



FAYETTE COUNTY 2022

HAZARD MITIGATION PLAN UPDATE



PREPARED FOR:

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CERTIFICATION OF ANNUAL REVIEW MEETINGS

The Fayette County Hazard Mitigation Planning Team (HMPT) takes a comprehensive approach to planning, encouraging discussion and incorporating feedback by meeting planning partners where they are. The below list of meetings includes hazard mitigation focused and adjacent conversations where an aspect of hazard mitigation planning was discussed. The Director of the HMPT hereby certifies the review.

YEAR	DATE OF MEETING	PUBLIC OUTREACH ADDRESSED?*	SIGNATURE
2018	9/5/2018	Yes	<i>Roy Shipley</i>
2019	N/A	N/A	<i>Roy Shipley</i>
2020	7/15/2020	Yes	<i>Roy Shipley</i>
2021	6/21/2021	Yes	<i>Roy Shipley</i>
2022	5-Year Update	Yes	<i>Roy Shipley</i>
2023			
2024			
2025			
2026			
2027			

RECORD OF CHANGES

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

DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
9/5/2018	Due to the February 15, 2018 tornado and significant damages, the County requested moving Tornado, Windstorm from a Low-Ranked Hazard to a Moderate-Ranked Hazard of 2.3.	Roy Shipley (Cont'd - 2018)	
9/5/2018	Updated Table 6.4-1 2017 HMP Mitigation Action Plan to include updates from reporting jurisdictions. New row added entitled "2018 Annual Update Progress" was included where applicable.		
10/10/2018	Added details to Sections 3.1 and 3.3 describing the 2018 Annual Update process.		
10/10/2018	Updated Table 4.3-3 Municipal Water Wells with data from PA DCNR, PaGWIS.		
10/10/2018	Updated Table 4.3-6 Temperature Extremes for Pennsylvania to include Extreme Cold on 1/4/2018 to 1/6/2018 in northern and western PA and Excessive Heat in southeastern PA from 7/1/2018 to 7/5/2018 from NOAA.		
10/10/2018	Updated Table 4.3-7 Participation in the National Flood Insurance Program for Fayette County, including the Current Effective Map Date to 07/18/2017. Smithfield Borough has also been added as a participating Municipality as of 07/08/2017.		
10/10/2018	Updated Table 4.3-8 Significant Flood Events in Fayette County (1950-2018) with data from NOAA.		
10/10/2018	Updated Table 4.3-9 NFIP Policies and Claim Information with data from the Community Information System.		
10/12/2018	Updated Table 4.2-10 NFIP Repetitive Loss Properties in Fayette County and associated text. Also, noted there was three Severe Repetitive Loss Properties.		
10/12/2018	Updated Table 4.3-15 Fayette County Hailstorms to include 5/30/2017 event.		
10/12/2018	Added landslide event on Page 4-101. Section 4.3.7.3 describing the 2018 event in Jefferson Township and Newell		

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DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
	Borough that resulted in damages of \$700,000.		
10/12/2018	Updated Table 4.3-2. Past Lightning Events in Fayette County (1950-2018). No lightning events have occurred since the previous HMPU.		
10/12/2018	Added Section 4.3.21 Opioid Addiction Response.		
10/12/2018	Edited Section 4.4.2 Ranking Results to include Opioid Addiction Response as a high risk hazard based on County and stakeholder input, scoring 3.2. During the next 5-year HMPU, Municipality Risk Evaluations will be distributed.		
10/12/2018	Updated Table 6.3-2 to '2018 Techniques Used for All Fayette County Hazards' to include Opioid Addiction Response. The Mitigation Techniques of Local Planning and Regulations and Education and Awareness Programs are applied to this hazard. Mitigation Actions 1.1.1, 1.1.3, and 2.2.2 address this hazard.		
10/12/18	Updated Table 4.3-3. Previous West Nile Virus Occurrences in Fayette County (2001-2017). Virus was detected in 2016 with 28 positives but no human cases.		
10/12/2018	Updated Table 4.3-4. History of Tornadoes in Fayette County (1950-2018) to account for February 2018 event.		
10/12/2018	Updated Table 4.3-5. History of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County.		
10/12/2018	Updated Table 4.3-6. History of Winter Storms in Fayette County Wildfires (1950-2018).		
11/05/2018	Updated Table 4.3-45. Total Number of Accidents and Accidents Causing		

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
	Fatalities, Injuries, and Property Damage in Fayette County (2000-2017).		
10/8/2020	Updated Table 6.4-1 Mitigation Action Plan with progress report since last annual update	Roy Shipley (Cont'd - 2020)	<i>Roy Shipley</i>
10/8/2020	Updated Table 4.3-6 History of Extreme Temperatures		
10/8/2020	Updated Table 4.3-8 History of Flood Events		
10/8/2020	Updated Table 4.3-20 Cases of West Nile Virus		
10/8/2020	Updated Section 4.3.9 Pandemic and Infectious Disease to include COVID-19		
11/12/2020	Updated Section 4.3.12 Tornado Windstorm including adding entries to occurrence table 4.3-27		
11/12/2020	Updated Section 4.3.14 Winter Storms including table 4.3-29 past occurrences		
11/12/2020	Updated Section 4.3.21.3 including table 4.3-42 Drug related deaths in Pennsylvania		
11/12/2020	Updated Section 3.1 and 3.3 with information about 2020 Annual Update		
12/4/2020	Updated Table 4.3-45 Transportation incidents for 2018 and 2019		
12/8/2020	Updated Section 2.3 Population and Demographics with 2019 ACS estimates. Updated all tables and comparison percentages		

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DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
9/20/2021	Updated Section 5 Capability Assessment, Section 5.2 Capability Assessment Findings	Roy Shipley (Cont'd - 2021)	<i>Roy Shipley</i>
9/20/2021	Updated Section 5.2.1.1 Plans and Regulations		
9/20/2021	Updated Section 5.2.2 Admirative and Technical Capacity		
9/20/2021	Updated Section 5.2.5 Plan Integration		
10/4/2021	Updated Section 4 Risk Assessment Section 4.3.1.3 Past Occurrence (Drought)		
10/4/2021	Updated Section 4.3.6.3 Past Occurrence (Hurricane, Tropical Storm, Nor'easter)		
10/4/2021	Updated Section 4.3.7.3 Past Occurrence (Landslide)		
10/4/2021	Updated Section 4.3.9.3 Past Occurrence (Pandemic and Infectious Disease)		
10/18/2021	Updated Section 4.3.12.3 Past Occurrence (Tornado, Windstorm)		
10/18/2021	Updated Section 4.3.13.3 Past Occurrence (Wildfire)		
10/18/2021	Updated Section 4.3.14.3 Past Occurrence (Winter Storm)		
10/18/2021	Updated Section 4.3.16.3 Past Occurrence (Civil Disturbance)		
10/18/2021	Updated Section 4.3.21.3 Past Occurrence (Opioid Addiction Response)		
10/18/2021	Updated Section 4.3.23.3 Past Occurrence (Transportation Accident)		
10/25/2021	Updated Section 6 Mitigation Strategy Section 6.4 Mitigation Action Plan		

DATE	DESCRIPTION OF CHANGE MADE, MITIGATION ACTION COMPLETED, OR PUBLIC OUTREACH PERFORMED	CHANGE MADE BY (PRINT NAME)	CHANGE MADE BY (SIGNATURE)
11/15/2021	Updated Section 2 Community Profile Section 2.3 Population and Demographics		
11/15/2021	Updated Section 2.4 Land Use and Development		

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1. INTRODUCTION

1.1. BACKGROUND

Across the United States, natural and human-made disasters have led to increasing levels of deaths, injuries, property damage, and interruption of business and government services. The time, money, and effort needed to recover from these disasters exhausts resources, diverting attention from important public programs and private agendas.

Since 1955, there have been 54 Presidential Disaster Declarations and Emergency Declarations in Pennsylvania, 10 of which have affected Fayette County, Pennsylvania. Of the 10, two are related to the COVID-19 pandemic, four related flooding and severe storms, one was related to Tropical Storm Agnes, and three were related to winter storms, snow, and blizzards. There have been 16 Pennsylvania Governor Proclamations since 2018.

The emergency management community, citizens, elected officials and other stakeholders in Fayette County recognize the impact of disasters on their community and support proactive efforts needed to reduce the impact of natural and human-made hazards.

Hazard mitigation describes sustained actions taken to prevent or minimize long-term risks to life and property from hazards and 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.

Accordingly, the Fayette County Hazard Mitigation Steering Committee (HMSC), composed of government leaders in the Fayette County Emergency Management Agency (EMA), in cooperation with the below organizations and entities prepared his Hazard Mitigation Plan Update (HMPU). The Plan is the result of work by citizens of the County to develop a pre-disaster multi-hazard mitigation plan that will not only guide the County towards greater disaster resistance but will also respect the character and needs of the community.

- Elected officials of the County and its municipalities
- Fayette County Planning Commission
- Fayette County Planning and Zoning Office
- Fayette County Conservation District
- Fayette County Commissioners
- Connellsville Redevelopment Authority
- Brownsville School District
- Uniontown Hospital
- Nemacolin Woodlands Resort
- Washington County Planning Commission

The Fayette County EMA has implemented an engaged and continuously improving hazard mitigation planning process with municipalities and partners by providing a forum for annual updates in 2019, 2020, and 2021.



1.2. PURPOSE

This HMP Update was developed for the purpose of:

- Providing a blueprint for reducing property damage and saving lives from the effects of future natural and human-caused disasters in Fayette County.
- Complying with state and federal legislative requirements for County mitigation in order for the County to be eligible for federal and technical assistance from State and Federal hazard mitigation programs.
- Identifying, introducing, and implementing cost-effective hazard mitigation measures in order to accomplish County goals and objectives and to raise awareness and acceptance of hazard mitigation.
- Demonstrating a firm local commitment to hazard mitigation principles; and
- Improving community resiliency following a disaster event.

Adoption of this plan ensures that Fayette County and participating jurisdictions continue to be eligible to apply for and receive certain federal grant funds that are administered by the Commonwealth of Pennsylvania for Federal Emergency Management Agency (FEMA). This plan complies with the requirements of the Disaster Mitigation Act of 2000 and its implementing regulations published in Title 44 of the Code of Federal Regulations (CFR) Section 201.6.

1.3. SCOPE

The Fayette County 2022 HMP Update has been prepared to meet requirements set forth by FEMA and the Pennsylvania Emergency Management Agency (PEMA) in order for the County to be eligible for funding and technical assistance from state and federal hazard mitigation programs. It will be updated and maintained to address both natural and human-made hazards determined to be probable and/or present a risk for multiple deaths/injuries and property damages to the local municipalities within the County. Updates will take place following significant disasters or at a minimum this plan will be subject to review and update on an annual basis.

This effort builds upon the dedication of the Fayette County Commissioners, Emergency Management Agency (EMA), and its municipalities to execute annual updates in 2018, 2020, and 2021. Municipalities who participated in a meeting and submitted one of the planning worksheets during the annual update were accounted for as participating and meeting the requirements. Information regarding the HMP annual updates can be found in Section 3 and **Appendix C**.

It should be noted that future funding for mitigation projects will be contingent upon having each jurisdiction in Fayette County adopt the plan after the County. Any jurisdiction that does not adopt the 2022 HMPU will be ineligible for pre- and post-disaster mitigation funds.

1.4. AUTHORITY AND REFERENCES

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.
- CFR, Title 44, Parts 201 and 206;
- Disaster Mitigation Act of 2000, Public Law 106-390, as amended; and
- 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; and
- Pennsylvania Stormwater Management Act of October 4, 1978. P.L. 864, No. 167.

The following 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 Mitigation Planning Handbook. March 2013.
- FEMA: Local Mitigation Plan Review Guide. April 2022.
- FEMA: National Fire Incident Reporting System 5.0: Complete Reference Guide. January 2008.
- FEMA: Hazard Mitigation Assistance Unified Guidance. February 2015.
- FEMA: Integrating Hazard Mitigation into Local Planning: Case Studies and Tools for Community Officials. March 2013

- 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 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 2009.
- PEMA: Pennsylvania's Hazard Mitigation Planning Standard Operating Guide. October 2020.

The following additional guidance document produced by the National Fire Protection Association (NFPA) was used to update this plan:

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

2. COMMUNITY PROFILE

This section includes a profile of Fayette County and its municipalities. Information on the County's geographic profile, climate, demographic profile, and employment and industry profile are included below. While some information such as the study area boundaries and geography have remained unchanged, and derived from the 2017 Plan, other information such as the demographic and employment and industry information has been developed. Resources include latest U.S. Census, the Fayette County: A Comprehensive Strategy (2019), the Connellsville Next: City Comprehensive Plan (2019), the Menallen Township Comprehensive Plan (2018), Washington Township Comprehensive Plan (2018), and other recent planning documents. Menallen Township is underway in updating its comprehensive plan. With EMA stakeholders involved in the steering committee and meetings ensures appropriate synergy occurs between these two plans. More details are provided in Section 5. Each multi-municipal comprehensive plan was reviewed in conjunction with the Fayette County: A Comprehensive Strategy (2019) to inform the Community Profile, as well as other sections of the 2022 Fayette County HMP.

2.1. GEOGRAPHY AND ENVIRONMENT

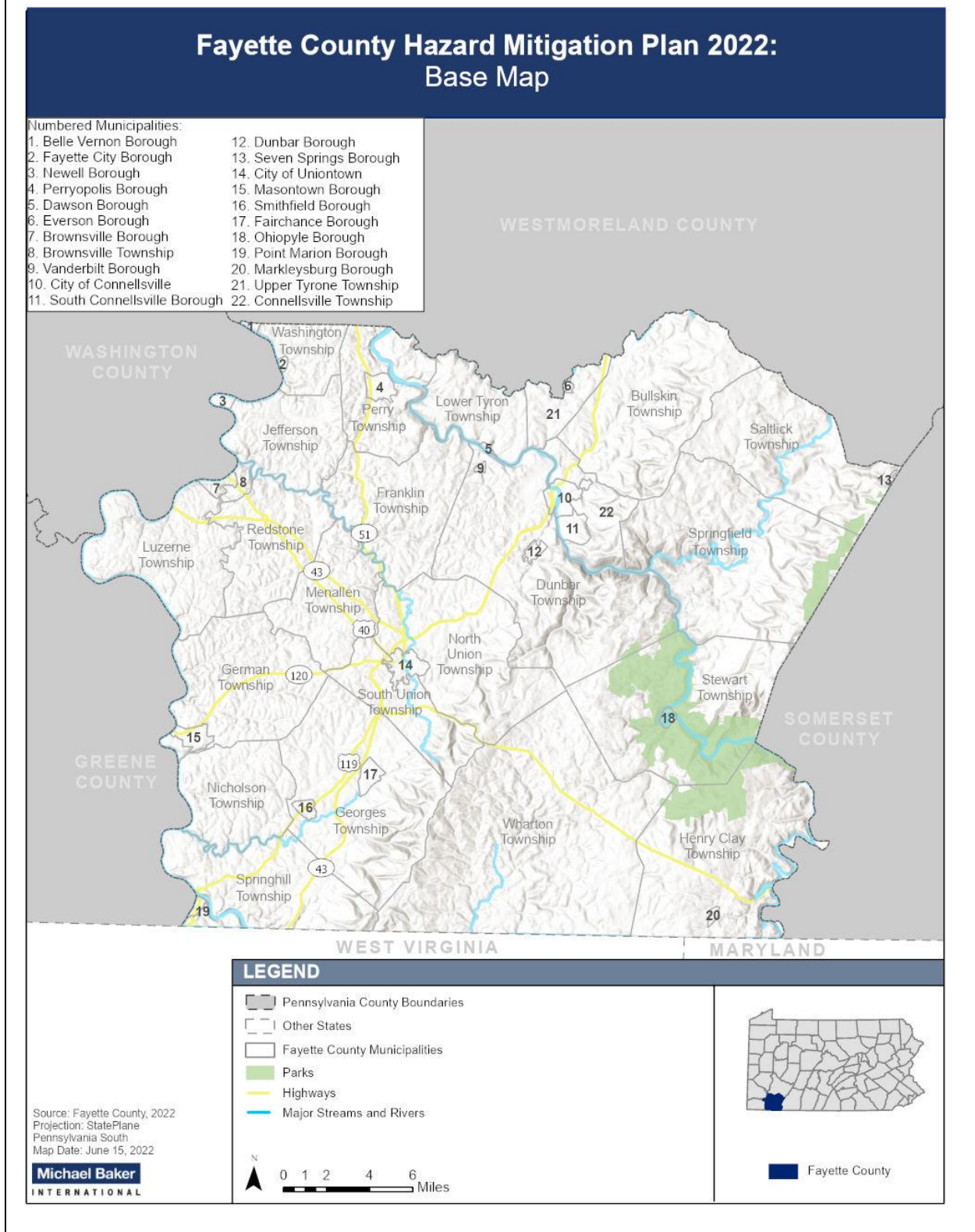
Fayette County is situated in southwestern Pennsylvania, encompassing a land area of 794 square miles or about 508,000 acres. The County is bordered by Greene, Washington, Westmoreland, and Somerset Counties. The County is composed of 42 political subdivisions, breaking into: the Cities of Connellsville City and Uniontown; 16 Boroughs; and 24 Townships. Although a generally rural area that is not directly tied to the interstate system, it features four-lane access to the City of Pittsburgh and several of its major suburban areas. Major transportation routes include U.S. Routes 40 and 119; State Routes 21, 43, and 51; and the Pennsylvania Turnpike 43. Waterways are primarily used for industry and recreation, but various boat launches are found along the Monongahela and Youghiogheny Rivers. Additional waterways located in Fayette County include the Allegheny River, Cheat River, Conemaugh River, Kiskimintas River, Little Conemaugh River, North Branch Potomac River, Ohio River, Savage River, Stonycreek River, and Wills Creek.

Topographically, the County can be divided roughly into two parts, with the eastern half, as the western edge of the Allegheny Mountains. The County is home to portions of the Laurel Highlands, a mountainous 3,000 square mile region that crosses several southwestern Pennsylvania counties. The western half of the County, characterized by less dramatic elevation, is situated on the Pittsburgh Low Plateau Section of the Appalachian Plateau. Elevations range from nearly 3,000 feet on Laurel Hill (Springfield Township) in the eastern part of the County to 740 feet along the Monongahela River, where Fayette meets with Washington and Westmoreland Counties.

The Monongahela River marks the entire western boundary of Fayette County, while the Youghiogheny River crosses the eastern portion of the County. Running along the southern boundary of the County, the "Mason-Dixon Line" separates Fayette County from the States of West Virginia and Maryland. About 1% (8 sq. miles) of Fayette County is comprised of rivers,

streams, and lakes. The County contains a number of ponds, reservoirs, and lakes, including Greenlick Dam Lake, Mill Run Reservoir, Deer Lake, and Lake Courage. Major floodplains exist adjacent to the Monongahela, Youghiogheny, and Cheat Rivers, as well as Redstone Creek. The municipal jurisdictions, major transportation routes, waterways, and the topographical conditions can be seen in Figure 2.1-1.

Figure 2.1-1 Base Map of Fayette County



Fayette County is covered by four Hydraulic Unit Code (HUC)-8 watersheds, the Cheat, Lower Monongahela, Upper Monongahela, and the Youghiogheny. The Cheat and Youghiogheny Rivers are the two principal tributaries of the Monongahela River. The Cheat River drains the southern part of the County as far east as Chestnut Ridge many small tributaries. The Youghiogheny River, flowing northward from Maryland, drains the eastern and northern parts of the County. The western edge of the County is drained by the Upper and Lower Monongahela, which is also a heavily used coal, coke, iron, and steel barge route. Figure 2.1-2 demonstrates the location of HUC 8 watersheds across Fayette County.

There are 13 HUC-10 watersheds that cover Fayette County, including: Big Sandy Creek, Georges Creek, Indian Creek, Jacobs Creek, Laurel Hill Creek, Lower Cheat River, Lower Youghiogheny, Middle Youghiogheny, Muddy Creek-Monongahela River, Paw Paw Creek-Monongahela River, Pigeon Creek-Monongahela River, Redstone Creek, and Upper Youghiogheny River. Figure 2.1-3 illustrates the locations of HUC-10 watersheds across the County: Youghiogheny, Cheat, Lower Monongahela, and Upper Monongahela. There are many HUC-12 watersheds that cover Fayette County, depicted in Figure 2.1-4.

Many of these watersheds are supported by local watershed alliances. These groups, including the Friends of the Cheat River, Jacobs Creek Watershed Association, Chestnut Ridge Trout Unlimited, and Mountain Watershed Association are influential in restoring floodplains and encouraging municipalities to develop and adopt storm water management ordinances consistent with the guidelines established by the Department of Environment Protection.

The Fayette County Conservation District focuses on the following points to help local communities.

- Provide the local community with information on watersheds, water pollution, watershed restoration, and watershed protection.
- Help interested residents form and maintain local grassroots watershed organizations to preserve, protection, and restore the watersheds.
- Provide technical assistance, watershed planning, and watershed outreach services to the local community.
- Provide assistance to Fayette County groups and organizations submitting Growing Greener grant applications for watershed-based projects.
- Complete studies and projects within the County to identify and clean-up water pollution.

The Conservation District has been an invaluable asset to prepare the HMPU by providing current projects and priorities. In addition, the Conversation District has conducted watershed assessments for Morgan Run in Dunbar Township, Jonathan Run in Stewart Township, and Browns Run in Georges and German Townships.

Figure 2.1-2 Fayette County HUC-8 Watersheds

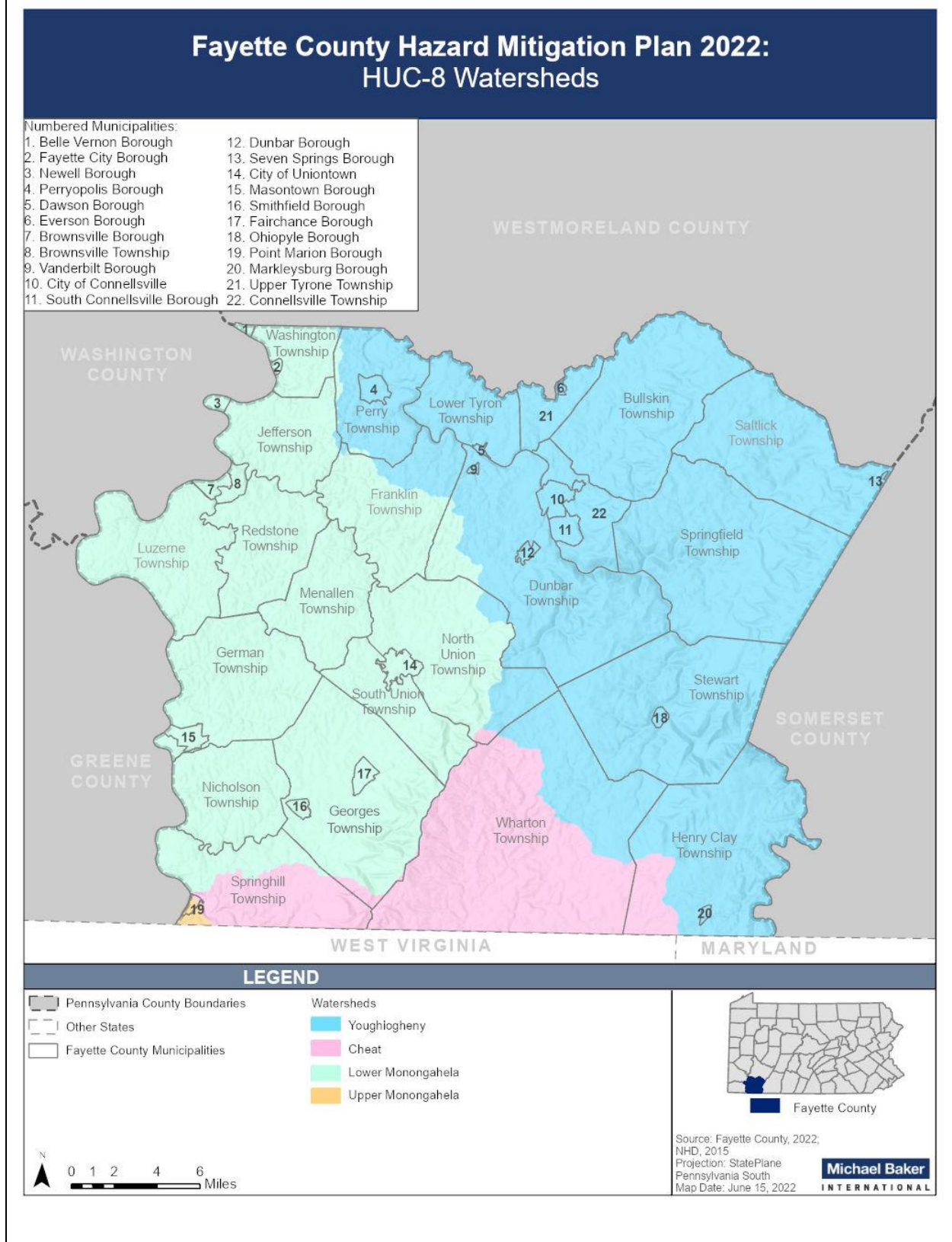


Figure 2.1-3 Fayette County HUC-10 Watersheds

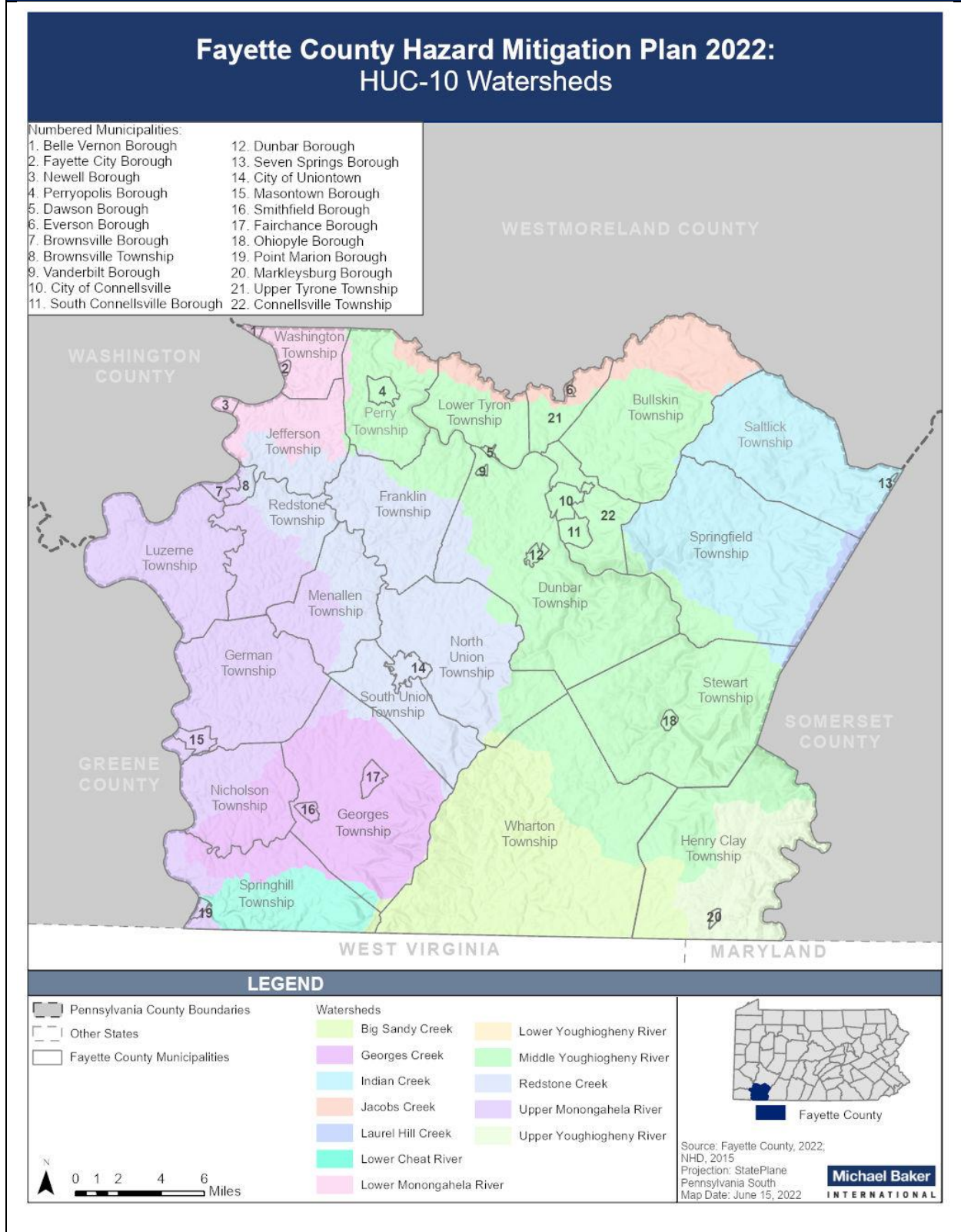
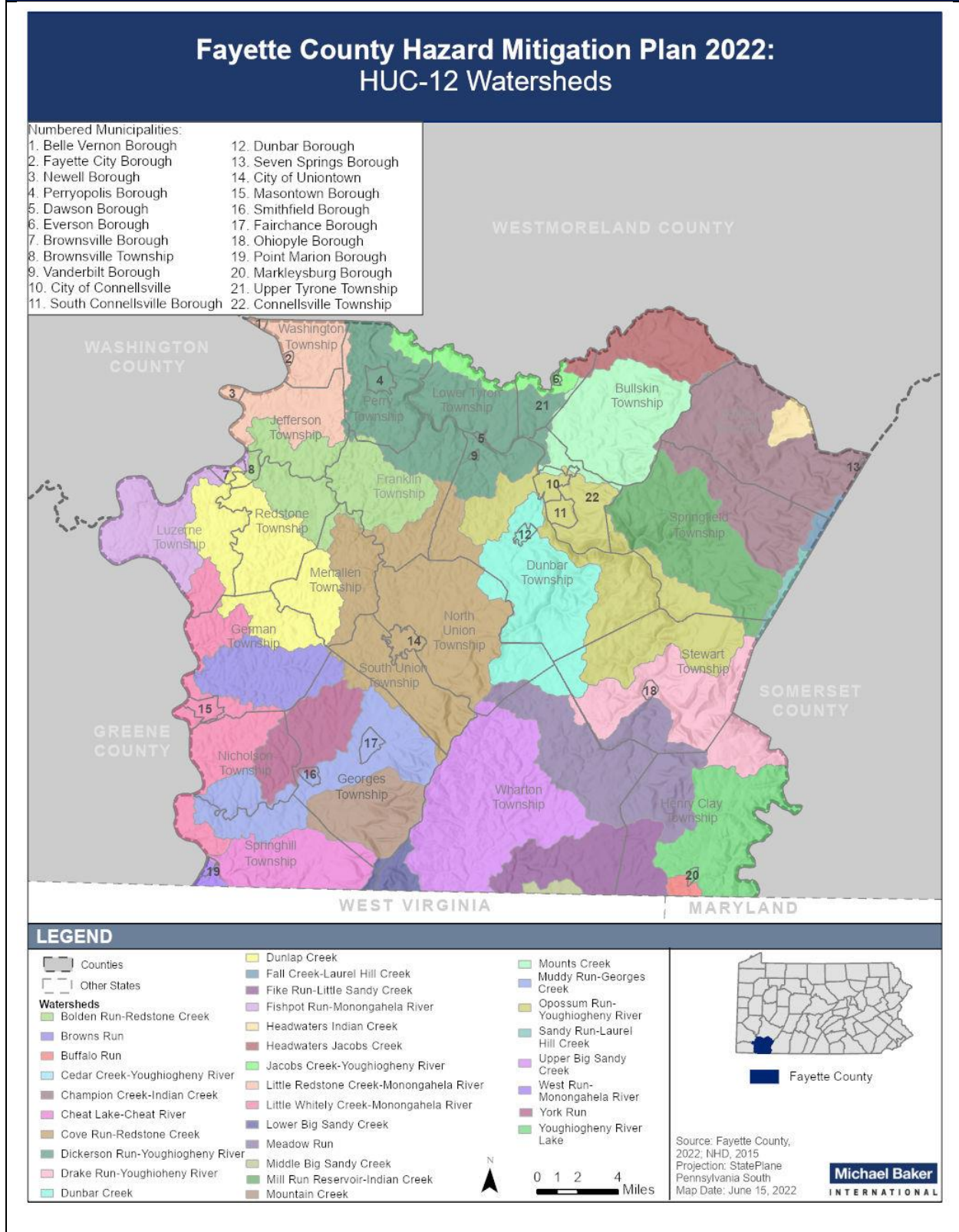


Figure 2.1-4 Fayette County HUC-12 Watersheds



2.2. COMMUNITY FACTS

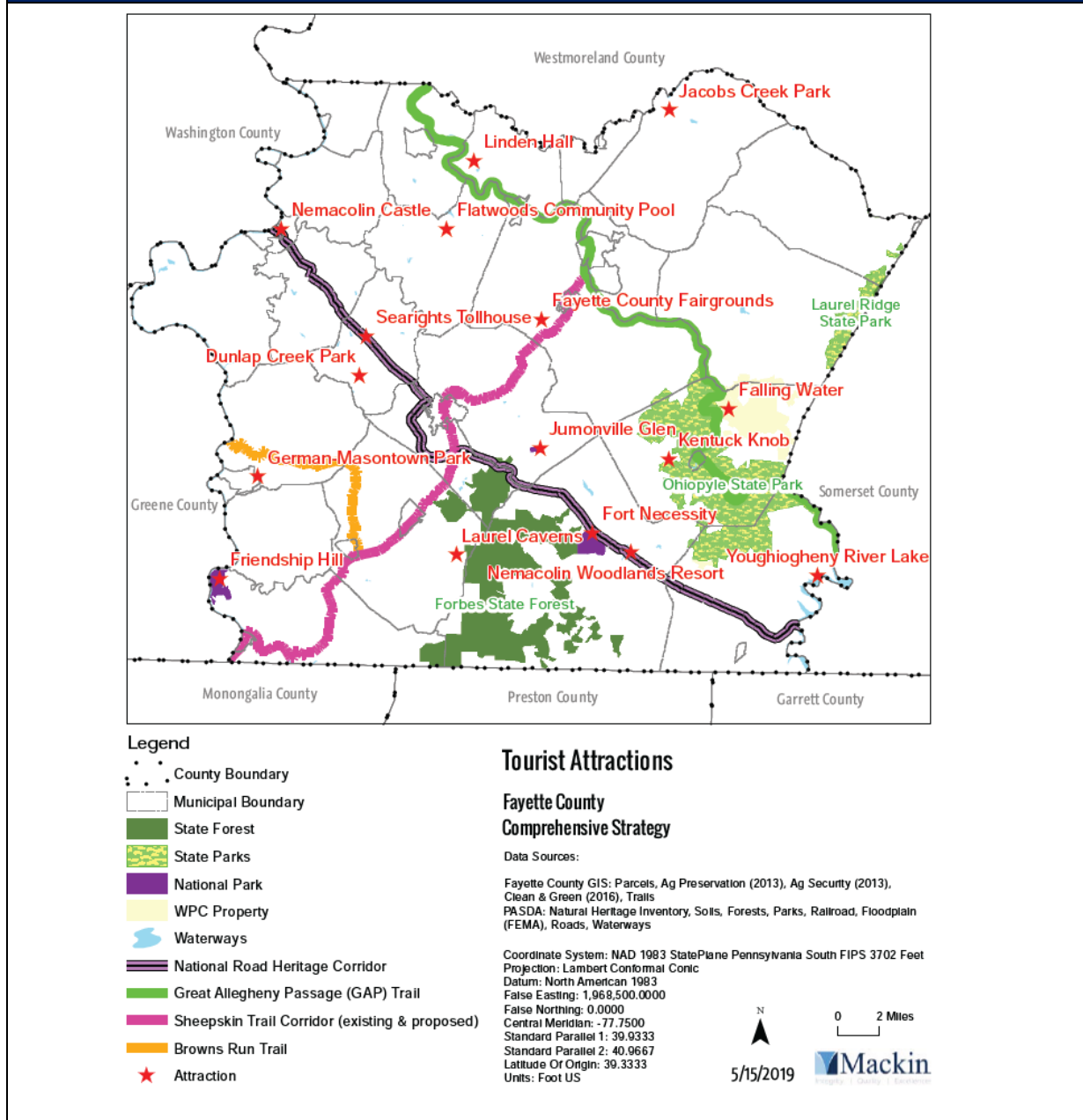
What is now Fayette County developed because of two major factors: its geographic location and an abundance of natural resources. Fayette County was formed from the southern portion of Westmoreland County in 1783. The County was named for the Marquis de la Fayette, a French military officer who assisted General George Washington during the Revolutionary War. Prior to the construction of Braddock Road and the National Road, rivers were the main transportation route. The construction of these roads brought commerce, settlers and prosperity and the establishment of communities such as Uniontown, Connellsville, Brownsville, and Masontown (Fayette County: A Comprehensive Strategy, 2019).

Much like its name, Fayette County holds a great deal of significance in the history of America. Much of the French and Indian War was fought in the area on which the County is currently located. From the mid-1800s well into the twentieth century, Fayette County was a vital coal mining center, fueling the American industrial revolution by supplying major industrial centers with the coke necessary for steel production. The discovery of the coke-making process allowed the soft coal to be transported long distances and revolutionized the steel industry. Much of the credit belongs to the Connellsville Coke Goal. By the 1960s, however, the County's coal resources had been largely depleted, forcing the region to restructure its economy (Fayette County, 2010).

Fayette County maintains a diverse landscape with both rural and urban settings. The tourism industry has boomed in recent years by embracing both landscapes. The County is home to multiple historic sites, including 48 historic markers, more than 50 historic buildings and sites, two national parks, the Great Allegheny Passage trail, five national historic landmarks, and Pennsylvania's largest stake park. Two of architect Frank Lloyd Wright's most notable works—Fallingwater and Kentuck Knob—are located in the County (Fayette County, 2010).

As mentioned in Section 2.1, the County is home to Ohiopyle State Park, Nemacolin Woodlands Resort, Fallingwater and Kentuck Knob, among others, the Laurel Highlands Tourism Region, three County-wide parks, and a public pool facility. Figure 2.2-1, taken from the 2019 Comprehensive Plan, depicts those tourist attractions abundant throughout the County. Many of these areas ideal for natural resource protection efforts, but large open areas, water features, and signal reception can lead to disorientation and drowning occurrences, and extreme temperature depending on time of exposure, because of the large open areas, water features, and signal reception. Municipalities within areas, such as Ohiopyle State Park and Forbes State Forest, are encouraged to keep records of these occurrences and develop mitigation efforts to reduce or eliminate future occurrences. The Fayette County Coroners Office notes that as of June 22, 2022, one drowning occurred at Ohiopyle State Park.

Figure 2.2-1 Fayette County Tourist Attractions (Fayette County: A Comprehensive Strategy, 2019).



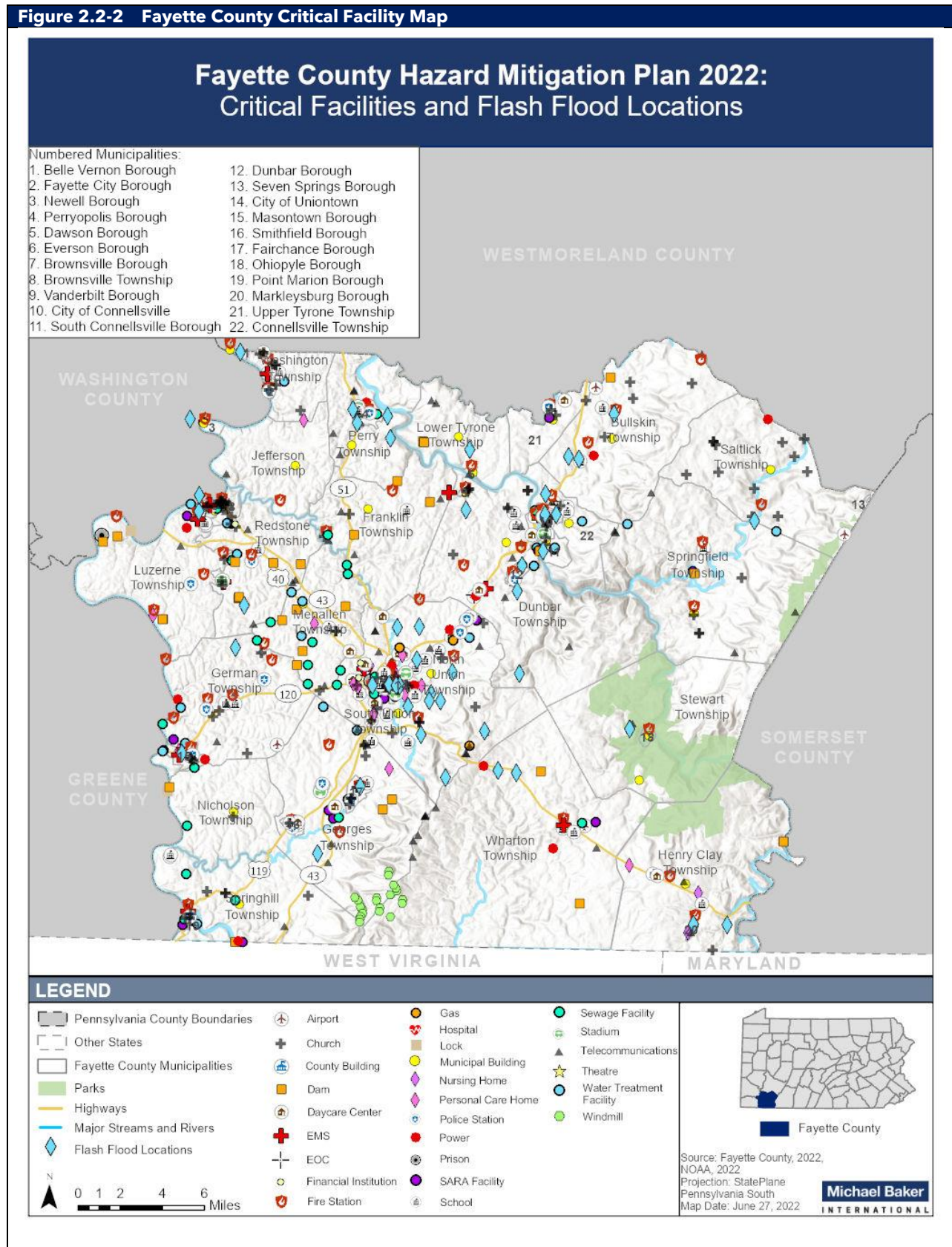
The County is also the birthplace of an iconic piece of American culinary history. The McDonald's Big Mac was created by local franchise owner, Jim Delligati, on Morgantown Street in Uniontown in 1967. As a globally recognized meal, the Big Macs invention is marketed throughout the community. The County is home to multiple institutions of higher learning, including the Westmoreland County Community College (WCCC) Fayette County campus in the City of Uniontown and the Penn State Fayette campus in North Union Township. There are eight public school districts and 15 private schools. The Fayette County Library System consists of 10 public libraries.

The 2019 Comprehensive Plan included a survey asking stakeholders what the top four best qualities of Fayette County are: Historic Character (69 registered Historic Places in Fayette County), Cost of Living, Parks and Recreation, and Agriculture/Open Space ranked in the top four. The top four concerns noted by stakeholders are: Crime/Drugs, Lack of Employment Opportunities, Vacant Storefronts in Downtown and/or Commercial Areas, Loss of Young People/Graduates, and Vacant/Dilapidated Housing. Poor Circulation and Connectivity, Environmental Concerns, and Loss of Agriculture/Open Space ranked in the bottom five. Four main themes were outlined in the Comprehensive Plan to strengthen positive assets and improve weaknesses and concerns: A Place with a Healthy Economy, A Beautiful Place to Live, A Fun and Existing Place to Visit, and a Future Land Use Plan that would include an overall growth and development strategy.

The larger educational and health care percentage reflects that 21.1% of the population is 65 years and over, and 19.3% of the population is under 18 years old. In addition, the retail trade percentage aligns with the high-density residential and commercial areas, such as the City of Uniontown, coupled with large tracts of open space, parks, and agricultural lands.

It is imperative to note the critical facilities, shown in Figure 2.2-2, related to all industries within the County. Examples of critical facilities include utility stations, schools, airports, rail lines, police, and hospital and nursing home locations. Beginning with the 2017 HMPU and followed by annual updates, Fayette County EMA has prioritized updating and maintaining critical facility data by working one-on-one with municipalities. For example, during the 2021 Annual Update, Lower Tyrone Township submitted a request for a water tank located near Tower Road, and a water pump station located near Banning Road, to be added to the list of critical facilities.

Figure 2.2-2 Fayette County Critical Facility Map



2.3. POPULATION AND DEMOGRAPHICS

The demographics of a community – population, labor force, employment, and housing – reflect how a community has evolved in the past and has a direct bearing on how and where a community wants to develop in the future. Identifying where vulnerable populations are located is vital to understanding the County’s overall vulnerability to natural and human-caused disasters and in developing a supporting mitigation strategy. The past population trends and projections and the employment characteristics also help us to better understand the socio-economic characteristics that have and will continue to shape the future of the County. Key demographic characteristics of Fayette County have been examined to provide an insight on how the community has changed over time and how those changes relate to hazard mitigation planning.

According to the U.S. Census 2020 American Community Survey (ACS), the population of Fayette County is 128,804, a 5.7% decrease in population from 2010. The County’s population has declined approximately 13% from 148,512 people in 2000. Table 2.3-1 shows the annual population trends of Fayette County from 1950 to 2020 illustrating how the population of Fayette County has steadily decreased in small increments since 1950. From 1990 to 2000, there was slight growth possibility attributing to residential movement from city centers to more suburban locations along the outer ring.

Table 2.3-1 Fayette County Population Trends (U.S. Census 2020 ACS)	
YEAR	POPULATION
1950	189,899
1960	169,340
1970	154,667
1980	159,417
1990	145,341
2000	148,536
2010	136,591
2020	126,804

Table 2.3-2 provides a comparative population for each jurisdiction between 2010 and 2020. The most populated municipalities (populations of 6,000 or greater) in Fayette County are:

- Bullskin Township;
- Connellsville City;
- Dunbar Township;
- Georges Township;
- North Union Township;
- South Union Township (most populated); and
- Uniontown City.

The least populated municipalities (populations of more than 30 and fewer than 2,000 people) in Fayette County include:

- Belle Vernon Borough;
- Brownsville Township;
- Dawson Borough;
- Everson Borough;
- Fairchance Borough;
- Fayette City Borough;
- Henry Clay Township;
- Lower Tyrone Township;
- Markleysburg Borough;
- Newell Borough;
- Nicholson Township;
- Ohiopyle Borough (least populated, 37 residents);
- Perryopolis Borough;
- Point Marion Borough;
- Smithfield Borough;
- South Connellsville Borough;
- Stewart Township;
- Upper Tyrone Township; and
- Vanderbilt Borough.

Brownsville, Connellsville, Henry Clay, Jefferson, Stewart, and Upper Tyrone Townships and Fayette City, Markleysburg, and Ohiopyle Borough endured more significant decreases in population as shown in Table 2.3-2. South Union Township is the only municipality to increase in population between 2010 and 2020.

