x		x	x			x			x
New Centerville Borough	x		x	x			x			x
Northampton Township	x		x	x			x			x
Ogle Township	x		x	x			x			x
Paint Borough	x		x	x			x			x
Paint Township	x		x	x			x			x
Quemahoning Township	x		x	x			x			x
Rockwood Borough	x		x	x			x			x
Salisbury Borough	x		x	x			x			x
Seven Springs Borough	x		x	x			x			x
Shade Township	x		x	x			x			x
Shanksville Borough	x		x	x			x			x
Somerset Borough	x		x	x			x			x
Somerset Township	x		x	x			x			x
Southampton Township	x		x	x			x			x
Stonycreek Township	x		x	x			x			x
Stoystown Borough	x		x	x			x			x
Summit Township	x		x	x			x			x
Upper Turkeyfoot Township	x		x	x			x			x
Ursina Borough	x		x	x			x			x
Wellersburg Borough	x		x	x			x			x
Windber Borough	x		x	x			x			x
Somerset County	x	x	x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**2.6.1**	**3.1.1**	**3.1.2**	**3.1.3**	**3.1.4**	**3.2.1**	**3.2.2**	**3.2.3**	**3.2.4**	**3.3.1**
Addison Borough					x	x	x	x	x	x
Addison Township		x	x		x	x	x	x	x	x
Allegheny Township		x	x		x	x	x	x	x	x
Benson Borough		x	x		x	x	x	x	x	x
Berlin Borough		x	x		x	x	x	x	x	x
Black Township		x	x		x	x	x	x	x	x
Boswell Borough		x	x		x	x	x	x	x	x
Brothersvalley Township		x	x		x	x	x	x	x	x
Callimont Borough		x	x		x	x	x	x	x	x
Casselman Borough		x	x		x	x	x	x	x	x
Central City Borough		x	x		x	x	x	x	x	x
Conemaugh Township		x	x		x	x	x	x	x	x
Confluence Borough		x	x		x	x	x	x	x	x
Elk Lick Township		x	x		x	x	x	x	x	x
Fairhope Township		x	x		x	x	x	x	x	x
Garrett Borough		x	x		x	x	x	x	x	x
Greenville Township		x	x		x	x	x	x	x	x
Hooversville Borough		x	x		x	x	x	x	x	x
Indian Lake Borough		x	x		x	x	x	x	x	x
Jefferson Township		x	x		x	x	x	x	x	x
Jenner Township		x	x		x	x	x	x	x	x
Jennerstown Borough		x	x		x	x	x	x	x	x
Larimer Township		x	x		x	x	x	x	x	x
Lincoln Township		x	x		x	x	x	x	x	x
Lower Turkeyfoot Township		x	x		x	x	x	x	x	x
Meyersdale Borough		x	x		x	x	x	x	x	x
Middlecreek Township		x	x		x	x	x	x	x	x
Milford Township		x	x		x	x	x	x	x	x
New Baltimore Borough		x	x		x	x	x	x	x	x
New Centerville Borough		x	x		x	x	x	x	x	x
Northampton Township		x	x		x	x	x	x	x	x
Ogle Township		x	x		x	x	x	x	x	x
Paint Borough		x	x		x	x	x	x	x	x
Paint Township		x	x		x	x	x	x	x	x
Quemahoning Township		x	x		x	x	x	x	x	x
Rockwood Borough		x	x		x	x	x	x	x	x
Salisbury Borough		x	x		x	x	x	x	x	x
Seven Springs Borough		x	x		x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**2.6.1**	**3.1.1**	**3.1.2**	**3.1.3**	**3.1.4**	**3.2.1**	**3.2.2**	**3.2.3**	**3.2.4**	**3.3.1**
Shade Township		x	x		x	x	x	x	x	x
Shanksville Borough		x	x		x	x	x	x	x	x
Somerset Borough		x	x		x	x	x	x	x	x
Somerset Township		x	x		x	x	x	x	x	x
Southampton Township		x	x		x	x	x	x	x	x
Stonycreek Township		x	x		x	x	x	x	x	x
Stoystown Borough		x	x		x	x	x	x	x	x
Summit Township		x	x		x	x	x	x	x	x
Upper Turkeyfoot Township		x	x		x	x	x	x	x	x
Ursina Borough		x	x		x	x	x	x	x	x
Wellersburg Borough		x	x		x	x	x	x	x	x
Windber Borough		x	x		x	x	x	x	x	x
Somerset County	x	x	x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**3.3.2**	**4.1.1**	**4.1.2**	**4.1.3**	**4.2.1**	**4.3.1**	**5.1.1**	**5.1.2**	**5.1.3**	**5.1.4**
Addison Borough	x			x						x
Addison Township	x			x						x
Allegheny Township	x			x						x
Benson Borough	x			x						x
Berlin Borough	x			x						x
Black Township	x			x						x
Boswell Borough	x			x						x
Brothersvalley Township	x			x						x
Callimont Borough	x			x						x
Casselman Borough	x			x						x
Central City Borough	x			x						x
Conemaugh Township	x			x						x
Confluence Borough	x			x						x
Elk Lick Township	x			x						x
Fairhope Township	x			x						x
Garrett Borough	x			x						x
Greenville Township	x			x						x
Hooversville Borough	x			x						x
Indian Lake Borough	x			x						x
Jefferson Township	x			x						x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**3.3.2**	**4.1.1**	**4.1.2**	**4.1.3**	**4.2.1**	**4.3.1**	**5.1.1**	**5.1.2**	**5.1.3**	**5.1.4**
Jenner Township	x			x						x
Jennerstown Borough	x			x						x
Larimer Township	x			x						x
Lincoln Township	x			x						x
Lower Turkeyfoot Township	x			x						x
Meyersdale Borough	x			x						x
Middlecreek Township	x			x						x
Milford Township	x			x						x
New Baltimore Borough	x			x						x
New Centerville Borough	x			x						x
Northampton Township	x			x						x
Ogle Township	x			x						x
Paint Borough	x			x						x
Paint Township	x			x						x
Quemahoning Township	x			x						x
Rockwood Borough	x			x						x
Salisbury Borough	x			x						x
Seven Springs Borough	x			x						x
Shade Township	x			x						x
Shanksville Borough	x			x						x
Somerset Borough	x			x						x
Somerset Township	x			x						x
Southampton Township	x			x						x
Stonycreek Township	x			x						x
Stoystown Borough	x			x						x
Summit Township	x			x						x
Upper Turkeyfoot Township	x			x						x
Ursina Borough	x			x						x
Wellersburg Borough	x			x						x
Windber Borough	x			x						x
Somerset County	x	x	x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**5.2.1**	**5.2.2**	**5.2.3**	**5.3.1**	**5.3.2**	**5.3.3**	**5.3.4**	**5.3.5**	**5.3.6**	**6.1.1**
Addison Borough	x	x	x	x	x	x			x	
Addison Township	x	x	x	x	x	x			x	