MUNICIPALITY	2010 POPULATION	2020 POPULATION	PERCENT CHANGE (%)
Belle Vernon Borough	1,093	1,024	-6.3%
Brownsville Borough	2,331	2,185	-6.3%
Brownsville Township	683	534	-21.8%
Bullskin Township	6,966	6,740	-3.2%
Connellsville City	7,637	7,031	-7.9%
Connellsville Township	2,391	2,076	-13.2%
Dawson Borough	367	352	-4.1%
Dunbar Borough	1,042	1,013	-2.8%
Dunbar Township	7,126	6,672	-6.4%
Everson Borough	793	771	-2.8%
Fairchance Borough	1,975	1,890	-4.3%
Fayette City Borough	596	502	-15.8%

Table 2.3-2 Fayette County Population by Municipality (U.S. Census 2020 ACS)			
MUNICIPALITY	2010 POPULATION	2020 POPULATION	PERCENT CHANGE (%)
Franklin Township	2,528	2,378	-5.9%
Georges Township	6,612	6,346	-4.0%
German Township	5,097	4,669	-8.4%
Henry Clay Township	2,066	1,761	-14.8%
Jefferson Township	2,015	2,004	-0.5%
Lower Tyrone Township	1,123	1,073	-4.5%
Luzerne Township	5,965	5,586	-6.4%
Markleysburg Borough	284	246	-13.4%
Masontown Borough	3,450	3,276	-5.0%
Menallen Township	4,205	4,098	-2.5%
Newell Borough	541	513	-5.2%
Nicholson Township	1,805	1,732	-4.0%
North Union Township	12,728	11,828	-7.1%
Ohiopyle Borough	59	37	-37.3%
Perry Township	2,552	2,338	-8.4%
Perryopolis Borough	1,784	1,705	-4.4%
Point Marion Borough	1,159	1,156	-0.3%
Redstone Township	5,566	5,079	-8.7%
Saltlick Township	3,461	3,037	-12.3%
Smithfield Borough	875	831	-5.0%
South Connellsville Borough	1,970	1,917	-2.7%
South Union Township	10,681	10,890	2.0%
Springfield Township	3,043	2,732	-10.2%
Springhill Township	2,907	2,722	-6.4%
Stewart Township	731	623	-14.8%
Uniontown City	10,372	9,984	-3.7%
Upper Tyrone Township	2,059	1,773	-13.9%
Vanderbilt Borough	476	419	-12.0%
Washington Township	3,902	3,894	-0.2%
Wharton Township	3,575	3,355	-6.2%
TOTAL	136,591	128,804	-5.7%

Table 2.3-3 outlines Fayette County's overall demographic summary. As mentioned at the beginning of Section 2.3, knowing the percent of vulnerable populations, such as those under

18 years old and those 65 years old and over, and where those populations are located is critical in pre- and post- disaster recovery, as well as during the extent of the occurrence.

Social vulnerability is defined by FEMA as the level of susceptibility that a particular social group may face in relation to adverse impacts resulting from natural hazards. Fayette County in particular has a social vulnerability index of 42.37 which is considered “moderate” relative to the Pennsylvania state average of 35.65 and the national average of 38.85.

Figure 2.3-1 shows the population change from 2015 to 2020. Masontown and Fairchance Boroughs and part of Bullskin and Upper Tyrone Townships have experienced 50% or more in population loss.

In the County’s 2019 Comprehensive Plan they list out several priorities which may aid in the issue of population loss:

- Attract new business and industry corporations to locate within Fayette County
- Improve workforce development and job training
- Promote the redevelopment and revitalization of existing centers
- Encourage and support small business development and entrepreneurs
- Support the agricultural industry as a vital component to the County’s economy
- Expand broadband and cellular infrastructure
- Ensure transportation projects align with smart and sustainable growth

Figure 2.3-1 Fayette County Population Change (2015-2020)

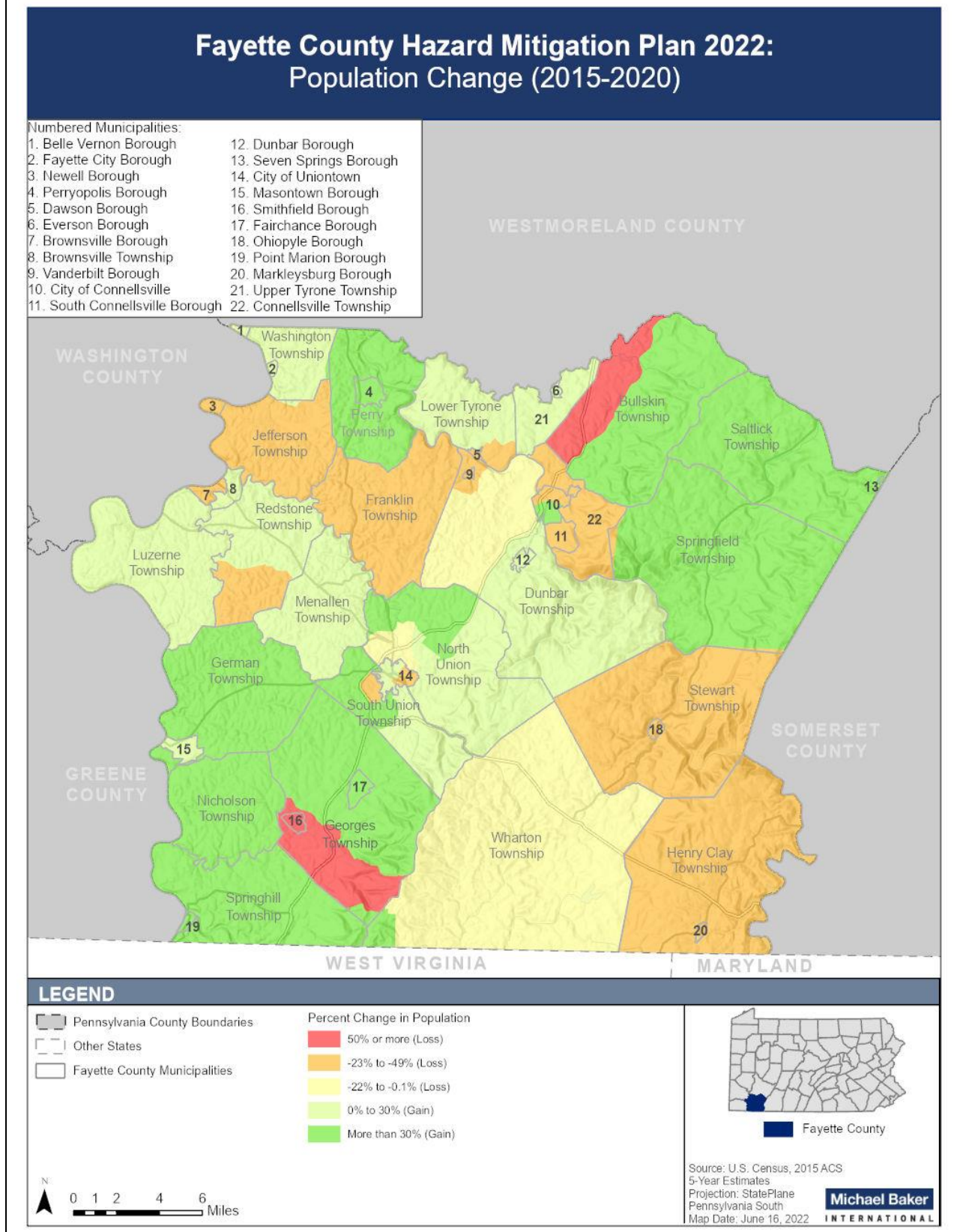


Figure 2.3-2 Population Density

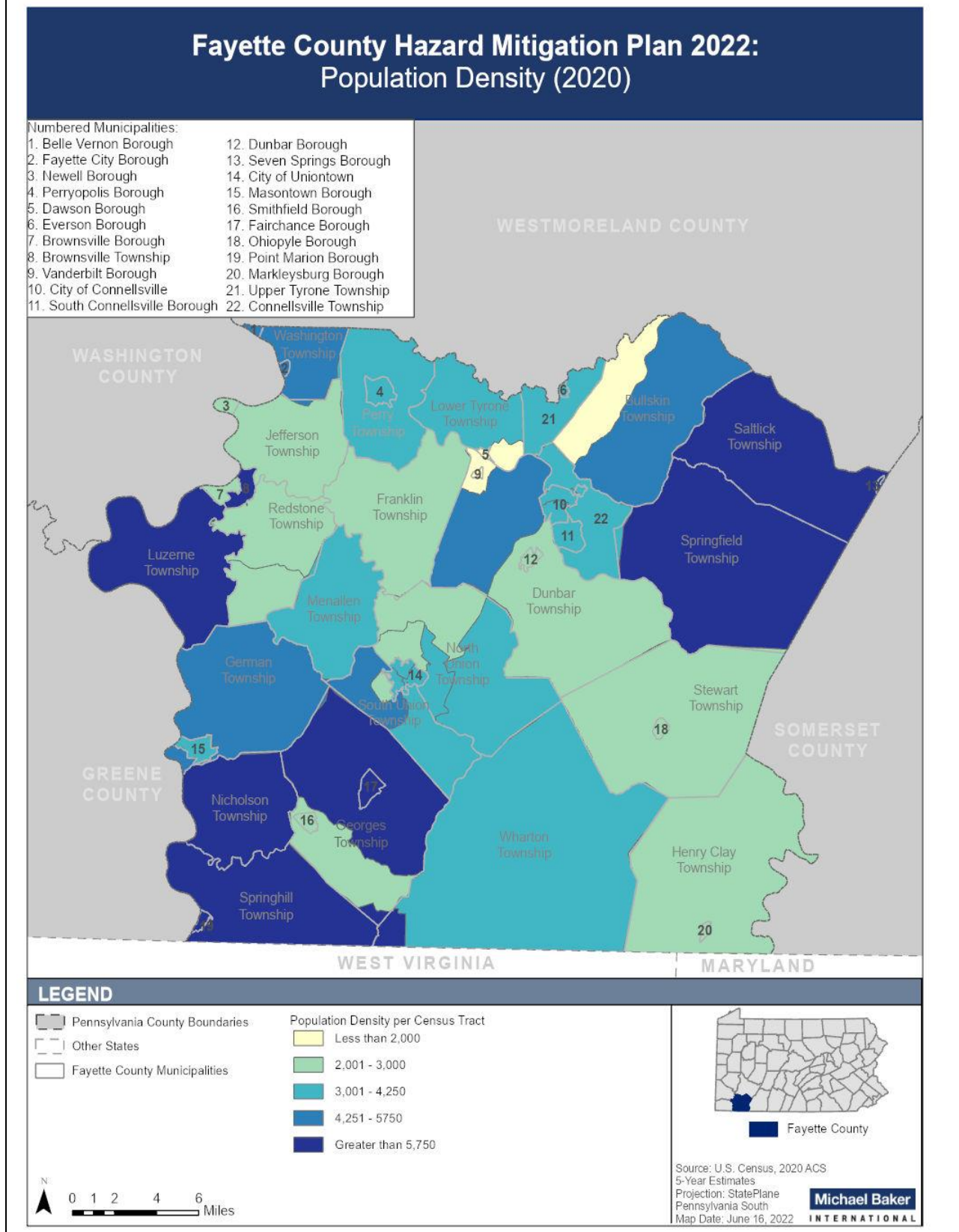


Table 2.3-3 Fayette County Demographic Summary (U.S. Census 2020 ACS)		
DEMOGRAPHIC CATEGORY	FAYETTE COUNTY	PENNSYLVANIA
Population	130,329	12,794,885
Median Age	45.1	40.9
Percent Persons Under 18 Years Old	19.30%	20.7%
Percent Persons 65 Years Old and Over	21.70%	18.70%
Percent Persons 75 Years and Over	9.01%	7.95%
Percent Female Persons	50.40%	51.00%
Percent Male Persons	49.80%	49.00%
RACIAL DEMOGRAPHICS	FAYETTE COUNTY	PENNSYLVANIA
Percent White Persons	92.60%	81.60%
Percent Black Persons	4.80%	12.00%
Percent American Indian and Alaska Native Persons	0.20%	0.40%
Percent Asian	0.40%	3.80%
Percent Native Hawaiian and Other Pacific Islander	0.2%	0.1%
Percent Persons Reporting Two or More Races	1.80%	2.10%
Percent Persons of Hispanic or Latino Origin	1.30%	7.8%
Percent White Persons Not Hispanic	91.60%	75.70%
POVERTY RATE	FAYETTE COUNTY	PENNSYLVANIA
Percent Population in Poverty	18.7%	10.9%

The highest concentrations

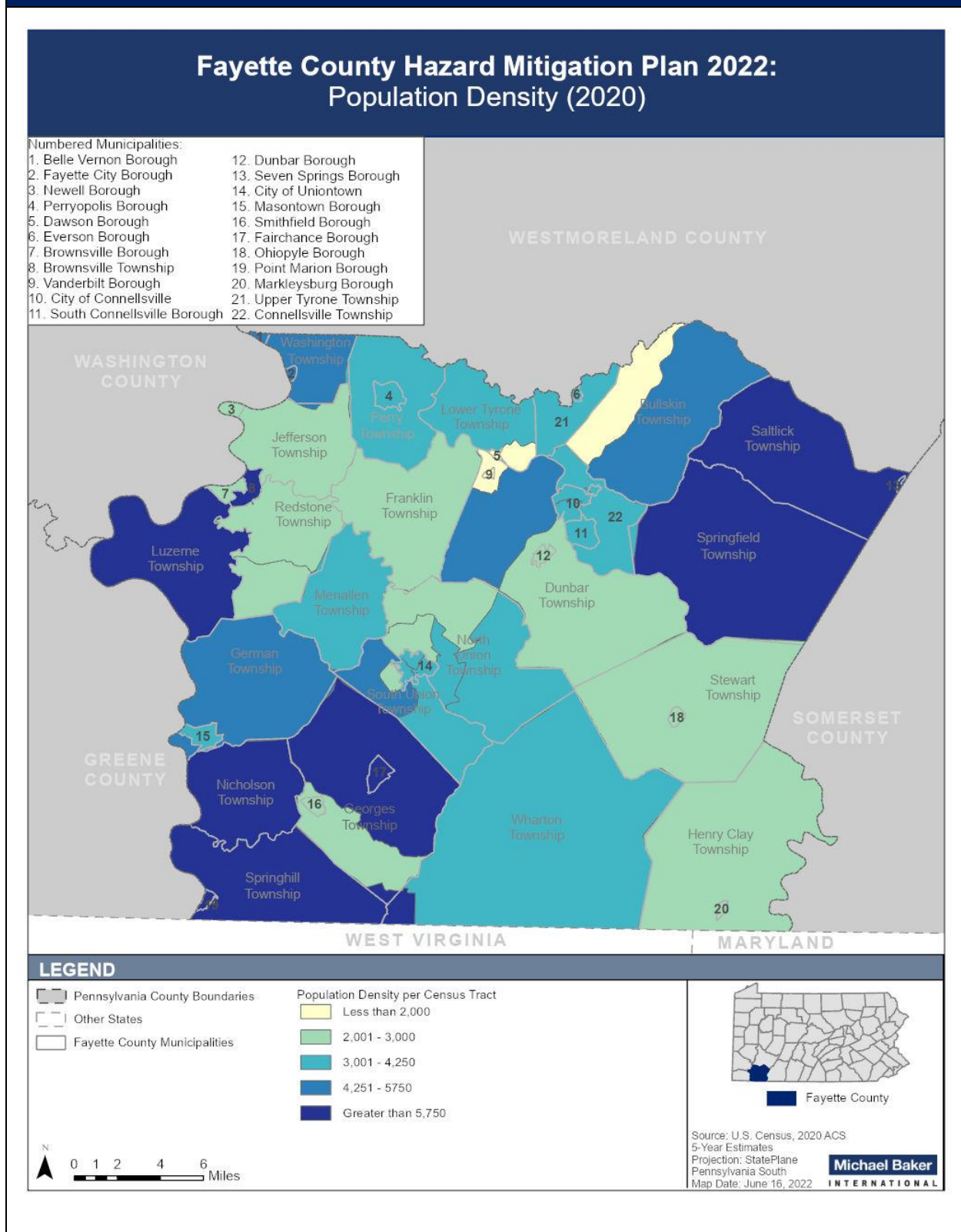
ACS data for poverty in Fayette County by municipality doesn't show significant concentrations of poverty in any particular area of the County versus another.

Additionally, related to stakeholder feedback regarding employment opportunities, according to the 2020 Annual Census, 59.4% of the Civilian labor force is employed, and the most common industries in the County include:

- 28.4% educational services, and health care and social assistance,
- 12.9% retail trade,
- 10.3% manufacturing, and
- 8.1% construction.

Figure 2.3-3 shows the population density of Fayette County based on the 2020 ACS estimate. The most densely populated areas of the county are the Cities of Connellsville and Uniontown. Municipalities in Fayette County with smaller geographic footprints naturally exhibit higher population density. These areas include Belle Vernon Borough; Everson Borough; Dawson Borough; Dunbar Borough; Fairchance Borough; Fayette City Borough; Masontown Borough; Point Marion Borough; and Vanderbilt Borough.

Figure 2.3-3 Fayette County Population Density



Approximately 78% of housing units in the County are single-unit structures, 11.2% are multi-unit structures, and 10.7% are manufactured homes which are more vulnerable to tornados, windstorms, and flooding. Nearly 64% of homes in the County were constructed prior to 1970 and 33% of homes were constructed prior to 1940.

The top five reported ancestries are: German, Irish, Italian, English, and Polish. Additional demographic facts are provided in Table 2.3-3.

2.4. LAND USE AND DEVELOPMENT

Since 2000, the population of Fayette County has declined approximately 13%. Since 1970, while the population has seen some population growth during certain decades (from 1970 to 1980 and 1990 to 2000), the general trend has been a decreasing population.

Between 2010 and 2020, significant population losses occurred in Henry Clay, Upper Tyrone, Connellsville, Saltlick, and Redstone Townships (approximately -8% to -15%). During the same period, most of the County witnessed much smaller declines in population (between -14% to -0.2%) and, in some places, growth (South Union Township, 2%).

The County is composed of 42 political subdivisions, breaking into:

- the Cities of Connellsville City and Uniontown;
- 16 Boroughs; and
- 24 Townships.

Fayette County's boroughs and cities are almost entirely built out. Consequently, most new development has taken place in the townships surrounding Uniontown. Development within the boroughs and cities can be expected to take the form of infill and reuse projects.

Residential land-uses are generally single-family, detached units (Housing Market Analysis, 2005).

Table 2.4-1 Agricultural Summary of Fayette County (Agricultural Census, 2017)	
CATEGORY	
Number of Farms	834
Acreage of Farms	112,285
Percent of County Land Area is Farms	22%
Total Acres Cropland	59,117
Total Agricultural Revenue	\$28,836,000
Total Crop Revenue	\$16,180,000
Total Animal Revenue	15,656,000
LIVESTOCK	
Total Number of Cattle	16,573
Total Number of Cattle, Beef	6,188
Total Number of Cattle, Milk	2,352
Total Number of Cattle, Calves	8,033
Total Number of Hogs	554
Total Number of Sheep and Lambs	1,321

Table 2.4-1 Agricultural Summary of Fayette County (Agricultural Census, 2017)

Total Number of Chickens, Layers	4,351
Total Number of Chickens, Broilers	890

The County has many land development regulations in place to protect its natural, historic, and environmentally sensitive areas. These regulations for floodplain management exceed federal standards and are described in detail in Section 5.2.1. For more information on how future development patterns impact vulnerability to hazards, please see Section 4.4.4.

The following 10 municipalities within Fayette County have their own land use, zoning, and comprehensive plans that the County doesn't have direct authority over:

- Ohiopyle Borough
- Perryopolis Borough
- Uniontown City
- Connellsville City
- Henry Clay Township
- Menallen Township
- South Union Township
- Stewart Township
- Washington Township
- Wharton Township

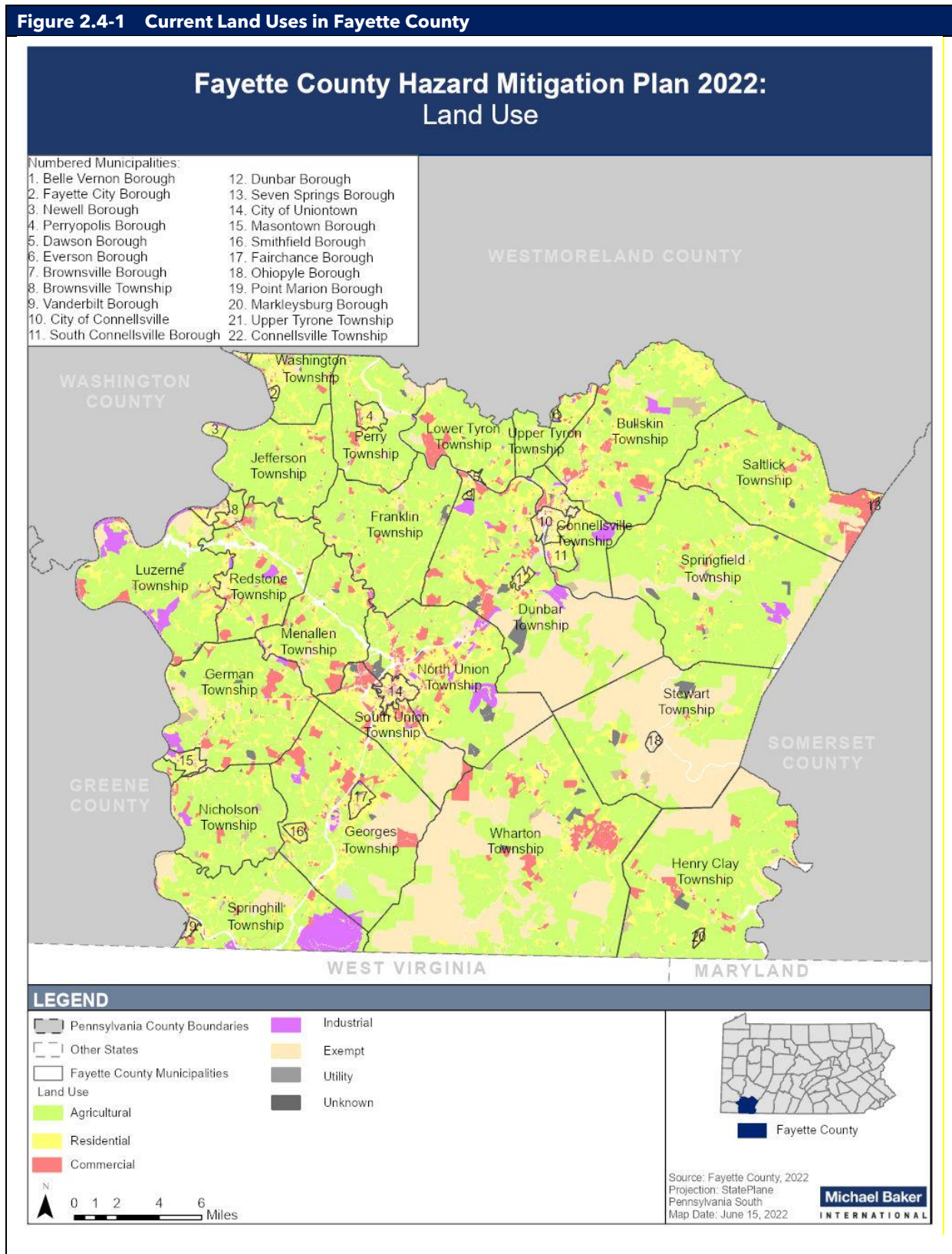
Forest areas in the County are largely confined in the east, beyond and including Chestnut Ridge. The area east of the ridge is approximately 80% woodland, and the area west of the ridge is approximately 10% woodland. Forest areas that are currently protected from development (covering 10% of the County's land area) include all of the state game lands found in Connellsville, Springfield, Dunbar, Stewart, Wharton, North Union, Henry Clay, Georges, German, Lower Tyrone, and Perry Townships; plus all State and County parks (Comprehensive Plan, 2000). Figure 2.4-1 shows the existing land use pattern in Fayette County. Additionally, all Land Use Controls (LUCs) controls "E" were mapped as Exempt. This includes state parks, game lands, and municipal lands. Additionally, churches, schools, public housing, etc are included as exempt. This explains why there appears to be so much land categorized as Exempt. For example, much of Ohiopyle State Park's LUC is E-00, vacant exempt.

Fayette County's *2019 Comprehensive Plan* contained the following future land use objectives:

- Encourage infill development;
- Promote development, while reducing negative impacts on the environment; and
- Maintain rural character through policies that promote smart and sustainable growth.

Supporting agricultural land uses supports the comprehensive plan's objective to maintain the rural character of the County, as well as creating a balance to protect natural areas for wildlife, drainage, and reducing extreme temperature effects in developed areas.

Figure 2.4-1 Current Land Uses in Fayette County



2.5. DATA SOURCES AND LIMITATIONS

Gathering and analyzing new data about natural hazards and the community was critical to the process of updating the plan. Many spatial data sources used in the plan were accessed via Fayette County's GIS manager:

- Address Points
- Amenities
- Building Footprints
- Municipalities
- Parks
- Streets
- Trails
- Parcel Data With Tax Assessment Values

Fayette County's Effective Flood Insurance Rate Map (FIRM) (issued on 7/18/2017) was downloaded from FEMA's Flood Map Service Center. This data provides flood frequency and elevation information used in the flood hazard risk assessment. Additional base map data was from PA DCNR. Also, population data from the 2010 Census and 2020 ACS populations were obtained from the U.S. Census Bureau (2020). Additional information used to complete the risk assessment for this plan was taken from various government agency and non-government agency sources. Those sources are cited where appropriate throughout the plan and on each map with full references listed in **Appendix A – Bibliography**.

It should be noted that numerous GIS datasets were obtained from the Pennsylvania Spatial Data Access (PASDA) website (<http://www.pasda.psu.edu/>). PASDA is the official public access geospatial information clearinghouse for the Commonwealth of Pennsylvania. PASDA was developed by the Pennsylvania State University as a service to the citizens, governments, and businesses of the Commonwealth. PASDA is a cooperative project of the Governor's Office of Administration, Office for Information Technology, Geospatial Technologies Office and the Penn State Institutes of Energy and the Environment of the Pennsylvania State University.

In order to assess the vulnerability of different jurisdictions to the hazards, hazard data from the National Centers for Environmental Information (NCEI) database was utilized. NCEI is a division of the US Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Information on hazard events is compiled by NCEI from data gathered by the National Weather Service (NWS), another division of NOAA. NCEI then presents it on its website in various formats. The data used for this plan came from the U.S. Storm Events database, which "documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce" (NOAA, 2019). The database currently contains hazard event data from January 1950 to June 2022. Other federal datasets came from USGS, the National Hurricane Center, and NOAA's Storm Prediction Center. High Hazard Potential Dam (HHPD) data was collected from PA DEP and USACE's National Dam Inventory

(NDI) and incorporated into the Dam Failure profile (**Appendix G**). PA DEP provides information from Emergency Action Plans including risk and population vulnerability.

This 2022 HMP Update evaluates the vulnerability of the County's critical facilities. For the purposes of this plan, critical facilities are those entities that are essential to the health and welfare of the community. The list of critical facilities was developed based on information provided by the Fayette County Emergency Management Agency and insight provided by the Steering Committee. Critical facilities have been identified in Fayette County to include 26 types of facilities essential to the health and welfare of the community. Table 2.5-1 summarizes the critical facilities in Fayette County by type and data source. For a complete listing of critical facilities, please see **Appendix E**.

Several critical facility GIS datasets were obtained from the Department of Homeland Security's (DHS) Homeland Infrastructure Foundation-Level Data (HIFLD) Open data portal, and FEMA's Comprehensive Data Management System (CDMS). The HIFLD Open data portal aggregates data from hundreds of regional and local data providers to compile national datasets of essential assets and infrastructure. As of 2019, this data portal provided access to over 330 national geospatial data layers within the open public domain (DHS HIFLD, 2019). FEMA's CDMS was used to gather geospatial data for the few types of critical facilities not available through the HIFLD Open Data portal. A component of FEMA's Hazus software, the CDMS allows users to export the default geospatial data that Hazus uses to estimate potential losses. This default geospatial data includes national data for essential facilities, high potential loss facilities, selected transportation and lifeline systems, agriculture, vehicles, and demographics. More information on the sources for the Hazus default data can be found at <https://www.fema.gov/summary-databases-hazus-multi-hazard>.

Table 2.5-1 shows a critical facility list by municipality and type. An initial list of critical facilities was sent to the county EMA for review and the county subsequently provided a revised list of critical facilities and GIS data. Currently the county is working to improve their critical facility data.

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FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

MUNICIPALITY	AIRPORT	CHURCH	COUNTY BUILDING	DAM	DAYCARE CENTER	EMS FACILITY	EOC FACILITY	FINANCIAL INSTITUTION	FIRE STATION	GASOLINE FACILITY	HOSPITAL	LOCK	MUNICIPAL BUILDING	NURSING HOME	PERSONAL CARE HOME	POLICE STATION	POWER STATION	PRISON	SARA FACILITY	SCHOOL	SEWAGE TREATMENT PLANT	STADIUM	TELECOMMUNICATIONS INFRASTRUCTURE	THEATER	WATER TREATMENT FACILITY	WINDMILL	GRAND TOTAL
Belle Vernon Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Brownsville Borough	0	10	0	0	1	1	0	0	2	0	0	0	1	0	0	1	0	0	2	0	1	0	1	0	1	0	21
Brownsville Township	0	2	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	1	0	6
Bullskin Township	1	4	0	1	0	0	0	0	3	0	0	0	1	0	0	0	1	0	0	2	0	0	2	0	0	0	15
Connellsville City	0	7	0	0	5	1	0	0	2	0	1	0	1	0	0	1	0	0	1	3	1	1	2	0	0	0	26
Connellsville Township	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	1	0	0	3	0	1	0	9
Dawson Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3
Dunbar Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	0	0	1	0	0	0	4
Dunbar Township	1	4	0	0	0	2	1	0	2	0	0	0	1	0	0	0	2	0	2	3	1	0	6	0	3	0	28
Everson Borough	0	1	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	1	0	0	0	0	0	0	0	5
Fairchance Borough	0	5	0	0	0	0	0	0	1	0	0	0	1	0	1	1	0	0	1	0	0	0	1	0	0	0	11

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

MUNICIPALITY	AIRPORT	CHURCH	COUNTY BUILDING	DAM	DAYCARE CENTER	EMS FACILITY	EOC FACILITY	FINANCIAL INSTITUTION	FIRE STATION	GASOLINE FACILITY	HOSPITAL	LOCK	MUNICIPAL BUILDING	NURSING HOME	PERSONAL CARE HOME	POLICE STATION	POWER STATION	PRISON	SARA FACILITY	SCHOOL	SEWAGE TREATMENT PLANT	STADIUM	TELECOMMUNICATIONS INFRASTRUCTURE	THEATER	WATER TREATMENT FACILITY	WINDMILL	GRAND TOTAL
Fayette City Borough	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	1	0	0	0	0	1	0	1	0	0	0	7
Franklin Township	0	2	0	3	0	0	0	0	2	0	0	0	1	0	0	0	0	0	0	1	1	0	4	0	0	0	14
Georges Township	0	2	0	2	1	0	0	0	2	0	0	0	1	0	1	1	0	0	2	4	1	1	9	0	2	1	44
German Township	1	3	0	0	0	0	0	0	5	0	0	0	1	0	0	1	2	0	1	2	2	0	3	0	2	0	23
Henry Clay Township	0	1	0	1	1	0	0	0	1	0	0	0	1	1	1	0	0	0	0	2	0	0	1	0	0	0	10
Jefferson Township	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	3
Lower Tyrone Township	0	0	0	2	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	2	0	0	0	5
Luzerne Township	0	1	0	4	0	1	0	0	5	0	0	1	1	0	1	1	1	1	1	3	0	0	1	0	0	0	22
Markleysburg Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	1	0	0	0	0	0	0	0	0	1	0	0	0	4
Masontown Borough	0	3	0	0	0	1	0	0	1	0	0	0	1	0	1	1	0	0	0	1	1	0	1	0	1	0	12
Menallen Township	0	3	0	5	1	0	0	0	1	0	0	0	1	0	1	0	0	0	0	1	7	0	1	0	3	0	24
Newell Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	0	0	3

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

MUNICIPALITY	AIRPORT	CHURCH	COUNTY BUILDING	DAM	DAYCARE CENTER	EMS FACILITY	EOC FACILITY	FINANCIAL INSTITUTION	FIRE STATION	GASOLINE FACILITY	HOSPITAL	LOCK	MUNICIPAL BUILDING	NURSING HOME	PERSONAL CARE HOME	POLICE STATION	POWER STATION	PRISON	SARA FACILITY	SCHOOL	SEWAGE TREATMENT PLANT	STADIUM	TELECOMMUNICATIONS INFRASTRUCTURE	THEATER	WATER TREATMENT FACILITY	WINDMILL	GRAND TOTAL
Nicholson Township	0	1	0	1	0	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	0	0	0	0	0	5
North Union Township	0	5	0	0	7	0	0	0	2	4	0	0	1	1	2	1	4	0	1	5	0	1	10	0	1	0	45
Ohiopyle Borough	0	0	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Perry Township	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	4	0	0	0	5
Perryopolis Borough	0	2	0	0	0	0	0	0	1	0	0	0	1	0	0	1	1	0	0	3	1	1	1	0	0	0	12
Point Marion Borough	0	3	0	0	0	1	0	0	1	0	0	0	1	0	1	1	0	0	1	0	1	0	1	0	0	0	11
Redstone Township	0	4	0	6	0	1	0	1	2	0	0	0	1	0	0	1	0	0	0	3	1	1	4	0	1	0	26
Saltlick Township	1	12	0	0	0	0	0	0	1	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	16
Smithfield Borough	0	1	0	0	1	0	0	0	1	0	0	0	1	0	0	1	0	0	0	2	0	0	0	0	0	0	7
South Connellsville Borough	0	1	0	1	0	0	0	0	1	0	0	0	1	0	0	0	0	0	1	0	0	0	0	0	2	0	7
South Union Township	0	5	0	0	5	1	0	2	2	0	0	0	1	3	4	0	0	0	0	3	5	0	0	0	0	0	31
Springfield Township	0	4	0	1	0	0	0	0	2	0	0	0	1	0	0	0	0	0	1	1	0	0	3	0	2	0	15

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

MUNICIPALITY	AIRPORT	CHURCH	COUNTY BUILDING	DAM	DAYCARE CENTER	EMS FACILITY	EOC FACILITY	FINANCIAL INSTITUTION	FIRE STATION	GASOLINE FACILITY	HOSPITAL	LOCK	MUNICIPAL BUILDING	NURSING HOME	PERSONAL CARE HOME	POLICE STATION	POWER STATION	PRISON	SARA FACILITY	SCHOOL	SEWAGE TREATMENT PLANT	STADIUM	TELECOMMUNICATIONS INFRASTRUCTURE	THEATER	WATER TREATMENT FACILITY	WINDMILL	GRAND TOTAL
Springhill Township	0	4	0	1	0	0	0	0	0	0	0	0	1	0	0	0	1	0	2	2	2	0	1	0	1	1	16
Stewart Township	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	1	0	0	0	2
Uniontown City	0	16	5	0	7	0	1	1	2	0	1	0	1	1	5	3	0	2	2	7	0	1	1	1	0	0	57
Upper Tyrone Township	0	2	0	0	1	0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	4
Vanderbilt Borough	0	3	0	0	0	0	0	0	1	0	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	5
Washington Township	0	6	0	0	1	1	0	0	1	0	0	0	1	0	1	1	0	0	1	2	0	0	1	0	2	0	18
Wharton Township	1	0	0	2	0	1	0	0	1	0	0	0	1	0	0	0	3	0	1	2	1	0	6	0	0	5	24
GRAND TOTAL	5	120	5	30	32	11	2	4	55	4	2	2	42	7	19	19	16	3	22	53	28	6	77	1	23	21	609

3. PLANNING PROCESS

3.1. UPDATE PROCESS AND PARTICIPATION SUMMARY

A successful planning process builds partnerships and brings together members representing government agencies, the public, and other stakeholders to reach consensus on how the community will prepare for and respond to hazards that are most likely to occur. Applying a comprehensive and transparent process adds validity to the Plan. Those involved gain a better understanding of the problem or issue and how solutions and actions were devised. The result is an updated set of common community values and widespread support for directing financial, technical, and human resources to an agreed-upon action. The planning process has been an integral part of updating the Fayette County Hazard Mitigation Plan (HMP). This section describes Fayette County's update process and how the HMP evolved since it was first approved by the Federal Emergency Management Agency (FEMA).

The 2022 HMPU was again led by the Fayette County Emergency Management Agency, contracting with Michael Baker International, to assist in updating the Fayette County HMP. In accordance with the Disaster Mitigation Act of 2000 (DMA 2000) requirements, this plan documents the following topics:

1. Planning process
2. Hazard identification
3. Risk assessment
4. Mitigation strategy: goals, actions, and projects
5. Formal adoption by the participating jurisdictions
6. PEMA and FEMA approval

The Fayette County HMP was originally developed in 2004. During the 2004 update process, planners began by identifying the hazards that could significantly impact the County and its municipalities, and they determined these hazards' economic, social, and environmental impacts. From this analysis, the County created an action strategy identifying technically feasible and cost-effective mitigation actions to reduce hazard impacts.

The HMP was updated and adopted for implementation in 2011 and 2017. In 2011, the HMP underwent a restructure so that it met the requirements set forth by PEMA using the Pennsylvania Hazard Mitigation Standard Operating Guidance.

This same format was used during the 2017 HMP update and was carried through to the 2022 HMPU as well. During the 2022 update, stakeholder feedback was solicited through in-person, the Fayette County EMA website, and written and electronic communication. A total of 24 hazards were carried over from the previous HMP update. Earthquake; Hurricane, Tropical Storm, and Nor'easter, and Lightning Strike were removed from the 2017 HMP due to a reduced number of occurrences and minimal magnitude and geographic extent. Stakeholders were asked to provide information on identified hazards and to assist with the Risk Factor ranking during the March 16, 2022 Planning Team Kick-off Meeting.

The mitigation strategy was reviewed by the Hazard Mitigation Plan Steering Committee (HMSC) on during the RAMS meeting and on June 22, 2022 to discuss the overall goal strategy and risk assessment profiles. Stakeholders provided information about what had been accomplished over the last five years along with actions and projects to be implemented moving forward. Executing annual updates ensured accurate, detail information was captured between the 2017 and 2022 HMPU.

Prior to the 2022 update, the Fayette County EMA team executed annual updates in 2018, 2020, and 2021. The 2018 and 2020 annual updated focused on increasing outreach to municipalities who had not participated in the official 2017 HMP and collecting more information on municipalities' mitigation actions and strategies for execution. Consistent and continuous engagement with the municipalities in the annual updates proved to be beneficial in the 2022 HMPU. After the Kickoff Meeting, 32 out of 42 municipalities attended, and all municipalities attended a meeting by the Risk Assessment Mitigation Strategies meeting. The annual updates also included meetings with the Chamber of Commerce to discuss collaboration and opportunities for supporting the local municipalities in their mitigation action strategy.

The report format is structured in accordance with the most current planning guidance from FEMA, Local Mitigation Handbook (2013), and PEMA, Standard Operating Guide (SOG) (August 2020). The 2022 HMP follows the Pennsylvania Model Plan Outline developed by PEMA in 2020 which provides a standardized format for all multi-jurisdictional HMPs in the Commonwealth of Pennsylvania. The Plan Update was led by the HMSC and informed by the Hazard Mitigation Planning Team (HMPT). Community leaders and other agency and organizational stakeholders were invited by the Fayette County EMA to participate in the Plan Update process.

In 2022, an announcement for the upcoming update was made during the Local Coordinators' Training on March 22, 2022. Out of 42 municipalities, 38 participated (90%) in the hazard mitigation planning process through attending at least one meeting, submitting at least one form, and selecting a mitigation action. Of the 42 municipalities, four have attended one or more meetings but unfortunately did not complete the required forms. With guidance from PEMA, municipalities who submitted paperwork regarding the mitigation actions during one or more of the three annual updates and attended a meeting during the 2022 HMPU were counted as participating in the 2022 process.

Steps were taken throughout the planning process to make participation as easy as possible for municipalities. Written and electronic invitations were extended to all municipalities one to two months prior to each meeting. Follow up email notifications were sent one month and one week prior to each meeting. All forms and surveys were available on the Fayette County EMA website, and emails were sent to municipalities with the attached paperwork following the RAMS meeting. Closer to the HMPU submittal to PEMA and FEMA, emails were sent by the Michael Baker International team to stakeholders who had not fulfilled their participation, those municipalities were shared with Fayette County who made direct phone calls to the EMC and elected officials.

3.2. THE PLANNING TEAM

Members of the HMSC are listed below in Table 3.2-1. The HMSC met July 28, 2020 to discuss the plan update process including FEMA and PEMA requirements and guidance, a schedule for deliverables and meetings, participation, and contacts for the HMPT, and currently available data and documentation to inform the 2022 update.

Table 3.2-1 Fayette County Hazard Mitigation Plan Steering Committee	
PARTICIPANT	TITLE
Roy Shipley, Jr.	Director, Fayette County Emergency Management Agency
James E. Bittner, Jr.	Planner/Training Officer, Emergency Management Agency
Madeleine Fincham	Lead Hazard Mitigation Planner, Michael Baker International
Shane Stauffer	Planner, Environmental Scientist - Professional Wetland Scientist (PWS), Michael Baker International

The HMPT was organized by the County, with assistance from the Mitigation Planning consultant, to plan meetings, collect information, and conduct outreach. The HMPT included municipal officials, Fayette County Planning Commission, Fayette County Chamber of Commerce, Washington County Planning Commission, Connellsville Redevelopment Authority, Fayette County Conservation District, Youghiogheny Riverkeeper and Mountain Watershed Association, Brownsville School District, and Uniontown Hospital. During the 2021 annual update, Senator Patrick Stefano's office and the director of safety and security attended at Nemacolin Woodlands Resort, a 2,000-acre four-season resort located in Farmington. All invited stakeholders and other participation documentation including meeting sign-in sheets are provided in **Appendix C - Meeting and Other Participation Documentation**.

Stakeholders participated by attending meetings and submitting valuable input and feedback to inform the planning process in form of completed paper and online surveys, questionnaires, or verbal comment. The HMSC communicated with the HMPT with letters through post and email, telephone, webinar, in person meeting, and the Fayette County EMA website. A brief description of each meeting that was held is provided in Section 3.3. In addition, detailed meeting minutes describing events of each meeting are available in **Appendix C - Meeting and Other Participation Documentation**.

The stakeholders listed in Table 3.2-2 served on the 2022 countywide HMPT and actively participated in the planning process.

Table 3.2-2 Hazard Mitigation Planning Process Participation	
MUNICIPALITY/ORG	PARTICIPANT(S)
Belle Vernon Borough	Zachary Zern, Engineer
Brownsville Borough	Melissa Obrien, Secretary; Ross Swords, Mayor
Brownsville Township	Homer Yeardie, Supervisor
Bullskin Township	Tom Kendi, EMC; Matt Keefer, Supervisor; Roy Thayer, Supervisor/Roadmaster; Chris R. Ohler, Supervisor
Connellsville City	Vernon Ohler, City Clerk
Connellsville Township	Todd Miner, Chairman-Board of Supervisors; Darla Hann, Secretary
Dawson Borough	Annette Ruso, Secretary; Sandra Newell, Mayor; Alisa Farrell, Councilwoman
Dunbar Borough	Keith Fordyce, Supervisor; Jeremy Dull, EMA
Dunbar Township	Keith Fordyce, Supervisor; Jeremy Dull, EMA
Everson Borough	Jason Frazier, EMC; Neil Stevens, Councilman; Vera Stevens, Secretary; Chuck Leighty
Fairchance Borough	Josh Bukovac, Engineering; Douglas Sholtis, Solicitor
Fayette City Borough	Jim Eley, Myron Nypave
Franklin Township	Tim Kelly, Supervisor; Michael J Wysteppek, EMC
Georges Township	Todd Churby, Supervisor; Darrell Trifiro, Supervisor
German Township	Jeff Schliffka, EMC
Henry Clay Township	Charles Myers, Supervisor; Nathan Kohlmeyer, Supervisor
Jefferson Township	Richard Lenk
Lower Tyrone Township	Justin Livingston, EMA; Dennis Livingston
Luzerne Township	Joe Miske
Markleysburg Borough	Lori Frazee, Secretary/Treasurer
Masontown Borough	Chuck Corcoran
Menallen Township	Steve Myers, Supervisor; Myron Nypaver, EMA/Zoning, Jim Bittner

Table 3.2-2 Hazard Mitigation Planning Process Participation	
MUNICIPALITY/ORG	PARTICIPANT(S)
Newell Borough	Carl Lama, EMC
Nicholson Township	Charles McClain, Clerk; John Black, Supervisor; Rick Jarrett, Supervisor; Douglas Sholtis, Solicitor
North Union Township	Ron Landman, Supervisor; Susan Filicky, Assistant Secretary; Rob Tupta, Supervisor; Kurt Matthews
Ohiopyle Borough	Samuel Dean, Mayor
Perryopolis Borough	Josh Bukovac, Engineer
Perry Township	AJ Boni, EMC; Clarence Johnson, Supervisor
Point Marion Borough	Douglas Sholtis, Solicitor
Redstone Township	George Mattis, Secretary/Treasurer; Michael Cetera, Chairman
Saltlick Township	Greg Grimm, Supervisor
Smithfield Borough	Chuck Ciezynski, Mayor; Glenn Smith, Fire Chief; Jamie Hoone, Secretary
South Connellsville Borough	Pat Foley, Councilman; Tom Jenkins, Councilman; Tammy Jenkins, Councilwoman
South Union Township	Jim Spaw, Engineer
Springfield Township	Douglas Myers, EMC
Springhill Township	Greg Hostslen, Supervisor, Robert Grimm, Supervisor
Stewart Township	David VanNosdeln, Supervisor
Uniontown, City	Gregory Crossley, EMC
Upper Tyrone Township	Ron Lewandowski, Chairman; Dave Tullio, Supervisor; Lori Henry
Vanderbilt Borough	Sheila Kurtz, Councilperson; Cindy Morris, Mayor; Tom Sankovich, Councilperson; Duane King, Council President; Shane Lynn, Chief DL&V
Washington Township	Kelly Parshell, EMC; Scott Hileman, Supervisor; Mark Bergman, Supervisor; Charles Yusko, Supervisor
Wharton Township	Jim Means, Chairman; Tammy Stenson

Table 3.2-2 Hazard Mitigation Planning Process Participation	
MUNICIPALITY/ORG	PARTICIPANT(S)
Fayette County Planning Commission	Sara Harvey, Director; Mary Over; Scott Dunn, Commissioner
Fayette County Chamber of Commerce	Kathi Hull; Morgan Hunchuck; Muriel Nuttall;
Washington County Planning Commission	Jason Theakston
Connellsville Redevelopment Authority	Michael Edwards
Fayette County Conservation District	Heather Fowler
Youghiogheny Riverkeeper and Mountain Watershed Association	Eric Harder
Brownsville School District	Guy Napialo
Uniontown Hospital	Scott Nickelson
Nemacolin Woods Resort	Nathan Waszo; Kevin Frank, Director of Loss Prevention
Senator Patrick Stefano Office	Shawn Conway

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 3.2-2 Plan Participation Documentation

STAKEHOLDER	MEETING ATTENDANCE					DOCUMENTATION PROVIDED					MET PARTICIPATION REQUIREMENTS
	ANNUAL REVIEW	KICK-OFF MEETING	RAMS MEETING	DRAFT PLAN REVIEW MEETING	OTHER MEETING OR CALL	HAZARD-RISK FORM	CAPABILITY ASSESSMENT FORM	COMPLETED MITIGATION ACTION REVIEW FORM	NEW MITIGATION ACTION FORM	NFIP SURVEY	
Municipal Participation											
Belle Vernon Borough		X	X			X	X	X	X	X	X
Brownsville Borough	X	X						X			X
Brownsville Township	X	X	X				X	X		X	X
Bullskin Township	X	X				X	X	X	X	X	X
Connellsville City		X				X	X			X	X
Connellsville Township	X	X	X				X	X	X		X
Dawson Borough		X	X				X	X			X
Dunbar Borough		X				○	○	○	○	○	○
Dunbar Township		X	X				X	X			X
Everson Borough		X	X			X	X	X	X		X
Fairchance Borough		X	X			X	X			X	X
Fayette City Borough				X					X		X
Franklin Township		X	X			X	X			X	X
Georges Township		X				X	X	X		X	X
German Township	X	X	X			X	X			X	X
Henry Clay Township	X	X				X	X			X	X
Jefferson Township	X	X					X	X	X	X	X
Lower Tyrone Township	X	X	X			X	X			X	X

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 3.2-2 Plan Participation Documentation

STAKEHOLDER	MEETING ATTENDANCE					DOCUMENTATION PROVIDED					MET PARTICIPATION REQUIREMENTS
	ANNUAL REVIEW	KICK-OFF MEETING	RAMS MEETING	DRAFT PLAN REVIEW MEETING	OTHER MEETING OR CALL	HAZARD-RISK FORM	CAPABILITY ASSESSMENT FORM	COMPLETED MITIGATION ACTION REVIEW FORM	NEW MITIGATION ACTION FORM	NFIP SURVEY	
Luzerne Township	X		X					X			X
Markleysburg Borough		X	X				X		X		X
Masontown Borough	X	X					X	X			X
Menallen Township		X	X			X	X			X	X
Newell Borough	X	X	X			X	X	X		X	X
Nicholson Township		X	X			X	X	X		X	X
North Union Township	X	X	X			X	X			X	X
Ohiopyle Borough			X			○	○	○	○	○	○
Perryopolis Borough		X				○	○	○	○	○	○
Perry Township		X	X			X	X			X	X
Point Marion Borough			X			X	X	X		X	X
Redstone Township	X	X						X			X
Saltlick Township	X	X	X			X	X	X		X	X
Smithfield Borough		X	X			Y	X			X	X
South Connellsville Borough	X	X	X				X	X			X
South Union Township		X				X	X	X		X	X
Springfield Township		X	X				X			X	X
Springhill Township		X				○	○	○	○	○	○
Stewart Township	X	X					X	X		X	X

Table 3.2-2 Plan Participation Documentation

STAKEHOLDER	MEETING ATTENDANCE					DOCUMENTATION PROVIDED					MET PARTICIPATION REQUIREMENTS
	ANNUAL REVIEW	KICK-OFF MEETING	RAMS MEETING	DRAFT PLAN REVIEW MEETING	OTHER MEETING OR CALL	HAZARD-RISK FORM	CAPABILITY ASSESSMENT FORM	COMPLETED MITIGATION ACTION REVIEW FORM	NEW MITIGATION ACTION FORM	NFIP SURVEY	
Uniontown, City	X	X	X				X	X			X
Upper Tyrone Township	X	X					X	X		X	X
Vanderbilt Borough		X	X			X		X			X
Washington Township		X	X				X				X
Wharton Township	X	X				X	X	X		X	X
TOTAL	19	38	26			21	33	24	7	24	38

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3.3. MEETINGS AND DOCUMENTATION

Fayette County conducted annual updates of the 2017 HMP in 2018, 2020 and 2021. The details of those annual update meetings and the meetings held during the five-year update process are detailed below. Information regarding the meeting held during the plan update process. Invitations, agendas, and minutes for these meetings are included in **Appendix C**.

2018 Annual Update

June 25, 2018: The HMSC held a **Kick-Off Meeting** to discuss the **2018 Annual Update** and requirements as well as any general County-wide changes or updates since the approval of the 2017 HMP. Specifically, the HMSC wanted to fulfill the annual update requirements but also wanted to set other initiatives and efforts such as those listed below:

- Updating recorded hazard occurrences within the last year;
- Collecting resolutions from remaining municipalities who had not adopted the 2017 HMP;
- Reaching out to municipalities who did not participate in the 2017 Update: Dawson Borough, Fayette City Borough, Lower Tyrone Township, Markleysburg Borough, Nicholson Township, Ohiopyle Borough, Smithfield Borough, Springfield Township, and Vanderbilt Borough; and
- Continually reaching out to communities and stakeholders outside of Fayette County.

September 5, 2018: Invitations were sent to all municipalities, Fayette County organizational stakeholders, and those outside the County to the **Annual Update Workshop** held on September 5, 2018. Considering the success of the 2017 meetings and time availabilities, a morning workshop was held at the Fayette County Public Service Building from 10:30 a.m. to 12:30 p.m. To improve attendance, a second workshop was held at the Bullskin Township Municipal Building. Previously, all meetings were held at the Public Service Building. This workshop was conducted from 1:30 p.m. to 3:30 p.m.

A total of 12 municipalities attended this meeting – eight in the morning and four in the afternoon. Eric Harder, Youghiogheny Riverkeeper, also attended this meeting. He spoke with various municipalities and hoped to establish more of a relationship with the County EMA for grant access and future endeavors. Also, during the workshop, stakeholders were asked to review the 2017 HMP, available on the County website, and to complete the Update and Annual Review Worksheet and the Mitigation Action Progress Worksheet. Stakeholders were given until November 1, 2018 to review and complete the required forms. A total of **13 municipalities** participated in the update.

2020 Annual Update

July 8, 2020: The HMSC held a Kick-Off meeting to discuss the **2020 Annual Update** and its requirements, as well as any general County-wide changes since the approval of the 2017 HMP and 2018 Annual Update. The HMSC discussed the 2020 Annual Update and how the process would take place with COVID-19 restrictions in place. Since gatherings were not permitted at that time, the meeting would be held virtually via WebEx teleconferencing. Key efforts taken during the previous annual update were continued in the 2020 Annual Update.



July 15, 2020: Invitations were sent through the mail and via email to all municipalities, Fayette County stakeholders, and those outside of the County with an interest and stake in hazard mitigation. Two sessions were held to accommodate stakeholder schedules one in the morning and one in the evening.

The workshop included an overview of the changes to the plan made during the 2018 Annual Update and a brief overview of the HMP process for stakeholders that were new to the

process. Stakeholders were asked to review the 2017 plan with the adjustments recorded from the 2018 review, available on the County website. The municipalities were asked to complete an Annual Review form as well as provide progress updates on Mitigation Actions. These forms were made available on the County website and were directly emailed to stakeholders upon request. A total of **17 municipalities** participated in the update.

2021 Annual Update

June 21, 2021: Two sessions of the Fayette County HMP Annual Update meeting were offered in 2021. The meeting was held in-person at the Joseph A. Hardy Connellsville Airport and simulcast virtually to participants who chose not to attend in person, particularly related to COVID-19. Representatives from **30 municipalities** along with representatives from several outside stakeholder groups attended the two sessions. Including completed paperwork, a total of **14 municipalities** fully participated in the 2021 Annual Update.

August 26, 2021: A special meeting was held for stakeholders within the Fayette County business community, the **Fayette County Chamber of Commerce**. This meeting encouraged more collaboration between businesses and their local municipality. A session was held virtually with the Chamber of Commerce to discuss the HMP process and gather feedback and information from local businesses. The County EMA and consultant team asked the local businesses to review the current HMP, and Municipality mitigation actions were sent to the local business for input and opportunities to support hazard mitigation.

2022 5-year Update

March 3, 2022 – The **Steering Committee Kick-Off Meeting** was attended by the Fayette County Emergency Management Agency and the consultant to go over the planning process and major milestones including the schedule for HMPT meetings and anticipated HMP

submission dates. The group also discussed planning requirements, relevant stakeholders, and the availability of geospatial data and other plans and documentation for integration.

March 16, 2022 – The **Planning Team Kick-Off Meeting** was at three locations in Fayette County as well as virtually to accommodate stakeholder schedules. Planning team members discussed the project scope, schedule, goals, the planning process, participation and engagement, and next steps. Hazards from the 2017 plan were reviewed with the HMPT at the kick-off. Morning, afternoon, and evening sessions were offered to maximize opportunities for participation. At the Kick-Off meeting, County staff, municipal representatives, and interested stakeholders provided vital information on changes in hazard risk and local capabilities to mitigate those risks since the last HMP update. During and after the Kick-Off meeting stakeholders shared information about recent hazard events and noted an increase in some hazards that were ranked lower in previous updates. Municipal attendees completed an “Evaluation of Hazards and Risk Form” to identify their jurisdictional risk to each hazard. Capability Assessment and National Flood Insurance Program Surveys were also completed by municipal attendees.

June 15, 2022 – The **Risk Assessment and Mitigation Solutions Workshop** was held in person and virtually at two different locations around the county. At the meeting the planning team covered Fayette County’s hazard vulnerability. Morning and evening sessions were offered to provide additional opportunity for participation. Participants discussed progress of mitigation actions from the 2017 Plan Update as well as progress made since the last annual update in 2021 and identified additional mitigation actions that would help reduce or eliminate potential losses.

Participants noted historic and ongoing issues related to multiple hazards such as Flooding and Subsidence, Sinkhole. Feedback from this meeting also identified two hazards that are no longer relevant to the community – Lightning Strike and Hurricanes, Tropical Storm, and Nor’easter. Municipal representatives stated decreases in occurrences and limited damages

Figure 3.3-2 Flooding From Redstone Creek Mitigation Action Success in Uniontown City



recorded, and the downpours and flooding following hurricanes located on the eastern coastline mostly contributed to the County’s vulnerability. The consultant team asked municipalities to consider mitigation actions under the goal proposed by the County to address high hazard potential dam (HHPD) failure, “Reduce the risks posed by the potential failure of HHPDs within the County.” The action developed by the County was, “Monitor and ensure Emergency Action Plans for all HHPD’s in the County are current, and dams are identified through GIS.”

Successful mitigation actions were also shared such as the barrier constructed outside of Carney’s Auto Repair Service to mitigate repetitive flood damage from Redstone Creek in Uniontown City (Figure 1.1-2).

June 22, 2022 – Following the Risk Assessment and Mitigation Solutions Workshop, the HMSC met to recap the meeting and discuss action items. Attendance was reviewed that all municipalities had participated in one or more meetings except for Fayette City Borough, but many municipalities did not complete their paperwork. The consultant team shared the list with Fayette County EMA to make phone calls and send emails. It was decided the consultant team would also send emails to municipalities with their applicable paperwork.

Data follow-up for the County included receiving any additional past events from the County's records and photos of damages from natural and human-caused disasters. In addition, the County would provide information on the regional Terrorism Taskforce, reach out to the coroner's office on Drowning details, and look into information on Disorientation to add specific content to the Risk Profile.

Lastly, the HMSC revisited the mitigation strategy goals and objectives for any final edits. No additional edits were discussed.

September 8, 2022 – The **Draft Plan Review Meeting** provided information about the update process, evaluation, and general findings in the Fayette County HMP. Additionally, instructions about when and how to review the Draft HMP were covered as well as a final timeline for the review and submission of the HMP to PEMA and FEMA. A morning session was offered and attended. Invitations were mailed and emailed. A postcard was attached to the email to be shared with residents and to advertise by outside organizations. A post card was also given out during the meeting with the link to the Draft Plan for review (Figure 3.3-1). The HMP was available for public comment from August 17-September 19. Connellsville Redevelopment Authority, Menallen Township, and the Fayette County EMA submitted comments (available in **Appendix C – Meeting and Other Participation Documentation**).



Figure 3.3-3 Postcard to Advertise the Draft Plan Review Meeting and the Link to Review the Draft

To obtain remaining data gaps from municipalities and other stakeholders, forms and surveys were distributed and collected throughout the planning process. Forms were sent via email and were posted to the Fayette County EMA website for download. Meeting agendas and

presentations for HMPT meetings are provided in **Appendix C – Meeting and Other Participation Documentation** along with completed forms and surveys.

3.4. PUBLIC & STAKEHOLDER PARTICIPATION

Each municipality was given multiple opportunities to participate in the plan update process through invitation to above outlined meetings, review of risk assessment results and mitigation actions, and an opportunity to comment on a final draft of the 2022 HMPU. The tools listed below were distributed with meeting invitations, at meetings, and on the Fayette County EMA website to solicit information, data, and comments from both local municipalities and other key stakeholders in Fayette County. Responses to these worksheets and surveys are included in **Appendix C: Meeting and Other Participation Documentation**.

2018, 2020, and 2021 HMP Update and Annual Review Worksheet: During the annual updates to solicit any additional comments on the 2017 HMP, the HMSC sent a flyer and invitation, link to the 2017 HMP on the EMA website, and the referenced worksheet to collect comments. The intent was to use any guidance shared to inform the overall 2022 planning process and HMP update.

Capability Assessment Survey: Collects information on local planning, regulatory, administrative, technical, fiscal, political, and resiliency capabilities that can be included in the plan's Capability Assessment section.

Evaluation of Hazards and Risk Form: Collects information from the HMPT regarding whether there have been changes to the frequency of occurrence, magnitude of impact, or geographic extent of hazards identified in the 2017 plan. In addition, the form asks members of the HMPT to select any additional hazards they believe should be considered for inclusion in the 2022 plan.

National Flood Insurance Policy (NFIP) Survey: Collects information on each municipality's floodplain management and ordinance enforcement related to NFIP standards and requirements.

Mitigation Progress Report: This form was specific to each jurisdiction and included all actions for that jurisdiction in the 2017 HMP with space to provide the current status of each action and document any progress made.

New Mitigation Action Form: This form was provided to communities that wanted to include a new action in the HMP. The purpose was to collect details about the action, including priority, responsible parties, potential partners, potential funding sources, implementation timeframe, and more.

Community participation and comment was encouraged throughout the planning process, particularly through the County's EMA website:

<https://www.fayettecountypa.org/238/Emergency-Management-Agency-911> . This site acted

as a repository for the entire planning process, including presentations (PPT and meeting recordings), agendas, minutes, and worksheets from each meeting as well as promulgating meeting dates, times, and important announcements. The site was made publicly available and linked to the County's website.

Fayette County posted the 2022 Draft Hazard Mitigation Plan Update on EMA and County websites: <https://www.fayettecountypa.org/238/Emergency-Management-Agency-911> and <https://www.fayettecountypa.org/> for review and comment on August 22, 2022. In addition, an invitation to the public to review and comment on the draft plan was posted on various public websites, the County EMA website, and in the local newspaper. The public notice was included in the local newspaper for two weeks, in an effort to garner additional awareness and feedback. Comments were to be submitted in via the online comment form or in writing to Mr. Roy Shipley, Director, Fayette County Emergency Management Agency and/or to Madeleine Fincham, Lead Hazard Mitigation Planner, of Michael Baker International by mail or email.

Other methods to encourage participation included utilizing social media and advertising in local venues. Specific examples include using the Fayette County Board of Commissioners Facebook page to post information including a flyer to advertise the plan update, and posting the flyer at the local library and other member libraries. More information on outreach methods can be found in **Appendix C – Meeting and Other Participation Documentation**.

3.5. MULTI-JURISDICTIONAL PLANNING

This HMP was developed using a multi-jurisdictional approach. Although County-level departments have resources such as technical expertise and data that local jurisdictions may lack, involvement from local municipalities is critical to the collection of local knowledge related to hazard events. Local municipalities also have the legal authority to enforce compliance with land use planning and development. The HMSC and HMPT were committed to garnering municipal participation.

The Kick-Off Meeting, Risk Assessment and Mitigation Solutions Meeting, and Draft Plan Review Meeting were all held in person and virtually, because of the ongoing pandemic. In-person meetings offered masks and hand sanitizer, and stakeholders were socially distanced. All meetings had morning and evening meeting sessions to maximize participation. The Kick-Off meeting was offered in the morning, afternoon, and evening, but attendance revealed low participation in the afternoon, so adjustments were made. Each municipality was mailed and emailed invitations and reminders to all meetings. Surveys and forms were provided at meetings, posted to the County EMA website, or emailed or mailed to jurisdictions.

4. RISK ASSESSMENT

4.1. UPDATE PROCESS SUMMARY

Hazards that may affect Fayette County are identified and defined in terms of their location and extent, magnitude of impacts, previous events, and probability of future events. Wherever data could be validated, information from the previous HMP has been incorporated and/or updated in the 2017 HMP. In addition, new data sources and analysis has been incorporated throughout the Risk Assessment. The 2011 Fayette County Hazard Mitigation Plan, approved-pending-adoption on January 9, 2012, included a list of 14 natural and 10 human-made hazards affecting the County.

In the 2017 HMP, the HMSC did not add any additional hazard to be profiled. For the 2022 HMPU, the HMSC evaluated the County's development patterns, recent disaster events, and population and growth trends in the County through the Pennsylvania Standard List of Hazards and the Pennsylvania Standard State All-Hazard Mitigation Plan (SSAHMP). Hazard profiles were then developed to define the characteristics of each of the 24 hazards as they apply to Fayette County. In addition, participating municipalities and stakeholders evaluated the impact of the profiled hazards on their jurisdiction using the Risk Evaluation Worksheet (see **Appendix C**). These evaluations, together with discussion at community meetings and research and analysis, allow the HMP to evaluate where municipal risk may deviate from the overall countywide risk.

Following hazard identification and profiling, a vulnerability assessment was conducted for each hazard to identify the impact of both natural and human-made hazard events on people, buildings, infrastructure, and the community, as appropriate. Each hazard is discussed in terms of its potential impact on individual communities, including the types of structures that may be at risk. 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. A vulnerability analysis was performed which identifies structures, critical facilities, and/or populations that may be impacted during hazard events and describes what events can do to physical, social, and economic assets.

4.2. HAZARD IDENTIFICATION

Pennsylvania's disaster history provides direction on the identification of hazards that may be of concern to Fayette County and other parts of the Commonwealth. An analysis of past declared disasters is the first step toward predicting the future susceptibility to that hazard. This section outlines the past disaster declarations as well as defines the hazards being profiled in the 2022 HMPU.

4.2.1. Table of Presidential Disaster Declarations

Under the Stafford Act, there are two forms of presidential action that authorize federal disaster assistance dollars. Presidential Emergency Declarations are intended to spur activities that will protect property and strengthen public safety to lessen impacts or avoid a catastrophic event. Presidential Disaster Declarations are made as a result of a disaster event and provide supplemental coordination and financial assistance beyond the ability of state

and local governments (McCarthy, 2011). Because of the difference in these declarations, a single event may qualify for both kinds of declarations.

There is no financial threshold for an Emergency Declaration, but there are two thresholds for Presidential Disaster Declarations established under the Stafford Act: a state and a county threshold. These thresholds are based on a formula that uses the population of the jurisdiction (as recorded in the decennial Census) multiplied by a per capita indicator. As of federal fiscal year 2015, these thresholds are \$3.56 per capita for counties and \$1.41 per capita for the state. With a 2010 Census population of 136,591, the Fayette County threshold is approximately \$486,263. State and county thresholds must be simultaneously attained for a Presidential Disaster Declaration to be issued. Table 4.2.1-1 displays the Presidential Disaster and Emergency Declarations for Public Assistance only in Fayette County from most recent to 1950.

DISASTER NUMBER	DATE	HAZARD	PUBLIC ASSISTANCE	INDIVIDUAL ASSISTANCE
312*	9/18/1971	Flooding	Yes	Yes
754*	11/9/1985	Flooding	Yes	Yes
1015*	3/10/1994	Winter Storm	Yes	None
1085*	1/13/1996	Blizzard	Yes	None
1093*	1/21/1996	Flooding	Yes	Yes
1898*	4/16/2010	Snow	Yes	None
3356	10/29/2012	Hurricane, Flooding	No	No
4149*	6/26/2013	Severe Storms	Yes	None
4267*	3/23/2016	Snow	Yes	Yes
3441*	3/13/2020	Pandemic	Yes	Yes
4506*	3/30/2020	Pandemic	Yes	Yes
4618*	9/10/2021	Hurricane	Yes	Yes
*Presidential Emergency Declaration				

Fayette County has also received Small Business Administration Disaster Assistance for several disaster events. A Small Business Administration Disaster Declaration qualifies communities for access to affordable, timely, and accessible financial assistance. Table 4.2.1-2 illustrates Small Business Administration Disaster Declarations issued for Fayette County between 1950 and 2022.

Table 4.2.1-2 Small Business Administration Disaster Events (U.S. Small Business Administration (SBA), 2022)

DATE	HAZARD	COUNTIES
11/1985	Flash Flood	Fayette, Greene, and Westmoreland Counties
8/2000	Flooding	Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Indiana, Somerset, Washington and Westmoreland Counties
7/2007	Severe Storms and Flooding	Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Indiana, Somerset and Westmoreland Counties
6/2009	Severe Storms and Flooding	Allegheny, Armstrong, Beaver, Butler, Cambria, Crawford, Erie, Fayette, Indiana, Somerset, Warren, Washington and Westmoreland Counties
6/27/2013 - 7/21/2013	Severe Storms and Flooding	Armstrong, Blair, Cambria, Cameron, Centre, Clarion, Clearfield, Clinton, Elk, Fayette, Forest, Greene, Indiana, Jefferson, Somerset, Washington, and Westmoreland Counties
6/17/2016	Flash Flooding	Fayette, Greene, Somerset, Washington, Westmoreland Counties
8/28/2016	Severe Storms and Flooding	Fayette, Greene, Somerset, Washington, Westmoreland Counties
6/20/2018 - 6/21/2018	Flooding	Armstrong, Beaver, Butler, Cambria, Fayette, Indiana Somerset, Washington Counties
7/21/2018	Rain, Flash Flood, and Flooding	Adams, Blair, Cambria, Cameron, Centre, Clearfield, Clinton, Columbia, Crawford, Elk, Erie, Fayette, Franklin, Fulton, Greene, Huntingdon, Indiana, Jefferson, Lancaster, Lebanon, Luzerne, Lycoming, McKean, Northampton, Potter, Schuylkill, Snyder, Somerset, Susquehanna, Washington, Westmoreland, Wyoming, York Counties
9/9/2018	Flooding	Allegheny, Armstrong, Cambria, Fayette Indiana, Washington, Westmoreland Counties
9/29/2021	Flooding	Fayette, Greene Counties

4.2.2. Summary of Hazards

The HMSC was provided the Pennsylvania Standard List of Hazards to be considered for evaluation in the 20122 HMPU. Following a review of the hazards considered in the 2011 HMP and the Standard List of Hazards, the HMSC along with input from the municipalities decided that the 2017 plan should identify, profile, and analyze 24 hazards. In 2018, the HMSC decided to add Opioid Addiction Response to the list of hazards, making 25 hazards profiled in the HMP.

As of the 2022 HMPU, the HMPSC and HMPT agreed to remove Lightning Strike and Hurricane, Tropical Storm, and Nor'easter from the list of profiles. This decision resulted from discussions from the Kick-Off meeting regarding a reduced number of occurrences and limited damage.

Tables 4.2.2-1 and 4.2.2-2 contains a complete list of the **24 hazards** that have the potential to impact Fayette County as identified through risk assessments, the County Hazards Vulnerability Analysis, and input from those who participated in the 2022 HMPU. Hazard profiles are included in Section 4.3 for each hazard.

Table 4.2.2-1 Summary of Natural Hazards		
	HAZARD	DESCRIPTION
NATURAL HAZARDS	Drought	Drought is defined as a deficiency of precipitation experienced over an extended period, usually a season or more. Droughts increase the risk of other hazards, like wildfires, flash floods, and landslides or debris flows. This hazard is of particular concern in Pennsylvania due to the prevalence of farms and other water-dependent industries, water-dependent recreation uses, and residents who depend on wells for drinking water.
	Extreme Temperatures	Extreme heat often results in the highest number of annual deaths of all weather-related hazards. In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees. (Ready.gov, 2018). Extremely cold air comes every winter in at least part of the country and affects millions of people across the United States. The arctic air, together with brisk winds, can lead to dangerously cold wind chill values. People exposed to extreme cold are susceptible to frostbite and hypothermia in a matter of minutes.
	Flood, Flash Flood, Ice Jam	Flooding is the temporary condition of partial or complete inundation of normally dry land, and it is the most frequent and costly of all natural hazards in Pennsylvania. Flash flooding is usually a result of heavy localized precipitation falling in a short time over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces. 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

Table 4.2.2-1 Summary of Natural Hazards

	HAZARD	DESCRIPTION
		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.
	Hailstorms	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. Hailstorms can cause significant damage to homes, vehicles, livestock, and people.
	Landslide	In a landslide, masses of rock, earth or debris move down a slope. Landslides can be caused by a variety of factors, including earthquakes, storms, fire, and human modification of land. Areas that are prone to landslide hazards include previous landslide areas, areas on or at the base of slopes, areas in or at the base of drainage hollows, developed hillsides with leach field septic systems, and areas recently burned by forest or brush fires.
	Pandemic and Infectious Disease	A pandemic is a global outbreak of disease that occurs when a new virus emerges in the human population, spreading easily in a sustained manner, and causing serious illness. An epidemic describes a smaller-scale infectious outbreak, within a region or population, that emerges at a disproportional rate. Infectious disease outbreaks may be widely dispersed geographically, impact large numbers of the population, and could arrive in waves lasting several months at a time.
	Radon Exposure	Radon is a radioactive gas produced by the breakdown of uranium in soil and rock that can lead to lung cancer in people exposed over a long period of time. Most exposure comes from breathing in radon gas that enters homes and buildings through foundation cracks and other openings. According to the DEP, approximately 40% of Pennsylvania homes have elevated radon levels.

Table 4.2.2-1 Summary of Natural Hazards

	HAZARD	DESCRIPTION
	Tornado, Wind Storm	A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. About 1,250 tornadoes hit the U.S. each year, with about 16 hitting Pennsylvania. Damaging winds exceeding 50-60 miles per hour can occur during tornadoes, severe thunderstorms, winter storms, or coastal storms. These winds can have severe impacts on buildings, pulling off the roof covering, roof deck, or wall siding and pushing or pulling off the windows.
	Subsidence, Sinkhole	Land subsidence is a gradual settling or sudden sinking of the ground surface due to the movement of subsurface materials. A sinkhole is a subsidence feature resulting from the sinking of surficial material into a pre-existing subsurface void. Subsidence and sinkholes are geologic hazards that can impact roadways and buildings and disrupt utility services. Subsidence and sinkholes are most common in areas underlain by limestone and can be exacerbated by human activities such as water, natural gas, and oil extraction.
	Wildfires	A wildfire is an unplanned fire that burns in a natural area. Wildfires can cause injuries or death and can ruin homes in their path. Wildfires can be caused by humans or lightning, and can happen anytime, though the risk increases in period of little rain. In Pennsylvania, 98% of wildfires are caused by people.
	Winter Storm	A winter storm is a storm in which the main types of precipitation are snow, sleet, or freezing rain. 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. Most deaths from winter storms are not directly related to the storm itself, but result from traffic accidents on icy roads, medical emergencies while shoveling snow, or hypothermia from prolonged exposure to cold.

Table 4.2.2-2 Summary of Human-Made Hazards

-	HAZARD	DESCRIPTION
HUMAN-MADE HAZARDS	Building or Structure Collapse	Buildings and other engineered structures, including bridges, may collapse if their structural integrity is compromised, especially due to effects from other natural or human-made hazards. Older buildings or structures, structures that are not built to standard codes, or structures that have been weakened are more susceptible to be affected by these hazards.
	Civil Disturbance	A civil disturbance is defined by FEMA as a civil unrest activity (such as a demonstration, riot, or strike) that disrupts a community and requires intervention to maintain public safety
	Dam Failure	Dam failure is the uncontrolled release of water (and any associated wastes) from a dam. This hazard often results from a combination of natural and human causes, and can follow other hazards such as hurricanes, earthquakes, and landslides. The consequences of dam failures can include property and environmental damage and loss of life.
	Disorientation	Large numbers of people are attracted to Pennsylvania's rural areas for recreational purposes such as hiking, camping, hunting, and fishing. As a result, people can become lost or trapped in remote and rugged wilderness areas. Search and rescue may be required for people who suffer from medical problems or injuries and those who become accidentally or intentionally disoriented. Search and rescue efforts are focused in and around state forest and state park lands.
	Drowning	Drowning is death from suffocation, typically associated with swimming, fishing, boating or bridge accidents, or suicide. It can be a significant hazard in communities with numerous residential pools or water bodies (e.g., ponds, lakes, rivers, etc.) and extensive outdoor recreational activity. Drowning rates are particularly high for children ages 1-14. The Centers for Disease Control and Prevention estimates that drowning is the second leading cause of injury death (after motor vehicle crashes) among children ages 1-14.
	Environmental Hazards	

Table 4.2.2-2 Summary of Human-Made Hazards

-	HAZARD	DESCRIPTION
	Conventional Oil and Gas Wells	Many of the hazards associated with oil and gas extraction relate to the contamination of surface and subsurface waters. Abandoned oil and gas wells that are not properly plugged can contaminate groundwater and pollute domestic drinking water wells. In addition, surface waters and soil can be contaminated by brine, a salty wastewater product of oil and gas well drilling, or by oil spills. This pollution can degrade public drinking water supplies and disrupt aquatic ecosystems.
	Unconventional Oil and Gas Wells	In addition to the hazards associated with oil and gas extraction, potential hazards from Marcellus Shale gas wells include surface water depletion affecting drinking water supplies and aquatic ecosystems; contaminated surface and groundwater resulting from hydraulic fracturing and the recovery of contaminated hydraulic fracturing fluid; and mishandling of solid toxic waste.
	Opioid Addiction Response	Opioid addiction occurs when an individual becomes physically dependent on opioids, which include opiates and narcotics. Opioids are a synthetic substance found in certain prescription pain medications: morphine, codeine, methadone, oxycodone, hydrocodone, fentanyl, and hydromorphone, and street drugs like heroine. Opioids block the body's ability to feel pain and can create a sense of euphoria. Individuals often build a tolerance to opioid drugs, which leads them to take more of the medication than originally prescribed.
	Terrorism	Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear, and radiological weapons. Cyber-attacks have become an increasingly pressing concern.
	Transportation Incidents	Transportation incidents are technological hazards involving the nation's system of land, sea, and air transportation infrastructure. A flaw or breakdown in any component of this system can and often does result in a major disaster involving loss of life, injuries, property and environmental damage, and economic consequences.

Table 4.2.2-2 Summary of Human-Made Hazards		
-	HAZARD	DESCRIPTION
	Urban Fire and Explosion	Urban fire and explosion hazards include vehicle and building/structure fires as well as overpressure rupture, overheating, or other explosions that do not ignite. This hazard occurs in denser, more urbanized areas statewide and most often occurs in residential structures. Nationally, fires cause over 3,000 deaths and approximately 16,000 injuries each year.
	Utility Interruption	Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following: • Geomagnetic Storms • Fuel or Resource Shortage • Electromagnetic Pulse • Information Technology Failure • Ancillary Support Equipment • Public Works Failure • Telecommunications System Failure • Transmission Facility or Linear Utility Accident • Major Energy, Power, Utility Failure

4.3. HAZARD PROFILES

Hazard profiling investigates the impact, historical occurrence, and probability of future occurrence for hazards that can affect Fayette County, as determined through hazard identification. Hazard profiling exposes the unique characteristics of individual hazards and begins the process of determining which areas within Fayette County are vulnerable to a specific hazard event. Throughout this section, it may be helpful to refer back to Figure 2.2-1 and Table 2.5-1 (Critical Facilities in Fayette County), to review the vulnerabilities of each Municipality. Additionally, **Appendix E** contains a list of critical facilities by Municipality.

4.3.1. Drought

4.3.1.1. Location and Extent

Droughts are a normal part of the climate in the Mid-Atlantic; they are a consequence of a natural reduction in the amount of precipitation experienced over a long period of time. High temperatures, prolonged winds, and low relative humidity can exacerbate the severity of a drought.

Droughts are regional climatic events, so when these events occur in Fayette County, impacts are felt across the County and often the entire Western Pennsylvania region. Areas with extensive agricultural (farmland) land uses are most vulnerable to drought. All 42 municipalities can be subject to drought as the County is largely rural with 112,285 acres utilized for agriculture according to the USDA 2017 Census of Agriculture. This means that droughts can have a significant impact on crop yields and the County's overall economic health. In addition, many residents within the County have well water and require high

amounts of rainfall to provide adequate water supplies. Areas that are heavily forested can also be negatively impacted by drought.

4.3.1.2. Range of Magnitude

Droughts can have varying effects, depending on what month they occur in, the severity, duration, and location of the event. Even short-term droughts can be devastating, especially in conjunction with extreme temperatures.

Hydrologic drought events result in a reduction of stream flows, reduction of lake/reservoir storage, and a lowering of groundwater levels. These events have adverse impacts on public water supplies for human consumption, rural water supplies for livestock consumption and agricultural operations, water quality, natural soil water or irrigation water for agriculture, soil moisture, conditions conducive to wildfire events, and water for navigation and recreation.

As described in the *Drought Management in Pennsylvania* (2018), the Commonwealth uses five parameters to assess drought conditions (PA DEP, 2018):

- **Precipitation:** Deficit as a percentage of the normal, 30-year average precipitation;
- **Stream Flows:** 30-day moving average daily flow as compared with percentiles based on historic stream-gage records;
- **Groundwater Levels:** 30-day moving average groundwater level compared with historic observation-well records;
- **Soil Moisture:** Measured by the Palmer Drought Severity Index, a soil moisture algorithm calibrated for relatively homogeneous regions computed based on multiple meteorological and hydrological factors (see Table 4.3.1-1); and
- **Reservoir Storage Information.**

Table 4.3.1-1 Palmer Drought Severity Index Classification	
SEVERITY CATEGORY	PSDI VALUE
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

In Pennsylvania, PEMA has primary responsibility for managing Pennsylvania's water resources during droughts. The Pennsylvania Department of Environmental Protection (PA DEP) directly supports PEMA and routinely reviews the five parameters listed above to identify developing drought conditions. According to *Drought Management in Pennsylvania* (2018), PEMA and DEP use the following three stages to describe and manage droughts. They are listed in order of increasing severity:

- **Drought Watch:** A period to alert government agencies, public water suppliers, water users and the public regarding the potential for future drought-related problems. The focus is on increased monitoring, awareness, and preparation for response if conditions worsen. A request for voluntary water conservation is made. The objective of voluntary water conservation measures during a drought watch is to reduce water uses by 5-10 percent in the affected areas. Due to varying conditions, individual water suppliers or municipalities may be asking for more stringent conservation actions.
- **Drought Warning:** This phase involves a coordinated response to imminent drought conditions and potential water supply shortages through concerted voluntary conservation measures to avoid or reduce shortages, relieve stressed sources, develop new sources, and if possible, forestall the need to impose mandatory water use restrictions. The objective of voluntary water conservation measures during a drought warning is to reduce overall water uses by 10-15 percent in the affected areas. Due to varying conditions, individual water suppliers or municipalities may be asking for more stringent conservation actions.
- **Drought Emergency:** This stage is a phase of concerted management operations to marshal all available resources to respond to actual emergency conditions, to avoid depletion of water sources, to assure at least minimum water supplies to protect public health and safety, to support essential and high priority water uses and to avoid unnecessary economic dislocations. It is possible during this phase to impose mandatory restrictions on non-essential water uses that are provided in the Pennsylvania Code (Chapter 119), if deemed necessary and if ordered by the Governor of Pennsylvania. The objective of water use restrictions (mandatory or voluntary) and other conservation measures during this phase is to reduce consumptive water use in the affected area by up to 25 percent, and to reduce total use to the extent necessary to preserve public water system supplies, to avoid or mitigate local or area shortages, and to assure equitable sharing of limited supplies.

In addition, communities may opt to ask for local water rationing:

- **Local Water Rationing:** Although not a drought phase, a public water supplier or local municipality may, with the approval of the Commonwealth Drought Coordinator, 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 the Pennsylvania 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.

According to the National Drought Mitigation Center at the University of Nebraska-Lincoln (2022), environmental impacts of drought include the following.

- Reduced water and food availability, potentially increased disease in wild animals
- Fish and wildlife habitat loss or destruction
- Wildlife migration
- Endangered species stress and potential extinction
- Lower water levels in reservoirs, lakes, and ponds
- Wetlands loss
- Increased number and severity of wildfires
- Reduced soil quality and erosion issues

The worst-case scenario for Fayette County would be a protracted drought that impacted all commercial crop production as well as livestock losses due to deficient water supplies. A worst-case event occurred in 1999 – many staple crops were reduced to just a fraction of their normal yield. Both a Governor’s Proclamation and a President’s Declaration of a Major Disaster were issued during this event.

4.3.1.3. *Past Occurrence*

Based on data from the PA DEP since 1980, Fayette County has experienced two periods of severe and extended Drought Emergency—July 1991 through April 1992 and July 1999 through September 1999 (PA DEP, 2022). The 1999 drought caused over \$700 million in crop damage statewide according to NOAA. Fayette County was one of four counties in the Commonwealth that the U.S. Department of Agriculture (USDA) declared an agricultural disaster area because of the 1999 drought. During this event, Fayette County had mandatory restrictions on non-essential water use, and farmers who had realized at least a 30 percent loss in a single crop were eligible for USDA disaster assistance. Water levels were so low that a bridge normally covered by 30 or more feet of water in the Youghiogheny River lay exposed (Eugene, OR Register-Guard). Agricultural damages are not available at the County level for this event.

While Emergency Drought periods have been rare, declared Drought Watches and Warnings in the County have occurred much more frequently, in 1988, 1992, 1998, 1999, 2010, 2012, and 2020 (PA DEP, 2022). Most recently, in September 2016, a Drought Emergency was declared for Fayette County. The Drought Emergency slowly shifted to a Warning in October 2016 followed by a Drought Watch ending in December 2016. Table 4.3.1-2 describes the drought history of Fayette County from 1980 through 2022.

Table 4.3.1-2 Fayette County Declared Drought Status (1980-2022) (PA DEP, 2022)	
TIME PERIOD	DROUGHT STATUS
7/7/1988 - 8/24/1988	Watch

Table 4.3.1-2 Fayette County Declared Drought Status (1980-2022) (PA DEP, 2022)	
TIME PERIOD	DROUGHT STATUS
8/24/1988 - 12/12/1988	Warning
6/28/1991 - 7/24/1991	Watch
7/24/1991 - 8/16/1991	Watch
8/16/1991 - 8/13/1991	Emergency
9/13/1991 - 4/20/1992	Emergency
4/20/1992 - 6/23/1992	Warning
6/23/1992 - 9/11/1992	Watch
9/1/1995 - 12/18/1995	Watch
12/3/1998 - 12/14/1998	Watch
12/14/1998 - 3/15/1999	Warning
3/15/1999 - 6/18/1999	Watch
6/18/1999 - 7/20/1999	Warning
7/20/1999 - 9/30/1999	Emergency
9/30/1999 - 2/25/2000	Warning
2/25/2000 - 5/5/2000	Watch
12/5/2001 - 5/13/2002	Watch
9/5/2002 - 11/7/2002	Watch
4/11/2006 - 6/30/2006	Watch
8/6/2007 - 9/5/2007	Watch
11/7/2008 - 1/26/2009	Watch
9/16/2010 - 11/10/2010	Warning
11/10/2010 - 12/17/2010	Watch
7/19/2012 - 8/31/2012	Watch
2/25/2000 - 5/5/2000	Watch
12/5/2001 - 5/13/2002	Watch
9/5/2002 - 11/7/2002	Watch
4/11/2006 - 6/30/2006	Watch
8/82007 - 9/5/2007	Watch
11/7/2008 - 1/26/2009	Watch
9/16/2010 - 11/10/2010	Warning
11/10/2010 - 12/17/2010	Watch
8/5/2011 - 9/2/2011	Watch

Table 4.3.1-2 Fayette County Declared Drought Status (1980-2022) (PA DEP, 2022)

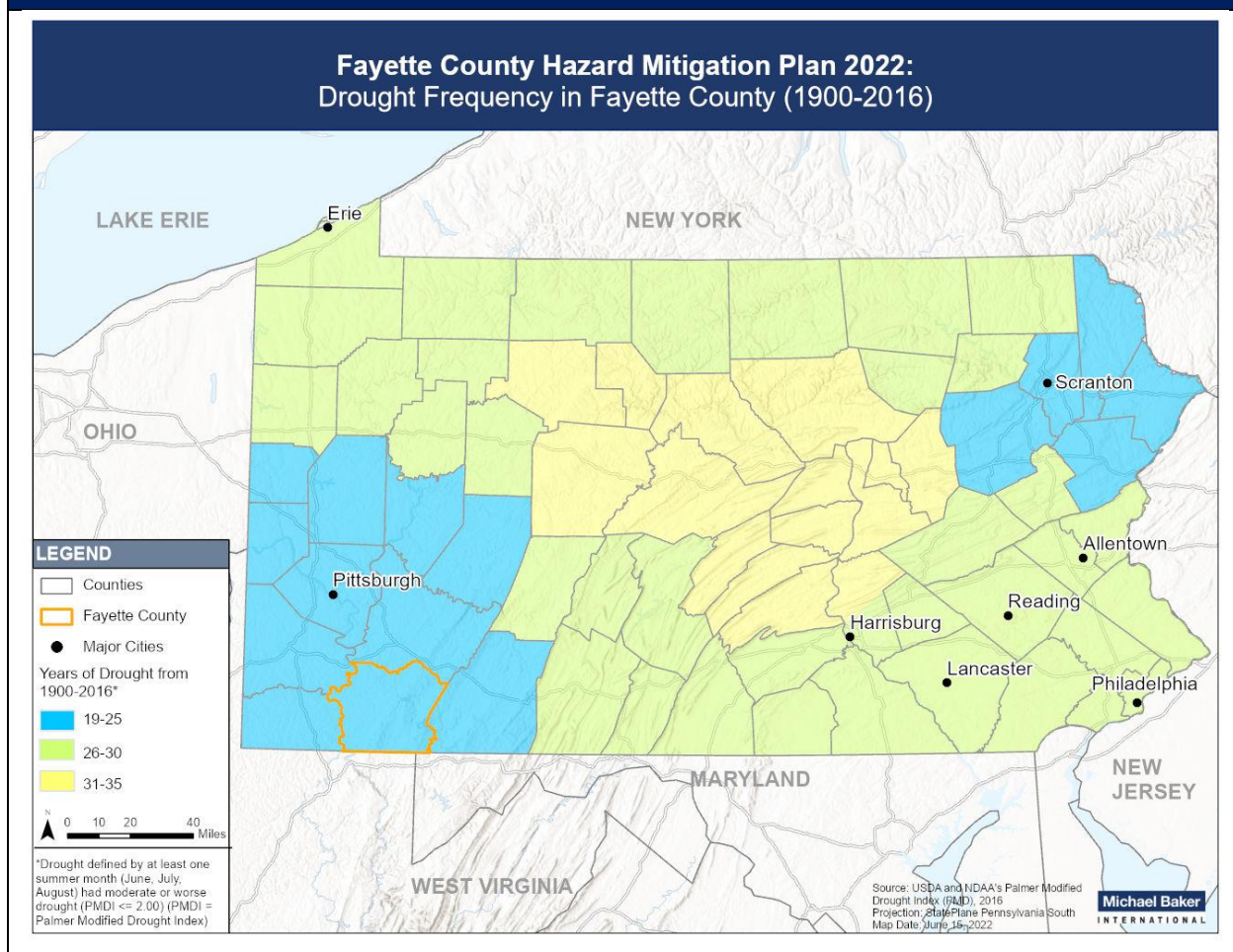
TIME PERIOD	DROUGHT STATUS
7/19/2012 - 8/31/2012	Watch
8/21/2020 - 11/17/2020	Watch

4.3.1.4. Future Occurrence

Fayette County has experienced droughts in the past, and the potential exists for the County to experience droughts in the future. Increases in water usages and leakage may result in a deficiency in coming years. Water deficiencies and the threat of drought are expected to increase statewide, mainly because of the demand for water by residential, industrial, and agricultural uses. These situations can be closely monitored and predicted using five parameters: stream-flows, precipitation, reservoir storage levels, groundwater elevations, and a measure of soil moisture. It is difficult to forecast the severity and frequency of future drought events. Based on historic data, the County and Pennsylvania's Southwest Plateau had 19-25 years of drought as shown in Figure 4.3.1-1. The future occurrence of drought is *likely*, as defined by the Risk Factor Methodology probability criteria.

According to PEMA, uncertainty regarding the future occurrence of droughts exists due to the potential impacts of climate change as climate change brings increased precipitation, thus potentially lessening the length and/or likelihood of drought. Drought can also accompany extreme heat events. Therefore, drought events may become more likely as the average temperature increases.

Figure 4.3.1-1 Palmer Drought Severity Index in Pennsylvania



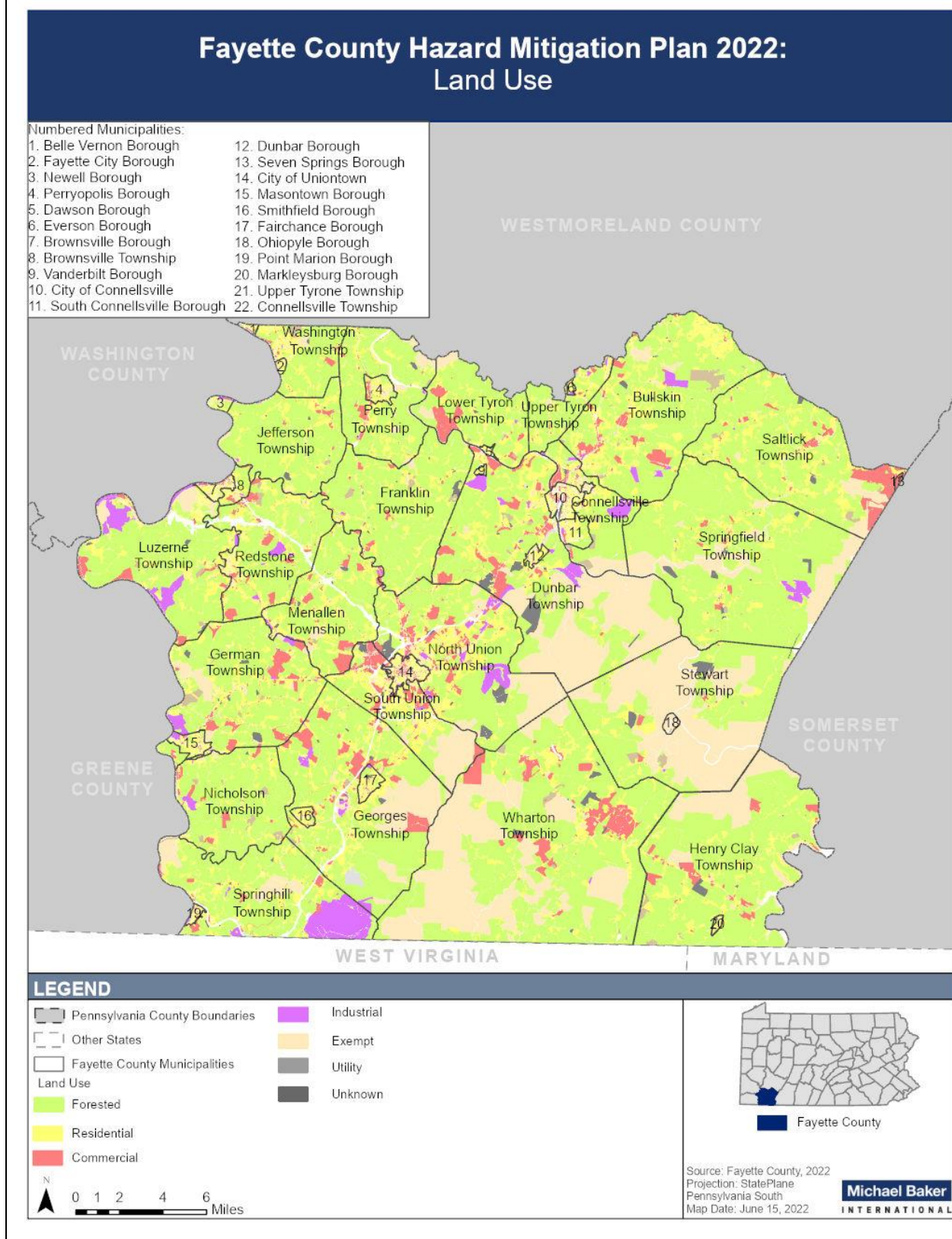
4.3.1.5. Vulnerability Assessment

The most significant losses resulting from drought events are typically found in the agriculture sector of any County's economy. For example, the drought in 1999 resulted in a Gubernatorial Proclamation of Emergency in part because of significant crop damage. Preliminary damage estimates by the USDA indicated possible crop losses across Pennsylvania more than \$500 million. This did not include a 20 percent decrease in dairy milk production statewide, which also resulted in million-dollar losses (NCDC, 2009).