Municipal Hazard Mitigation Actions Checklist										
Municipality	**5.2.1**	**5.2.2**	**5.2.3**	**5.3.1**	**5.3.2**	**5.3.3**	**5.3.4**	**5.3.5**	**5.3.6**	**6.1.1**
Allegheny Township	x	x	x	x	x	x			x	
Benson Borough	x	x	x	x	x	x			x	
Berlin Borough	x	x	x	x	x	x			x	
Black Township	x	x	x	x	x	x			x	
Boswell Borough	x	x	x	x	x	x			x	
Brothersvalley Township	x	x	x	x	x	x			x	
Callimont Borough	x	x	x	x	x	x			x	
Casselman Borough	x	x	x	x	x	x			x	
Central City Borough	x	x	x	x	x	x			x	
Conemaugh Township	x	x	x	x	x	x			x	
Confluence Borough	x	x	x	x	x	x			x	
Elk Lick Township	x	x	x	x	x	x			x	
Fairhope Township	x	x	x	x	x	x			x	
Garrett Borough	x	x	x	x	x	x			x	
Greenville Township	x	x	x	x	x	x			x	
Hooversville Borough	x	x	x	x	x	x			x	
Indian Lake Borough	x	x	x	x	x	x			x	
Jefferson Township	x	x	x	x	x	x			x	
Jenner Township	x	x	x	x	x	x			x	
Jennerstown Borough	x	x	x	x	x	x			x	
Larimer Township	x	x	x	x	x	x			x	
Lincoln Township	x	x	x	x	x	x			x	
Lower Turkeyfoot Township	x	x	x	x	x	x			x	
Meyersdale Borough	x	x	x	x	x	x			x	
Middlecreek Township	x	x	x	x	x	x			x	
Milford Township	x	x	x	x	x	x			x	
New Baltimore Borough	x	x	x	x	x	x			x	
New Centerville Borough	x	x	x	x	x	x			x	
Northampton Township	x	x	x	x	x	x			x	
Ogle Township	x	x	x	x	x	x			x	
Paint Borough	x	x	x	x	x	x			x	
Paint Township	x	x	x	x	x	x			x	
Quemahoning Township	x	x	x	x	x	x			x	
Rockwood Borough	x	x	x	x	x	x			x	
Salisbury Borough	x	x	x	x	x	x			x	
Seven Springs Borough	x	x	x	x	x	x			x	
Shade Township	x	x	x	x	x	x			x	
Shanksville Borough	x	x	x	x	x	x			x	