Agricultural production and forested areas in Fayette County area highly vulnerable to natural hazard events, particularly drought. Data on agricultural losses are available from the USDA Risk Management Agency. The RMA operates and manages the Federal Crop Insurance Corporation, which provides crop insurance to American farmers. While not all crops are insured through RMA, their records provide strong insight into agricultural losses nationwide and in Fayette County. Looking holistically at agricultural production, any portion of Fayette County's \$28.8 million in agricultural products could be lost in a disaster event.

Figure 4.3.1-2 shows agricultural areas within Fayette County.

Figure 4.3.1-2 Fayette County Agricultural Land Use Areas



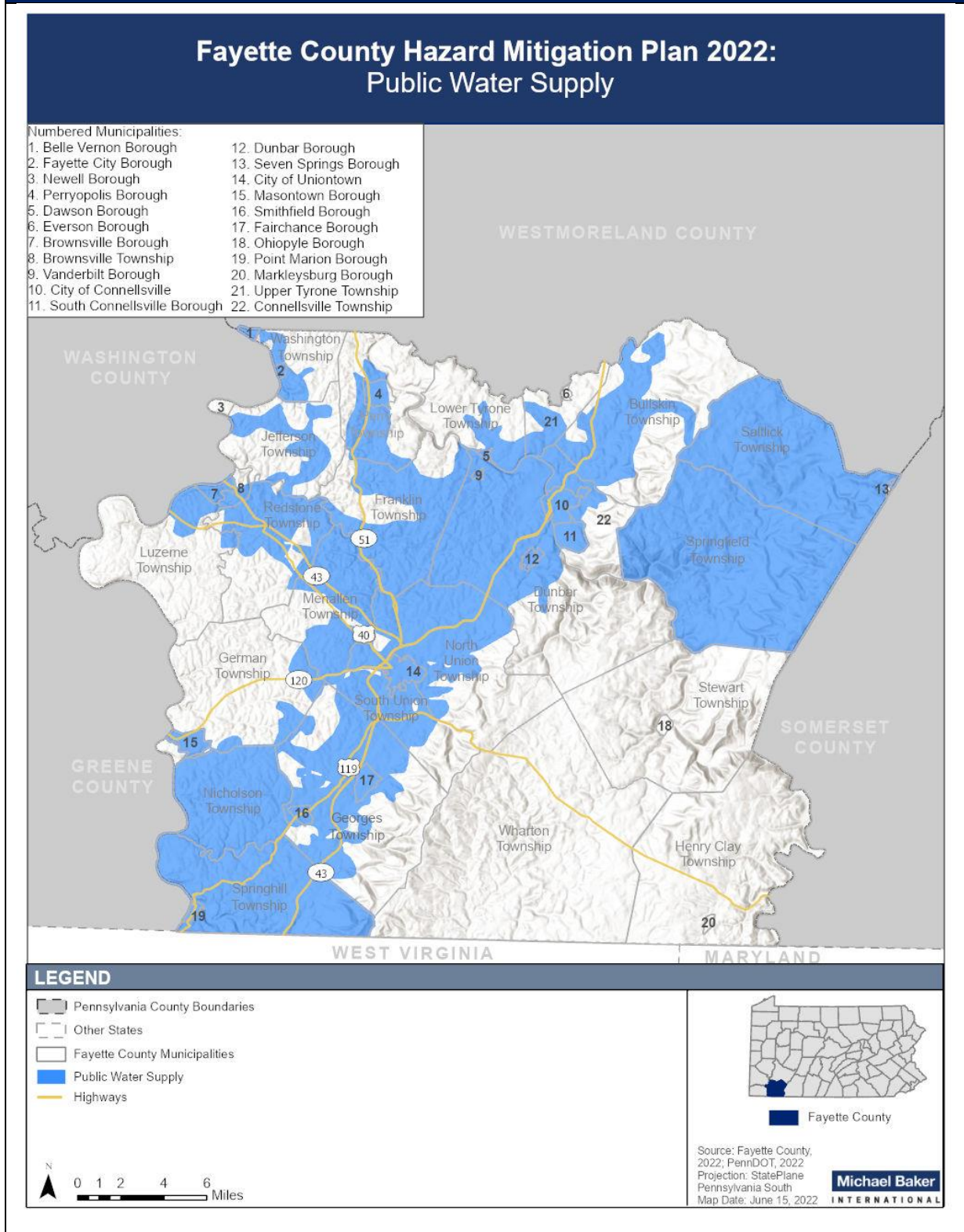
Preliminary damage estimates by the USDA illustrate the potential for droughts to severely impair the local economy in more agricultural communities. Approximately 22% of Fayette County's land area is currently under agricultural production; the total value of the County's agricultural products in 2017 was \$28,836,000 according to the USDA 2017 Census of Agriculture. As such, a severe drought event could severely impair the local economy, negatively impacting the livelihood of residents within agricultural communities. Although Fayette County has witnessed few Drought Emergencies, the effects of a Drought Watch or Warning can be just as harmful. The occurrence of wildfires can also increase as a result of a severe drought.

The depletion of public and private water supplies is also a significant threat. Fayette County residents that use private domestic wells are especially vulnerable to droughts because their drinking water supply can be threatened. The number of water wells per Municipality in Fayette County is displayed in Table 4.3-3. 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 wells in the County. This is the most complete dataset of wells available. There are 1,891 water wells in Fayette County. Stewart Township, Bullskin Township, and Wharton Township have the most wells with 152, 167, and 199 respectively and therefore are most vulnerable to the effects of drought on wells. Many public water suppliers, shown in Figure 4.3.1-3, are multi-municipal entities that share the services. Specific details of public water suppliers and the municipalities served can be found in Section 4.3.25 Utility Interruptions, Table 4.3.1-2.

Table 4.3.1-2 PaGWIS Domestic Water Wells Drilled Per Municipality (PA DEP, 2020)	
MUNICIPALITY	NUMBER OF REPORTED DOMESTIC WATER WELLS
Belle Vernon Borough	13
Brownsville Borough	11
Brownsville Township	0
Bullskin Township	167
Connellsville City	33
Connellsville Township	17
Dawson Borough	0
Dunbar Borough	0
Dunbar Township	87
Everson Borough	4
Fairchance Borough	8
Fayette City Borough	0
Franklin Township	24
Georges Township	50
German Township	28
Henry Clay Township	136
Jefferson Township	36
Lower Tyrone Township	105
Luzerne Township	15
Markleysburg Borough	6
Masontown Borough	3

Table 4.3.1-2 PaGWIS Domestic Water Wells Drilled Per Municipality (PA DEP, 2020)	
MUNICIPALITY	NUMBER OF REPORTED DOMESTIC WATER WELLS
Menallen Township	46
Newell Borough	3
Nicholson Township	17
North Union Township	100
Ohiopyle Borough	30
Perry Township	89
Perryopolis Borough	5
Point Marion Borough	1
Redstone Township	54
Saltlick Township	76
Smithfield Borough	1
South Connellsville Borough	26
South Union Township	133
Springfield Township	14
Springhill Township	46
Stewart Township	152
Uniontown City	8
Upper Tyrone Township	19
Vanderbilt Borough	1
Washington Township	20
Wharton Township	199
Unknown	62
Grand Total	1,891

Figure 4.3.1-3 Fayette County Public Water Suppliers

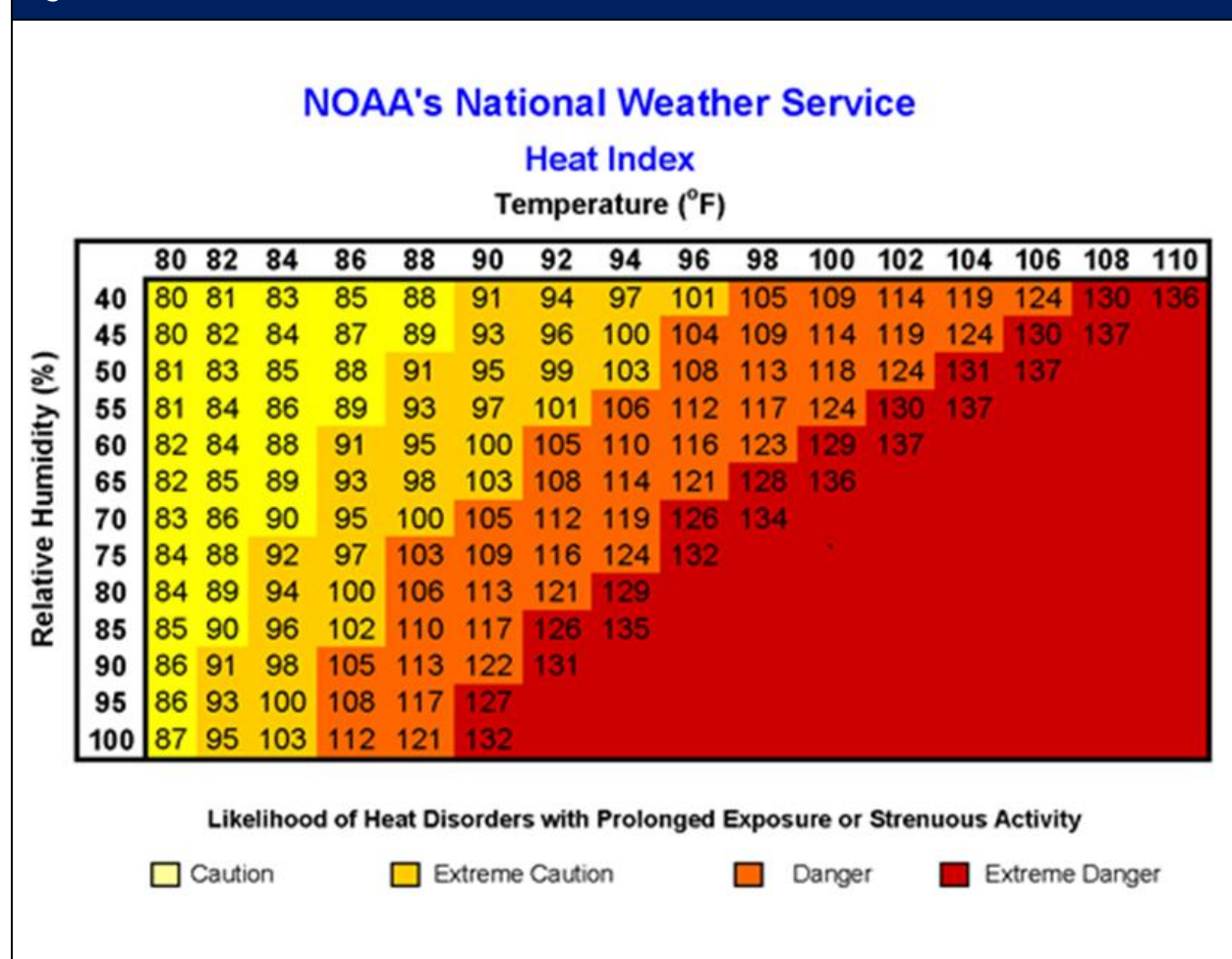


4.3.2. Extreme Temperatures

4.3.2.1. Location and Extent

Although often overlooked when compared against more dramatic hazard events, extreme temperature, which includes both extreme heat and extreme cold, has a significant impact on the health, safety, and well-being of a community. In general, extreme temperature events are larger-scale and regional; as a result, any extreme temperature event impacting Fayette County would also impact the nearby Counties within southwestern Pennsylvania. Areas most susceptible to extreme heat include urban environments, as buildings and pavement absorb and retain heat, causing an Urban Heat Island Effect. Areas most susceptible to extreme cold include higher elevations. Different populations and industries may experience extreme temperatures differently. Demographics must also be considered, as large populations of elderly or poor represent those most vulnerable to temperature extremes. The effects can be wide-ranging.

Figure 4.3.2-1 NOAA Heat Index

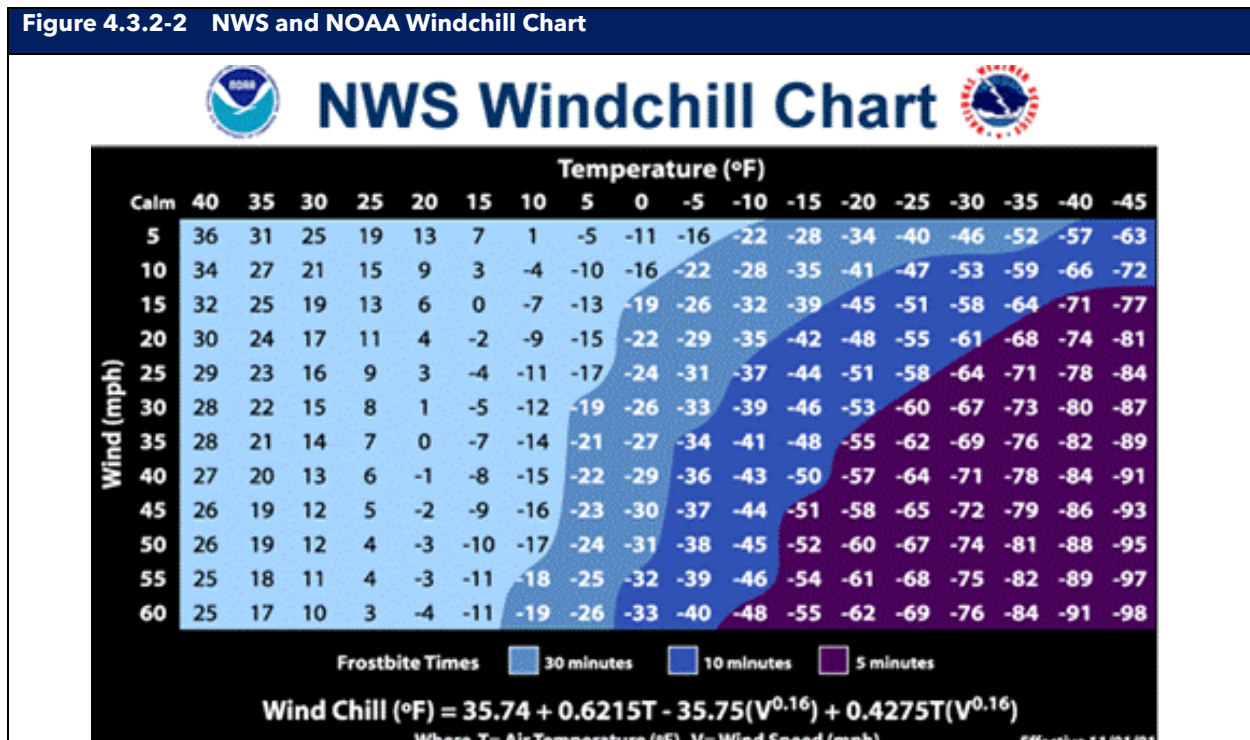


Most of the world, including all of the United States, is vulnerable to heat waves or periods of extreme heat that are both longer and hotter than normal. Heat waves in the eastern half of the United States are often associated with ridges, i.e., elongated areas of high pressure. Wet

conditions are generally found to the west of the ridge, while sunny, dry conditions are found to the east. Extreme levels of humidity or dryness can also accompany heat waves, influencing the heat index or the body's perception of air temperature. Areas with high humidity also maintain a higher heat index. For instance, a temperature of 95° F and a humidity of 75 percent produces a heat index of 128.

Extreme cold is as equally threatening to human safety and wellbeing as extreme heat. The definition of extreme cold will vary depending upon the region of the country. In areas that do not usually experience winter weather, even near freezing temperatures can constitute extreme cold. As with the other end of the spectrum, extreme cold can result in a cold wave or cold snap. Cold waves occur when there is a rapid temperature fall in a 24-hour period. The NWS defines cold waves based on the rate of the temperature drop and the final minimum temperature, as well as the region of the country and the time of year. The Weather Channel considers a cold wave to be an extremely cold period that lasts at least two days with temperatures below normal in at least fifteen states and with at least five of those states having temperatures over 15 degrees below normal. The wind chill index is cold's equivalent to the heat index. Wind chill temperature influences people's perception of how cold it is outside and is based on the rate of heat loss, caused by a combination of wind and cold. Increased wind rates draw heat from the body more quickly, leading to a drop in internal body temperature. Figure 4.3.2-2 demonstrates wind chill calculations, as determined by the NWS and NOAA.

Figure 4.3.2-2 NWS and NOAA Windchill Chart



Figures 4.3.2-3 and 4.3.2-4 show the average minimum and maximum temperatures in Fayette County. Average minimum and maximum temperatures vary across the County. Minimum average temperatures vary across Fayette County, ranging anywhere from 34-39°F in the

eastern half of the County to 38-41°F in the western portion. Summer average high temperatures are equally diverse, going from 56-61°F in the far east to 60-63°F in the west.

Figure 4.3.2-3 Pennsylvania Average Minimum Temperature

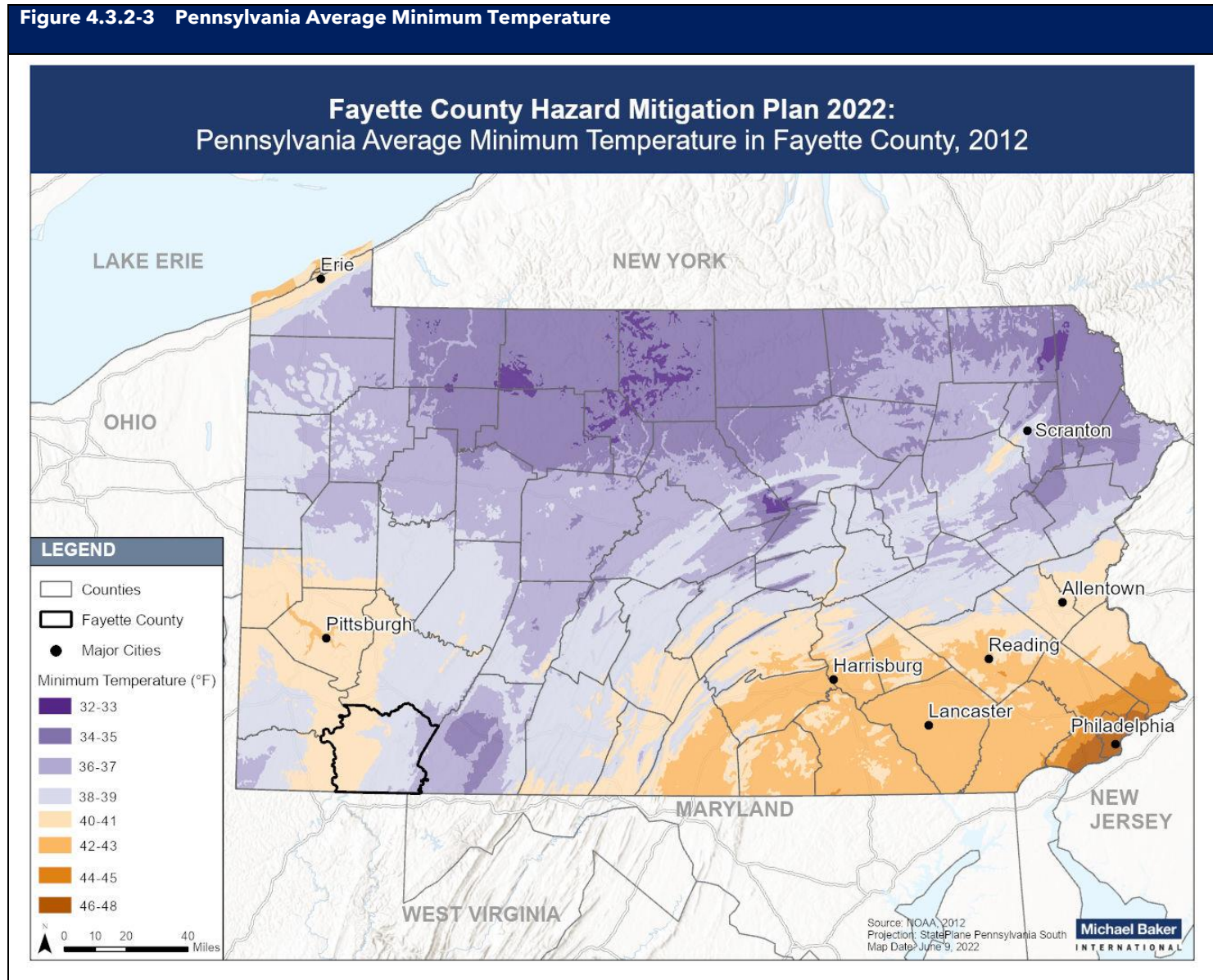
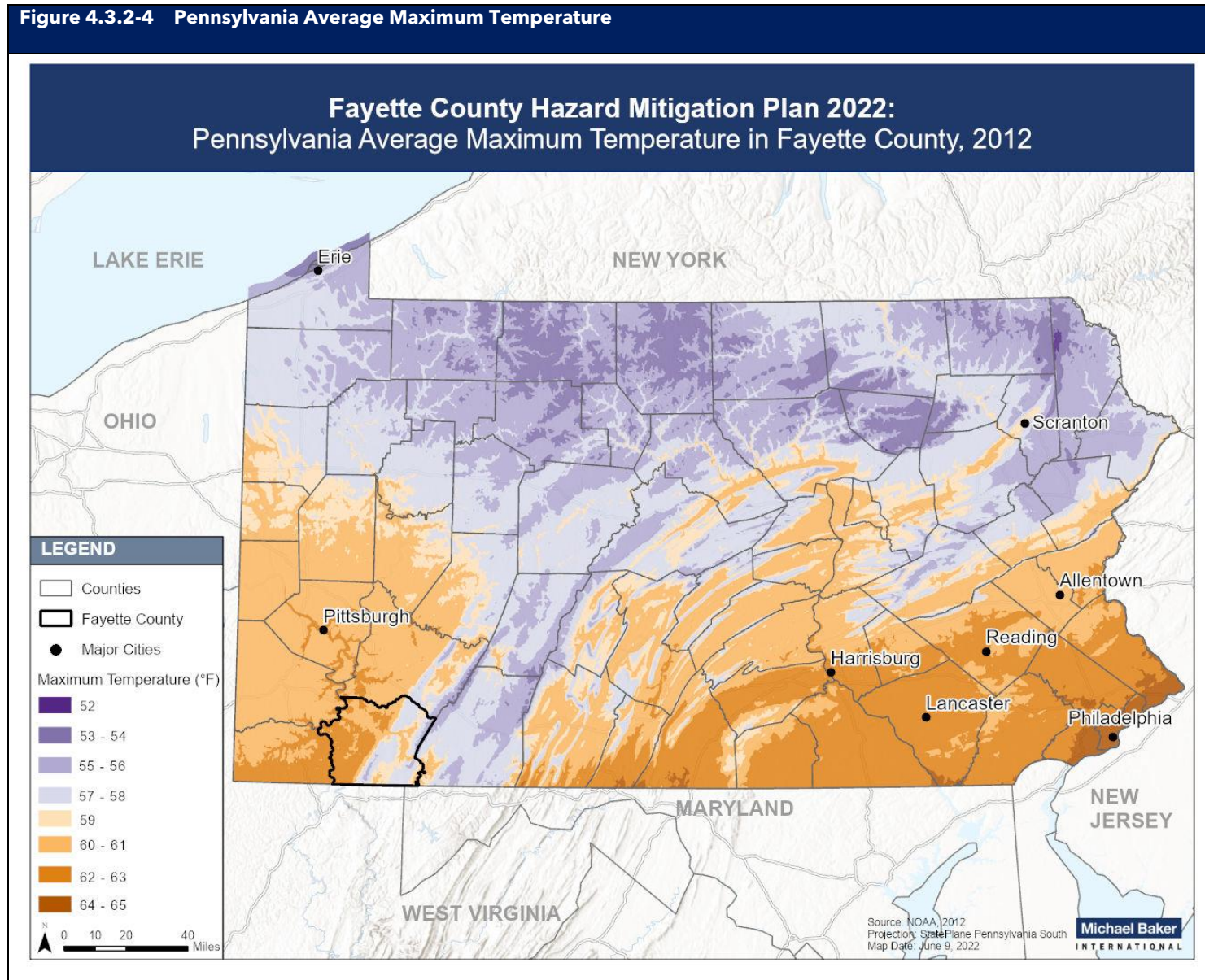


Figure 4.3.2-4 Pennsylvania Average Maximum Temperature



4.3.2.2. Range of Magnitude

Heat waves gradually rise as the summer season progresses. Their potential impact, however, should not be overlooked. From 1992 to 2002, heat waves killed approximately 200 people per year in the United States, which is equivalent to the number of deaths from flooding, lightning, tornadoes, and hurricanes combined during the same 10-year period. Heat stress can show itself through several heat-related illnesses, including heat cramps, heat exhaustion, and heat stroke. Heat stroke requires immediate medical attention and can result in death. When the body heats too rapidly to cool itself or when the body loses too much fluid and/or salt via dehydration and sweating, heat stress is imminent. An individual's vulnerability to heat stress is impacted by the amount of time spent exposed to direct sunlight, wind speed, and normal health conditions. NOAA cites some of these health conditions as including age (with greater vulnerability in older adults and young children), obesity, fever, heart disease, mental illness, poor circulation, prescription drug and alcohol use, and sunburn. Sunburn, caused by ultraviolet radiation from the sun, can significantly affect the skin's ability to shed excess heat. Additionally, extreme heat can lead to food spoiling faster, particularly if not carefully managed, and cause a secondary minor epidemic due to food-borne illnesses.

Vulnerability to injury and death also significantly increases during periods of extreme cold. A study on the climate effects on health by Laurence S. Kalkstein and Kathleen M. Valimont of the United States Environmental Protection Agency notes that total mortality rates are about 15 percent higher on an average winter day than on an average summer day. Cold is responsible for death both directly and indirectly. The most commonly associated direct causes of cold-related death and injuries include hypothermia, frostbite, influenza, and pneumonia. Indirect causes can include death and injuries from falls, accidents, carbon monoxide poisoning, and house fires.

The CDC defines hypothermia as abnormally cold temperatures which cause your body to lose heat faster than it can be produced. Body temperature that is too low also affects cognitive processing, meaning that someone experiencing hypothermia may become confused and unable to process the danger they are in. Hypothermia can occur at relatively warm temperatures, such as 40° F, if a person is chilled from sweat or rain or has been submersed in cold water. Certain demographic and health characteristics increase susceptibility to hypothermia. Victims of hypothermia more frequently include:

- Elderly people with inadequate food, clothing, or heating;
- Babies sleeping in cold bedrooms;
- Children left unattended;
- Adults under the influence of alcohol;
- Persons with cognitive disabilities; and
- People who remain outdoors for long periods—the homeless, hikers, hunters, etc.

Frostbite is an additional severe cold weather concern and is caused by parts of the body freezing. It more often affects extremities (such as the nose, ears, cheeks, chin, fingers, and toes) and can cause permanent damage, in extreme cases, amputation. People with reduced

blood circulation and those not dressed properly for the weather are at increased risk of frostbite.

Extreme temperatures have an impact on more than just human health. They can also affect economic costs in transportation, agriculture, production, energy, and infrastructure. Transportation can be influenced by temperature in several ways. Most applicable to the county would be that highways and roads are damaged through excessive heat, which causes asphalt roads to soften. Concrete roads can explode, lifting large chunks of concrete off the ground. Excessive heat also places stress on automobile cooling systems, diesel trucks, and locomotives, causing an increase in mechanical failures, and airplanes lose lift at high temperatures. Extreme cold also impacts transportation, as it stresses diesel engines, vehicle batteries, and gels fuel. Metal bridge structures can also be negatively impacted by severe cold.

In Fayette County, a potential worst-case extreme temperature scenario would involve the County experiencing 90°F or higher temperatures (or 0°F or lower) for an extended number of days. The heat/cold would overwhelm the power grid, causing widespread blackouts and damaging property. Considering the reach of the public water supply, referenced in figure 4.3.1-3, the greatest potential infrastructure impact to the County is the potential for water pipes to burst, causing ice problems and loss of water pressure, as well as public health and safety issues. This kind of event could create a public health hazard for the elderly and children and would result in injury or death.

4.3.2.3. *Past Occurrence*

The State Climate Extremes Committee (SCEC), National Climate Extremes Committee (NCEC) and NOAA track the extremes for severe weather events, including temperature. In 2018, from July 1 to July 5, southeastern Pennsylvania faced temperatures in the upper-90s that resulted in two deaths in Philadelphia. Table 4.3.2-1 demonstrates the SCEC and NOAA temperature extremes for Pennsylvania. Five months of 2022 data were captured in Connellsville to show the maximum average and the minimum average temperatures through June 2022. The maximum average temperature across five months was 58.6°F, and the minimum average temperature across five months was 36.1°F.

Table 4.3.2-1 Fayette County 2022 Average Minimum and Maximum Temperatures (WeatherWX, 2022)												
2022	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Min Avg.	22	24	33	42	52	58	62	61	56	46	35	30
Max Avg	34	38	48	59	71	79	83	82	76	63	50	41

Table 4.3.2-2 Temperature Extremes for Pennsylvania (SCEC and NCDC)

RECORD LEVEL	RECORD TYPE	LOCATION	DATE	TEMPERATURE
SCEC	Pennsylvania Max. Temperature May	Lock Haven, PA	1895	102° F
SCEC	Pennsylvania Min. Temperature February	Lawrenceville, PA	2/11/1899	-39° F
SCEC	Pennsylvania Min. Temperature	Smethport, PA	1/5/1904	-42° F
SCEC	Pennsylvania Max. Temperature January	Freeport, PA	1/22/1906	85° F
SCEC	Pennsylvania Max. Temperature March	Everett, PA	3/24/1907	92° F
SCEC	Pennsylvania Min. Temperature June	Somerset, PA	6/10/1913	20° F
SCEC	Pennsylvania Max. Temperature April	Bloserville, PA and Punxsutawney, PA	4/25/1915 and 4/26/1915	98° F
SCEC	Pennsylvania Min. Temperature March	West Bingham	3/18/1916	-31° F
SCEC	Pennsylvania Max. Temperature August	Claysville, PA	8/6/1918	108° F
SCEC	Pennsylvania Max. Temperature August	Carlisle, PA	8/4/1930	108° F
SCEC	Pennsylvania Min. Temperature November	Somerset, PA	11/29/1930	-15° F
SCEC	Pennsylvania Max. Temperature February	Hyndman, PA	2/11/1932	83° F
SCEC	Pennsylvania Max. Temperature June	Sharon, PA	6/8/1933	107° F
SCEC	Pennsylvania Max. Temperature	Phoenixville, PA	7/9 - 7/10/1936	111° F
SCEC	Pennsylvania Max. Temperature May	Marcus Hook, PA	5/27/1941	102° F
SCEC	Pennsylvania Max. Temperature October	Phoenixville, PA	10/5/1941	100° F
SCEC	Pennsylvania Min. Temperature September	Hawley 1 S Wallenpaupack Dam, PA	9/28/1947	17° F

Table 4.3.2-2 Temperature Extremes for Pennsylvania (SCEC and NCDC)

RECORD LEVEL	RECORD TYPE	LOCATION	DATE	TEMPERATURE
SCEC	Pennsylvania Min. Temperature October	Coudersport, PA	10/21/1952	7° F
SCEC	Pennsylvania Max. Temperature September	Stroudsburg, PA	9/3/1953	106° F
SCEC	Pennsylvania Max. Temperature November	Claysville, PA	11/3/1961	88° F
SCEC	Pennsylvania Min. Temperature July	Clermont, PA	7/9/1963	28° F
SCEC	Pennsylvania Min. Temperature May	Clermont, PA	5/10/1966	10° F
SCEC	Pennsylvania Max. Temperature April	Norristown, PA and Port Clinton, PA	4/19/1976 and 4/23/1976	98° F
SCEC	Pennsylvania Min. Temperature December	Clermont, PA	12/25/1980	-29° F
SCEC	Pennsylvania Min. Temperature August	Clermont, PA	8/29/1982	23° F
SCEC	Pennsylvania Max. Temperature December	Washington, PA	12/4/1982	82° F
NOAA	Extreme Cold	Western PA	1/5/2014	-5° F to -15° F
NOAA	Extreme Cold	Northern and Western PA	1/4/2018 to 1/6/2018	-10° F to -30° F
NOAA	Excessive Heat	Southeastern PA	7/1/2018 to 7/5/2018	Upper 90s° F
NOAA	Extreme Cold	Connellsville, PA	1/29/2019	-22° F to -30° F

4.3.2.4. Future Occurrence

Although the frequency of heat waves and cold waves cannot currently be definitively predicted with long-range forecasts, meteorologists can identify frequent trends and likely temperature ranges based on regional historical data and upcoming weather conditions. Certain extreme weather events and temperatures are expected to continue to become more frequent, and although there is much debate over the issue of climate change, many leading experts are concerned about a potential warming of the Earth. According to NASA, climate change is, "a long-term change in the average weather patterns that have come to define Earth's local, regional and global climates,". Additionally, they report rises in temperature globally resulting in ice sheets melting, contributing to the evidence of climate change. The future occurrence of extreme temperatures is *likely*.

While the probability varies according to elevation, on average Fayette County can anticipate temperatures to dip below -10°F about once every five years and temperatures to rise above

100°F about once every ten years (PA All-HMP, 2010). For this reason, the probability of the County experiencing an extreme temperature event in any given year is considered *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

It is increasingly difficult to predict the future occurrence of temperature frequency as the impacts of climate change are experienced. Broad evidence supports anthropogenic influence on global warming. According to the 2021 Pennsylvania Climate Impacts Assessment, Pennsylvania is projected to see higher average temperatures over the course of the next several decades.

4.3.2.5. Vulnerability Assessment

The potential for extreme heat and cold always exists in and around the summer and winter months. Meteorologists and weather forecasters can normally predict the temperature with excellent accuracy. Adhering to extreme temperature warnings can significantly reduce the risk of temperature related deaths. All 42 jurisdictions are vulnerable to the effects of extreme temperatures, but these vulnerabilities are individualized among the general population and will continue to be extremely difficult to address from a countywide or even local emergency response to such events. This vulnerability is directed to both health impacts of extreme heat and cold as well as secondary impacts on the economy, infrastructure, and energy expenditure.

Those hardest hit by both heat and cold waves are adults 75 years of age or older, many of whom are already physically vulnerable. Excessive heat exposure also affects people with certain pre-existing medical conditions, including cardiovascular disease, respiratory illnesses, and obesity. Elderly individuals in Fayette County (those who are 75 years of age and older) make up 9.01% of the total population. Saltlick Township, Perryopolis Borough, and Markleysburg Borough have the highest concentration of 75 and older populations. This demographic would be most vulnerable to extremely temperatures.

Critical facility data collected (Table 2.5-1) shows at least one to five nursing home and/or personal care homes in South Union Township (7), City of Uniontown (6), North Union Township (3), Henry Clay Township (2), Markleysburg Borough (1), Fairchance Borough (1), Georges Township (1), Luzerne Township (1), Masontown Borough (1), Menallen Township (1), Point Marion Borough (1), and Washington Township (1).

Section 4.3.2.2 notes children unattended are vulnerable to extreme temperature. Although this is unlikely, children may be outdoors or traveling to school. The City of Uniontown (7), North Union Township (5), and Georges Township (4) have the most number of schools recorded in the critical facility data (Table 2.5-1). Stadiums hosting gatherings can put populations in danger during extreme temperature events. The City of Uniontown; North Union, Georges, and Redstone Townships; Perryopolis Borough; and the City of Connellsville each have one stadium.

Lastly, as mentioned in Section 2.1, the County is home to Ohiopyle State Park, the Laurel Highlands Tourism Region, Forbes State Forest, and three County-wide parks. Extended exposure to extreme temperature within these areas can result in injury or fatality. Limited cell phone reception increases the likelihood and risk to populations.

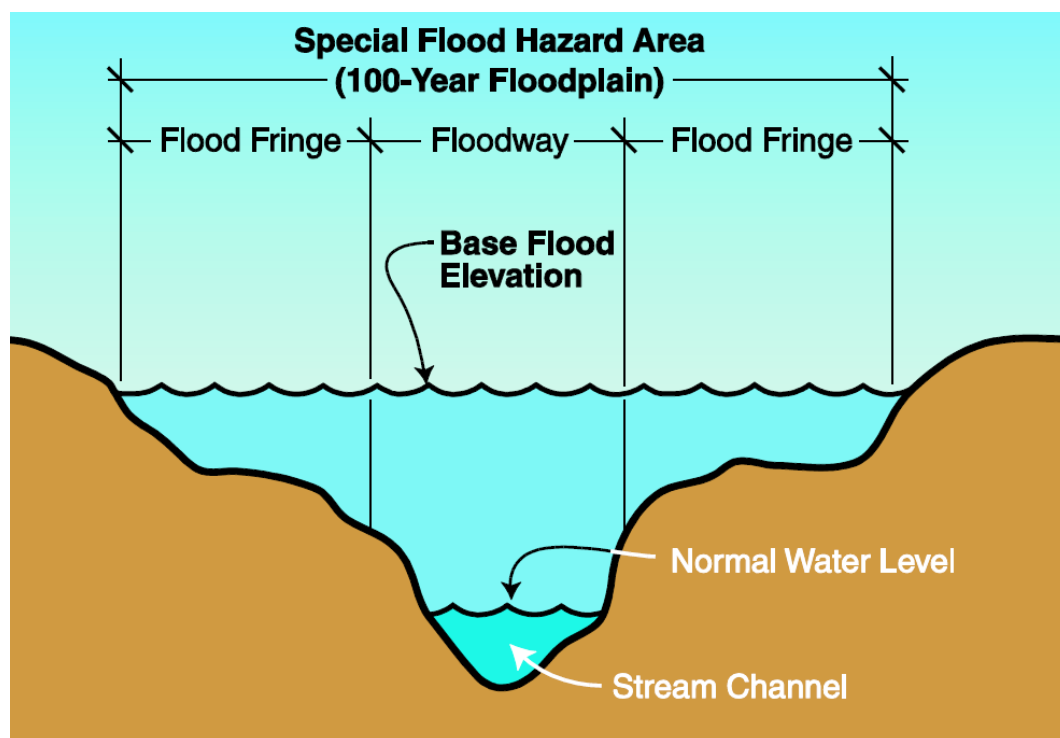
4.3.3. Flood, Flash Flood, Ice Jam

4.3.3.1. Location and Extent

A flood is a natural event for streams and rivers. Flooding occurs when excess water from snowmelt or rainfall fills a stream, causing it to overflow onto the stream banks and adjacent floodplains. Floodplains are lowlands adjacent to rivers, streams, and creeks that are subject to recurring 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 percent 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), for which Flood Insurance Rate Maps (FIRM) are published, identifies the 1% annual chance flood. This 1% annual chance flood event is used to delineate the Special Flood Hazard Area (SFHA) and identify Base Flood Elevations. Figure 4.3.3-1 illustrates these terms. The SFHA serves as the primary regulatory boundary used by FEMA, the Commonwealth of Pennsylvania and Washington County local governments.

Figure 4.3.3-1 Diagram Identifying Special Flood Hazard Area, 1% Annual Chance (100-Year) Floodplain, Floodway and Flood Fringe



Flash flood conditions can result from a large amount of rainfall over a short time span. Though, a small amount of rain can also result in floods in locations where the soil is frozen or saturated from a previous wet period or if the rain is concentrated in an area of impervious surfaces such as large parking lots, paved roadways, or other densely developed areas.

Snow melt combined with heavy rains can cause frozen rivers to swell, which can break the ice layer on top of a river. If this occurs, large chunks can float downstream, piling up in narrow passages and near other obstructions such as bridges and dams causing an ice jam.

Fayette County has FEMA effective Flood Insurance Rate Maps and a Countywide Flood Insurance Study. This study was conducted as a part of FEMA's Risk Mapping, Assessment, and Planning (Risk MAP) process and went effective on September 26, 2014. The purpose of the Risk MAP program is to assist communities nationwide to assess flood risk, encourage mitigation planning, and to strengthen local ability to make informed decisions about risk reduction. Individual map panels can be obtained from the FEMA Map Service Center (<http://www.msc.fema.gov>). These maps can be used to identify the expected spatial extent and elevation of flooding from a 1% and 0.2% annual chance event. All of Fayette County's 42 municipalities are flood prone. **Appendix D** contains flood risk maps, based upon the draft Digital Flood Insurance Rate Maps (DFIRM), for each of the 42 municipalities in Fayette County.

Watercourses prone to flooding include:

- Monongahela River;
- Youghiogheny River;
- Redstone Creek;
- Indian Creek;
- Jacobs Creek;
- Champion Creek; and
- Deadman's Run Creek.

In addition, certain areas of the County are prone to flash floods, including:

- Connellsville City;
- Uniontown City;
- Brownsville Township; and
- Brownsville Borough.

Streams that contribute to flash flooding include Jennings Run, Redstone Creek, and Indian Creek, but the County identifies Redstone Creek as being the highest-hazard creek for flash flooding. Flooding can occur throughout the year. Figure 4.3.3-2 illustrates the flood zones and watercourses for the County. FEMA defines Flood Zone A as areas of approximate 1% annual chance zones, since Base Flood Elevation data is not known for the area. Zone AE shows areas in the 1% annual chance zones determined by Base Flood Elevation details. Zone AO is the flood insurance rate zone that corresponds to the areas of 1% shallow flooding (usually sheet flow on sloping terrain) where average depths are between one and three feet. Figure 4.3.3-3 shows flash flood reports made from 2005 to 2016.

Fayette County lies within the drainage basin of the Monongahela and Youghiogheny Rivers. The Monongahela River, which flows northward along the western border of Fayette County is

fed by two watersheds in the County, the Middle and Upper Monongahela River Watersheds which have a combined drainage area of 697 square miles. The Youghiogheny River flows northwestwardly through the county and is fed by the Upper and Lower Youghiogheny River Watersheds which have a combined drainage area of 861 square miles. Figure 4.3.3-2 shows the location of approximate and detailed (includes BFEs) SFHAs in Fayette County.

Figure 4.3.3-2 Locations of Watercourses and Flood Zones Throughout Fayette County

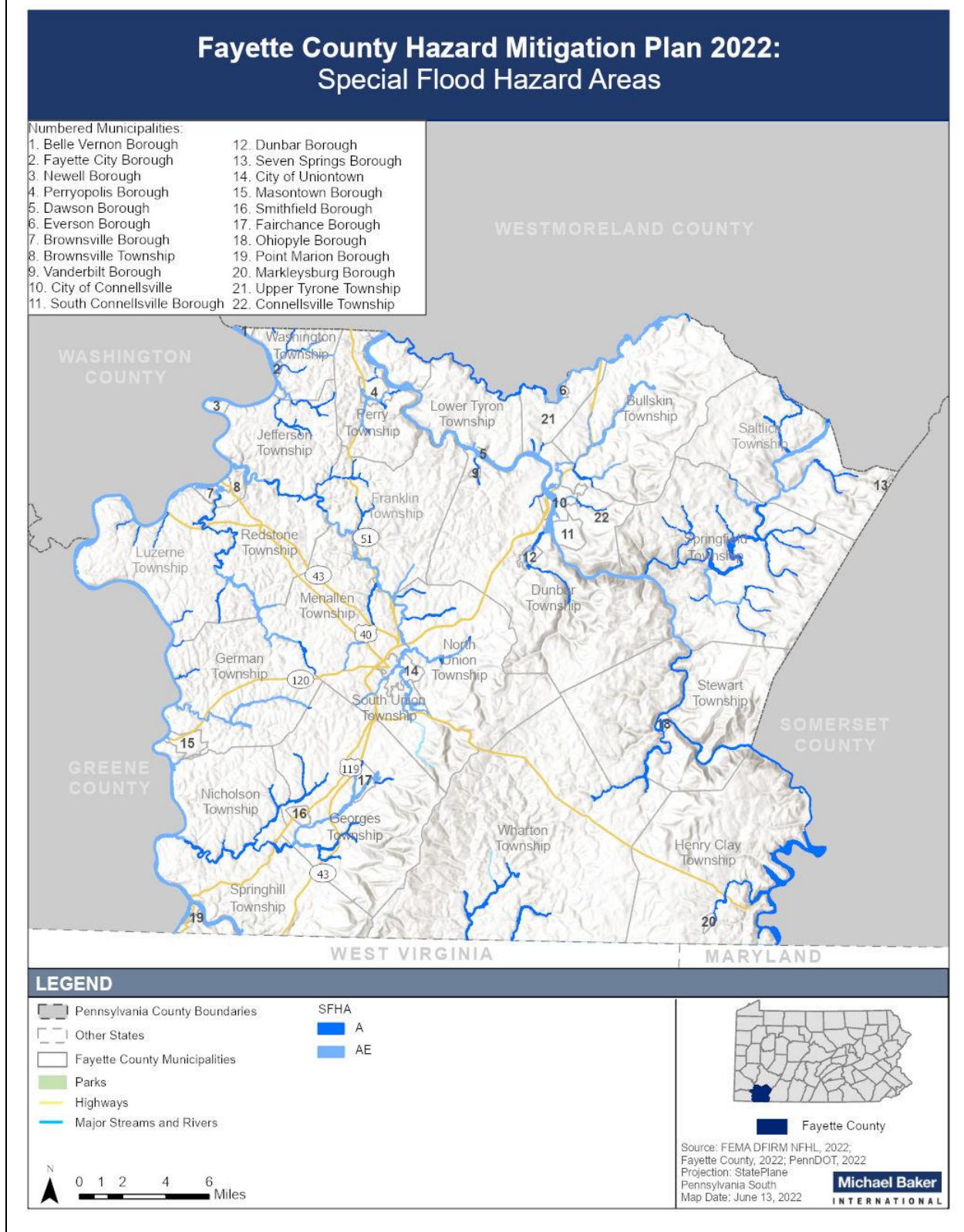
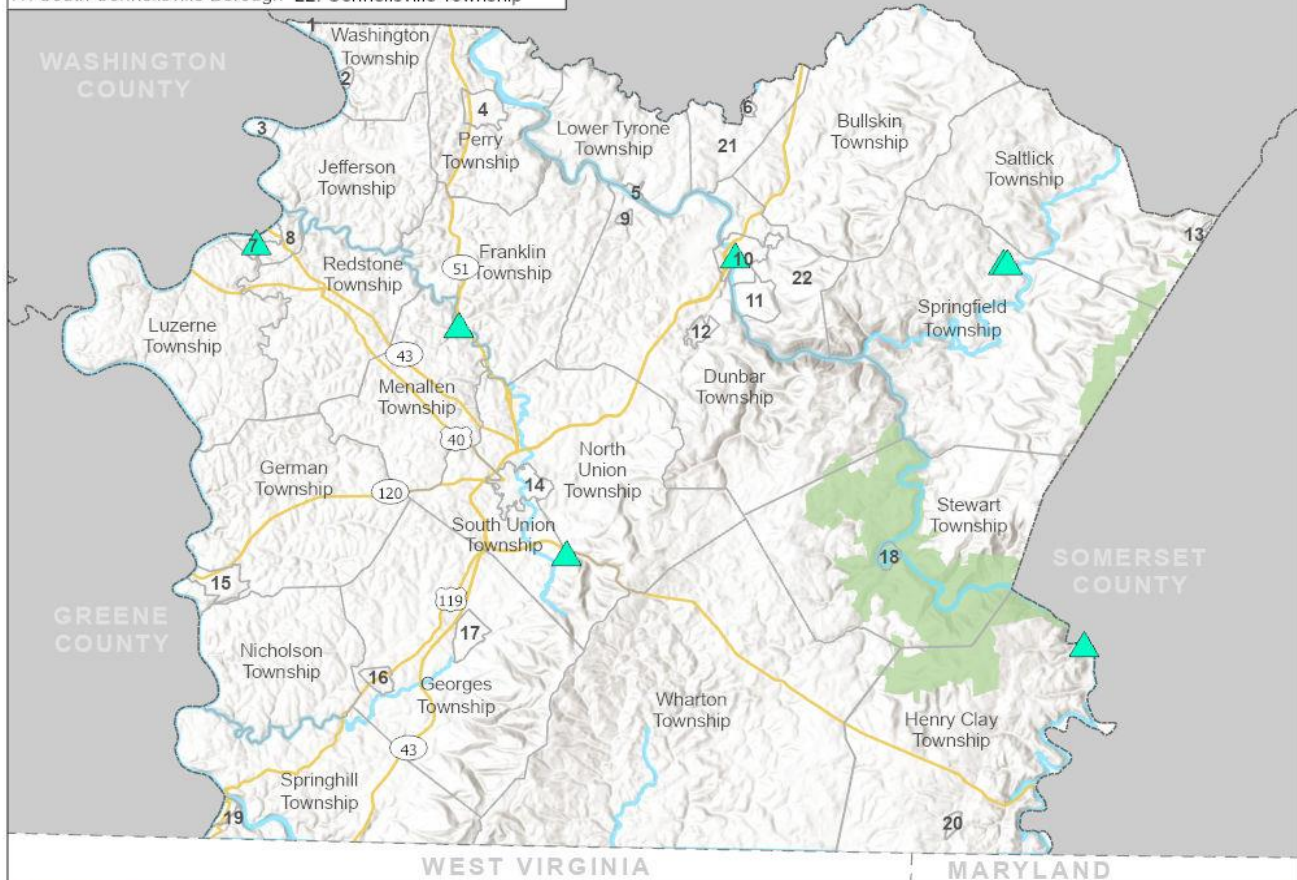


Figure 4.3.3-3 Locations of Flash Floods in Fayette County

Fayette County Hazard Mitigation Plan 2022: Ice Jams (1933-2022)

Numbered Municipalities:

1. Belle Vernon Borough	12. Dunbar Borough
2. Fayette City Borough	13. Seven Springs Borough
3. Newell Borough	14. City of Uniontown
4. Perryopolis Borough	15. Masontown Borough
5. Dawson Borough	16. Smithfield Borough
6. Everson Borough	17. Fairchance Borough
7. Brownsville Borough	18. Ohiopyle Borough
8. Brownsville Township	19. Point Marion Borough
9. Vanderbilt Borough	20. Markleysburg Borough
10. City of Connellsville	21. Upper Tyrone Township
11. South Connellsville Borough	22. Connellsville Township



LEGEND

Pennsylvania County Boundaries	Ice Jams
Other States	
Fayette County Municipalities	
Parks	
Highways	
Major Streams and Rivers	

0 1 2 4 6 Miles



Source: USACE, 2022;
Fayette County, 2022
Projection: StatePlane
Pennsylvania South
Map Date: June 16, 2022

Michael Baker
INTERNATIONAL

The Youghiogheny and Monongahela River watersheds are Fayette County's major high-risk flood areas. Reference Figure 2.1-2 and Figure 2.1-3 in Section 2 Community Profile to identify the HUC 10 and HUC 8 watershed boundaries in the County. Within Fayette County, North Union Township experienced the highest amount of flash flooding events. Other municipalities experiencing elevated flash flooding numbers are Dunbar Township, South Union Township, and the City of Uniontown.

Located along the banks of the Mountz Creek, Connellsville City frequently incurs flood damage, ranging from nuisance flooding through major structural damage. In August of 2016 the City and neighboring community of Bullskin Township received over five inches of rain in seven hours leading to extensive flooding on the Mountz Creek and Breakneck Run. Flooding was widespread across the city damaging infrastructure, schools and over 300 homes.

Figure 4.3.3-4 Flood waters rushing across Rt. 119 in Connellsville City, Fayette County 2016 (heraldstandard.com, 2016)



Figure 4.3.3-5 Flood waters in Uniontown submerging emergency vehicle and damaging road infrastructure (heraldstandard.com,2020)



It should also be noted that flooding is not only caused by heavy rain events. Additionally, as described in the Dam Failure Hazard Profile (**Appendix H**), there are 22 high-hazard dams located within the County. If any one of these dams were to fail, there could be loss of life and property damage resulting from flooding within the dam inundation areas. Fayette County follows state dam regulations established by the Pennsylvania DEP.

4.3.3.2. Range of Magnitude

Nationwide, hundreds of floods occur each year, making them one of the most common hazards in all 50 states and U.S. territories. In Pennsylvania, flooding occurs commonly and can happen during any season of the year from a variety of sources. Every two to three years, serious flooding occurs along one or more of Pennsylvania's major rivers or streams, and it is not unusual for this to occur several years in succession.

Floods are the most prevalent type of natural disaster occurring in the Commonwealth of Pennsylvania and Fayette County. Pennsylvania is one of the most flood-prone states in the nation. From rural areas to suburban communities, floods (especially flash floods) are a constant concern. Floods, seasonal or flash, have been the cause of millions of dollars in annual property damages, loss of lives, and disruption of economic activities. The Commonwealth of Pennsylvania leads the nation on flood-related losses. Over 94% of Pennsylvania's municipalities have been designated as flood prone.

Flooding in Fayette County has mainly been caused by heavy rainfall. Some areas have experienced rain events bringing three to seven inches of rain to the area within a day. In

Fayette County there are seasonal differences in how floods are caused. A measurable amount of precipitation occurs around 160 to 165 days a year in Fayette County. In the winter and early spring (February to April), major flooding has occurred due to heavy rainfall on dense snowpack throughout contributing watersheds. Summer floods have occurred from intense rainfall on previously saturated soils. Summer thunderstorms deposit large quantities of rainfall over a short period that can result in flash flood events, when the velocity of floodwaters has the potential to amplify the impacts of a flood event.

Winter floods have also resulted from runoff of intense rainfall on frozen ground, and, on rare occasions, local flooding has been exacerbated by ice jams. Ice jam floods occur on rivers that are totally or partially frozen. A rise in stream stage will break up a totally frozen river and create ice flows that can pile up on channel obstructions such as shallow riffles, log jams, or bridge piers. The jammed ice creates a dam across the channel over which the water and ice mixture continues to flow, allowing for more jamming to occur. Figure 4.3.4-4 shows ice jam events in Fayette County that occurred from 1931 to 2014. Fortunately, the limited number of events have not been a significant issue for the County.

Floods are considered hazards when people and property are affected. Injuries and deaths can occur when people are swept away by flood currents or bacteria and disease are spread by moving or stagnant floodwaters. Most property damage results from inundation by sediment-filled water. A large amount of rainfall over a short time span can result in flash flood conditions. Small amounts of rain can result in floods in locations where the soil is frozen or saturated from a previous wet period or if the rain is concentrated in an area of impermeable surfaces such as large parking lots, paved roadways, or other impervious developed areas. Flood damages and elevations can increase due to floating debris such as trees, logs, and brush which restrict the flow of water through the channel, culverts, and bridges. Both culvert and bridge washouts can cause damage to transportation infrastructure, making response and recovery actions more difficult.

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. Since the County has mountainous terrain, this can contribute to more severe floods as runoff reaches receiving water bodies more rapidly over steep terrain. Flooding can also be exacerbated through the process of urbanization. Increased development of impermeable surfaces in building and pavement or a lack of appropriately sized flood water detention basins leads to localized flooding.

Flood effects can be volume or force related. Major floods along larger streams having wide floodplains tend to result in large-scale inundations. This causes widespread damage through soaking and silt deposits in homes, businesses, and industrial plants. In hilly regions where runoff paths are steep, flash floods may be prevalent. Flash floods are short in duration and usually occur in a somewhat localized area. In these floods, the velocity rather than the volume of water causes flood damages. Torrents of water can rush down minor hillside gullies at 30-50 miles per hour, carrying trees, debris, and rocks. Frozen surfaces can more than double

normal runoff velocities, particularly in small drainage areas. This causes flash floods which can be compounded by ice and debris jams in channels and culverts. Obstructions within the floodplain such as bridges and undersized culverts can also increase flooding.

Although floods can cause damage to property and loss of life, floods 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 improving soil fertility. However, the destruction of riparian buffers, changes to land use and land cover throughout a watershed, and the introduction of chemical or biological contaminants which often accompany human presence cause environmental harm when floods occur. Hazardous material facilities are potential sources of contamination during flood events. Other negative environmental impacts of flooding include water-borne diseases, heavy siltation, damage, or loss of crops, and drowning of both humans and animals.

Dams act as flood protection measures in Fayette County. There are 35 dams in the County; 10 of these are Category 1 high hazard. Please refer to the Dam Failure hazard profile in **Appendix G** for more information on dams.

The impacts due to flooding, in terms of injuries, damages, and death, can vary in degrees from minor to catastrophic.

- **Minor** – Very few injuries, if any. Only minor property damage and minimal disruption on quality of life. Temporary shutdown of critical facilities.
- **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.
- **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.
- **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.

The worst-case scenario would be a catastrophic flood resulting in loss of life and massive property damage across the County. Flooding approaching this magnitude occurred in 1996. The entire Upper Ohio River Basin experienced major flooding due to widespread rains over the region and rapid run-off from snowmelt along the Allegheny Plateau. This caused record flooding along the Allegheny, Conemaugh, Youghiogheny, and Monongahela Rivers. In Fayette County, 499 residences, 55 businesses, 4 churches, 1 fire department, 30 roads, 5 bridges, and 4 sewage plants suffered at least some flood damages from this 1996 flood. Estimated damages from this flood event were over \$2.5 million in Fayette County. Fayette County is susceptible to the entire range of flooding hazards, from minor to catastrophic.

4.3.3.3. Past Occurrence

Flooding is an annual event expected by residents in various locations throughout Fayette County. This has caused much inconvenience and hardship. Property damage has often been quite heavy. Table 4.3.3-1 is a summary of Fayette County flooding occurrences. Floods in 1972, 1985, 1996, and 2000 resulted in the largest property damages. In 1985 and 1996, flooding was so severe that Presidential Disaster Declarations were issued. The 1985 event caused widespread flooding on the Monongahela River that ripped barges from their moorings. These barges were then trapped in the gates of the Maxwell Lock and Dam, clearing them out cost approximately \$1 million. Fayette County lost three water systems (Bell Vernon, Newell Township, and East Dunkard) for 3-5 days, and a boil water advisory was in place in Washington Township, Masontown Borough, and Point Marion Borough.

Hurricane Agnes in June 1972 remains an important flood event in the County. This early season hurricane came up from the Gulf of Mexico and brought heavy rain that exceeded the carrying capacity of streams and rivers from southern New York to Virginia from June 22-25. During this storm, the Youghiogheny rose to 16.5 feet. Hurricane Agnes caused the most damage in central Pennsylvania, but Fayette County experienced flooding in several areas. Uniontown City and the west side of Connellsville City were underwater, and there was widespread flooding in Dunbar, Dunbar, Everson, and Perryopolis Boroughs. The flooding resulted in evacuations, economic losses, and casualties in many communities across the Commonwealth. While Fayette County does not have a dollar figure for local Agnes-related losses, statewide the flooding from Hurricane Agnes caused \$2.8 billion in economic losses and 48 deaths.

In February 1994, rain, snow, and ice caused flooding in West Virginia's Tygart River, which flows into the Monongahela River toward the Ohio River. This event flooded basements and streets in Point Marion Borough. Other flood events in 1994 included a March 10th flood of the Redstone Creek near Brownsville when snow melt could not be absorbed into the ground; this event caused \$50,000 in damage, flooding 10-20 basements. Later, in August 1994, four inches of rain fell in one hour near Laballe, causing rapid flooding of small streams and roads and \$50,000 in damage mostly because of basement flooding.

As mentioned in Section 4.3.4.2, damages in Fayette County that occurred as a result of flood that took place on January 19, 1996 were over \$2.5 million in Fayette County. The Monongahela and Youghiogheny Rivers also caused significant flood damage in Fayette County on February 19, 2000. There was an estimated \$1.25 million in damages resulting from this flood however most of the structural damages that resulted occurred in basements only. There were also no injuries due to this flood.

A State of Emergency was declared on August 28, 2016 in Connellsville City after flash flooding left people stranded and turned streets into rivers. County Emergency Dispatchers noted vehicles were stuck in high water along Route 119 in Bullskin Township and injuries did occur. Also within the Township, a bridge was closed due to a sinkhole opening along

Breakiron Road. One family noted the water pounding against the front of their home and door removed bricks, wedged a tree under an addition, destroyed a pool, and washed their shed down the street along with several cars.

Connell Avenue in Connellsville was also significantly impacted. Residents were asked to go to the highest point of their homes and wait for rescue boats to transport them to shelters. Water was restored on Monday, August 30, 2016, for 65 Pennsylvania American Water customers living along roads such as Breakneck and Breakiron Roads and East End Extension. A boil advisory was also put in place for customers and a water tank was made available. For the Connellsville Area School District, the first day of school was pushed to September 6th, and other schools were closed. Collections were started by neighbors and teachers for students who lost school supplies. General donation sites were established at the New Haven Hose Co., Connellsville Township Fire Department, and Connellsville Community Ministries. The flash flood property damage estimated for Bute in North Union Township was approximately \$5,000,000 (NOAA, 2016). One Bullskin Township resident's home flooded from a nearby creek, however the home was not within a floodplain and therefore did not qualify for a federal home buyout program.

On May 5, 2017, a late rain caused flash flooding in Connellsville and Bullskin Township. A commercial property located items to higher ground before water from Irish Run Creek went over its banks. Some residents noted their homes had been flooded four times over the last four years. A creek overflow in Bullskin Township flooded a resident's yard and crawl space (Iannotti, 2017).

The NOAA NCDC records flooding events in the Storm Events Database. Table 4.3.3-1 below lists flooding-related events that have impacted Fayette County since 1972.

DATE	LOCATION	FLOODING EVENT	ESTIMATED COST
6/21/1972			\$7,462,687
11/5/1985			\$5,000,000
3/10/1994	Redstone Creek Near Brownsville		\$50,000
8/2/1994	Labelle		\$50,000
8/4/1995	Uniontown		\$20,000
1/19/1996	Connellsville	Flash Flood	\$0
1/19/1996	Connellsville	Flash Flood	\$0
2/28/1996	Connellsville	Flash Flood	\$0
5/17/1996	Connellsville	Flash Flood	\$0
6/8/1996	Uniontown	Flash Flood	\$6,000
6/24/1996	Uniontown	Flash Flood	\$0
7/18/1996	Dunbar	Flash Flood	\$0
7/19/1996	Uniontown	Flash Flood	\$0
7/19/1996	Brownsville	Flash Flood	\$0
8/8/1996	Brownsville	Flash Flood	\$0
3/2/1997	Connellsville	Flash Flood	\$10,000

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Table 4.3.3-1 Significant Flood Events in Fayette County (1950 - 2022)			
DATE	LOCATION	FLOODING EVENT	ESTIMATED COST
5/25/1997	Republic	Flash Flood	\$5,000
11/7/1997	Farmington	Flash Flood	\$0
6/27/1998	Connellsville	Flash Flood	\$0
9/19/1998	Uniontown	Flash Flood	\$50,000
4/9/1999	Countywide	Flash Flood	\$0
4/9/1999	Elliottsville	Flash Flood	\$0
7/28/1999	Uniontown	Flash Flood	\$5,000
2/14/2000	Hopwood	Flash Flood	\$10,000
2/18/2000	Countywide	Flash Flood	\$20,000
6/6/2000	Countywide	Flash Flood	\$0
6/27/2000	Farmington	Flash Flood	\$5,000
7/10/2000	Countywide	Flash Flood	\$5,000
7/31/2000	Uniontown	Flash Flood	\$0
8/6/2000	Countywide	Flash Flood	\$5,000
8/6/2000	Perryopolis	Flash Flood	\$0
8/6/2000	Countywide	Flash Flood	\$500,000
6/20/2001	Uniontown	Flash Flood	\$50,000
8/4/2001	White	Flash Flood	\$250,000
5/9/2002	Brownsville	Flash Flood	\$200,000
5/9/2002	Melcroft	Flash Flood	\$0
6/13/2002	Indian Head	Flash Flood	\$20,000
7/23/2002	Uniontown	Flash Flood	\$10,000
2/23/2003	Uniontown	Flash Flood	\$0
5/10/2003	Springhill	Flash Flood	\$0
5/10/2003	Champion	Flash Flood	\$0
7/8/2003	Perryopolis	Flash Flood	\$10,000
7/8/2003	Smithfield	Flash Flood	\$0
7/10/2003	Heistersburg	Flash Flood	\$0
8/8/2003	Fairchance	Flash Flood	\$10,000
8/9/2003	Fairchance	Flash Flood	\$5,000
8/27/2003	Hopwood	Flash Flood	\$5,000
8/27/2003	Masontown	Flash Flood	\$0
11/19/2003	Smock	Flash Flood	\$0
11/19/2003	Grindstone	Flash Flood	\$0
11/19/2003	Hopwood	Flash Flood	\$25,000
11/19/2003	Connellsville	Flash Flood	\$530,000
5/18/2004	Uniontown	Flash Flood	\$0
5/21/2004	Uniontown	Flash Flood	\$0
6/16/2004	Connellsville	Flash Flood	\$0
6/17/2004	Uniontown	Flash Flood	\$0
7/18/2004	Connellsville	Flash Flood	\$3,000
8/10/2004	Connellsville	Flash Flood	\$0
6/11/2005	Uniontown	Flash Flood	\$9,000
11/29/2005	Brownsville	Flash Flood	\$0

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.3-1 Significant Flood Events in Fayette County (1950 - 2022)			
DATE	LOCATION	FLOODING EVENT	ESTIMATED COST
7/5/2006	Masontown	Flash Flood	\$0
7/5/2007	Connellsville	Flash Flood	\$50,000
8/9/2007	Leith	Flash Flood	\$25,000
8/9/2007	Brownsville	Flash Flood	\$50,000
8/9/2007	Connellsville	Flash Flood	\$30,000
8/9/2007	Newell	Flash Flood	\$10,000
12/14/2007	Fayette City	Flood	\$5,000
6/16/2008	Leith	Flash Flood	\$100,000
12/19/2008	Pennsville	Flood	\$5,000
5/4/2009	Fallen Timbers	Flood	\$10,000
6/17/2009	Bowest Jct	Flash Flood	\$250,000
2/28/2011	Martin	Flood	\$10,000
5/13/2011	Footedale	Flood	\$10,000
6/9/2011	Ohiopyle	Flood	\$5,000
7/25/2011	East Roseo	Flood	\$25,000
9/6/2011	Rogerstown	Flood	\$5,000
11/22/2011	Jumonville	Flood	\$100,000
7/18/2012	Perryopolis	Flash Flood	\$25,000
7/18/2012	Leith	Flash Flood	\$25,000
7/18/2012	Connellsville	Flash Flood	\$50,000
7/20/2012	Belle Vernon	Flash Flood	\$15,000
6/28/2013	Dawson	Flash Flood	\$0
6/28/2013	Coldbrook	Flash Flood	\$0
6/28/2013	Indian Head	Flash Flood	\$0
6/28/2013	Uniontown North	Flash Flood	\$0
6/28/2013	West Overton	Flood	\$0
6/28/2013	Coldbrook	Flood	\$0
6/28/2013	Connellsville	Flood	\$0
7/1/2013	Coolspring	Flash Flood	\$2,000,000
7/10/2013	Pennsville	Flash Flood	\$10,000
8/9/2013	Hadentown	Flood	\$0
8/23/2013	Wick Haven	Flood	\$0
8/23/2013	Connellsville	Flood	\$0
8/28/2013	Indian Head	Flood	\$0
8/28/2013	Pennsville	Flood	\$0
8/23/2014	Layton	Flash Flood	\$20,000
8/23/2014	Ohiopyle	Flash Flood	\$50,000
8/23/2014	Star Jct	Flash Flood	\$50,000
8/23/2014	Dunbar	Flash Flood	\$100,000
8/23/2014	Chalkhill	Flash Flood	\$50,000
3/4/2015	Fairmount	Flood	\$0
5/28/2016	Stewaton	Flood	\$0
6/16/2016	Leith	Flash Flood	\$20,000
6/17/2016	Leith	Flood	\$350,000

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.3-1 Significant Flood Events in Fayette County (1950 - 2022)			
DATE	LOCATION	FLOODING EVENT	ESTIMATED COST
8/14/2016	Perryopolis	Flash Flood	\$5,000
8/28/2016	Bute	Flash Flood	\$5,000,000
8/28/2016	Connellsville City	Flood	\$3,500,000
12/18/2016	Wharton Furnace	Flood	\$5,000
3/1/2017	Leith	Flood	\$10,000
5/5/2017	West Overton	Flash Flood	\$10,000
6/23/2017	Hopwood	Flash Flood	\$0
6/23/2017	North Herbert	Flash Flood	\$0
7/14/2017	Oliphant Furnace	Flash Flood	\$0
7/14/2017	Masontown	Flash Flood	\$0
7/23/2017	Moyer	Flash Flood	\$0
7/27/2017	Elliottsville	Flood	\$0
7/28/2017	South Uniontown	Flash Flood	\$60,000
7/28/2017	Chalkhill	Flash Flood	\$20,000
7/28/2017	Ruble Mill	Flash Flood	\$1,000
7/28/2017	South Uniontown	Flash Flood	\$20,000
7/29/2017	Oliphant Furnace	Flood	\$0
7/29/2017	Ohiopyle	Flood	\$0
2/15/2018	Coldbrook	Flood	\$0
4/3/2018	Haddenville	Flood	\$0
5/14/2018	Masontown	Flash Flood	\$0
6/10/2018	Vanderbilt	Flash Flood	\$0
6/10/2018	Bowest Jct	Flash Flood	\$0
6/20/2018	Summit	Flash Flood	\$11,000 (\$1,000 in Crop Damage)
7/31/2018	Fairbank	Flash Flood	\$11,000 (\$1,000 in Crop Damage)
8/18/2018	Leith	Flood	\$0
8/18/2018	Hopwood	Flood	\$0
9/9/2018	Fayette City	Flood	\$1,000
9/10/2018	Gallatin	Flood	\$1,000
9/10/2018	Markleysburg	Flood	\$1,000
2/8/2019	Highhouse	Flood	\$0
7/7/2019	Darent	Flash Flood	\$5,000
7/7/2019	Leith	Flash Flood	\$10,000
7/7/2019	Percy	Flash Flood	\$5,000
7/7/2019	Jumonville	Flash Flood	\$5,000
7/7/2019	Coolspring	Flash Flood	\$10,000
7/7/2019	Coolspring	Flash Flood	\$5,000
7/7/2019	Leith	Flash Flood	\$5,000
7/11/2019	Markleysburg	Flash Flood	\$10,000
7/11/2019	Markleysburg	Flash Flood	\$5,000
7/21/2019	Leith	Flash Flood	\$5,000
8/2/2019	Masontown	Flash Flood	\$0

Table 4.3.3-1 Significant Flood Events in Fayette County (1950 - 2022)			
DATE	LOCATION	FLOODING EVENT	ESTIMATED COST
7/10/2020	Bute	Flash Flood	\$5,000
2/3/2022	Dunbar	Flood	\$0
		TOTAL	\$23,011,687

Common impacts include flooded roadways, trapped motorists, and damage to structures in low-lying areas. Reported property damages are estimates reported to the NCEI and displayed in the Storm Events database today. A zero-dollar amount may not necessarily mean there was zero property damage or crop damage, but that it could have been simply not reported. Between 1972 and February 2022 there were 147 flood related events reported to the NCEI in Fayette County (NOAA NCDC, 2022).

The NFIP identifies properties that experience frequent flooding. Floods are the most common and costly natural catastrophe. In terms of economic disruption, property damage, and loss of life, floods are “nature’s number-one disaster.” For that reason, flood insurance is almost never available under industry standard homeowner’s and renter’s policies. The best way for citizens to protect their property against loss to flood is the purchase flood insurance through the NFIP.

Since 1983, the chief means of providing flood insurance coverage has been a cooperative venture of FEMA and the private insurance known as the Write Your Own (WYO) Program. This partnership allows qualified property and casualty insurance companies to “write” (that is, issue) and service the NFIP’s Standard Flood Insurance Policy under their own names.

Today, nearly 60 WYO insurance companies issue and service the NFIP under their own names (FEMA, 2021a). More than 4.9 million federal flood insurance policies are in force. These policies represent over \$1.3 trillion in flood insurance coverage for homeowners, renters, and business owners throughout the United States and its territories. As of May 2021, Pennsylvania had a total of 51,555 policies in force across the state, 346 of which were in Fayette County (FEMA, 2021b).

The NFIP provides flood insurance to individuals in communities that are members of the program. Membership in the program is contingent on the community adopting and enforcing floodplain management and development regulations. The NFIP is based on the voluntary participation of communities of all sizes. In the context of this program, a “community” is a political entity – whether an incorporated city, town, township, borough, or village, or an unincorporated area of a County or parish – that has legal authority to adopt and enforce floodplain management ordinances for the area under its jurisdiction.

National Flood Insurance is available only in communities that apply for participation in the NFIP and agree to implement prescribed flood mitigation measures. Newly participating communities are admitted to the NFIP’s Emergency Program. Most of these communities quickly earn “promotion” to the Regular Program.

The Emergency Program is the initial phase of a community's participation in the NFIP. In return for the local government's agreeing to adopt basic floodplain management standards, the NFIP allows local property owners to buy modest amounts of flood insurance coverage. In return for agreeing to adopt more comprehensive floodplain management measures, an Emergency Program community can be "promoted" to the Regular Program. Local policyholders immediately become eligible to buy greater amounts of flood insurance coverage.

The minimum floodplain management requirements include:

- Review and permit all development in the SFHA;
- Elevate new and substantially improved residential structures above the Base Flood Elevation;
- Elevate or dry floodproof new and substantially improved non-residential structures;
- Limit development in floodways;
- Locate or construct all public utilities and facilities to minimize or eliminate flood damage; and
- Anchor foundation or structure to resist floatation, collapse, or lateral movement.

Table 4.3.3-2 below lists municipal participation in the NFIP. Of the 42 municipalities in Fayette County, 40 are actively participating in the NFIP. Since the 2017 HMPU, South Union Township has joined the NFIP. As of May 2022, three municipalities had no active policies: Markleysburg Borough, Ohiopyle Borough, and Vanderbilt Borough.

COMMUNITY	PARTICIPATION STATUS	CID	INITIAL FIRM IDENTIFIED	CURRENT EFFECTIVE MAP DATE
Belle Vernon Borough	Participating	420457	07/16/81	07/18/17
Brownsville Borough	Participating	420458	09/16/81	07/18/17
Brownsville Township	Participating	421621	02/17/82	07/18/17
Bullskin Township	Participating	421622	04/16/91	07/18/17
Connellsville City	Participating	420459	03/01/78	07/18/17
Connellsville Township	Participating	421623	07/16/91	07/18/17
Dawson Borough	Participating	420460	03/04/88	07/18/17
Dunbar Borough	Participating	420461	03/18/91	07/18/17
Dunbar Township	Participating	421624	07/04/88	07/18/17
Everson Borough	Participating	420462	08/01/79	07/18/17
Fairchance Borough	Participating	420463	04/16/91	07/18/17
Fayette City Borough	Participating	420464	02/03/82	07/18/17
Franklin Township	Participating	421625	03/18/91	07/18/17
Georges Township	Participating	421626	04/16/91	07/18/17
German Township	Participating	421627	04/16/91	07/18/17

Table 4.3.3-2 Fayette County Municipal Participation in the NFIP (FEMA, 2022)

COMMUNITY	PARTICIPATION STATUS	CID	INITIAL FIRM IDENTIFIED	CURRENT EFFECTIVE MAP DATE
Henry Clay Township	Participating	421628	01/01/87	07/18/17
Jefferson Township	Participating	421629	06/01/79	07/18/17
Lower Tyrone Township	Participating	421630	03/04/88	07/18/17
Luzerne Township	Participating	421631	03/01/82	07/18/17
Markleysburg Borough	Participating	422606	06/19/85	07/18/17
Masontown Borough	Participating	422572	09/04/91	07/18/17
Menallen Township	Participating	421632	04/16/91	07/18/17
Newell Borough	Participating	420465	04/15/81	07/18/17
Nicholson Township	Participating	422420	09/04/91	07/18/17
North Union Township	Participating	421633	04/16/91	07/18/17
Ohiopyle Borough	Participating	421615	12/01/86	07/18/17
Perryopolis Borough	Participating	421616	02/03/82	07/18/17
Perry Township	Participating	421634	04/15/82	07/18/17
Point Marion Borough	Participating	421617	07/04/88	07/18/17
Redstone Township	Participating	421635	01/06/82	07/18/17
Saltlick Township	Participating	421636	03/18/91	07/18/17
Smithfield Borough	Not Participating			
South Connellsville Borough	Not Participating	421619		
South Union Township	Participating	421637	04/16/91	04/16/91
Springfield Township	Participating	421638	04/16/91	04/16/91
Springhill Township	Participating	421639	03/18/91	04/17/95
Stewart Township	Participating	421640	01/01/87	01/01/87
Uniontown City	Participating	420466	05/01/78	05/01/78
Upper Tyrone Township	Participating	420467	03/15/79	12/06/02
Vanderbilt Borough	Participating	421620	01/01/87	01/01/87
Washington Township	Participating	421641	01/20/82	09/06/95
Wharton Township	Participating	421642	01/01/86	01/01/87

In addition, Regular Program communities are eligible to participate in the NFIP's Community Rating System (CRS). Under the CRS, policyholders can receive premium discounts of 5 to 45 percent as their cities and towns adopt more comprehensive flood mitigation measures. No communities in Fayette County currently participate in CRS.

Information on NFIP premiums and coverage, prior claims, and substantial damage claims provide additional information on past flood occurrences. Table 4.3.3-3 below shows this information for each community in Fayette County.

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Table 4.3.3-3 NFIP Policies and Claims Information (FEMA, 2022)

MUNICIPALITY	NO. POLICIES IN FORCE	TOTAL COVERAGE	TOTAL CLAIMS SINCE 1978	TOTAL PAID SINCE 1978
Belle Vernon Borough	13	\$1,952,300.00	111	\$1,030,054.66
Brownsville Borough	10	\$1,463,800.00	45	\$213,195.80
Brownsville Township	4	\$701,800.00	10	\$39,038.70
Bullskin Township	19	\$5,237,300.00	22	\$114,286.75
Connellsville City	22	\$4,976,500.00	54	\$494,708.73
Connellsville Township	12	\$441,800.00	2	\$73,830.30
Dawson Borough	4	\$855,400.00	9	\$28,156.86
Dunbar Borough	4	\$349,600.00	6	\$32,981.08
Dunbar Township	13	\$1,665,000.00	15	\$133,958.33
Everson Borough	0	\$140,000.00	7	\$10,598.45
Fairchance Borough	18	\$2,278,100.00	3	\$1,716.32
Fayette City Borough	5	\$849,800.00	52	\$461,743.56
Franklin Township	4	\$1,080,000.00	1	\$250.00
Georges Township	5	\$409,400.00	6	\$48,372.80
German Township	13	\$2,271,200.00	10	\$25,016.59
Henry Clay Township	7	\$1,715,000	2	\$840.50
Jefferson Township	2	\$114,000.00	4	\$17,982.54
Lower Tyrone Township	0	\$0.00	1	\$0.00
Luzerne Township	22	\$6,598,000.00	26	\$277,122.10
Markleysburg Borough	0	\$0.00	0	\$0.00
Masontown Borough	2	\$1,417,000.00	2	\$3,932.74
Menallen Township	3	\$665,500.00	3	\$1,621.00
Newell Borough	13	\$2,165,000.00	1	\$0.00
Nicholson Township	2	\$133,000.00	2	\$14,960.38
North Union Township	16	\$3,272,500	24	\$1,036,654.12
Ohiopyle Borough	0	\$0.00	0	\$0.00
Perry Township	16	\$2,391,900.00	15	\$131,607.72
Perryopolis Borough	16	\$2,446,400.00	20	\$254,192.31
Point Marion Borough	13	\$1,051,700.00	37	\$366,072.12
Redstone Township	11	\$1,231,500.00	27	\$108,100.25
Saltlick Township	22	\$2,768,000.00	26	\$41,918.03

Table 4.3.3-3 NFIP Policies and Claims Information (FEMA, 2022)

MUNICIPALITY	NO. POLICIES IN FORCE	TOTAL COVERAGE	TOTAL CLAIMS SINCE 1978	TOTAL PAID SINCE 1978
Smithfield Borough	Data Not Available			
South Connellsville Borough	Not Participating			
South Union Township	26	\$5,807,400.00	42	\$349,702.22
Springfield Township	12	\$1,949,300.00	4	\$575.65
Springhill Township	5	\$1,098,900.00	11	\$130,878.32
Stewart Township	1	\$100,000	1	\$0.00
Uniontown City	48	\$13,854,800.00	96	\$2,596,950.15
Upper Tyrone Township	10	\$1,415,400.00	7	\$7,276.50
Vanderbilt Borough	0	\$0	0	\$0.00
Washington Township	13	\$1,995,000.00	13	\$47,686.34
Wharton Township	3	\$1,050,000.00	1	\$147,990.38
TOTAL	450	\$77,912,300.00	718	\$7,749,263.57

In addition to the past flood events, the NFIP identifies properties that experience frequent flooding and can be used to determine areas of higher risk. These properties are identified through the NFIP when they receive more than one payment for flood damages. The NFIP defines a Repetitive Loss (RL) property as “any insurable building for which two or more claims of more than \$1,000 were paid by the NFIP within any rolling ten-year period, since 1978”. The RL data provided in Table 4.3.3-4 represents the NFIP’s definition of RL.

With respect to obtaining mitigation funding, FEMA’s Hazard Mitigation Assistance (HMA) grant programs define a RL property as a structure that:

- Is covered by a contract for flood insurance made available under the NFIP; and
- Has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25 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 (ICC). (Note: Homes are eligible for ICC coverage after the first loss, however cost for ICC is part of all policies.)

Under FEMA’s HMA grant programs, a Severe Repetitive Loss (SRL) property is a structure that:

- Is covered under a contract for flood insurance made available under the NFIP; and
- Has incurred flood related damage (i) For which four or more separate claims payments have been made under flood insurance coverage with the amount of each

such claim exceeding \$5,000, and with the cumulative amount of such claims payments exceeding \$20,000; or (ii) For which at least two separate claims payments have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.

As of May 15, 2022, there were 62 RL properties in Fayette County. There are three SRL properties in Fayette County, two of which are in the Belle Vernon Borough and one in Perryopolis Borough. Table 4.3.3-4 lists the number of repetitive and severe repetitive loss properties by municipality and table 4.3.3-5 lists the number of repetitive and severe repetitive loss properties by type.

Table 4.3.3-4 Number of Repetitive and Severe Repetitive Loss Properties by Municipality (NFIP, 2022)		
MUNICIPALITY	NUMBER OF REPETITIVE LOSS PROPERTIES	NUMBER OF SEVERE REPETITIVE LOSS PROPERTIES
Belle Vernon Borough	14	2
Brownsville Borough	3	
City of Connellsville	2	
Connellsville Township	1	
Dunbar Township	1	
Fayette City Borough	5	
Jefferson Township	1	
Luzerne Township	3	
North Union Township	1	
Perry Township	1	
Perryopolis Borough	3	1
Point Marion Borough	2	
Redstone Township	4	
Saltlick Township	1	
South Union Township	5	
Uniontown City	15	
TOTAL	62	

Table 4.3.3-5 Summary of the Number and Type of Repetitive Loss Properties by Municipality (FEMA, 2022)

MUNICIPALITY	TYPE						SUM OF REPETITIVE LOSS PROPERTIES
	2-4 FAMILY	CONDO	OTHER NONRES	BUS. NONRES.	OTHER RESIDENTIAL	SINGLE FAMILY	
Belle Vernon Borough	5	0	2	0	1	6	14
Brownsville Borough	0	0	2	0	0	1	3
City of Connellsville	0	0	0	0	0	2	2
Connellsville Township	0	0	0	0	1	0	1
Dunbar Township	0	0	1	0	0	0	1
Fayette City Borough	0	0	1	0	0	4	5
Jefferson Township	0	0	0	0	0	1	1
Luzerne Township	0	0	0	0	0	3	3
North Union Township	0	0	0	1	0	0	1
Perry Township	0	0	0	0	1	0	1
Perryopolis Borough	0	0	1	0	0	2	3
Point Marion Borough	0	0	0	0	0	2	2
Redstone Township	0	0	1	0	0	3	4
Saltlick Township	0	0	0	0	0	1	1
South Union Township	0	0	1	0	0	4	5
Uniontown City	0	1	2	9	1	2	15
TOTAL	5	1	11	10	4	31	62

4.3.3.4. Future Occurrence

In Fayette County, flooding occurs commonly and can occur during any season of the year. Therefore, the future occurrence of floods in Fayette County can be characterized as *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1). Floods are described in terms of their extent (including the horizontal area affected and the vertical depth of floodwaters) and the related probability of occurrence. The NFIP recognizes the 1%-annual-chance flood, also known as the base flood, as the standard for identifying properties subject to federal flood insurance purchase requirements. The NFIP uses historical records to determine the probability of occurrence for different extents of flooding. The probability of occurrence is expressed in percentages as the chance of a flood of a specific extent occurring in any given year. A specific flood that is used for several purposes is called the base flood, which has a one percent chance of occurring in any particular year. The base flood is often

referred to as the “100-year flood” since its probability of occurrence suggests it should reoccur once every 100 years, although this is not the case in practice. Experiencing a 100-year flood does not mean a similar flood cannot happen for the next 99 years; rather it reflects the probability that over a long period, a flood of that magnitude has a one percent chance of occurring in any given year. It is therefore referred to in this document as the 1%-annual-chance flood. Table 4.3.3-6 below shows a range of flood recurrence intervals and associated probabilities of occurrence.

Table 4.3.3-6 Recurrence Intervals and Associated Probabilities of Occurrence (USGS, 2021)	
RECURRENCE INTERVAL	CHANCE OF OCCURRENCE IN ANY GIVEN YEAR (%)
10 years	10
50 years	2
100 years	1
500 years	0.2

Digital Flood Insurance Rate Maps (DFIRMs) and FIRMs published by FEMA can be used to identify areas subject to the 1%- and 0.2%-annual-chance flooding. Areas subject to 2%- and 10%-annual-chance events are not shown on maps; however, water surface elevations associated with these events are included in the flood source profiles contained in associated Flood Insurance Study Reports. The most recent Flood Insurance Study for each County in Pennsylvania is available from the FEMA Map Service Center.

Changing weather patterns have made many types of disasters more frequent and extreme. As frequent and intense rainfalls increase, more severe flooding is being seen in many areas across the State. In general, hazardous precipitation events are increasing in this region. This can also lead to higher instances of flash flooding and river overflow. Climate Central predicts that precipitation rates will more than double in the region surrounding the City of Pittsburgh by 2050, which will have a large impact on localized flooding (Climate Central, 2019).

Even though 40 of Fayette County’s 42 municipalities participate in the NFIP, communities can take the opportunity to strengthen floodplain management by reviewing current codes and ordinances and by strongly enforcing their floodplain codes on new development to avoid aggravating further flooding. Significant residential growth in the outlying rural townships can increase opportunities for flash flooding if floodplain development and stormwater management are not properly regulated. Frequently localized rainstorms go undetected by the National Weather Service and create surface flooding.

In Fayette County, flooding occurs commonly and can take place during any season of the year. However, the possibility of flooding is greatly reduced during the winter months. Although severe floods are attributable to rainfall alone, the spring floods can be compounded by snowmelt and moving ice. The major floods in the late summer and fall are often associated with tropical storms moving up the Atlantic coastline. Within the flood-susceptible areas in Fayette County, it is expected that the character of flooding will remain essentially unchanged from what has been experienced for many years. However, some increases in the severity and frequency of flooding may result due to planning or recent

development within the floodplains of various streams, as well as increased intensity and frequency of rain events. Therefore, the future occurrence of floods in Fayette County can be characterized as *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4.1-1).

With anticipated rises in average temperature, due to global warming, the frequency of flooding is expected to rise as precipitation rates increase. The impacts of climate change will not only influence flooding frequency but will likely cause direct effects on repetitive loss numbers. Additionally, there has been an increase in North Atlantic hurricane activity over the last several decades due to natural variability and climate change which in turn magnifies the intensity of tropical cyclones. This hurricane activity has also been consistently occurring prior to the established hurricane season in the Atlantic. Since 2015, the National Hurricane Center has identified at least one named storm each year in May or earlier. These tropical storms often result in flooding events in Fayette County and throughout Pennsylvania.

4.3.3.5. Vulnerability Assessment

Fayette County is vulnerable to flooding that causes loss of life, property damage, and road closures. For purposes of assessing vulnerability, the County focused on community assets that are in the 1-percent-annual-chance floodplain. While greater and smaller floods are possible, information about the extent and depths for this floodplain is available for all municipalities Countywide, thus providing a consistent basis for analysis. Flood vulnerability maps for each local municipality showing the 1-percent-annual-chance flood hazard area, critical facilities impacted, and transportation routes are included in **Appendix D – Local Municipality Flood Vulnerability Maps**.

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

Table 4.3.3-9 lists the addressable structures, critical facilities, and populations located in each municipality and in the SFHA. The numbers of vulnerable addressable structures and critical facilities were calculated by overlaying the addressable structures with the SFHA as shown on the FIRM. Similarly, the estimated population in the SFHA was calculated by overlaying the centroids of Census block groups with the SFHA. While this is an estimate, using the block group centroid helps to minimize overestimation of flood-prone populations.

There are 2,081 structures in the SFHA County-wide (3% of all structures). Dawson Borough has the highest proportion of structures in the floodplain at 52% of structures vulnerable to flooding. Dawson Borough (52%), Fayette City Borough (33%), Belle Vernon (22%), Newell

Borough (16%), and Point Marion (12%) have the highest percentage of structures located in the floodplain. Five municipalities have no structures in the floodplain.

There are 41 critical facilities (7%) located in the SFHA. Point Marion Borough has the highest number of vulnerable critical facilities with five. There are five municipalities that have over 25% of their critical facilities located in the floodplain. Twenty-one municipalities have no critical facilities in the SFHA.

About 3% of the population lives in the SFHA. Connellsville City has the highest number of residents vulnerable to flooding with 305 residents. Two municipalities have over 25% of the population living in the SFHA: Dawson Borough (63.3% %) and Fayette City Borough (27.2%). Six municipalities have no population living in the SFHA.

Table 4.3.3-8 lists the number of structures in the SFHA by generalized land use type. Most vulnerable structures (1,579) are residential properties, followed by commercial (320), and exempt (116). Floods also have a significant impact on agricultural crops impacting communities with extensive farmlands. Not only are crops lost in the immediate flood event, but often the remaining crops are of lesser quality, resulting in further losses. Additionally, there is the cost of replacing grazing fields where livestock feed that may be lost to flooding.

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Table 4.3.3-7 Community Flood Vulnerability in Fayette County

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN SFHA	PERCENT STRUCTURES SFHA	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN SFHA	PERCENT CRITICAL FACILITIES IN SFHA	TOTAL ESTIMATED 2010 POPULATION	POPULATION IN SFHA	PERCENT POPULATION IN SFHA
Belle Vernon Borough	450	99	22%	2	1	50%	1,419	172	12%
Brownsville Borough	1202	122	10%	21	2	10%	2,701	203	8%
Brownsville Township	346	20	6%	6	0	0%	221	10	5%
Bullskin Township	3472	87	3%	15	1	7%	6,861	171	2%
Connellsville City	3321	166	5%	26	4	15%	8,210	305	4%
Connellsville Township	1129	12	1%	9	0	0%	867	0	0%
Dawson Borough	191	99	52%	3	1	33%	313	198	63%
Dunbar Borough	487	32	7%	4	3	75%	1,663	59	4%
Dunbar Township	3727	19	1%	28	3	11%	6,440	19	0%
Everson Borough	338	6	2%	5	0	0%	751	12	2%
Fairchance Borough	855	97	11%	11	0	0%	2,619	215	8%
Fayette City Borough	338	110	33%	7	3	43%	591	161	27%
Franklin Township	1277	3	0%	14	1	7%	1,774	2	0%
Georges Township	3196	44	1%	44	1	2%	4,938	48	1%
German Township	2639	42	2%	23	0	0%	4,271	72	2%
Henry Clay Township	1446	32	2%	10	0	0%	1,756	26	1%
Jefferson Township	974	9	1%	3	0	0%	2,886	102	4%
Lower Tyrone Township	557	2	0%	5	0	0%	1,268	14	1%
Luzerne Township	2144	124	6%	22	1	5%	5,529	199	4%
Markleysburg Borough	124	0	0%	4	0	0%	397	0	0%

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Table 4.3.3-7 Community Flood Vulnerability in Fayette County

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN SFHA	PERCENT STRUCTURES SFHA	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN SFHA	PERCENT CRITICAL FACILITIES IN SFHA	TOTAL ESTIMATED 2010 POPULATION	POPULATION IN SFHA	PERCENT POPULATION IN SFHA
Masontown Borough	1609	1	0%	12	1	8%	3,504	0	0%
Menallen Township	2326	36	2%	24	3	13%	4,653	43	1%
Newell Borough	269	43	16%	3	0	0%	397	37	9%
Nicholson Township	932	8	1%	5	0	0%	1,770	15	1%
North Union Township	6215	42	1%	45	1	2%	14,689	125	1%
Ohiopyle Borough	69	0	0%	2	0	0%	55	0	0%
Perry Township	1389	94	7%	5	0	0%	3,310	156	5%
Perryopolis Borough	910	30	3%	12	0	0%	1,243	38	3%
Point Marion Borough	530	64	12%	11	5	45%	974	131	13%
Redstone Township	2806	50	2%	26	0	0%	6,302	85	1%
Saltlick Township	1891	174	9%	16	0	0%	3,938	261	7%
Smithfield Borough	392	0	0%	7	0	0%	1,101	0	0%
South Connellsville Borough	896	0	0%	7	1	14%	2,502	9	0%
South Union Township	5126	45	1%	31	3	10%	8,516	53	1%
Springfield Township	1524	59	4%	15	1	7%	4,068	108	3%
Springhill Township	1451	19	1%	16	1	6%	3,455	40	1%
Stewart Township	468	8	2%	2	0	0%	859	16	2%
Uniontown City	4493	111	2%	57	2	4%	10,714	152	1%
Upper Tyrone Township	954	86	9%	4	0	0%	2,911	165	6%
Vanderbilt Borough	224	0	0%	5	0	0%	322	0	0%

Table 4.3.3-7 Community Flood Vulnerability in Fayette County

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN SFHA	PERCENT STRUCTURES SFHA	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN SFHA	PERCENT CRITICAL FACILITIES IN SFHA	TOTAL ESTIMATED 2010 POPULATION	POPULATION IN SFHA	PERCENT POPULATION IN SFHA
Washington Township	1899	66	3%	18	2	11%	3,515	72	2%
Wharton Township	1914	20	1%	24	0	0%	4,005	29	1%
GRAND TOTAL	66,500	2,081	3%	609	41	7%	138,278	3,523	3%

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Table 4.3.3-8 Community Flood Vulnerability in Fayette County by Structure Type

MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITIES	VACANT	TOTAL
Belle Vernon Borough	0	16	7	2	74	0	0	0	99
Brownsville Borough	0	26	6	3	87	1	0	0	123
Brownsville Township	0	0	0	0	20	0	0	0	20
Bullskin Township	2	11	9	0	63	0	1	0	86
Connellsville City	0	50	13	0	100	3	1	0	167
Connellsville Township	0	5	0	0	4	0	3	0	12
Dawson Borough	0	10	3	0	85	0	1	0	99
Dunbar Borough	0	11	3	0	18	0	0	0	32
Dunbar Township	2	1	5	0	10	0	1	0	19
Everson Borough	0	1	0	0	5	0	0	0	6
Fairchance Borough	0	16	3	0	76	3	0	0	98
Fayette City Borough	0	16	8	0	84	2	0	0	110
Franklin Township	1	0	0	0	2	0	0	0	3
Georges Township	4	4	1	0	34	0	0	0	43
German Township	2	4	1	0	36	0	0	0	43
Henry Clay Township	0	0	3	0	29	0	0	0	32
Jefferson Township	1	1	0	0	7	0	0	0	9
Lower Tyrone Township	1	0	2	0	0	0	0	0	3
Luzerne Township	2	4	4	1	113	0	0	0	124
Markleysburg Borough	0	0	0	0	0	0	0	0	0
Masontown Borough	0	0	1	0	0	0	0	0	1
Menallen Township	1	4	1	1	29	0	0	0	36
Newell Borough	0	0	0	2	40	0	1	0	43
Nicholson Township	0	0	1	0	8	0	0	0	9
North Union Township	0	16	5	0	22	0	0	0	43

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Table 4.3.3-8 Community Flood Vulnerability in Fayette County by Structure Type

MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITIES	VACANT	TOTAL
Ohiopyle Borough	0	0	0	0	0	0	0	0	0
Perry Township	5	7	5	0	78	1	0	0	96
Perryopolis Borough	1	4	4	0	21	0	0	0	30
Point Marion Borough	0	5	2	2	54	0	0	0	63
Redstone Township	1	11	1	1	36	0	0	0	50
Saltlick Township	3	9	1	0	161	0	0	0	174
Smithfield Borough	0	0	0	0	0	0	0	0	0
South Connellsville Borough	0	0	0	0	0	0	0	0	0
South Union Township	1	9	4	0	31	0	0	0	45
Springfield Township	2	0	3	0	51	3	0	0	59
Springhill Township	2	2	1	0	14	0	0	0	19
Stewart Township	1	0	4	0	3	0	0	0	8
Uniontown City	0	69	11	1	29	2	0	0	112
Upper Tyrone Township	1	5	0	1	80	0	0	0	87
Vanderbilt Borough	0	0	0	0	0	0	0	0	0
Washington Township	1	2	4	0	59	0	0	0	66
Wharton Township	2	1	0	0	16	0	0	0	19
GRAND TOTAL	36	320	116	14	1,579	15	8	0	2,088

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Manufactured homes and commercial trailers are also particularly vulnerable to flooding due to their lightweight and unanchored design. The structure database used in this plan update does not include markers for trailer parks or individual trailers. Additional analysis is needed to determine which municipalities have trailer parks located in the SFHA. FEMA recommends anchoring or elevation techniques to protect manufactured homes from flood risk. More information for these techniques can be found online: <https://www.fema.gov/manufactured-mobile-home>.