Municipal Hazard Mitigation Actions Checklist										
Municipality	**5.2.1**	**5.2.2**	**5.2.3**	**5.3.1**	**5.3.2**	**5.3.3**	**5.3.4**	**5.3.5**	**5.3.6**	**6.1.1**
Somerset Borough	x	x	x	x	x	x			x	
Somerset Township	x	x	x	x	x	x			x	
Southampton Township	x	x	x	x	x	x			x	
Stonycreek Township	x	x	x	x	x	x			x	
Stoystown Borough	x	x	x	x	x	x			x	
Summit Township	x	x	x	x	x	x			x	
Upper Turkeyfoot Township	x	x	x	x	x	x			x	
Ursina Borough	x	x	x	x	x	x			x	
Wellersburg Borough	x	x	x	x	x	x			x	
Windber Borough	x	x	x	x	x	x			x	
Somerset County	x	x	x	x	x	x	x	x	x	x

Municipal Hazard Mitigation Actions Checklist										
Municipality	**6.1.2**	**6.1.3**	**6.1.4**	**6.2.1**	**6.3.1**	**6.3.2**				
Addison Borough			x	x	x					
Addison Township			x	x	x					
Allegheny Township			x	x	x					
Benson Borough			x	x	x					
Berlin Borough			x	x	x					
Black Township			x	x	x					
Boswell Borough			x	x	x					
Brothersvalley Township			x	x	x					
Callimont Borough			x	x	x					
Casselman Borough			x	x	x					
Central City Borough			x	x	x					
Conemaugh Township			x	x	x					
Confluence Borough			x	x	x					
Elk Lick Township			x	x	x					
Fairhope Township			x	x	x					
Garrett Borough			x	x	x					
Greenville Township			x	x	x					
Hooversville Borough			x	x	x					
Indian Lake Borough			x	x	x					
Jefferson Township			x	x	x					
Jenner Township			x	x	x					
Jennerstown Borough			x	x	x					

Municipal Hazard Mitigation Actions Checklist										
Municipality	**6.1.2**	**6.1.3**	**6.1.4**	**6.2.1**	**6.3.1**	**6.3.2**				
Larimer Township			x	x	x					
Lincoln Township			x	x	x					
Lower Turkeyfoot Township			x	x	x					
Meyersdale Borough			x	x	x					
Middlecreek Township			x	x	x					
Milford Township			x	x	x					
New Baltimore Borough			x	x	x					
New Centerville Borough			x	x	x					
Northampton Township			x	x	x					
Ogle Township			x	x	x					
Paint Borough			x	x	x					
Paint Township			x	x	x					
Quemahoning Township			x	x	x					
Rockwood Borough			x	x	x					
Salisbury Borough			x	x	x					
Seven Springs Borough			x	x	x					
Shade Township			x	x	x					
Shanksville Borough			x	x	x					
Somerset Borough			x	x	x					
Somerset Township			x	x	x					
Southampton Township			x	x	x					
Stonycreek Township			x	x	x					
Stoystown Borough			x	x	x					
Summit Township			x	x	x					
Upper Turkeyfoot Township			x	x	x					
Ursina Borough			x	x	x					
Wellersburg Borough			x	x	x					
Windber Borough			x	x	x					
Somerset County	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, 1.4.1, 1.4.2, 1.5.1 comply for Somerset County and all its municipalities.

Evaluate and Prioritize Mitigation Actions

Mitigation Action Evaluation:

Evaluating mitigation actions involves judging each action against certain criteria to determine whether or not it can be executed. The feasibility of each mitigation action is evaluated using the ten evaluation criteria set forth in the Mitigation Action Evaluation methodology as outlined in the Commonwealth of Pennsylvania's All-Hazard Mitigation Planning, Standard Operating Guide. The methodology solicits input on whether each action is highly effective or feasible and ineffective or not feasible for the criteria. These criteria are listed below and aid in determining the feasibility of implementing one action over another.

- Life Safety: Will the action be effective in promoting public safety?
- Property Protection: Will the action be effective in protecting public or private property?
- Technical: How effective will the action be in avoiding or reducing future losses?
- Political: Does the action have public and political support?
- Legal: Does the community have the authority to implement the proposed measure?
- Environmental: Will the action provide environmental benefits, and will it comply with local, state and federal environmental regulations?
- Social: Will the action be acceptable by the community or will it cause any one segment of the population to be treated unfairly?
- Administrative: Is there adequate staffing and funding available to implement the action in a timely manner?
- Local Champion: Is there local support for the action to help ensure its completion?
- Other Community Objectives: Does the action address any current or future community objectives either through municipal planning or community goals?

To evaluate the mitigation actions, each action is identified as highly effective or feasible, ineffective or not favorable, and no cost or benefit. For each criterion, the prioritization methodology assigns a "+" if the action was highly effective or feasible, a "-" if the action was ineffective or not feasible, and a "N" if no cost or benefit could be associated with the suggested action or the action was not applicable to the criteria.

Mitigation Action Prioritization:

Actions should be compared with one another to determine a ranking or priority by applying the multi-objective mitigation action prioritization criteria. Scores are assigned to each criterion using the following weighted, multi-objective mitigation action prioritization criteria:

- Effectiveness (weight: 20% of score): The extent to which an action reduces the vulnerability of people and property.
- Efficiency (weight: 30% of score): The extent to which time, effort, and cost is well used as a means of reducing vulnerability.

- Multi-Hazard Mitigation (weight: 20% of score): The action reduces vulnerability for more than one hazard.
- Addresses High Risk Hazard (weight: 15% of score): The action reduces vulnerability for people and property from a hazard(s) identified as high risk.
- Addresses Critical Communications/Critical Infrastructure (weight: 15% of score): The action pertains to the maintenance of critical functions and structures such as transportation, supply chain management, data circuits, etc.

Scores of 1, 2, or 3 are assigned for each multi-objective mitigation action prioritization criterion where 1 is a low score and 3 is a high score. Actions are prioritized using the cumulative score assigned to each. Each mitigation action is given a priority ranking (Low, Medium, and High) based on the following:

- Low Priority: 1.0 – 1.8
- Medium Priority: 1.9 – 2.4
- High Priority: 2.5 – 3.0

The cumulative results of the prioritization of mitigation actions are identified in the mitigation action evaluation and prioritization tool. The results for the mitigation action evaluation and prioritization are located in Appendix H of this plan.

7. Plan Maintenance

7.1. Update Process Summary

Monitoring, evaluating and updating this plan, is critical to maintaining its value and success in Somerset County's hazard mitigation efforts. Ensuring effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. This section explains who will be responsible for maintenance activities and what those responsibilities entail. It also provides a methodology and schedule of maintenance activities including a description of how the public will be involved on a continued basis. The Somerset County HMP Local Planning Team decided to alter the current maintenance procedures. The 2020 HMP update establishes a review of the plan within thirty days of a disaster event in addition to continuing with an annual plan evaluation. This HMP update also defines the municipalities' role in updating and evaluating the plan. Finally, the 2020 HMP Update encourages continued public involvement and how this plan may be integrated into other planning mechanisms in the county.