Historic resources including landmark buildings, historic structures and sites, commercial and residential districts, rural resources, archaeological and cultural sites, and the historic environment can be impacted by disaster events. Historic and cultural resources can have unique vulnerabilities to hazard events. Depending on the resource, vulnerability to certain hazards may be greater and/or less than that of other assets in the County. Flooding may have a more significant impact on a historic property than other properties, but there may be less of an impact on historic sites such as monuments or cemeteries.

Additional information on flood vulnerability and losses in Fayette County, including the 1%-annual-chance flood event results from Hazus, FEMA's loss estimation software, is provided in Section 4.4.3 Potential Loss Estimates.

4.3.4. Hailstorm

4.3.4.1. Location and Extent

In addition to flooding and severe winds, hail is another potential damaging product of severe thunderstorms or in conjunction with a tornado event. Hailstorms are formed most commonly in thunderstorms with intense updraft, high liquid water content, large vertical extent, large water droplets, and cloud layers below freezing. 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 within 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. FEMA lists western and central Pennsylvania hail risk as very low to relatively low.

4.3.4.2. Range and Magnitude

Hail is described qualitatively and quantitatively by its size and can range from 0.2 inches to 4.5 inches, as show in Table 4.3.4-1.

Table 4.3.4-1 Hailstone Size and Relationship to Updraft Speed (PA HMP, 2018)		
HAIRSTONE SIZE	MEASTUREMENT (INCHES)	UPDRAFT SPEED (MPH)
BB	<0.25	<24

Pea	0.25	24
Marble	0.50	35
Dime	0.70	38
Penny	0.75	40
Nickel	0.88	46
Quarter	1.00	49
Half Dollar	1.25	54
Walnut	1.50	60
Golf Ball	1.75	64
Hen Egg	2.00	69
Tennis Ball	2.50	77
Baseball	2.75	81
Tea Cup	3.00	84
Grapefruit	4.00	98
Softball	4.50	103

The size of hail is dependent on the strength of the upward air movement along the front of a thunderstorm, called the updraft. Hailstone nuclei are buoyed or lifted by the updraft and grow the longer the stone is held aloft. Weaker updrafts create smaller hailstones, while strong updrafts provide a longer amount of time for hailstone nuclei to grow in diameter.

Hailstorms can cause significant damage to crops, livestock, and property. Damage is dependent on size, duration, and intensity of hail precipitation. Those who do not seek shelter could face serious injury. Automobiles and aircraft are particularly susceptible to damage. Since hail precipitation usually occurs during thunderstorm events, the impacts of other hazards associated with thunderstorms (i.e., strong winds, intense precipitation, etc.) often occur simultaneously.

A potential worst-case scenario of a hailstorm would be if a storm carrying hail of over two inches were to occur over a prolonged period within the County or Municipality. Hail can cause severe property damage and a significant lost revenue, as well as endanger lives.

4.3.4.3. Past Occurrence

Between 1950 and April 2022, there were 104 recorded hail events in Fayette County (NOAA NCEI, 2022). The worst hailstorms Fayette County has witnessed took place in July 1983, July 1985, and April 1999. In all three instances, hail accumulation was at or more than two inches (NOAA, 2010). While no reported damage values were provided by NOAA for Fayette County, statewide hailstorms caused \$5,919,600 in property damage and \$3,487,000 in crop damage between 1950 and 2018 (PA All-HMP, 2018). Table 4.3.4-2 describes the date, location, and magnitude of these events. Multiple municipalities recording the same event have been grouped under one shared date.

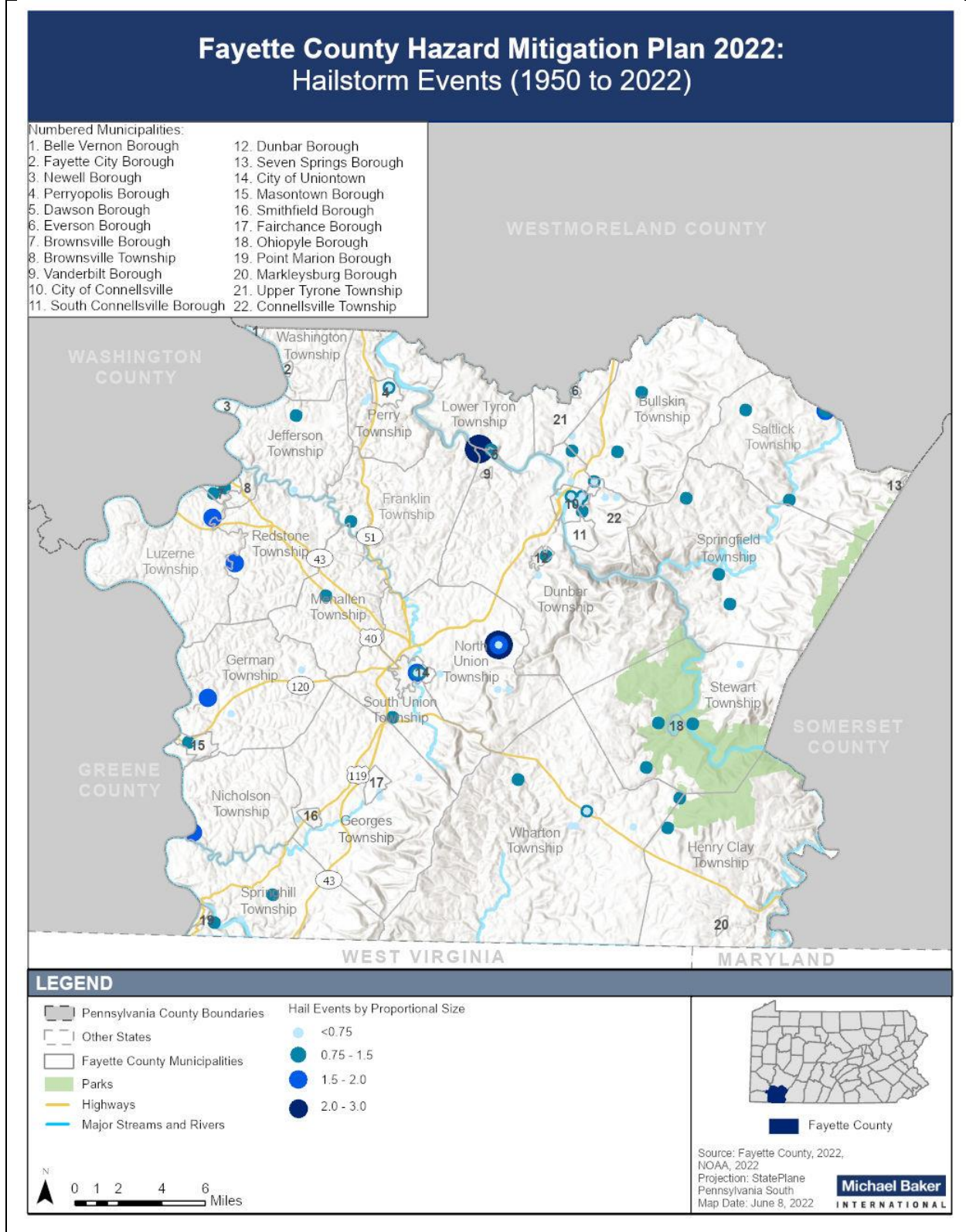
Table 4.3.4-2 Fayette County Hailstorms (1950-2020) (NOAA NCEI, 2022)		
DATE	LOCATION	MAGNITUDE
7/10/1973	Fayette County	0.75 in.

Table 4.3.4-2 Fayette County Hailstorms (1950-2020) (NOAA NCEI, 2022)		
DATE	LOCATION	MAGNITUDE
7/20/1983	Fayette County	3.00 in.
4/14/1984	Fayette County	0.75 in.
4/14/1984	Fayette County	2.50 in.
7/8/1985	Fayette County	2.00 in.
6/29/1987	Fayette County	1.00 in.
6/30/1990	Fayette County	1.75 in.
7/6/1991	Not reported	0.75 in.
5/12/1993	Uniontown	1.00 in.
2/27/1996	Connellsville	0.75 in.
8/15/1996	Uniontown	0.75 in.
5/31/1998	Brownsville and Republic	1.75 in.
6/2/1998	Champion	2.00 in.
6/19/1998	Champion	0.88 in.
6/30/1998	Perryopolis, Hopwood, Farmington	0.75 in.
4/23/1999	Point Marion	2.00 in.
6/2/2000	Farmington	0.75 in.
4/9/2001	Uniontown	1.00 in.
4/28/2002	Uniontown	1.00 in.
8/27/2003	Fairchance	0.75 in.
7/18/2004	Connellsville	0.75 in.
8/10/2004	Uniontown	0.75 in.
6/6/2005	Brownsville, Perryopolis, Connellsville, Dunbar	1.25 in.
6/29/2006	Uniontown	0.88 in.
7/2/2006	Masontown	1.00 in.
10/4/2006	Brownsville	1.00 in.
6/13/2007	Fairchance	0.75 in.
6/27/2007	Connellsville	0.88 in.
7/29/2007	Smithfield	0.75 in.
8/8/2007	Everson	0.75 in.
8/9/2007	Masontown	0.75 in.
6/16/2008	Brownsville, Uniontown, Leith Edenborn	1.00 in.
7/30/2008	Leckrone	0.75 in.

Table 4.3.4-2 Fayette County Hailstorms (1950-2020) (NOAA NCEI, 2022)		
DATE	LOCATION	MAGNITUDE
6/17/2009	Moyer	1.00 in.
7/21/2009	Fairmount	0.75 in.
3/23/2011	Farmington, Martin	1.75 in.
4/4/2011	Belle Vernon	1.00 in.
6/09/2011	Grindstone, Connellsville, Ohiopyle, Flat Rock	1.25 in.
7/03/2011	Herbert, Hopwood	0.88 in.
9/04/2011	Whitsett, Morris, Nilan	1.25 in.
3/28/2012	Indian Head, Lynnwood, Whitsett,	1.00 in.
6/29/2012	Coldbrook	0.75 in.
7/04/2012	Coldbrook, Moyer, Morgan, Raster Run	1.25 in.
7/31/2013	Farmington, Ohiopyle	1.00 in.
8/09/2012	White Bridge, Mill Run	0.88 in.
5/22/2013	Leith	0.75 in.
6/25/2013	Coldbrook	0.75 in.
6/28/2013	Dawson, Connellsville	1.00 in.
5/14/2014	Jumonville	0.75 in.
6/03/2014	Smock	1.00 in.
6/08/2014	Connellsville, Snyderstown, Coldbrook	1.00 in.
6/18/2014	Farmington	0.75 in.
7/30/2014	Connellsville	0.88 in.
4/09/2015	Victoria	1.00 in.
8/03/2015	West Overton, White, Ohiopyle	1.00 in.
5/30/2017	Dunbar Township	1.00 in.
8/18/2019	Whitsett	1.0 in.
8/28/2020	Farmington	0.75 in

Figure 4.3.4-1 displays the location of hailstorm events across Fayette County. The hailstorm events have been fairly evenly distributed across the County.

Figure 4.3.4-1 Fayette County Hailstorm Events (1950-2022)



4.3.4.4. *Future Occurrence*

According to the Pennsylvania State Hazard Mitigation Plan, hailstorm events are expected to occur annually across the Commonwealth (including Fayette County), primarily between April and August. According to the National Risk Index, western Pennsylvania, where Fayette County is located, can expect to experience a higher number of hailstorm events compared to other areas of Pennsylvania (PEMA, 2018). Therefore, it is possible that hailstorms will occur in Fayette County in any given year as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1). Hailstorm future occurrence is listed as likely in Fayette County.

Hailstorms are costly to people and property and are expected to also change in response to a warming climate. Moisture and wind strength are significant factors to produce hail. It is projected that low-level moisture and convective instability will increase, and thereby increase the likelihood of hailstorms and enlargement of hailstones. The melting height will also rise which enhances hail melt and the average size of hailstones. It is possible that hailstorm frequency will increase in North America, but the hail severity will increase in most regions of the world (Raupach, 2021).

4.3.4.5. *Vulnerability Assessment*

The potential for hailstorms will always exist, however meteorologists and weather forecasters can normally predict hail events with accuracy. Adhering to hail warnings can significantly reduce the risk of hail-related injuries and even certain property/crop damages. The 112,285 acres of agricultural land in Fayette County, with a total agricultural production value of \$28,836,000, is especially vulnerable to hailstorm damage (USDA, 2019).

4.3.5. *Landslide*

4.3.5.1. *Location and Extent*

Landslides occur primarily in colluvial (loose) soil and old landslide debris on steep slopes. Steep mountain slopes across the state have experienced debris avalanches associated with extreme rainfall or rain-on-snow events.

According to DCNR, southwestern Pennsylvania has by far the highest concentration of landslides, even though much of the state has susceptible areas. Most major and minor highways have sections cut in rock or soil that can fail. Outside the southwest, high susceptibility areas are smaller and have more varied geology and topography. This can be confirmed in Figure 4.3.7-1, which illustrates the relative landslide hazard susceptibility across Pennsylvania. The U.S. Geological Survey (USGS) identifies Fayette County as falling into two distinct zones of landslide susceptibility and incidence. According to the figure, Fayette County has a high susceptibility to landslides and a moderate incidence. The western portion of the County has a higher landslide incidence.

The Monongahela River Valley of northern West Virginia and southwestern Pennsylvania has a special place in landslide folklore. The name "Monongahela" is derived from an American Indian word that is translated as "river with the sliding banks" or "high banks which break off and fall down" (Espenshade, 1925). The Monongahela Valley in southwestern Pennsylvania is the most slide-prone portion of the Commonwealth.

Rock falls, rockslides, block glide, debris slide, earth flow, mud flow, and other slope failures usually occur in areas of Fayette County with moderate to steep slopes and high precipitation. Many slope failures are associated with precipitation events – periods of sustained above-average precipitation, specific rainstorms, or snowmelt events. Areas experiencing erosion, decline in vegetation cover, and earthquakes are also susceptible to landslides. Human activities that contribute to slope failure include altering the natural slope gradient, increasing soil water content, and removing vegetation cover. Urban and rural land development increases both the number of landslides and the economic effects of natural slides. Major highway construction with large excavations and fills located in mountainous areas creates potential for many landslides (DCNR, 2001). In other words, human activity can cause instability in an otherwise stable slope because of the presence of underlying weak rock beds. In general, though, slopes with a gradient of 15% or higher may be prone to sliding, especially in conjunction with heavy rain events. These steep slopes are shown in Figure 4.3.5-1 and are typically found in the eastern, more forested areas of the County.

Figure 4.3.5-1 Fayette County Landslide Susceptibility by Slope Grade

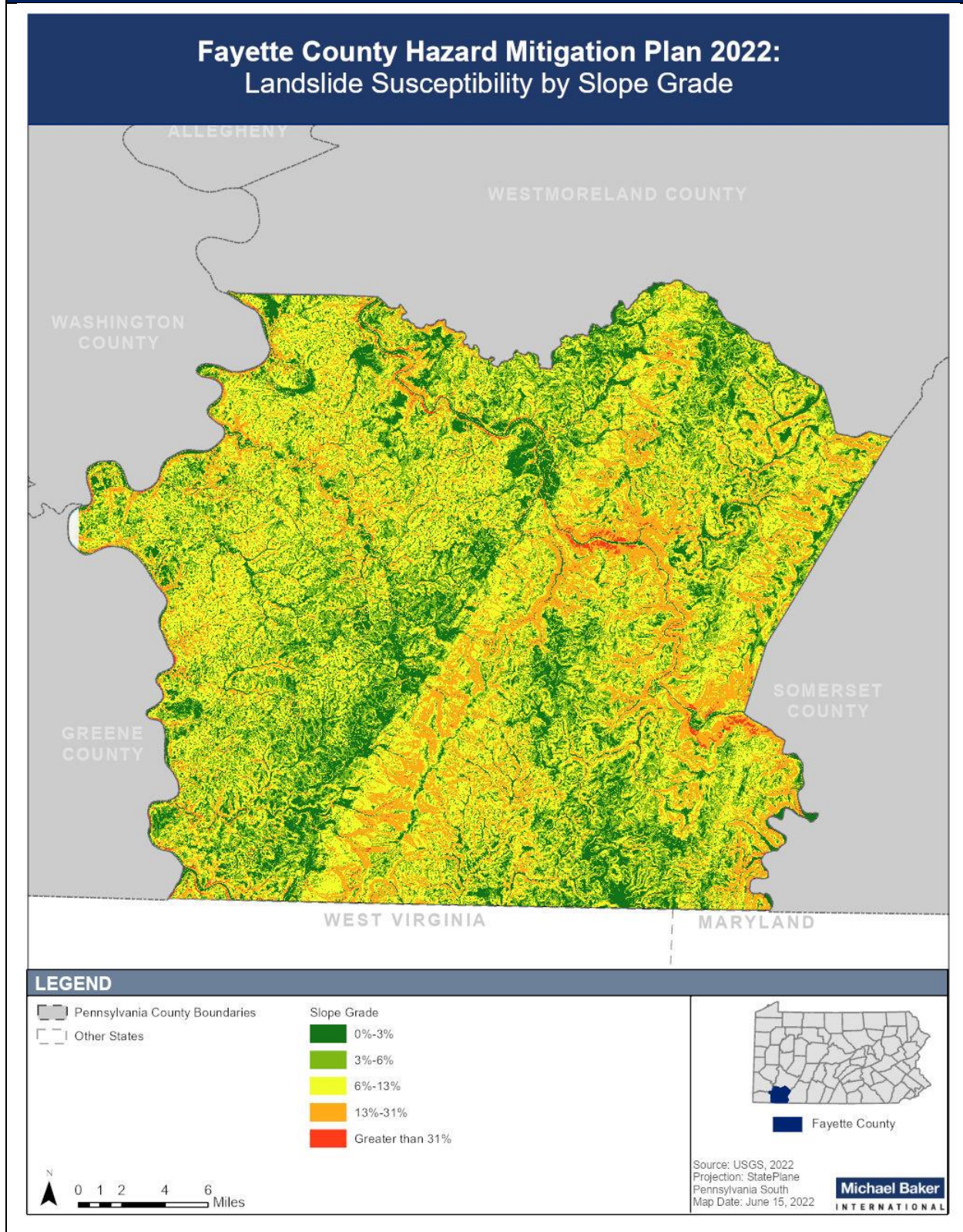
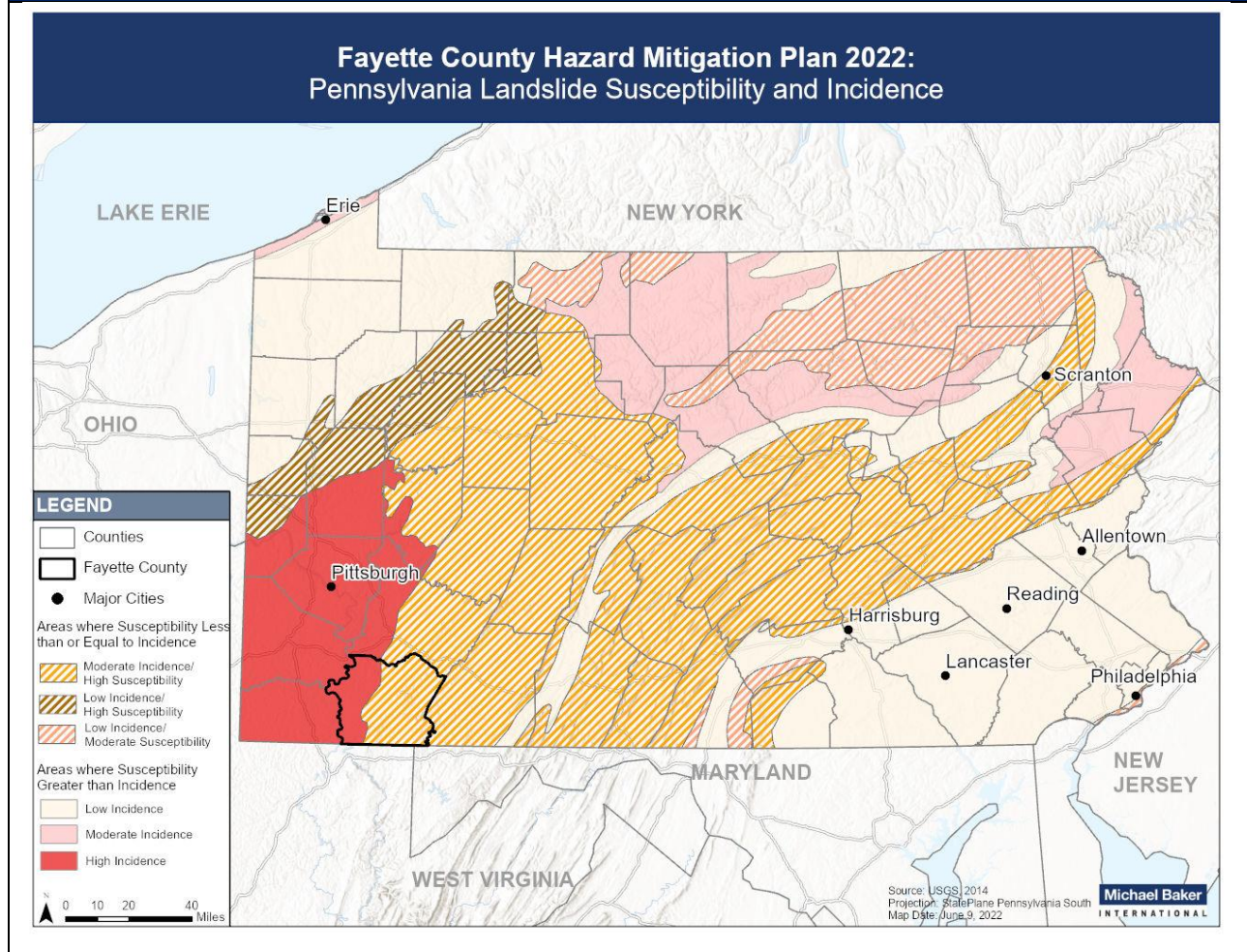


Figure 4.3.5-2 Landslide Susceptibility and Incidence



4.3.5.2. Range of Magnitude

Landslides can have potentially devastating consequences in localized areas. Landslides cause damage to transportation routes, utilities, and buildings and create travel delays and other side effects. Structures or infrastructure built on susceptible land will likely collapse as their footings slide downhill. Structures below the landslide can be crushed. Landslides next to roads and highways have the potential to fall on and damage vehicles or cause accidents.

- According to the Pennsylvania DCNR (PA DCNR) website, deaths and injuries due to landslides are rare in Pennsylvania. Most Pennsylvania landslides are moderate to slow moving and damage property rather than people. Almost all the known deaths due to landslides have occurred when rock falls or other slides along highways involved vehicles. If residential and recreational development increases on and near steep mountain slopes, the hazard from these rapid events will also increase. Storm-induced debris flows are the only other type of landslide likely to cause death and injuries. Most southwestern Pennsylvania landslides are small and move slowly. The impact of

landslides on the environment depends on the size and specific location of the event. In general, impacts include: Changes to topography;

- Damage or destruction of vegetation;
- Potential diversion or blockage of water in the vicinity of streams, rivers, etc.; and
- Increased sediment runoff both during and after event.

Property losses due to landslides and associated effects are more common than injuries and deaths. Most damages are less expensive, but significant. "Backyard" landslides are usually repaired incompletely or not at all. Cost estimates of several hundred thousand dollars for stabilization and repair of a landslide affecting two or three properties are typical. With repair estimates exceeding the value of the properties, abandonment is a frequent "solution". Sometimes local governments assist with relocation costs or "buy out" homeowners. Insurance covers landslide damage only for some business situations (PA DCNR, 2011). 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 \$10 million per year is spent on landslide repair contracts across the Commonwealth and a similar amount is spent on mitigation costs for grading projects (PA DCNR, 2009).

Fayette County's irregular topography makes landslides a possible threat. Areas with steep slopes, largely associated with the banks of the various major watercourses in the County, are especially vulnerable to landslides. While the potential for damage to lives or property from this type of natural hazard is relatively low within the County, the worst-case scenario would involve deaths, injuries, and transportation network disruptions. A landslide along PA 51 would significantly impact traffic flow, cause injuries or death, and could also have an economic impact because the road connects many of Fayette County's major industries.

4.3.5.3. Past Occurrence

According to the PA DCNR, there is limited data on how many landslides occur each year in Pennsylvania or how much damage they cause, although there have been a few efforts to determine totals. PEIRS data indicates that there have not been any reported landslides, mudslides, or rockslides in Fayette County from 2002-2009. Unfortunately, PEIRS is no longer active. Anecdotally, Fayette County has experienced minor landslides in the past; for example, in 2003, a landslide triggered by heavy rains closed Grindstone Road for a day but caused no other damage (WPXI Pittsburgh, 2003). More recently in 2018, Jefferson Township and Newell Borough required \$700,000 in mitigation to resolve landslide damages. The event pushed large amounts of land and debris into the Monongahela River.

More recently, National Aeronautics and Space Administration (NASA) released a prototype Global Landslide Catalog. This is an open-source research and data dissemination tool stemming from work completed at the Goddard Space Flight Center. It should not be considered an exhaustive catalog of landslide events, but it provides more detail on the locations of landslide events than have been previously available. On May 13, 2011, small mudslides on roads due to a downpour were reported in German Township. Some communities reported approximately three inches of rain within a few hours. On August 23, 2013, medium-sized mudslides were reported in Washington and Fayette Counties also due

to a downpour of approximately two inches of rain in an hour in the northern portion of Fayette County. The same event caused a mudslide on the Pennsylvania Turnpike that closed the highway for several hours. On June 24, 2021 a massive landslide occurred along Route 40 in southeastern Fayette County. The landslide closed a section of Route 40 for nearly two months.

There have been no reported injuries or deaths due to landslides in Fayette County.

4.3.5.4. Future Occurrence

Since the exact number of previous landslides over a definite time interval is not known, it is not possible to determine a quantitative probability of future occurrence for landslides in Fayette County. While there is a history of frequent landslides near steep hillsides and developed hillslopes, the county landslide risk is labeled as low by the Risk Factor Methodology (see Table 4.4-1). Despite a low risk for significant landslide activity, the historical evidence shows that the future occurrence of landslides is *likely*.

It is important to note the affect that climate change may have on future landslide occurrence. A rise in average temperature brings increased precipitation rates. These changes result in greater erosion and higher sediment transport in rivers and streams. Landslide events in Fayette County are common along steep, rain-saturated, slopes. An increase in rain events would likely yield a rise in the number of recorded landslide events (Climate Impacts Group, 2016).

4.3.5.5. Vulnerability Assessment

A landslide vulnerability assessment involves determining the location of susceptible lands and then determining what community assets are located on those susceptible lands. The following steps are typically followed to determine the spatial extent of landslide hazard (FEMA, 2001).

- Identify existing or old landslides:
 - On or at the base of slopes;
 - In or at the base of minor drainage hollows;
 - At the base or top of an old fill slope;
 - At the base or top of a steep cut slope; or
 - Developed hillsides where leach field septic systems are used.
- Map the topography since steeper slopes have greater probability of landslides.
- Map the geology, because in addition to the slope angle, the presence of rock or soil that weakens when saturated, as well as poorly drained rock or soil are indicators of slope instability as well.
- Contact local and state geological survey, other persons who might be knowledgeable about the local conditions in relation to landslides.

Conditions that may exacerbate or mitigate the severity and effects of landslides include erosion, unstable slopes, earthquakes, increase of weight of slopes, hydrologic factors, and human activity. Human activities are responsible for initiating or intensifying certain conditions

where otherwise there would have been little or no risk. Activities that increase vulnerability by triggering landslides include:

- Excavations and development in unstable slope materials.
- Haphazard construction or improper use of pipelines.
- Disruption of surface or subsurface drainage such as streams and springs (e.g., by filling).
- Overuse of fill materials on slopes, particularly at the heads of existing slide masses.
- Removal of materials at the bases of slopes.
- Vibrations from heavy traffic, blasting, and driving piles near unstable slopes.

The areas of greatest vulnerability to landslides are usually associated with highway or road cuts. However, housing units located at the base of steep hillsides or mine refuse piles also are vulnerable to landslides. Landslides often occur with other natural hazards such as earthquakes and floods. A serious landslide can cause loss of life and millions of dollars in damage. Although there has not been a landslide incident involving serious injury in Fayette County, the potential exists for such an event to create significant damage to structures and disrupt transportation routes and major utility services.

Landslide vulnerability is highly site-specific, but this HMP provides an estimate of structures or critical facilities that may be vulnerable to landslides by being located on slopes of 15% or steeper. Three critical facilities are located on slopes of 15% or steeper: Otterbein United Methodist Church Trustees, Phelan Duane Louis, and Fayette County Commissioners located at Lincoln Ave, Connellesville, PA; Franklin Circle, Lemont Furnace, PA; and East Main Street, Uniontown, PA respectively. The slope data analyzed is raster data, so it is the grided areas that output the average slope for the defined area. The grids are bigger than the critical facility "points," however provide a general base on slope. Action 2.3.4 was added to the mitigation strategy during the 2022 update to collect slope data for facilities in addition to the critical facilities, such as residential and commercial properties.

4.3.6. Subsidence, Sinkhole

4.3.6.1. Location and Extent

There are two common causes of subsidence in Pennsylvania: 1) mining activity, and 2) dissolution of carbonate rock such as limestone or dolomite. In some parts of Pennsylvania, sinkholes are found in areas underlain by carbonate bedrock. Subsidence is the gradual or sudden caving in or sinking of land. Subsidence is caused by geological factors; human actions can exacerbate the natural causes of subsidence to increase the likelihood of an event occurrence. Sub-surface (i.e., underground) extraction of materials such as oil, gas, coal, metal ores (e. g., copper, iron, and zinc), clay, shale, limestone, or water may result in slow-moving or abrupt shifts in the ground surface. Much of the County is made up of limestone-dolomite, which is susceptible to sinkholes, also known as karst topography. Fayette County has a history of subsidence due to natural conditions and past mine-related activities.

Natural subsidence results from water movement through naturally occurring fractures and bedding planes that dissolve the bedrock, leaving voids below the surface. Eventually, overburdened, the top of the void collapses, leaving surface depressions resulting in karst

topography. Characteristic structures associated with karst topography include sinkholes, linear depressions, and caves. Often, sub-surface solution of limestone will not result in the immediate formation of karst features. Collapse sometimes occurs only after a large amount of activity, or when a heavy burden is placed on the overlying material. Abrupt or long-term changes in the ground surface may also occur following sub-surface fluid extraction (i.e., water). Sinkholes are most likely to form following high run-off periods in the spring and fall seasons (DCNR, 2015).

Sinkholes generally develop where the cover above a mine is thin. Sinkhole development normally occurs where the interval to the ground surface is less than three to five times the thickness of the extracted seam and the maximum interval is up to ten times the thickness of the extracted seam (Piggott and Eynon, 1978). In western Pennsylvania, most sinkholes develop where the soil and rock above a mine are less than fifty feet thick (Bruhn et al., 1978).

Other human activities can accelerate the creation of subsidence or sinkhole events. Leaking water pipes or structures that convey stormwater runoff may also result in areas of subsidence as the water dissolves substantial amounts of rock over time. Poorly managed stormwater may be an exacerbating factor in subsidence events. In some cases, construction, land grading, or earthmoving activities that cause changes in stormwater flow can trigger sinkhole events (DCNR, 2015). However, the most substantial human activity within Fayette County that puts the County at risk for subsidence and sinkholes is coal mining.

According to the Pennsylvania Department of Environmental Protection (DEP) website, there are two distinct coal fields in Pennsylvania known as the Anthracite and Bituminous coal regions. Bituminous coal is mined in 21 Pennsylvania counties, including Fayette County. Fayette County faces the problem of mine subsidence in all the areas of the County that have been undermined. These areas are shown in Figure 4.3.6-1.

Areas underlain by coal or other materials which use deep mining techniques may become susceptible to subsidence. Coal mining started in Fayette County in the 18th century, before extensive records and environmental assessments were required from the industry. In addition to these numerous abandoned mines from generations past, there are current active mining operations in Fayette County today which contribute to coal mining being a top industry. Driven by demand for coke at the steel mills around Pittsburgh, by 1880 Fayette County was the largest coke producer in the country.

The coal mined areas cover nearly half of the entire County, particularly the southwestern and northwestern areas. There are a total of 187 active, 99 inactive, and 31 abandoned coal mines within Fayette County. Most of these operations are both surface and underground mines. See Tables 4.3.6-1 and 4.3.6-2 for the full breakdown of mining operations by municipality, status, and type. Though there are other types of mining operations, only the surface and underground operations are shown as they are the ones most likely to increase subsidence and sinkhole risk.

Sinkholes of varying sizes have been reported in many areas of Fayette County underlain by limestone and subsurface mines. Figure 4.3.6-1 shows that a large portion of Fayette County lies in an area of Pennsylvania where limestone/dolomite bedrock is present near ground surface, thus making those areas more susceptible to natural sinkhole development. The map

also displays the large areas of Fayette County with subsurface coal mines. The USGS dataset from 2005 showing limestone location is the most recent, comprehensive, and publicly available source. These conditions are anticipated to be consistent in 2022 as changes to geological features occur over a significantly greater timespan.

Figure 4.3.6-1 Limestone Areas in Fayette County

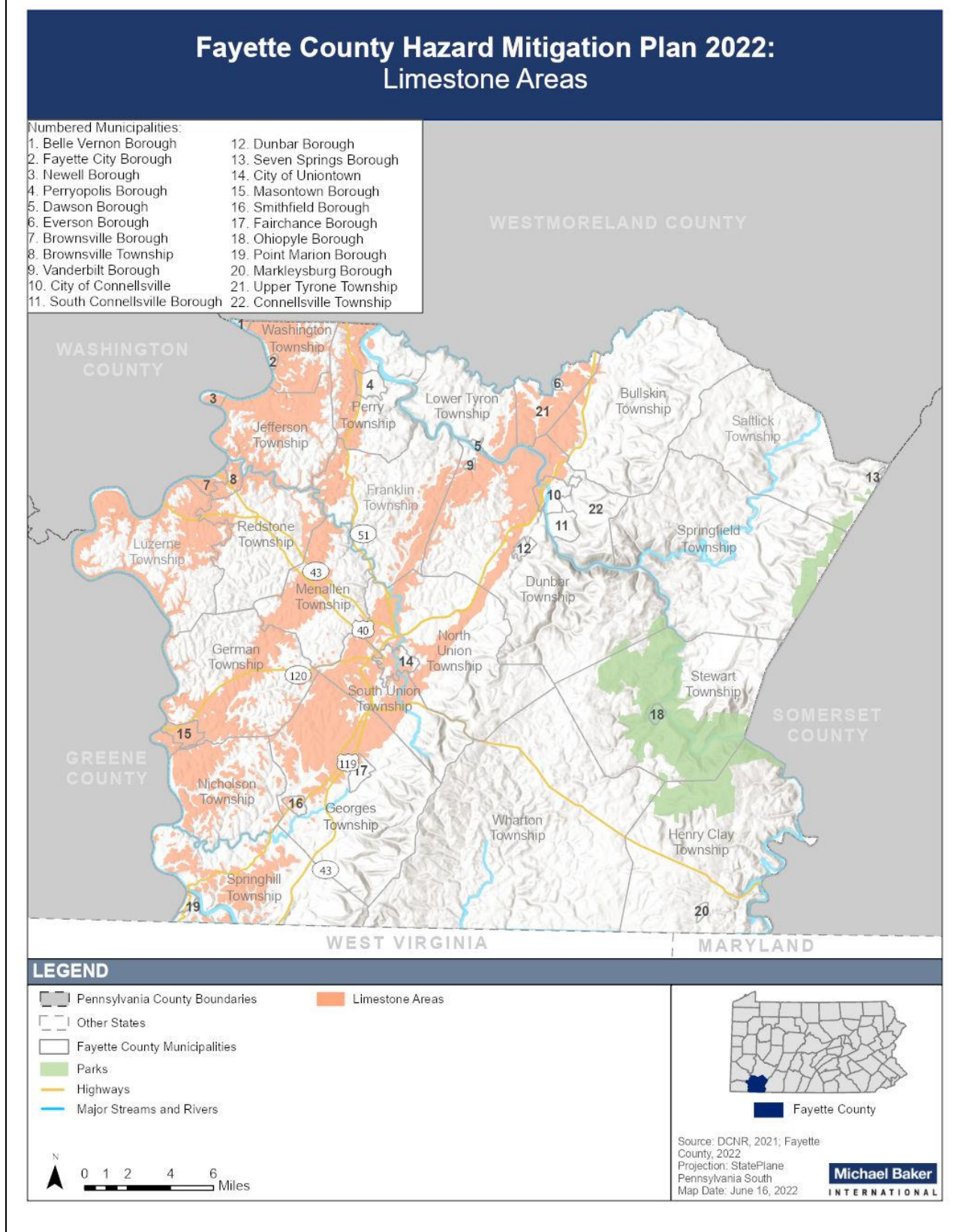
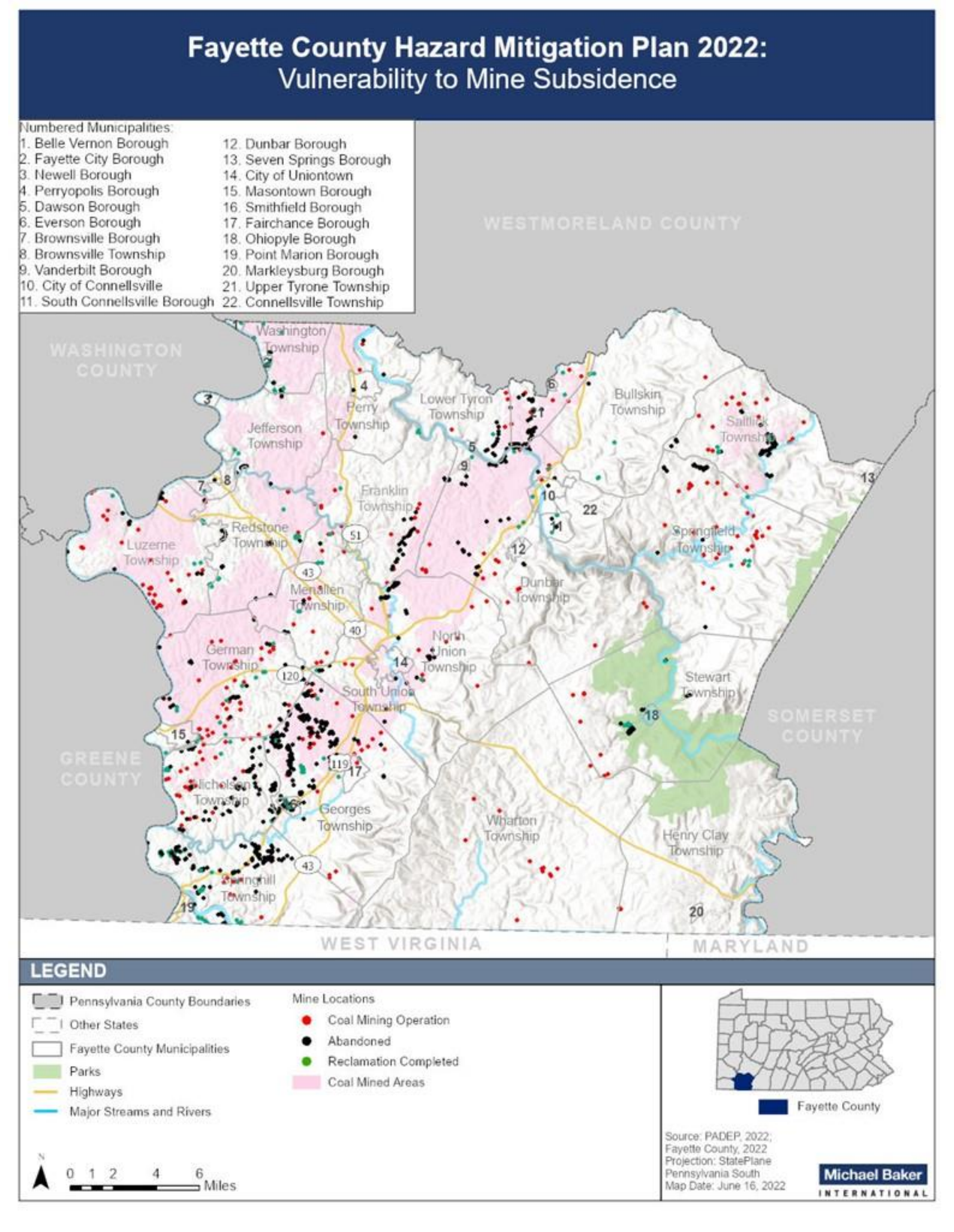


Figure 4.3.6-2 Areas Vulnerable to Mine-Related Subsidence in Fayette County



4.3.6.2. Range of Magnitude

No two subsidence areas or sinkholes are exactly alike. Variations in size and shape, time period under which they occur (i.e., gradually or abruptly), and their proximity to development ultimately determines the magnitude of damage incurred. Based on the geologic formations underlying parts of Fayette 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. Primarily, problems related to subsidence include the disruption of utility services and damages to private and public property including buildings, roads, and underground infrastructure. 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. If mitigation measures are not taken, the cost to fill in and stabilize sinkholes can be significant although sinkholes are limited in extent.

General recommendations have been published for site investigations prior to construction of buildings due to the potential for karst-related 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.

With respect to mine subsidence, voids in the earth's subsurface are created where coal was mined. The condition removes a significant portion of the support of the overlying rock strata that usually causes the rock strata to fall or subside into the voids that may damage dwellings or other surface structures above the affected areas. Mining locations across the County should be carefully noted and avoided as sites for new construction, unless the proper measures are taken to ensure the mine's soundness. The degree of surface subsidence or disturbance depends on numerous factors. These include:

- The vertical distance and the coal;
- The real extent of mining;
- The nature of soil and rock strata overlying the mine;
- The time elapsed since mining was completed; and
- The loading conditions at the ground surface.

In general, the deeper the mine, the lower the risk of damage due to subsidence. Significant subsidence usually will occur when the depth of the soil and rock strata above the mined area is fewer than 100 feet and more than 20 percent of the coal has been removed. Subsidence will occur quite rapidly if all the coal is removed, though subsidence will usually cease within one year after the coal has been removed particularly when modern mining methods are employed. If the mined-out area is supported by pillars of coal, subsidence may not occur for several years or may not occur at all. Longwall mining, where a broad face of coal is removed at once, has also become prevalent. The associated subsidence is generally not as severe, and more predictable (PA DEP, 2021a).

In terms of environmental impacts, 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 also of concern. 425 miles of streams and rivers throughout the County have been identified as impaired from pollutants. This represents approximately 26% of the County's total stream length. Most impaired streams are in the southwestern part of the County where historic surface and subsurface coal mining activities have taken place. Other concerns related to subsidence include the loss of domestic water wells where proximity to a mine causes the well to go dry. Subsidence of mines may also cause dangerous accumulations of natural gas in wells and pump houses that may result in fires and explosions.

The PA DEP prepares five-year reports to document the effects of subsidence resulting from underground bituminous coal mining in Pennsylvania in accordance with Act 54 of the Clean Streams Law. The magnitude of land subsidence and sinkholes in Fayette County can be moderate as there have been past occurrences of land subsidence. Experience in Pennsylvania shows that subsidence may cause from a fraction of an inch to several feet of sagging of the surface of the earth and may occur within minutes or over several years.

According to the PA DEP, structural damages due to subsidence range from slight damage requiring cosmetic repairs to severe damage requiring foundation replacement or other high-cost repairs. For Fayette County, a worst-case scenario for a subsidence hazard would involve structural damage to buildings, closure of transportation routes, power outages, and injuries or death. Similar to the landslides hazard, a large sinkhole forming under PA 51 would cause significant transportation delays and economic disruptions, in addition to the possible injuries or loss of life.

4.3.6.3. Past Occurrence

PA DEP expects that mine-related subsidence is and will continue to be a regular occurrence in Fayette County with the extent of mined areas. Isolated incidents throughout the coal regions over the years have occurred when houses, garages, and trees are swallowed up by subsidence holes. Lengths of local streets and highways, and countless building foundations have been damaged. The Pennsylvania Department of Conservation and Natural Resources (DCNR) maintains an online *Sinkhole Inventory Database* of sinkholes throughout the Commonwealth. There have been no naturally occurring incidents of sinkholes or surface depressions reported to DCNR for Fayette County. However, that does not mean they have not occurred. There is no comprehensive inventory of mine-related subsidence and sinkholes in Pennsylvania, but a review of news stories includes some of the following occurrences.

In late 2010, Connellsville Township witnessed a mine subsidence incident resulting from the collapse of a mine only seventeen feet below the street surface. The event caused road closures, endangered two sanitary lines, and required intensive mitigation actions (PA DEP, 2011).

PEIRS data recorded three previous mine subsidence events – two events in 2005 and one event in 2008.

As noted in Section 4.3.4.3, the flash flooding on August 28, 2016 resulted in the closing of a Bullsken Township bridge due to a sinkhole opening along Breakiron Road.

Recent years have seen a spate of mine subsidence issues in Washington Township. In June of 2020, at least 10 homes were damaged when a mine under Smithfield Street. The event caused major cracks in the road, a broken water main, and damaged gas lines in the area. No injuries were reported, but major structural damage was reported at several homes. In 2021 homes were damaged in mine subsidence events on Perry Ave and Koslasky Street. (PEMA, 2020)

4.3.6.4. Future Occurrence

Based on geological conditions, subsidence events may occur in the future for the areas of Fayette County underlain by carbonate rock such as limestone but are more likely to occur over mined areas. Sinkholes and surface depressions are dependent on a few variables, including land use, water management, and coal mining oversight. With the extensive areas underlain by limestone and mine operations, the probability of future subsidence and sinkhole events can be considered *likely* according to the Risk Factor Methodology (see Table 4.4.1-1). Future occurrence of subsidence and/or sinkholes in Fayette County is *likely*.

Increased precipitation events, as a result of climate change, would have a direct effect on subsidence and sinkhole numbers. Stormwater output and groundwater level fluctuation would become more frequent as rain events become more common. Other hazards, such as drought and rising temperature, will increase the frequency and intensity of drought-incuded soil subsidence. While the frequency of subsidence due to mining is hard to predict, the effects of increased precipitation may work in tandem with mining activity to further weaken ground surface materials (USGS, 2018).