7.2. Monitoring, Evaluating and Updating the Plan

Hazard mitigation planning in Somerset County is a responsibility of all levels of government (i.e., county and local), as well as the citizens of the county. The Somerset County Local Planning Team will be responsible for maintaining this multi-jurisdictional HMP. The local planning team will meet annually and following each emergency declaration to review the plan. Every municipality that has adopted this plan will also be afforded the opportunity to provide updated information or information specific to hazards encountered during an emergency or disaster. Each review process will ensure that the hazard vulnerability data and risk analysis reflect current conditions of the county, that the capabilities assessment accurately reflects local circumstances and that the hazard mitigation strategies are updated based on the county's damage assessment reports and local mitigation project priorities. The HMP must be updated on a five-year cycle. An updated HMP must be completed and approved by the end of the five-year period. The monitoring, evaluating and updating of the plan every five years will rely heavily on the outcomes of the annual HMP planning team meetings.

The Somerset County Local Planning Team will complete a hazard mitigation progress report to evaluate the status and accuracy of the multi-jurisdictional HMP and record the local planning team's review process. The following items will be completed during the annual review and reporting process:

- Review the risk assessment section and identify occurrences of hazards within the last year. Identify date, time, damage, fatalities and other specific information of the events. Also identify any new hazards that have occurred or increased risk within the county.

- Complete a review and update of capability assessment section. Identify any capability weaknesses.
- Complete a review of the mitigation strategy section. Review the goals and objectives identified in the 2020 HMP and determine if any updates are needed. Provide all mitigation actions and opportunities to the county and municipalities that are applicable. Have all entities complete an action review matrix and document all results in the report. Also, add any new actions that are identified. Complete a review of each mitigation opportunity and identify the status of each opportunity on the opportunity review spreadsheet. All information will be included in the annual review report.

The Somerset County Department of Emergency Services will maintain a copy of these records and place them in Appendix I of this plan. Somerset County will continue to work with all municipalities regarding hazard mitigation projects, especially those municipalities that did not submit projects for inclusion in this plan.

7.3. Continued Public Involvement

The Somerset County Department of Emergency Services will ensure that the 2020 Somerset County Hazard Mitigation Plan is posted and maintained on the Somerset County website and will continue to encourage public review and comment on the plan. The Somerset County website that the plan will be located at is as follows: www.co.somerset.pa.us/

The public will have access to the 2020 HMP through their local municipal office, the Somerset County Planning Commission, or the Somerset County Department of Emergency Services. Information on upcoming events related to the HMP or solicitation for comments will be announced via newsletters, newspapers, mailings, and the county website.

The citizens of Somerset County are encouraged to submit their comments to elected officials and/or members of the Somerset County HMP Local Planning Team. To promote public participation, the Somerset County Local Planning Team will post a public comment form as well as the Hazard Mitigation Project Opportunity Form on the county's website. These forms will offer the public various opportunities to supply their comments and observations. All comments received will be maintained and considered by the Somerset County Hazard Mitigation Planning Team.

8. Plan Adoption

8.1. Resolutions

In accordance with federal and state requirements, the governing bodies of each participating jurisdiction must review and adopt by resolution, the 2020 Somerset County Hazard Mitigation Plan. Copies of the adopting resolutions are included in this plan in Appendix J. FEMA Region III in Philadelphia is the final approval authority for the Hazard Mitigation Plan. PEMA also reviews the plan before submission to FEMA.

9. Appendices

APPENDIX A: References

APPENDIX B: FEMA Local Mitigation Review Tool

APPENDIX C: Meetings and Support Documents

APPENDIX D: Municipal Flood Maps

APPENDIX E: Critical and Special Needs Facilities

APPENDIX F: 2020 HAZUS Reports

APPENDIX G: 2020 Mitigation Project Opportunities

APPENDIX H: 2020 Mitigation Action Evaluation & Prioritization

APPENDIX I: Annual Review Documentation

APPENDIX J: Somerset County & Municipal Adoption Resolutions