4.3.6.5. Vulnerability Assessment

Land subsidence above underground mines is a significant problem in Fayette County. There is no depth for a mine at which the surface can be considered entirely safe. More insidious is the fact that land subsidence might not occur until more than 100 years after mining has ceased (Fayette County Comprehensive Plan, 2000). According to the *2018 Pennsylvania State Hazard Mitigation Plan*, there are 18,916 buildings (a total of \$4,087,225,000 in buildings and contents) within Fayette County that are threatened by subsidence or sinkholes. A mined area may be differentially prone to subsidence based on its geology and depth of coal seam, but reliable information about the different locations of varying depths of coal seam is not available. Geologists agree that all areas that are mined are prone to subsidence; therefore, the coal mined areas are shown as vulnerable to mine subsidence.

Mine Subsidence Insurance (MSI) has been available in Pennsylvania since 1987; this insurance covers up to \$1,000,000, or 120% of replacement costs (whichever is less), for both residential and commercial structures. MSI is affordable, with premiums starting at about 27 cents for every \$1,000 of coverage, and discounts are available for senior citizens. Additional information about mine subsidence insurance can be found online at:

http://www.dep.state.pa.us/dep/deputate/minres/bmr/MSIpage/msi_info.htm.

Table 4.3.6-1 lists the 36 out of 42 municipalities in the County that have a record of mining activity. Undermining maps for each of the municipalities listed in this table are available from PA DEP at:

<http://www.dep.state.pa.us/msi/municipalitymappinglist.html>.

Table 4.3.6-1 Fayette County Municipalities with Recorded Mines (PA DEP, 2015)	
MUNICIPALITIES	
Belle Vernon Borough	Fairchance Borough
Brownsville Borough	Fayette City Borough
Brownsville Township	Franklin Township
Bullskin Township	Georges Township
Connellsville City	German Township
Connellsville Township	Jefferson Township
Dunbar Borough	Lower Tyrone Township
Dunbar Township	Luzerne Township
Everson Borough	Masontown Borough
Menallen Township	South Union Township
Newell Borough	Springfield Township
Nicholson Township	Springhill Township
North Union Township	Stewart Township
Perry Township	Uniontown City
Perryopolis Borough	Upper Tyrone Township
Redstone Township	Vanderbilt Borough
Saltlick Township	Washington Township
Smithfield Borough	Wharton Township

Fayette County's Subdivision and Land Development Ordinance (SALDO), which is used by 31 of the 42 municipalities in the County, has provisions that should reduce the overall vulnerability of new structures to subsidence events. The SALDO states that due to potential danger of mine subsidence, development should not be encouraged in areas of known abandoned deep mines. The SALDO requires developers to notify lot purchasers of the extent

of previous mining activities, make purchasers aware that they are not obtaining structural protection from subsidence but private agreements can be made for future mining activities, and make purchasers aware of the availability of mine subsidence insurance. The specific subsidence-related SALDO provisions of the eleven municipalities administering their own SALDO are unknown. However, the County has a policy that discourages mining in environmentally sensitive areas and areas more suitable for community growth.

4.3.7. Pandemic and Infectious Disease

4.3.7.1. Location and Extent

A pandemic is defined as a disease affecting or attacking the population of an extensive region, including several countries, and/or continent(s). It is further described as extensively epidemic. Generally, pandemic diseases cause sudden, pervasive illness in all age groups on a global scale. Infectious diseases are also highly virulent but are not spread person-to-person.

Pandemic and infectious disease events cover a wide geographical area and can affect large populations, potentially including the entire population of the county. The exact size and extent of an infected population is dependent upon how easily the illness is spread, the mode of transmission, and the amount of contact between infected and uninfected individuals. The transmission rates of pandemic illnesses are often higher in denser areas where there are large concentrations of people. The transmission rate of infectious disease will depend on the mode of transmission of a given illness. Pandemic events can also occur after other natural disasters, particularly floods, when there is the potential for bacteria to grow and contaminate water.

Fayette County is primarily concerned with three diseases with pandemic and infectious potential: West Nile Virus, influenza, and the novel coronavirus (COVID-19).

West Nile Virus is a vector-borne disease that can cause headache, high fever, neck stiffness, disorientation, tremors, convulsions, muscle weakness, paralysis, and, in its most serious form, death. The virus spreads via mosquito bite and is aided by warm temperatures and wet climates conducive to mosquito breeding. West Nile Virus has been detected in all 67 counties throughout Pennsylvania at least once in the past 10 years. The virus is highly temporal with most cases occurring between April and October (DEP-WNCP, 2009).

Pandemic influenza 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. H5N1 did not reach pandemic proportions in the United States, but the Commonwealth began actively planning for an occurrence of an influenza pandemic. As stated in the Pennsylvania Department of Health (DOH) Influenza Pandemic Response Plan, "an influenza pandemic is inevitable and will probably give little warning" (PA DOH, 2005). Influenza, also known as "the flu", is a contagious disease that is caused by the influenza virus and most commonly attacks the respiratory tract in humans. Influenza is considered to have pandemic potential if it is novel (meaning that people have no immunity to it), virulent (meaning that it causes deaths in normally healthy individuals), and easily transmittable from person-to-person. The estimated morbidity and mortality during an influenza pandemic within 12-16 weeks nationwide and in

Pennsylvania are shown in Table 4.3.7-1.

Table 4.3.7-1 Estimated Morbidity and Mortality during an Influenza Pandemic within 12-16 Weeks (DOH, 2005)		
	UNITED STATES	PENNSYLVANIA
Require Outpatient Care	50 Million	1.6 Million
Hospitalization	2 Million	37,800
Deaths	500,000	9,100

Different strands of influenza mutate over time and replace older stands of the virus and thus have drastically different effects. The H1N1 virus, colloquially known as swine flu, is of particular concern. This virus was first detected in people in the United States in April 2009. On June 11, 2009, the world health organization signaled that a pandemic of 2009 H1N1 flu was underway (CDC, 2009). Avian influenza, also known as bird flu, infects birds. A recent strain, H5N1, has caused particular concern due to its ability to pass from wild birds to poultry then on to people. This virus has killed more than half of the people infected with it, although the avian flu is less like to infect humans.

During this HMP Update process, Fayette County is two years into a worldwide pandemic caused by a novel coronavirus. Named COVID-19, this type of coronavirus is a new virus that causes respiratory illness and is extremely contagious. Flu-like in nature, symptoms of the virus include fever, cough, shortness of breath, and diarrhea. This virus became a great concern due to its high rates of transmission, and high incidence of mortality in addition to so little being known about it. Severe reactions that require immediate medical care include trouble breathing, persistent pain or pressure in the chest, new confusion, inability to wake or stay awake, and discolored skin, lips, or nail beds. In extreme COVID-19 cases that require hospitalization, patients require ventilators to support breathing and may pass away from the virus or related reasons (CDC, 2022b).

4.3.7.2. Range of Magnitude

The magnitude of a pandemic or infectious disease threat in the Fayette County will range significantly depending on the aggressiveness of the virus in question and the ease of transmission. In the case of West Nile Virus, slightly less than 80% of cases are clinically asymptomatic. Approximately 20% of cases result in mild infection, called West Nile Fever, lasting two to seven days. However, one in 150 cases result in severe neurological disease or death. Since the appearance of West Nile Virus in Pennsylvania in 2000, the worst year statewide was 2003 when 237 Pennsylvanians were infected with the virus and 9 people died. From 2000 to 2019, the only years without the virus being detected were 2009 and 2016.

There have been many positive tests within Fayette County. The most occurred within the years of 2012 (40), 2002 (31), and 2011 (23), however the most human infections occurred in 2005 with only two (PA DEP, 2016). The virus is typically more serious in older adults. Table 4.3.7-3 describes the viruses detected from 2001 to 2021 within Fayette County.

Pandemic influenza is more easily transmitted from person-to-person than West Nile but advances in medical technologies have greatly reduced the number of deaths caused by

influenza over time. In terms of lives lost, the impact various pandemic influenza outbreaks have had globally over the last century has declined (see Table 4.3.7-2). The severity of illness from the 2009-10 H1N1 influenza flu virus varied, with the gravest cases occurring mainly among those considered at high risk. High risk populations considered more vulnerable include children, the elderly, pregnant women, and chronic disease patients with reduced immune system capacity. Most people infected with H1N1 in 2009 recovered without needing medical treatment, and this flu strain is now included in flu shots. According to the CDC, about 70% of those who hospitalized with the 2009 H1N1 flu virus in the United States belonged to a high-risk group (CDC, 2009). This pattern is expected to continue with future novel flu strains.

The magnitude of a pandemic may be exacerbated by the fact that an influenza pandemic will cause outbreaks across the United States, limiting the ability to transfer assistance from one jurisdiction to another. Additionally, effective preventative and therapeutic measures, including vaccines and other medications, will likely be in short supply or will not be available.

The 1918 Spanish flu pandemic remains the worst-case pandemic event on record both in Pennsylvania and worldwide. While mortality figures were probably under-reported, in the first month of the pandemic alone, 8,000 Pennsylvanians died from the flu or its complications (US DHHS, 2010). As the densest city in the Commonwealth, Philadelphia was particularly hurt from this event.

Fayette County has faced varying impacts of the COVID-19 pandemic. It is believed that the virus originated in an open-air market in the Wuhan province of China in November 2019. Shortly afterwards, the virus began to spread to nearby countries including Japan and South Korea. By March 2020, the virus had reached almost every country worldwide, with the most cases in the United States. At first, concern was focused on people who might be infected due to recent travel. However, community infections soon began to crop up in many cities and towns. This led to a statewide shutdown of schools and businesses and the cancellation of large events for the remainder of 2020. Only life-sustaining services were permitted to remain open, including medical facilities, pharmacies, and grocery stores. People were advised to remain home as much as possible to slow the transmission of COVID-19.

There are no true environmental impacts of pandemics and infectious disease threats, but there will be significant economic and social costs beyond the possibility of disease-related deaths. Widespread illness may increase the likelihood of shortages of personnel to perform essential community services. In addition, high rates of illness and worker absenteeism occur within the business community, and these contribute to social and economic disruption. On a national scale, the Congressional Budget Office Estimates that a severe pandemic could cost the US economy more than \$600 billion, or 5% of the Gross Domestic Product (US DHHS 2005). Social and economic disruptions could be temporary but may be amplified in today's closely interrelated and interdependent systems of trade and commerce. Social disruption may be greatest when rates of absenteeism impair essential services, such as power, transportation, and communications.

A worst-case scenario would be if Fayette County experienced a county-wide outbreak affecting most of the population; causing significant numbers of fatalities and disrupting normal living conditions.

4.3.7.3. Past Occurrence

West Nile Virus arrived in the United States in 1999 and was first detected in Pennsylvania in 2000 when mosquito pools, dead birds, and/ or horses in 19 counties tested positive for the virus. Since then, the number of positive counties, human cases, and West Nile deaths has fluctuated with the temperature and precipitation each year. Table 4.3.7-2 illustrates the virus' presence in Fayette County, human infection, and mortality from 2001 to 2021.

Table 4.3.7-2 Previous West Nile Virus Occurrences in Fayette County (2001-2021) (PA DEP, 2021)			
YEAR	VIRUS DETECTED	POSITIVE HUMAN CASES	HUMAN DEATHS
2001	Yes	1	0
2002	Yes	0	0
2003	Yes	1	0
2004	Yes	1	0
2005	Yes	2	0
2006	No	0	0
2007	No	0	0
2008	No	0	0
2009	No	0	0
2010	No	0	0
2011	Yes	0	0
2012	Yes	0	0
2013	Yes	0	0
2014	Yes	0	0
2015	Yes	0	0
2016	No	0	0
2017	Yes	0	0
2018	Yes	1	0
2019	No	0	0
2020	No	0	0
2021	Yes	0	0
TOTAL		6	0

While West Nile Virus occurrences are fairly recent, the United States Department of Health and Human Services estimates that influenza pandemics have occurred for at least 300 years

at unpredictable intervals. There have been several pandemic influenza outbreaks over the past 100 years. A list of events worldwide is shown in Table 4.3.7-3.

Table 4.3.7-3 List of Previous Significant Outbreaks of Influence over the Past Century (Global Security, 2009; WHO, 2009; Roos, 2012)		
DATE	PANDEMIC NAME/SUBTYPE	WORLDWIDE DEATHS (APPROXIMATE)
1918-1920	Spanish Flu/H1N1	50 Million
1957-1958	Asian Flu/H2N2	1.5-2 Million
1968-1969	Hong Kong Flu/H3N2	1 Million
2009-2011	Swine Flu/H1N1	284,000

Deaths occurred in the United States because of the Spanish Flu, Asian flu, and Hong Kong Flu outbreaks, which can be used as examples of the worst-case scenario. The Spanish Flu claimed 500,000 lives in the United States, and there were 350,000 cases in Pennsylvania - 150,000 were in Philadelphia alone. Most deaths resulting from the Asian flu occurred between September 1957 and March 1958; there were about 70,000 deaths in the United States and approximately 15% of the population of Pennsylvania was affected. The first cases of the Hong Kong Flu in the U.S. were detected in September of 1968 with deaths peaking between December 1968 and January 1969 (Global Security, 2009). In the 2009/2010 flu season, when H1N1 was a primary concern, the World Health Organization (WHO) declared a pandemic in June 2009.

The CDC marked the 2014-2015 flu season as severe, with approximately 710,000 hospitalizations. The CDC does not track national deaths in adults, but the organization reported 148 pediatric deaths from influenza. The 2017-2018 flu season was another severe season. The CDC reported that the H3N2 flu, along with other strains including H1N1, led to more cases, doctors' visits, hospital visits, and deaths than previous flu seasons. The CDC also noted that the flu became widespread in all states and jurisdictions at the same time. The CDC estimated that 34 million Americans were affected by the flu (CDC, 2018).

The COVID-19 outbreak began in China in November 2019. The virus reached the US in late February 2020, and most counties in Pennsylvania were affected by March 2020. Governor Tom Wolf issued the first stay-at-home order in Pennsylvania on March 23, 2020, for seven counties. This stay-at-home order was then expanded to all 67 counties on April 1, 2020. Schools were moved to virtual settings, non-essential businesses were closed, and all essential state services continued operation (Commonwealth of Pennsylvania Office of the Governor, 2020). On May 31, 2021, the stay-at-home order and any other mitigation order except face mask wearing for the Commonwealth of Pennsylvania was lifted (Commonwealth of Pennsylvania Office of the Governor, 2021). People were advised to practice social distancing; only leaving the house for essentials like grocery shopping, and no gathering even in small groups. Even when going on walks, health care professionals recommended that individuals wear masks and remain six feet apart to slow the spread of transmission.

Starting January 2021, COVID-19 vaccines were distributed in phases based on vulnerable populations as well as those who are frequently exposed:

- **Phase 1A:** long-term care facility residents, health care personnel, persons ages 65 and older, persons ages 16-64 with high-risk conditions defined by the CDC, and persons potentially exposed to infectious material that can transmit disease to healthcare personnel and patients, teachers, childcare workers, and frontline groups.
- **Phase 1B:** Opened on April 5, 2021 – people in congregate settings that are not specified as long-term care facilities, persons receiving home and community-based services, correctional officers and other workers serving people in congregate care settings not included in Phase 1A, education workers not covered in Phase 1A – including those in higher education, U.S. Postal Service workers, manufacturing workers, clergy and other essential support for houses of worship, and public transit workers
- **Phase 1C:** Opened on April 12, 2021 – essential workers in transportation and logistics, water and wastewater, food service, housing construction, finance including bank tellers, information technology, communications, energy including nuclear reactors, legal services, federal, state, County, and local government workers including County election workers, elected officials, and members of the judiciary and their staff, media, public safety, and public health workers.
- **Phase 2:** Opened on April 13, 2021 – all individuals not previously covered who are 12 and older and do not have a contraindication to the vaccine are eligible (PA DOH, 2021a).

Currently all Pennsylvania residents ages 6 months and older are eligible to receive a COVID-19 vaccine. Children under the age of 18 require parental consent (PA DOH, 2022b).

The three vaccines that received emergency approval by the U.S. Food and Drug Administration (FDA) include the Pfizer-BioNTech vaccine, the Johnson & Johnson-Janssen vaccine, and the Moderna vaccine. Each vaccine requires a 15-30-minute on-site observation period after receiving the vaccine. The Pfizer-BioNTech and Moderna vaccine requires two shots for immunity; the Johnson & Johnson-Janssen vaccine is a one-shot vaccine. All three vaccines take two weeks after the final shot to be considered fully vaccinated against COVID-19 (CDC, 2021d). As of July 20, 2022, the CDC recommends that everyone five years of age or older should get a booster shot, if eligible, after completing their first COVID-19 vaccine primary series. The CDC also recommends that adults over 50 and those who are moderately or severely immunocompromised should receive a second booster shot (CDC, 2022a).

As Fayette County, and the rest of the nation, continue to get vaccinated during the pandemic, there have been issues with some of those who chose to receive the two-step vaccines but did not return to receive the second dose for full inoculation. In part due to widespread misinformation, and a temporary pause in the Johnson & Johnson-Janssen vaccine administration, there are individuals choosing not to receive the vaccine. There is a growing concern about a potential additional peak of COVID-19 infections and deaths in this unvaccinated population.

As of July 2022, 71,132 Fayette County residents are fully vaccinated (55% of the population). Another 10,146 have been partially vaccinated, for a total of 74,973 residents with at least one dose (62.9%). Since August 13, 2021, 34,187 people have received a first booster dose; 6,411 have received a second booster dose since March 29, 2022. In total, 186,703 vaccines have been administered to Fayette County residents. Please note that Pennsylvania residents who receive a COVID-19 vaccination from a federal facility (such as a Veteran Health Administration hospital or a federal prison), or who received a vaccination in another state are not reflected in these numbers due to separate reporting requirements (PA DOH, 2022a).

As of July 20, 2022, there have been 2,524,592 confirmed cases in Pennsylvania, with 21,136 confirmed cases and 688 deaths reported in Fayette County (PA DOH, 2022a). Case numbers were first expected to peak in May 2020; however, the Commonwealth experienced the largest number of cases per day in January 2022, with 33,386 new cases per day. The Commonwealth has experienced peaks in cases in December 2020, April 2021, October 2021, January 2022 and May 2022 (PA DOH, 2022a). Surrounding counties have seen similar numbers of cases and deaths. Neighboring Somerset County had 13,883 confirmed cases and 415 deaths. Washington County had 38,645 cases and 670 deaths (PA DOH, 2022a).

According to the CDC, new variants are expected as the virus changes through mutation. As of July 2022, the variant of concern in the United States is the Omicron variant, which spreads more easily than other variants. While it may be less severe than the original virus, more data is needed to fully understand its severity. While vaccinations are effective at preventing severe illness and death, breakthrough infections in vaccinated individuals are expected (CDC, 2022c).

Figure 4.3.7-1 Number of New COVID-19 Cases Per Day in Pennsylvania (03/18/2020-07/20/2022) (PA DOH, 2022a)

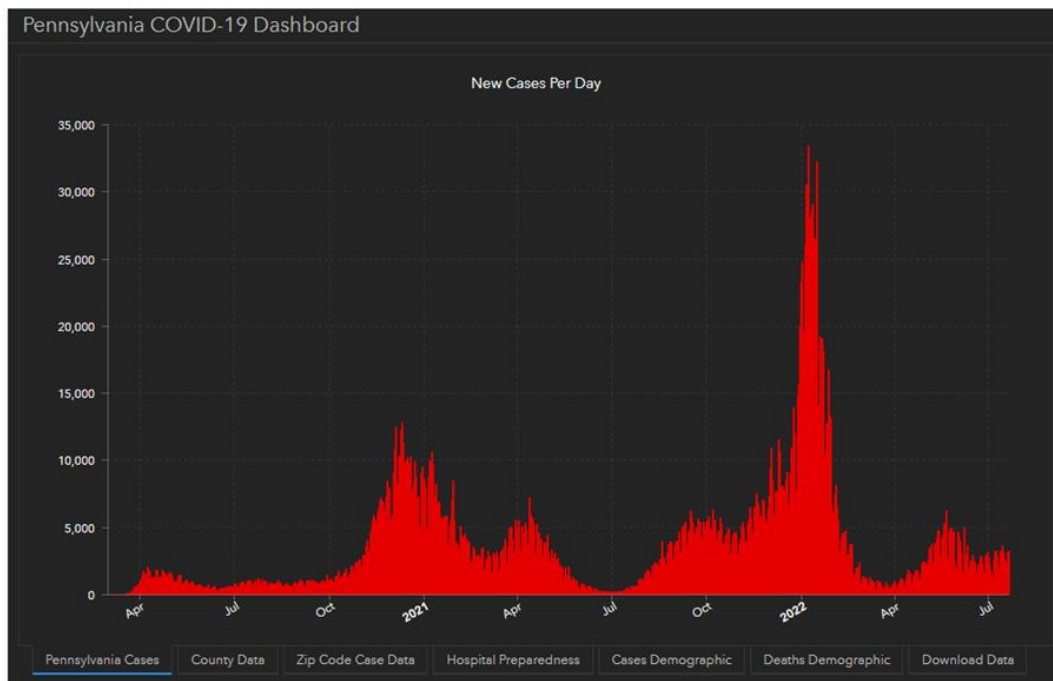
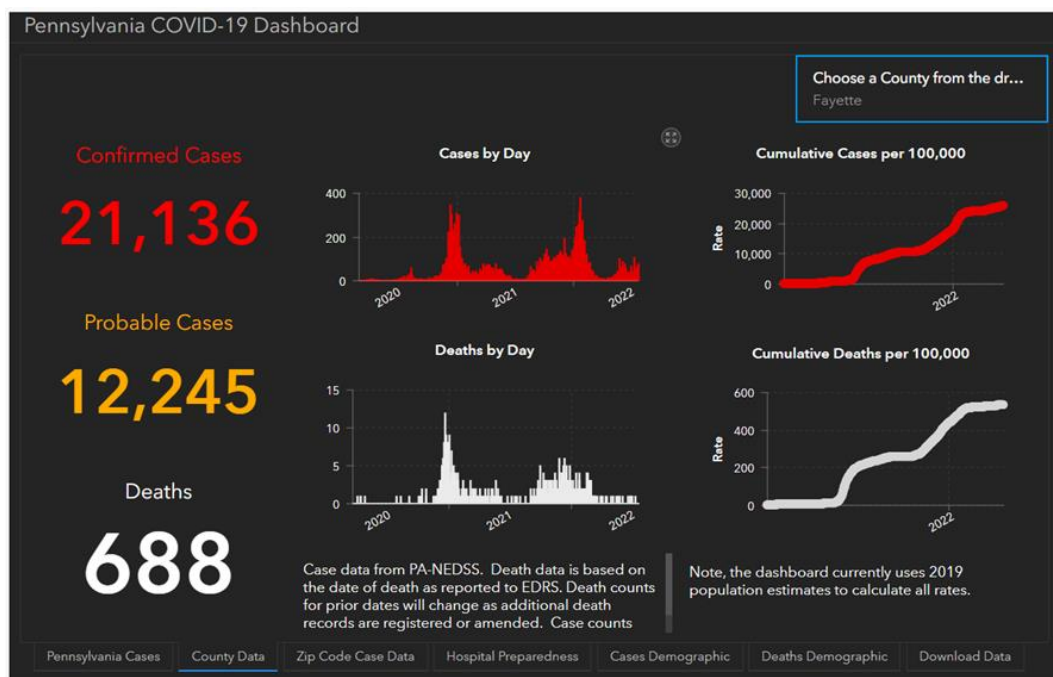


Figure 4.3.7-2 Number of COVID-19 Cases in Fayette County as of July 20th, 2022 (PA DOH, 2022a)



The Fayette County EMA, Board of Commissioners, and Fayette County Chamber of Commerce partnered during the COVID-19 pandemic to organize a taskforce to establish a distribution plan and clinic for vaccines at the height of the pandemic. Using the knowledge of everyone involved and partnerships already established, the taskforce met and within 13 days we were able to organize, secure a location, and begin vaccinating the population of Fayette County.

Within the coming weeks after this first clinic, the taskforce established a second clinic location, a hotline for residents to use for scheduling, and a partnership program with the county EMS agencies to support a homebound vaccination for the population unable to physically appear at the clinics.

This mitigation effort was coordinated through the collaboration of many entities and agencies that never worked together before. This model can and will be used for future endeavors as well and will become important moving forward in other disasters and planning models.

4.3.7.4. Future Occurrence

Future occurrences of pandemics are unclear. Instances of West Nile virus have been generally decreasing due to aggressive planning and eradication efforts, but some scientists suggest that as global temperatures rise and extreme weather conditions increase due to climate change, the range of the virus in the United States will grow (Epstein, 2001).

As with West Nile Virus, the precise timing of pandemic influenza is uncertain, but occurrences are most likely when the Influenza Type A virus makes a dramatic change, or antigenic shift, that results in a novel virus to which the population has no immunity. This emergence of a novel virus is the first step toward a pandemic.

Future pandemics may also emerge from other diseases, especially invasive pathogens that Pennsylvanians do not have natural immunity to, as we have seen with COVID-19. The COVID-19 pandemic has shown that occurrences of pandemic can be unpredictable, with unknown impact. It takes just one occurrence to have a major impact. Therefore, while future occurrences of pandemic are unclear, if a pandemic event is to occur it can be anticipated that it will be impactful.

Looking at the number of historical incidences of pandemic-potential diseases, the possibility of future pandemic events can be considered *likely* according to the Risk Factor Methodology (see Table 4.4-1).

It is difficult to predict the rate and severity at which pandemics and infectious diseases would increase as a result of climate change. Past decades have shown consistencies in having well defined viral flu seasons. These well-defined periods allow proper response for vaccinations schedules and further preparation for flu seasons. The rise in temperature, due to climate change, may have a long-term effect on how frequently these flu seasons occur and at what point(s) in the year they are commonly experienced (National Science Foundation, 2022).

4.3.7.5. Vulnerability Assessment

In general, municipalities that are more densely populated are more vulnerable to disease threats when the disease is directly spread from human to human, but every jurisdiction has some vulnerability to pandemic and infectious disease threats. Colleges with large residential student populations may also be more vulnerable, as a pandemic is more likely to spread through human contact in these settings.

Certain population groups are at higher risk of pandemic flu infection. This population group includes people 65 years and older, children younger than five years old, pregnant women, and people of any age with certain chronic medical conditions. Such conditions include but are not limited to diabetes, heart disease, asthma, and kidney disease (CDC, 2021c). Schools, colleges, convalescent centers, and other institutions serving those younger than five years old and older than 65 years old, are locations conducive to faster transmission of pandemic influenza since populations identified as being at high risk are concentrated at these facilities or because of many people living in close quarters. Pennsylvania DOH tracks the number of COVID-19 cases associated with nursing homes and personal care homes. To date (July 2022), Fayette County has six facilities with cases. Of the residents within these six facilities, 729 tested positive for COVID-19. Six-hundred fifteen employees tested positive for COVID-19. There have been 121 deaths (PA DOH, 2022c).

There are some occupation-specific risks that may make some employees more vulnerable, though. For example, those working in direct patient care situations are more likely to be exposed to a pandemic disease; similarly, county employees working outdoors for extended periods of time in the warm months may be more vulnerable to West Nile Virus.

There are no true environmental impacts of pandemics and infectious disease threats, but there will be significant economic and social costs beyond the possibility of disease-related deaths. Widespread illness may increase the likelihood of shortages of personnel to perform essential community services. In addition, high rates of illness and worker absenteeism occur within the business community, and these contribute to social and economic disruption. Social and economic disruptions could be temporary but may be amplified in today's closely interrelated and interdependent systems of trade and commerce. Social disruption may be greatest when rates of absenteeism impair essential services, such as power, transportation, and communications.

Municipal losses in a pandemic or infectious disease outbreak stem from lost wages and productivity, not losses to buildings or land. Losses are difficult to estimate because the exact rates of absenteeism and cost of treating a widespread disease will depend on the virus or bacterium in question, the availability of vaccination or treatment, and the severity of symptoms. For historical context, though, the Asian and Hong Kong Flu pandemics killed over 1.5 million people worldwide and caused an estimated \$32 billion loss due to lost productivity and medical expenses (Smith, 2004). With Pennsylvania's economy so integral to the national economy, economic losses from a pandemic or infectious disease threat could be significant.

It is currently unknown how COVID-19 will change the economic environment long term. However, it is expected that there will be immense losses due to the COVID-19 pandemic. Thousands of individuals were laid off across the commonwealth as non-essential businesses were forced to close. In just one week, over three million Americans filed for unemployment; the greatest amount ever. The accommodation and food services industry suffered the highest number of jobs lost. Professional services, construction, and manufacturing have all been subsidized at greater rates, allowing for lower amounts of jobs lost. Tourism and hospitality industries have suffered in high density areas. The majority of COVID-19 aid packages have been distributed to allow some industries to continue operations (Klein & Smith, 2021).

The COVID-19 pandemic has also spurred conversations around creating safe public spaces and work environments regarding pandemic and infectious disease. The International Code Council (ICC) published an overview of code compliance that helps facilitate response to pandemic instances. For example, properly designed, installed, and maintained ventilation systems can help in mitigating the spread of pathogens (ICC, 2020). Many buildings have chosen to inspect and upgrade these systems during shelter-in-place orders. This is essential towards stopping the spread of pathogens in high density residential buildings and ensures workers will return to a safe environment when it is safe to work in offices again.

The Fayette County Health Center is charged with influenza surveillance and planning. The Health Department conducts proactive planning for influenza and other infectious diseases that will reduce overall vulnerability to future pandemic events. These services include:

- Health services and treatment;
- Surveillance;
- Immunization;
- Laboratory identification;
- Communications;
- Emergency preparedness; and
- Distributing antiviral medications.

4.3.8. Radon Exposure

4.3.8.1. Location and Extent

Radioactivity caused by airborne radon has been recognized for many years as an important component in the natural background radioactivity exposure of humans, but it was not until the 1980s that the wide geographic distribution of elevated values in houses and the possibility of extremely high radon values in houses were recognized. In 1984, routine monitoring of employees leaving the Limerick nuclear power plant near Reading, PA while it was still under construction and not yet functional, showed that readings on a construction worker at the plant frequently exceeded expected radiation levels.

Subsequent testing of the employee's home in the Reading Prong section of Pennsylvania showed extremely high radon levels around 2,500 pCi/L (pico Curies per Liter). To put this

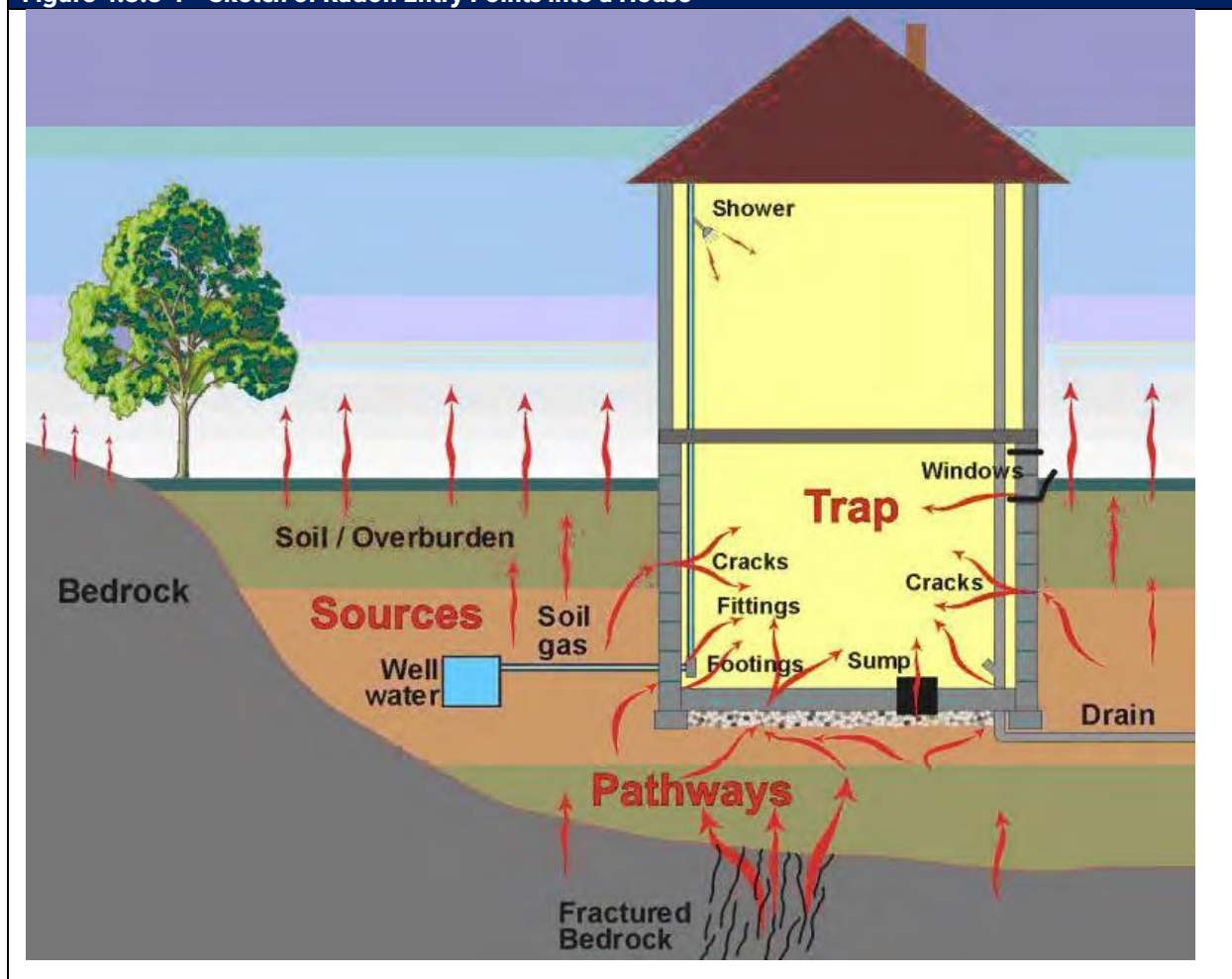
amount in perspective, the Environmental Protection Agency (EPA) guidelines state that actions should be taken if radon levels exceed 4 pCi/L in a home, and uranium miners have a maximum exposure of 67 pCi/L. As a result of this event, the Reading Prong became the focus of the first large-scale radon scare in the world.

Radon is a gas that cannot be seen or smelled. It is a noble gas that originates by the natural radioactive decay of uranium and thorium. Like other noble gases (e.g., helium, neon, and argon), radon forms essentially no chemical compounds and tends to exist as a gas or as a dissolved atomic constituent in groundwater. Two isotopes of radon are significant in nature, ^{222}Rn and ^{220}Rn , formed in the radioactive decay series of ^{238}U and ^{232}Th , respectively. The isotope thoron (i.e., ^{220}Rn) has a half-life (time for decay of half of a given group of atoms) of 55 seconds, barely long enough for it to migrate from its source to the air inside a house and pose a health risk. However, radon (i.e., ^{222}Rn), which has a half-life of 3.8 days, is a widespread hazard. The distribution of radon is correlated with the distribution of radium (i.e., ^{226}Ra), its immediate radioactive parent, and with uranium, its original ancestor. Due to the short half-life of radon, the distance that radon atoms can travel from their parent before decay is generally limited to distances of feet or tens of feet.

Three sources of radon in houses are now recognized, as shown in Figure 4.3.8-1.

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

Figure 4.3.8-1 Sketch of Radon Entry Points into a House



Source: Arizona Geological Survey, 2006.

High radon levels were initially thought to be exacerbated in houses that are tightly sealed, but it is now recognized that rates of air flow into and out of houses, plus the location of air inflow and the radon content of air in the surrounding soil, are key factors in radon concentrations. Outflows of air from a house, caused by a furnace, fan, thermal “chimney” effect, or wind effects, require that air be drawn into the house to compensate. If the upper part of the house is tight enough to impede influx of outdoor air (radon concentration generally <0.1 pCi/L), then an appreciable fraction of the air may be drawn in from the soil or fractured bedrock through the foundation and slab beneath the house, or through cracks and openings for pipes, sumps, and similar features. Soil gas typically contains from a few hundred to a few thousand pCi/L of radon; therefore, even a small rate of soil gas inflow can lead to elevated radon concentrations in a house.

The radon concentration of soil gas depends upon several soil properties, the importance of which is still being evaluated. In general, ten to fifty percent of newly formed radon atoms escape the host mineral of their parent radium and gain access to the air-filled pore space.

Figure 4.3.8-1 Pennsylvania Radon Zones

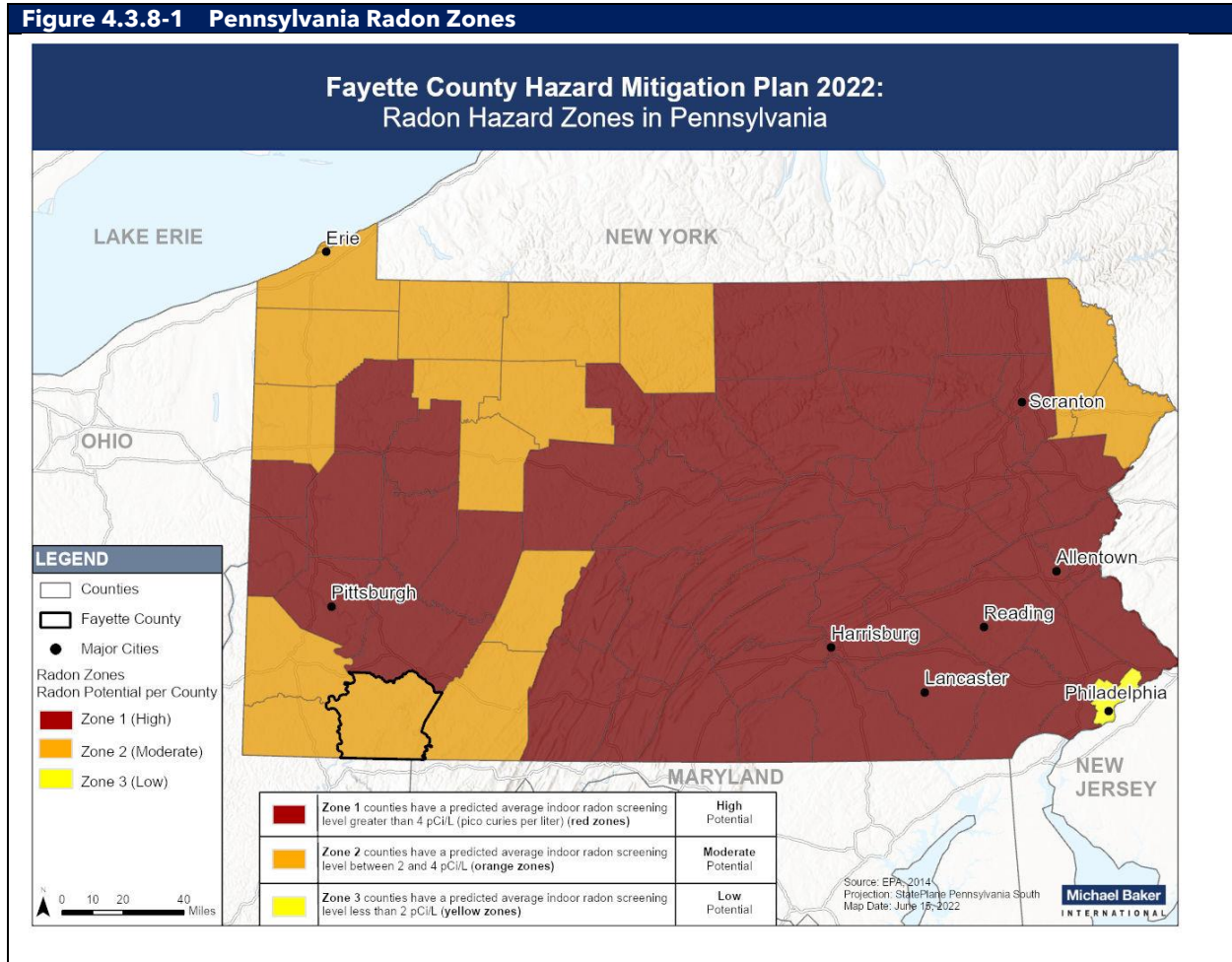


Figure 4.3.8-3 Fayette County Radon Zones Basement Level

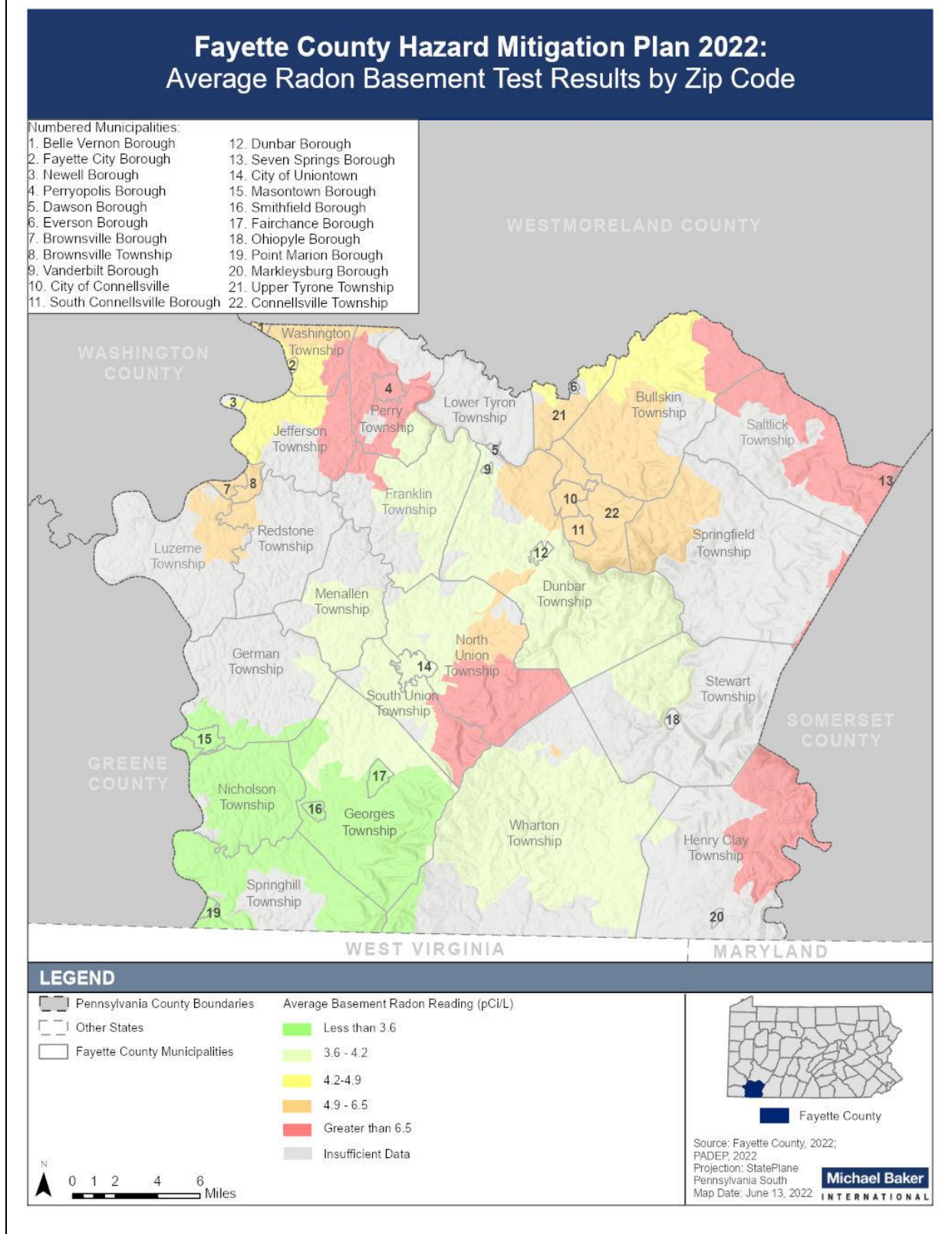
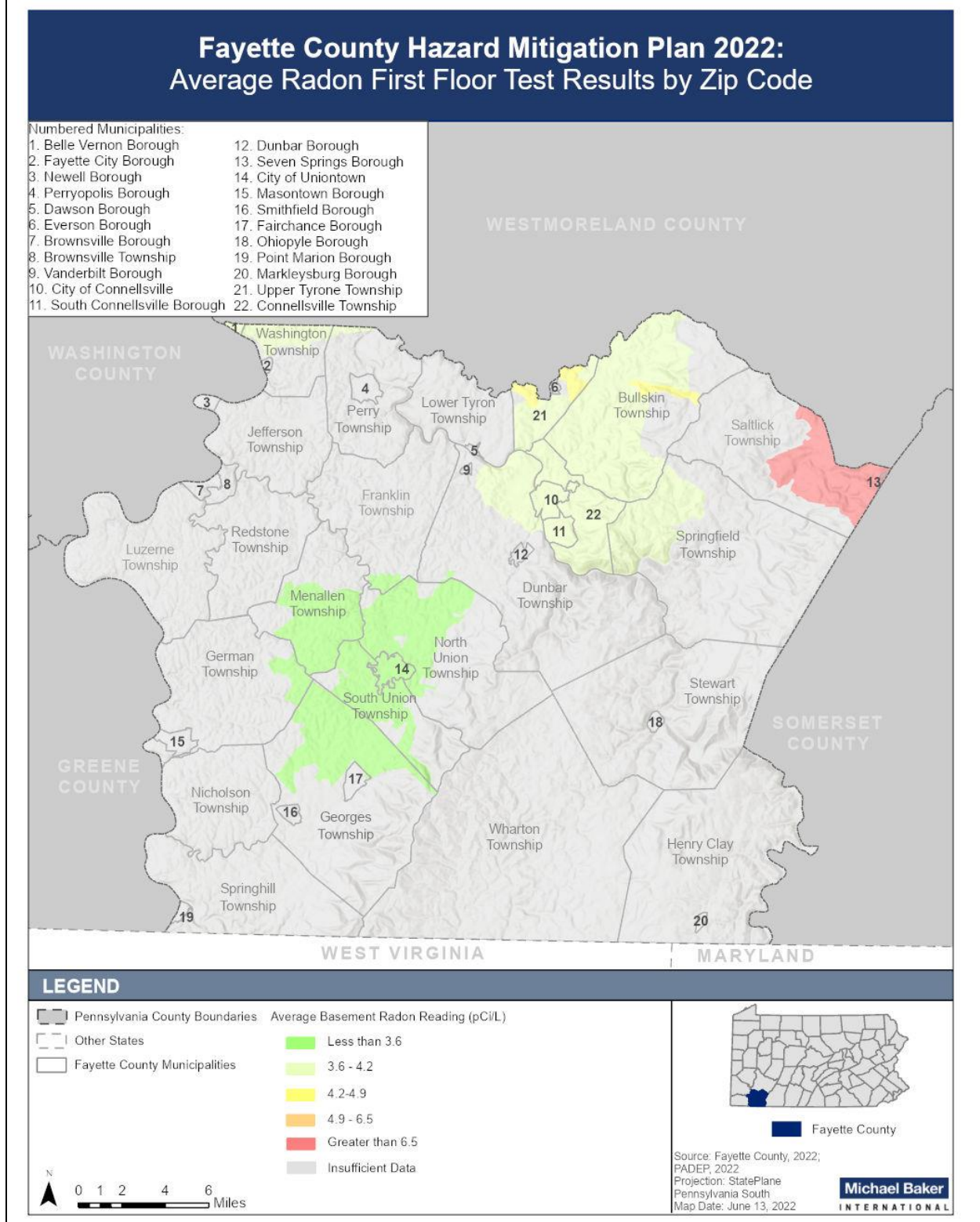


Figure 4.3.8-4 Fayette County Radon Zones First Floor



The radon content of soil gas tends to be higher in soils containing higher levels of radium and uranium, especially if the radium occupies a site on or near the surface of a grain from which the radon can easily escape. The amount of pore space in the soil and its permeability for air flow, including cracks and channels, are important factors determining radon concentration in soil gas and its rate of flow into a house. Soil depth and moisture content, mineral host and form for radium, and other soil properties may also be important. For houses built on bedrock, fractured zones may supply air having radon concentrations similar to those in deep soil.

Areas where houses have high levels of radon can be divided into three groups in terms of uranium content in rock and soil.

Areas of very elevated uranium content (>50 ppm) - can be found around uranium deposits and prospects. Although very high levels of radon can occur in such areas, the hazard normally is restricted to within a few hundred feet of the deposit. In Pennsylvania, such localities occupy an insignificant area.

Areas of common rocks having higher than average uranium content (5 to 50 ppm) - In Pennsylvania, such rock types include granitic and felsic alkali igneous rocks and black shales. In the Reading Prong, high uranium values in rock or soil and high radon levels in houses are associated with Precambrian granitic gneisses commonly containing 10 to 20 ppm uranium, but locally containing more than 500 ppm uranium. In Pennsylvania, elevated uranium occurs in black shales of the Devonian Marcellus Formation and possibly the Ordovician Martinsburg Formation. High radon values are locally present in areas underlain by these formations.

Areas of soil or bedrock that have normal uranium content but properties that promote high radon levels in houses - This group is incompletely understood at present. Relatively high soil permeability can lead to high radon, the clearest example being houses built on glacial eskers. Limestone-dolomite soils also appear to be predisposed for high radon levels in houses, perhaps because of the deep clay-rich residuum in which radium is concentrated by weathering on iron oxide or clay surfaces, coupled with moderate porosity and permeability. The importance of carbonate soils is indicated by radon contents in 93 percent of a sample of houses built on limestone-dolomite soils near State College, Centre County, exceeded 4 pCi/L, and 21 percent exceeded 20 pCi/L, even though the uranium values in the underlying bedrock are all in the normal range of 0.5 to 5 ppm uranium.

The second factor listed above is most likely the cause of radon levels in Fayette County, although test results may be a result of multiple factors. Most Counties across the Commonwealth, particularly Counties in eastern Pennsylvania, have a high hazard potential. Fayette County is noted as having moderate radon levels as shown in Figure 4.3.10-2. Figures 4.3.10-3 and 4.3.10-4 show the radon test data available for Fayette County by zip code. Most communities have indoor radon levels between zero to four or four to nine pCi/L on the basement level and zero to four or four to six pCi/L on the first floor. Communities with no data available did not have a sufficient sample size.

4.3.8.2. Range of Magnitude

Exposure to radon is the second leading cause of lung cancer after smoking. It is the number one cause of lung cancer among non-smokers. Radon is responsible for about 21,000 lung cancer deaths every year; approximately 2,900 of which occur among people who have never smoked. Lung cancer is the only known effect on human health from exposure to radon in air and, thus far, there is no evidence that children are at greater risk of lung cancer than are adults (EPA, 2016). The main hazard is from the radon daughter products (218Po, 214Pb, 214Bi), which may become attached to lung tissue and induce lung cancer by their radioactive decay.

According to the EPA, the average radon concentration in the indoor air of homes nationwide is about 1.3 pCi/L. The EPA recommends homes install mitigation measures if the radon level is 4 pCi/L or more. However, because there is no known safe level of exposure to radon, the EPA also recommends that Americans consider mitigation measures for radon levels between 2 pCi/L and 4 pCi/L. Table 4.3.8-1 shows the relationship between various radon levels, probability of lung cancer, comparable risks from other hazards, and action thresholds. As is shown in Table 4.3.8-1, a smoker exposed to radon has a much higher risk of lung cancer (EPA, 2016).

Table 4.3.8-1 Radon Risk for Smokers and Non-Smokers (EPA, 2016)			
RADON LEVEL (pCi/L)	IF 1,000 PEOPLE WERE EXPOSTED 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 people 32 could get lung cancer	6 times the risk of dying from poison	Consider fixing between 2 and 4 pCi/L
1.3	About 20 people could get lung cancer	(Average indoor radon level)	Reducing radon levels below 2 pCi/L is difficult
0.4	About 3 people could get lung cancer	(Average outdoor radon level)	
NON-SMOKERS			

Table 4.3.8-1 Radon Risk for Smokers and Non-Smokers (EPA, 2016)			
RADON LEVEL (pCi/L)	IF 1,000 PEOPLE WERE EXPOSTED TO THIS LEVEL OVER A LIFETIME...	RISK OF CANCER FROM RADON EXPOSURE COMPARES TO...	ACTION THRESHOLD
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 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.			

The worst-case scenario for radon exposure in Fayette County would be that a large area of tightly sealed homes provided residents high levels of exposure over a prolonged period without the residents being aware. This worst-case scenario exposure then could lead to many people with cancer attributed to the radon exposure.

4.3.8.3. Past Occurrence

Current data on abundance and distribution of radon as it affects individual houses in the state of Pennsylvania in general is considered incomplete and potentially biased. Fayette County is no exception. The EPA has estimated that the national average indoor radon concentration is 1.3 pCi/L and the level for action is 4.0 pCi/L, however they have estimated that the average indoor concentration in Pennsylvania basements is about 7.1 pCi/L, and on the first floor is about 3.6 pCi/L (PA DEP, 2011).

The PA DEP Bureau of Radiation Protection provides information for homeowners on how to test for radon in their houses. If a test results in radon concentrations over 4 pCi/L, then the Bureau works to help the homeowners make repairs to their houses to mitigate against high radon levels. The total number tests reported to the Bureau since 1990 and their results are provided by zip code on the Bureau's website. However, this information is only provided if over 30 tests total were reported to best approximate the average for the area.

In Fayette County, 13 out of 61 zip codes had sufficient tests reported to the Bureau to list their findings, which are shown in Table 4.3.8-2. The remaining zip codes either had insufficient data collected or data did not exist.

ZIP CODE	MUNICIPALITY/ LOCATION	LOCATION OF TEST	NUMBER OF TESTS	MAXIMUM RESULT (pCi/L)	AVERAGE RESULT (pCi/L)
15012	Belle Vernon	Basement	554	41.4	4.6
15102	Belle Vernon	First Floor	43	9.7	2.5
15401	Uniontown	Basement	554	33.5	3.8
15401	Uniontown	First Floor	72	8.9	3.0
15417	Brownsville	Basement	102	31.3	5.5
15421	Chalk Hill	Basement	39	15.2	6.4
15425	Connellsville	Basement	293	104.6	5.1
15437	Farmington	Basement	42	18.1	3.8
15438	Fayette City	Basement	46	33.3	4.1
15445	Hopwood	Basement	40	45.9	6.7
15461	Grays Landing	Basement	31	16.9	3.8
15473	Perryopolis	Basement	67	136.1	8.5
15478	Smithfield	Basement	36	11.1	3.2

4.3.8.4. Future Occurrence

Radon exposure in Fayette County remains *likely* given present soil, geologic, and geomorphic factors. Future occurrence of high radon level hazards can be considered possible as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

Development in areas where previous radon levels have been significantly high will continue to be more susceptible to exposure. New incidents of concentrated exposure may occur with future development or deterioration of older structures. Exposure can be limited with proper testing for both past and future development and appropriate mitigation measures.

Radon exposure is most common in homes with accessible cracks, pathways, and openings in their basement foundation. The low permeability of permafrost, or ground that remains frozen for at least two years, is a shield that blocks contaminants such as radioactive gas radon. It is possible for higher volumes of radon to be released as permafrost thaws. This is more common in areas of Arctic and sub-Arctic ground. Within North America and other regions, rising temperatures result in an increased use of air conditioning and fans. This leads to lower air exchange rates in tightly sealed homes and higher radon levels on upper floors (Akinyemiju, 2022).

4.3.8.5. Vulnerability Assessment

Structures in Fayette County, particularly in high vulnerability areas as shown in Figures 4.3.10-2 and 4.3.10-3, could be susceptible to moderate levels of radon. Smokers can be up to ten times more vulnerable to lung cancer from high levels of radon depending on the level of radon they are exposed to. Older houses that have crawl spaces or unfinished basements are more vulnerable as well because of the increased exposure to soils which could be releasing higher levels of radon gas. Table 4.3.9-6 notes percentages of buildings built prior to 1960 by census tract. Additionally, houses that rely on wells for their water may face an additional risk, although this type of exposure is low and rare in Pennsylvania. As described in the Drought hazard profile, Table 4.3.1-2 provides PaGWIS domestic water wells drilled per municipality.

Proper testing for radon levels should be completed throughout Fayette County, especially in the areas of higher incidence levels and for vulnerable populations that face the contributing risks described above. This testing will determine the level of vulnerability that residents face in their homes, as well as in their businesses and schools. The PA DEP Bureau of Radiation Protection provides short- and long-term tests to determine radon levels as well as information on how to mitigate high levels of radon in a building. According to the EPA, repairs to protect against radon can cost on average the same as routine house repairs (EPA, October 2010). As seen in Figures 4.3.10-3 and 4.3.10-4, areas with the highest reported tests were primarily located in the eastern portions of the County on the first floor (greater than 6.5) and an even distribution throughout the County on the basement level.

4.3.9. Tornado, Windstorm

4.3.9.1. Location and Extent

Severe wind can occur during severe thunderstorms, winter storms, coastal storms, or tornadoes. Tornadoes and windstorms can occur throughout Fayette County, though events are usually localized. However, severe thunderstorms may result in conditions favorable to the formation of numerous or long-lived tornadoes. Tornadoes can occur at any time during the day or night, but are most frequent during late afternoon into early evening, the warmest hours of the day, and most likely to occur during the spring and early summer months of March through June (NOAA NSSL, 2022).

A tornado is a narrow, violently rotating column of air that extends from a thunderstorm to the ground (NOAA NSSL, 2022). Tornado movement is characterized in two ways: direction and speed of spinning winds, and the forward movement of the tornado, also known as the storm track. The forward motion of the tornado path can be a few hundred yards or several hundred miles in length. The width of tornadoes can vary greatly, but generally range in size from less than 100 feet to over a mile in width. Some tornadoes never touch the ground and are short-lived, while others may touch the ground several times.

Straight-line winds and windstorms are experienced on a regional scale. While such winds usually accompany tornadoes, straight-line winds are caused by the movement of air from

areas of higher pressure to areas of lower pressure. Stronger winds are the result of greater differences in pressure. Windstorms are generally defined with sustained wind speeds of 40 mph or greater lasting for one hour or longer, or winds of 58 mph or greater for any duration (NOAA NWS, 2022a).

Based on 40 years of tornado history and over 100 years of hurricane history, FEMA identifies western and central Pennsylvania as being more susceptible to higher winds than eastern Pennsylvania (PA All-HMP, 2010).

4.3.9.2. Range of Magnitude

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 100 mph to more than 250 mph. In addition, the speed of forward motion can range from 0 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 miles per hour or more and can cause extreme destruction and turn normally harmless objects into deadly missiles.

Damages and deaths can be especially significant when tornadoes move through populated, developed areas. The destruction caused by tornadoes ranges from minor to extreme damage depending on the intensity, size, and duration of the storm. Typically, tornadoes cause the greatest damages to structures of light construction such as mobile homes.

The Enhanced Fujita Scale, also known as the "EF-Scale," measures tornado strength and associated damages. The EF-Scale is the definitive metric for estimating wind speeds within tornadoes based upon damage to buildings and structures. F-Scale categories with corresponding EF-Scale wind speeds are provided in Table 4.3.9-1 since the magnitude of previous tornado occurrences is based on the F-Scale (NOAA NWS, 2022b).

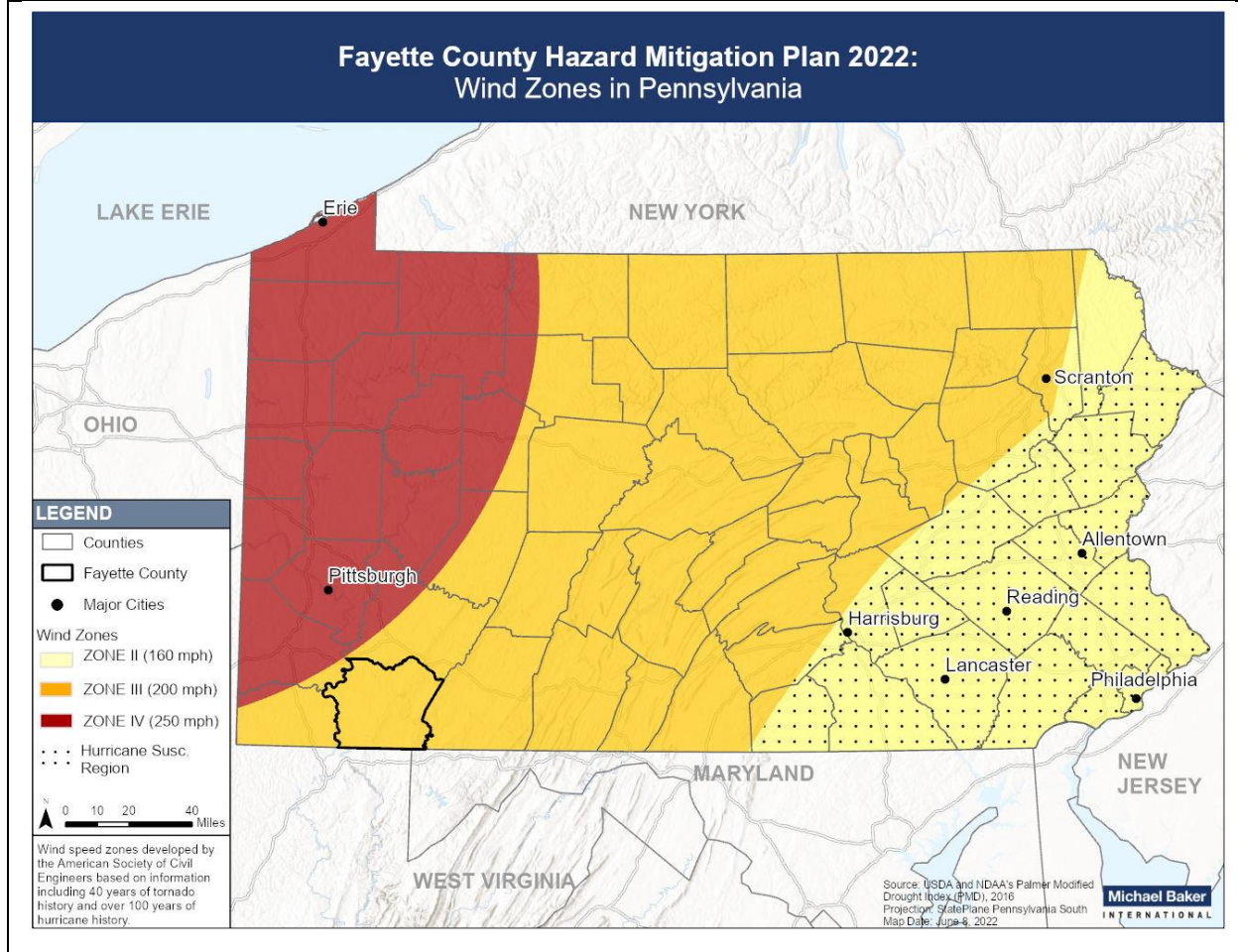
Table 4.3.9-1 Enhanced Fujita Scale (EF-Scale) Categories with Associated Wind Speeds and Description of Damages (National Oceanic and Atmospheric Administration, Storm Prediction Center, 2009)

EF-SCALE NUMBER	WIND SPEED (mph)	F-SCALE NUMBER	TYPE OF DAMAGE POSSIBLE
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.

Table 4.3.9-1 Enhanced Fujita Scale (EF-Scale) Categories with Associated Wind Speeds and Description of Damages (National Oceanic and Atmospheric Administration, Storm Prediction Center, 2009)			
EF-SCALE NUMBER	WIND SPEED (mph)	F-SCALE NUMBER	TYPE OF DAMAGE POSSIBLE
EF2	111-135	F1-F2	Considerable damage: Roofs torn off well-constructed houses; foundations of frame homes shifted; mobile homes 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 missiles generated.
EF5	>200	F3-F6	Extreme damage: Strong frame houses leveled off foundations and swept away; automobile-sized missiles fly more than 100 m (300 ft); steel reinforced concrete structure badly damaged; high-rise buildings have significant structural deformation.

Figure 4.3.9-1 shows 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. All of Fayette County falls within Zone III. Shelters and critical facilities should be able to withstand a 3-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, with wind speeds exceeding 166 miles per hour.

Figure 4.3.9-1 Wind Zones in Pennsylvania



The worst tornado event in Pennsylvania on record, an example of the worst-case scenario, occurred on July 15, 2004 in Campbelltown, Lebanon County. This F3 tornado, which had estimated wind speeds of 175-200 miles per hour, leveled 32 houses, severely damaged 37 homes, and an additional 50 homes suffered minor damage. Two people were hospitalized from the tornado, one critically injured. While only on the ground for 10-15 minutes, the NOAA National Centers for Environmental Information (NCEI) estimates that the tornado caused \$18 million in property damage.

The worst-case scenario for Fayette County would be the occurrence of an EF4 tornado, with wind speeds exceeding 166 miles per hour. This event would cause widespread damage, particularly to older homes not constructed to ASCE wind zone design guidelines. Property damages would be extremely high, and injuries or loss of life would be possible.

Since tornado events are typically localized, environmental impacts are rarely widespread. The impacts of windstorms on the environment typically take place over a larger area. In either case, where these events occur, severe damage to plant species is likely. This includes uprooting or destruction of trees and an increased threat of wildfire in areas where dead trees

are not removed. Hazardous material facilities should meet design requirements for the wind zones identified in Figure 4.3.12-1 to prevent release of hazardous materials into the environment.

4.3.9.3. Past Occurrence

As recorded by NOAA, the number of recorded EF3, EF4, and EF5 tornadoes between 1950-1998 ranges from 1 to 15 per 3,700 square miles of area across Pennsylvania (FEMA, 2009). According to the NCEI Storm Events Database, Fayette County experienced a total of 14 tornado events between 1950 and April 2022, including two events on the same day in June 1998 (NOAA NCEI, 2022). There were no F3, F4, or F5 tornadoes recorded in Fayette County during this time (NOAA NCEI, 2022).

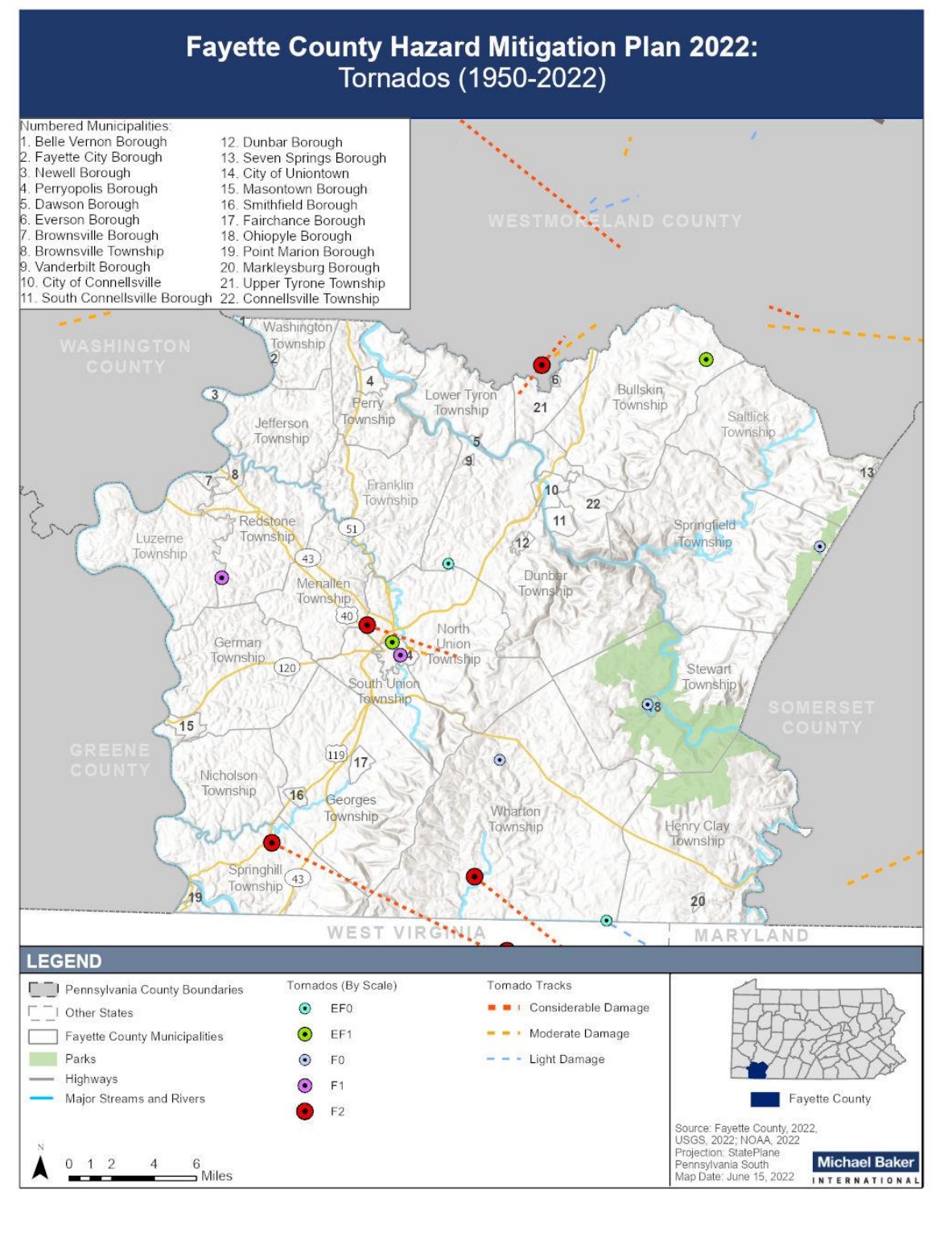
Severe thunderstorms developed as cold front moved east under deepening low pressure moving into the Great Lakes. Wind damage was reported over eastern Ohio, western Pennsylvania, and northern West Virginia, as well as an EF0 tornado in Fayette County, Pennsylvania, as well as another EF0 in Monongalia County, West Virginia. As the cold front laid out across the region in the evening, thunderstorms produced flooding and flash flooding in some areas. Uniontown City was the hardest hit by Red Stone Creek.

Tornadoes have resulted in 9 direct injuries, 0 direct deaths, and approximately \$6,857,750 in property damages in Fayette County (NOAA NCEI, 2022). Table 4.3.9-2 summarizes these past occurrences. The approximate location of the each of the past tornadoes is shown in Figure 4.3.9-2.

LOCATION OF ORIGIN	DATE	MAGNITUDE	DEATH	INJURY	PROPERTY DAMAGE
Ohiopyle Borough	6/01/1954	F0	0	0	\$2,500
Uniontown, City	9/10/1962	F1	0	0	\$250,000
Upper Tyrone Township	11/16/1965	F2	0	3	\$250,000
Springhill Township	7/13/1971	F2	0	4	\$250,000
Smithfield Borough	7/13/1971	F2	0	0	\$25,000
Wharton Township	6/15/1980	F0	0	0	\$250
North Union Township	10/01/1986	F2	0	2	\$2,500,000
Redstone Township	4/09/1991	F1	0	0	\$250,000
Indian Head	6/02/1998	F0	0	0	\$10,000
Elliottsville	6/02/1998	F2	0	0	\$3,000,000
Fiketown	7/30/2008	EF0	0	0	\$5,000
Graham Crossing	6/16/2016	EF0	0	0	\$15,000
Uniontown City, North Union Township	2/15/2018	EF1	0	0	\$50,000

Table 4.3.9-2 History of Tornadoes in Fayette County (1950-2022) (NOAA NCEI, 2022)					
LOCATION OF ORIGIN	DATE	MAGNITUDE	DEATH	INJURY	PROPERTY DAMAGE
White	7/29/2021	EF1	0	0	\$250,000
TOTAL			0	9	\$6,857,750

Figure 4.3.9-3 County Tornado History (1950-2022)



Windstorm events may be the result of thunderstorms, hurricanes, tropical storms, winter storms, or nor'easters. According to the NOAA NCEI Storm Events Database, there have been 364 reported events of high wind or thunderstorm wind in Fayette County since 1950. Table 4.3.9-3 lists only windstorms that have caused injuries and/or property damage from 1950 through April 2022. No deaths were reported from these events; however, there have been six injuries. There have been approximately 266 windstorm events recorded from 1950 through April 2022 that caused over \$3.4 million in property damages. These events frequently occurred in conjunction with thunderstorms, and most were recorded at 50 knots.

Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Uniontown	8/22/1987	Thunderstorm Wind	0	2	\$0
Uniontown	6/19/1994	Thunderstorm Wind	0	0	\$5,000
Belle Vernon	5/10/1995	Thunderstorm Wind	0	0	\$2,000
Grindstone	6/11/1995	Thunderstorm Wind	0	0	\$1,000
Perryopolis	6/11/1995	Thunderstorm Wind	0	0	\$1,000
Labelle	6/24/1995	Thunderstorm Wind	0	0	\$1,000
Newell	6/25/1995	Thunderstorm Wind	0	4	\$0
Uniontown	7/15/1995	Thunderstorm Wind	0	0	\$1,000
Cardale	7/17/1995	Thunderstorm Wind	0	0	\$1,000
Hopwood	8/11/1995	Thunderstorm Wind	0	0	\$2,000
Connellsville	8/11/1995	Thunderstorm Wind	0	0	\$1,000
Ohiopyle	8/12/1995	Thunderstorm Wind	0	0	\$1,000
Connellsville	2/27/1996	Thunderstorm Wind	50	0	\$2,000
Brownsville	4/23/1996	Thunderstorm Wind		0	\$25,000
Perryopolis	4/23/1996	Thunderstorm Wind		0	\$20,000
Everson	5/21/1996	Thunderstorm Wind		0	\$2,000
Perryopolis	7/2/1996	Thunderstorm Wind		0	\$3,000
Everson	7/2/1996	Thunderstorm Wind		0	\$2,000
Connellsville	7/2/1996	Thunderstorm Wind		0	\$2,000
Perryopolis	7/3/1996	Thunderstorm Wind		0	\$2,000
Brownsville	8/8/1996	Thunderstorm Wind		0	\$1,000
Brownsville	5/3/1997	Thunderstorm Wind		0	\$3,000
Uniontown	5/3/1997	Thunderstorm Wind		0	\$5,000
Fairchance	5/18/1997	Thunderstorm Wind		0	\$2,000
Connellsville	5/19/1997	Thunderstorm Wind		0	\$1,000
Vanderbilt	5/19/1997	Thunderstorm Wind		0	\$1,000
Uniontown	7/28/1997	Thunderstorm Wind		0	\$3,000
Republic	8/16/1997	Thunderstorm Wind		0	\$5,000
Masontown	5/24/1998	Thunderstorm Wind		0	\$1,000
Countywide	5/29/1998	Thunderstorm Wind		0	\$6,000
Uniontown	5/31/1998	Thunderstorm Wind		0	\$2,000
Perryopolis	5/31/1998	Thunderstorm Wind		0	\$1,000
Wharton Furnace	6/2/1998	Thunderstorm Wind		0	\$5,000
Vanderbilt	6/15/1998	Thunderstorm Wind		0	\$20,000
Brownsville	6/16/1998	Thunderstorm Wind		0	\$5,000
Smithfield	6/16/1998	Thunderstorm Wind		0	\$5,000
Uniontown	6/16/1998	Thunderstorm Wind		0	\$5,000
Republic	6/16/1998	Thunderstorm Wind		0	\$5,000

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Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Connellsville	6/16/1998	Thunderstorm Wind		0	\$5,000
Edenborn	6/16/1998	Thunderstorm Wind		0	\$4,000
Brownsville	6/27/1998	Thunderstorm Wind		0	\$5,000
Smithfield	6/28/1998	Thunderstorm Wind	52	0	\$2,000
Connellsville	9/7/1998	Thunderstorm Wind		0	\$2,000
Farmington	9/7/1998	Thunderstorm Wind		0	\$10,000
Uniontown	4/9/1999	Thunderstorm Wind	50	0	\$10,000
Connellsville	6/2/1999	Thunderstorm Wind	50	0	\$10,000
Connellsville	7/28/1999	Thunderstorm Wind		0	\$3,000
Belle Vernon	8/13/1999	Thunderstorm Wind		0	\$5,000
Perryopolis	8/13/1999	Thunderstorm Wind	60	0	\$10,000
Dawson	8/13/1999	Thunderstorm Wind		0	\$3,000
Farmington	5/13/2000	Thunderstorm Wind		0	\$1,000
Ohiopyle	5/13/2000	Thunderstorm Wind		0	\$5,000
Belle Vernon	5/23/2000	Thunderstorm Wind		0	\$5,000
Connellsville	6/2/2000	Thunderstorm Wind		0	\$5,000
Grindstone	6/21/2000	Thunderstorm Wind		0	\$1,000
Connellsville	7/31/2000	Thunderstorm Wind		0	\$5,000
Masontown	11/9/2000	Thunderstorm Wind		0	\$5,000
Smithfield	6/13/2001	Thunderstorm Wind		0	\$15,000
Masontown	7/1/2001	Thunderstorm Wind		0	\$2,000
Connellsville	7/10/2001	Thunderstorm Wind		0	\$2,000
Uniontown	7/10/2001	Thunderstorm Wind		0	\$10,000
Smithfield	8/28/2001	Thunderstorm Wind		0	\$5,000
Countywide	3/9/2002	Thunderstorm Wind		0	\$10,000
Dunbar	4/28/2002	Thunderstorm Wind		0	\$10,000
Countywide	5/14/2002	Thunderstorm Wind		0	\$20,000
Connellsville	5/31/2002	Thunderstorm Wind		0	\$5,000
Brownsville	5/31/2002	Thunderstorm Wind		0	\$2,000
Dunbar	7/4/2002	Thunderstorm Wind		0	\$5,000
Elliottsville	5/10/2003	Thunderstorm Wind	50	0	\$1,000
Uniontown	6/8/2003	Thunderstorm Wind	55	0	\$2,000
Flat Rock	6/8/2003	Thunderstorm Wind	55	0	\$2,000
Republic	7/4/2003	Thunderstorm Wind	50	0	\$1,000
New Salem	7/4/2003	Thunderstorm Wind	52	0	\$5,000
Countywide	7/4/2003	Thunderstorm Wind	52	0	\$10,000
Countywide	7/7/2003	Thunderstorm Wind	52	0	\$5,000
Perryopolis	7/8/2003	Thunderstorm Wind	50	0	\$1,000
Masontown	7/8/2003	Thunderstorm Wind	50	0	\$1,000
Smithfield	7/8/2003	Thunderstorm Wind	50	0	\$1,000
Ohiopyle	7/8/2003	Thunderstorm Wind	50	0	\$1,000
Fayette City	7/18/2003	Thunderstorm Wind	50	0	\$1,000
Uniontown	7/18/2003	Thunderstorm Wind	50	0	\$2,000
Pt Marion	8/3/2003	Thunderstorm Wind	50	0	\$5,000
Everson	10/14/2003	Thunderstorm Wind	55	0	\$1,000
Fayette City	11/12/2003	Thunderstorm Wind	50	0	\$2,000
Uniontown	5/21/2004	Thunderstorm Wind	50	0	\$45,000
Uniontown	5/21/2004	Thunderstorm Wind	50	0	\$2,000

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Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Perryopolis	6/14/2004	Thunderstorm Wind	52	0	\$3,000
Newell	6/17/2004	Thunderstorm Wind	50	0	\$1,000
Countywide	6/17/2004	Thunderstorm Wind	50	0	\$5,000
Perryopolis	7/4/2004	Thunderstorm Wind	50	0	\$5,000
Connellsville	8/4/2004	Thunderstorm Wind	50	0	\$3,000
Connellsville	8/10/2004	Thunderstorm Wind	50	0	\$4,000
Perryopolis	6/6/2005	Thunderstorm Wind	50	0	\$5,000
Grindstone	6/6/2005	Thunderstorm Wind	50	0	\$6,000
Farmington	6/30/2005	Thunderstorm Wind	50	0	\$4,000
Connellsville	7/12/2005	Thunderstorm Wind	50	0	\$6,000
Perryopolis	7/25/2005	Thunderstorm Wind	50	0	\$80,000
South Connellsville	8/20/2005	Thunderstorm Wind	50	0	\$8,000
Countywide	11/6/2005	Thunderstorm Wind	50	0	\$20,000
Uniontown	4/7/2006	Thunderstorm Wind	50	0	\$5,000
Ohiopyle	4/14/2006	Thunderstorm Wind	50	0	\$5,000
Connellsville	5/11/2006	Thunderstorm Wind	50	0	\$5,000
Perryopolis	7/2/2006	Thunderstorm Wind	50	0	\$3,000
Masontown	7/2/2006	Thunderstorm Wind	50	0	\$4,000
Belle Vernon	12/1/2006	Thunderstorm Wind	50	0	\$10,000
Brownsville	6/8/2007	Thunderstorm Wind	50	0	\$3,000
Fayette City	6/21/2007	Thunderstorm Wind	50	0	\$3,000
Connellsville	7/19/2007	Thunderstorm Wind	50	0	\$15,000
Connellsville	8/7/2007	Thunderstorm Wind	50	0	\$5,000
Perryopolis	8/7/2007	Thunderstorm Wind	50	0	\$8,000
Dearth	8/8/2007	Thunderstorm Wind	50	0	\$5,000
Uniontown	8/9/2007	Thunderstorm Wind	50	0	\$75,000
Uniontown	8/9/2007	Thunderstorm Wind	50	0	\$75,000
Connellsville	8/9/2007	Thunderstorm Wind	50	0	\$75,000
Leith	8/20/2007	Thunderstorm Wind	50	0	\$60,000
Connellsville	3/4/2008	Thunderstorm Wind	50	0	\$25,000
Woodside	6/16/2008	Thunderstorm Wind	50	0	\$50,000
Oliphant Furnace	6/16/2008	Thunderstorm Wind	50	0	\$50,000
Deffenbaugh	7/20/2008	Thunderstorm Wind	50	0	\$40,000
Smithfield	7/20/2008	Thunderstorm Wind	50	0	\$50,000
Whitsett	7/21/2008	Thunderstorm Wind	50	0	\$50,000
Cottier	7/21/2008	Thunderstorm Wind	51	0	\$300,000
Ohiopyle	7/21/2008	Thunderstorm Wind	50	0	\$10,000
Leith	7/30/2008	Thunderstorm Wind	50	0	\$50,000
Masontown	5/28/2009	Thunderstorm Wind	50	0	\$75,000
Vanderbilt	6/17/2009	Thunderstorm Wind	50	0	\$50,000
Lemont Furnace	8/20/2009	Thunderstorm Wind	50	0	\$50,000
Leith	4/16/2010	Thunderstorm Wind	55	0	\$50,000
Leith	4/16/2010	Thunderstorm Wind	55	0	\$25,000
Woodside	6/24/2010	Thunderstorm Wind	50	0	\$35,000
Belle Vernon	6/27/2010	Thunderstorm Wind	50	0	\$75,000
Nilan	7/25/2010	Thunderstorm Wind	50	0	\$75,000
East Riverside	8/4/2010	Thunderstorm Wind	55	0	\$20,000
Hopwood	8/4/2010	Thunderstorm Wind	50	0	\$50,000

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Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Belle Vernon	8/4/2010	Thunderstorm Wind	50	0	\$50,000
Farmington	8/4/2010	Thunderstorm Wind	50	0	\$35,000
Summit	9/16/2010	Thunderstorm Wind	50	0	\$10,000
Connellsville	2/28/2011	Thunderstorm Wind	50	0	\$15,000
Chalkhill	2/28/2011	Thunderstorm Wind	50	0	\$25,000
East California	3/23/2011	Thunderstorm Wind	50	0	\$15,000
Connellsville	3/23/2011	Thunderstorm Wind	50	0	\$10,000
Connellsville	3/23/2011	Thunderstorm Wind	50	0	\$15,000
Ohiopyle	3/23/2011	Thunderstorm Wind	50	0	\$10,000
	4/16/2011	High Wind	50	0	\$75,000
	4/16/2011	High Wind	50	0	\$50,000
Star Jct	4/26/2011	Thunderstorm Wind	50	0	\$25,000
Whitsett	5/26/2011	Thunderstorm Wind	50	0	\$1,000
Chalkhill	5/26/2011	Thunderstorm Wind	50	0	\$2,000
Ronco	7/3/2011	Thunderstorm Wind	50	0	\$5,000
Leith	7/3/2011	Thunderstorm Wind	50	0	\$10,000
Leith	7/11/2011	Thunderstorm Wind	50	0	\$10,000
Dutch Hill	7/22/2011	Thunderstorm Wind	50	0	\$10,000
Star Jct	7/22/2011	Thunderstorm Wind	50	0	\$10,000
Oliphant Furnace	7/29/2011	Thunderstorm Wind	50	0	\$10,000
Chalkhill	7/29/2011	Thunderstorm Wind	50	0	\$10,000
Springhill	9/14/2011	Thunderstorm Wind	50	0	\$2,000
Wharton Furnace	9/14/2011	Thunderstorm Wind	50	0	\$500
	2/24/2012	High Wind	50	0	\$5,000
Leith	6/29/2012	Thunderstorm Wind	60	0	\$5,000
Bitner	6/29/2012	Thunderstorm Wind	60	0	\$5,000
Ohiopyle	6/29/2012	Thunderstorm Wind	60	0	\$5,000
Leith	7/26/2012	Thunderstorm Wind	50	0	\$75,000
Whitsett	7/26/2012	Thunderstorm Wind	50	0	\$50,000
Dawson	7/26/2012	Thunderstorm Wind	50	0	\$50,000
Connellsville	7/26/2012	Thunderstorm Wind	50	0	\$30,000
Farmington	7/31/2012	Thunderstorm Wind	50	0	\$25,000
Brownsville	1/30/2013	Thunderstorm Wind	50	0	\$25,000
Martin	1/30/2013	Thunderstorm Wind	50	0	\$25,000
Oliphant Furnace	1/30/2013	Thunderstorm Wind	50	0	\$25,000
Leith	1/30/2013	Thunderstorm Wind	50	0	\$35,000
Leith	5/10/2013	Thunderstorm Wind	50	0	\$30,000
Leith	5/22/2013	Thunderstorm Wind	50	0	\$5,000
Farmington	6/13/2013	Thunderstorm Wind	50	0	\$5,000
Farmington	6/13/2013	Thunderstorm Wind	50	0	\$5,000
Leith	6/25/2013	Thunderstorm Wind	50	0	\$2,000
Grindstone	6/28/2013	Thunderstorm Wind	50	0	\$2,000
Mill Run	6/28/2013	Thunderstorm Wind	50	0	\$2,000
New Geneva	6/28/2013	Thunderstorm Wind	50	0	\$2,000
Roaring Run	7/4/2013	Thunderstorm Wind	50	0	\$5,000
Whitsett	7/10/2013	Thunderstorm Wind	50	0	\$15,000
Bitner	7/10/2013	Thunderstorm Wind	50	0	\$20,000
Oliver	7/10/2013	Thunderstorm Wind	50	0	\$5,000

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Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Oliphant Furnace	7/10/2013	Thunderstorm Wind	50	0	\$15,000
Raster Run	7/10/2013	Thunderstorm Wind	50	0	\$15,000
Connellsville	8/7/2013	Thunderstorm Wind	50	0	\$1,000
Mill Run	8/28/2013	Thunderstorm Wind	50	0	\$500
Ohiopyle	8/28/2013	Thunderstorm Wind	50	0	\$250
Masontown	11/1/2013	Thunderstorm Wind	50	0	\$25,000
Fairmount	11/1/2013	Thunderstorm Wind	50	0	\$5,000
Brownsville	11/17/2013	Thunderstorm Wind	50	0	\$5,000
Leith	11/17/2013	Thunderstorm Wind	50	0	\$5,000
Connellsville	6/8/2014	Thunderstorm Wind	50	0	\$5,000
Connellsville	6/18/2014	Thunderstorm Wind	50	0	\$5,000
Nilan	4/9/2015	Thunderstorm Wind	50	0	\$5,000
Nilan	4/9/2015	Thunderstorm Wind	50	0	\$15,000
Whitsett	6/12/2015	Thunderstorm Wind	50	0	\$5,000
Pennsville	6/12/2015	Thunderstorm Wind	50	0	\$5,000
Indian Head	6/12/2015	Thunderstorm Wind	50	0	\$5,000
Ohiopyle	6/12/2015	Thunderstorm Wind	50	0	\$2,000
Ferguson	6/20/2015	Thunderstorm Wind	50	0	\$5,000
Walnut Hill	6/20/2015	Thunderstorm Wind	50	0	\$10,000
Ralph	7/9/2015	Thunderstorm Wind	50	0	\$250
Ferguson	7/9/2015	Thunderstorm Wind	50	0	\$500
Farmington Arpt	7/9/2015	Thunderstorm Wind	50	0	\$500
Rogerstown	7/9/2015	Thunderstorm Wind	50	0	\$500
Normalville	7/9/2015	Thunderstorm Wind	50	0	\$250
	4/2/2016	High Wind	50	0	\$25,000
Connellsville Arpt	6/16/2016	Thunderstorm Wind	50	0	\$5,000
Heistersburg	7/14/2016	Thunderstorm Wind	50	0	\$5,000
Brownsville	7/14/2016	Thunderstorm Wind	50	0	\$500
Connellsville	7/14/2016	Thunderstorm Wind	50	0	\$5,000
Perryopolis	7/25/2016	Thunderstorm Wind	50	0	\$5,000
Waltersburg	7/25/2016	Thunderstorm Wind	50	0	\$10,000
Smithfield	7/25/2016	Thunderstorm Wind	50	0	\$5,000
Morris Xrds	7/25/2016	Thunderstorm Wind	50	0	\$5,000
Rowes Run	8/28/2016	Thunderstorm Wind	50	0	\$10,000
Davistown	8/28/2016	Thunderstorm Wind	50	0	\$2,000
Grindstone	10/20/2016	Thunderstorm Wind	50	0	\$15,000
Elm Grove	10/20/2016	Thunderstorm Wind	70	0	\$35,000
Connellsville	10/20/2016	Thunderstorm Wind	50	0	\$5,000
Broad Ford	10/20/2016	Thunderstorm Wind	50	0	\$20,000
Pennsville	10/20/2016	Thunderstorm Wind	50	0	\$25,000
White	10/20/2016	Thunderstorm Wind	50	0	\$15,000
Dawson	3/1/2017	Thunderstorm Wind	50	0	\$5,000
Masontown	5/1/2017	Thunderstorm Wind	50	0	\$1,000
Indian Creek	5/5/2017	Thunderstorm Wind	50	0	\$2,000
Ohiopyle	5/5/2017	Thunderstorm Wind	50	0	\$2,000
Coolspring	5/19/2017	Thunderstorm Wind	50	0	\$2,500
West Leisenring	5/19/2017	Thunderstorm Wind	50	0	\$2,500
Grindstone	5/19/2017	Thunderstorm Wind	50	0	\$500

Table 4.3.9-3 Number of Windstorms that Have Caused Deaths, Injuries, and Property Damage in Fayette County (NOAA NCEI, 2022)

LOCATION	DATE	TYPE OF EVENT	MAG.	INJURIES	PROPERTY DAMAGE
Whitsett	6/23/2017	Thunderstorm Wind	50	0	\$1,000
Layton	6/23/2017	Thunderstorm Wind	50	0	\$2,500
Masontown	6/23/2017	Thunderstorm Wind	50	0	\$2,000
Braznell	6/23/2017	Thunderstorm Wind	50	0	\$2,000
Vances Mill	6/23/2017	Thunderstorm Wind	50	0	\$2,500
East Riverside	7/7/2017	Thunderstorm Wind	50	0	\$2,500
Mc Clellandtown	7/7/2017	Thunderstorm Wind	50	0	\$2,500
Highhouse	7/7/2017	Thunderstorm Wind	50	0	\$2,500
Chadville	7/7/2017	Thunderstorm Wind	50	0	\$2,500
Brownfield	7/7/2017	Thunderstorm Wind	50	0	\$2,500
Whitsett	8/22/2017	Thunderstorm Wind	50	0	\$1,000
Vanderbilt	8/22/2017	Thunderstorm Wind	50	0	\$1,000
Connellsville	8/22/2017	Thunderstorm Wind	50	0	\$1,000
Coolspring	2/15/2018	Thunderstorm Wind	50	0	\$5,000
Isabella	5/13/2018	Thunderstorm Wind	52	0	\$2,000
Vanderbilt	6/10/2018	Thunderstorm Wind	50	0	\$500
Leisenring	6/10/2018	Thunderstorm Wind	50	0	\$1,000
Rowes Run	8/7/2018	Thunderstorm Wind	50	0	\$1,000
Dawson	6/29/2019	Thunderstorm Wind	50	0	\$3,000
Dutch Hill	6/29/2019	Thunderstorm Wind	50	0	\$3,000
East California	8/18/2019	Thunderstorm Wind	50	0	\$5,000
Arnold City	8/18/2019	Thunderstorm Wind	50	0	\$5,000
Star Jct	8/18/2019	Thunderstorm Wind	50	0	\$5,000
Woodside	8/18/2019	Thunderstorm Wind	50	0	\$3,000
Uledi	8/18/2019	Thunderstorm Wind	50	0	\$3,000
Owensdale	4/8/2020	Thunderstorm Wind	50	0	\$10,000
Pennsville	4/8/2020	Thunderstorm Wind	50	0	\$1,000
West Overton	4/8/2020	Thunderstorm Wind	50	0	\$5,000
Davistown	4/8/2020	Thunderstorm Wind	50	0	\$10,000
Fayette City	6/10/2020	Thunderstorm Wind	50	0	\$20,000
Uniontown North	7/10/2020	Thunderstorm Wind	50	0	\$10,000
Layton	8/27/2020	Thunderstorm Wind	50	0	\$1,000
West Overton	11/15/2020	Thunderstorm Wind	50	0	\$1,000
Connellsville	11/15/2020	Thunderstorm Wind	50	0	\$5,000
Farmington	11/15/2020	Thunderstorm Wind	50	0	\$10,000
	3/26/2021	High Wind	50	0	\$25,000
Smithfield	7/7/2021	Thunderstorm Wind	50	0	\$10,000
Ruble Mill	7/17/2021	Thunderstorm Wind	50	0	\$10,000
TOTAL				6	\$3,443,250

4.3.9.4. Future Occurrence

The frequency of tornadoes and windstorms is expected to remain constant across Fayette County. These storms can affect the entire County, windstorms especially can occur across the entire County during one event. The probability of a tornado or windstorm directly affecting Fayette County is relatively high, and there have been some significant past damages. Most of Pennsylvania is susceptible to tornadoes of a magnitude of at most an EF-3. It can reasonably

be assumed that future tornadoes will be similar in nature to those that have affected the County in the past. The probability of the County and its municipalities experiencing severe winds is difficult to quantify but is considered relatively high. The degree of damage and impact to the County will vary as it has in years past. Overall, the probability of future tornado and windstorms should be considered *likely* according to the Risk Factor Methodology (see Table 4.4 -1).

Tornadic and windstorm occurrences are commonly experienced in Fayette County. As average annual temperature continues to rise and the hotter atmosphere holds more moisture as a result of climate change, it is anticipated that the frequency of tornadoes can increase because of this supercell ingredient. However, wind shear, another factor to produce tornadoes, will decrease as the planet warms, conflicting with the additional moisture. National Geographic wrote, "Some studies predict that climate change could provide the opportunity for more severe thunderstorms to form. However, this does not necessarily mean that more tornadoes will occur, especially in light of that only 20 percent of supercell thunderstorms produce tornadoes." The article further details that because tornadoes are short-lived, lasting from a few seconds to a few hours as opposed to days or weeks, it because be difficult to model in climate simulations.

4.3.9.5. Vulnerability Assessment

Tornadoes and windstorms may affect the entire County, including all critical infrastructure and all structures. However, there are several evaluation criteria to consider when discussing the vulnerability of structures and critical facilities. These criteria include age of the building (and what building codes may have been in effect at the time it was built), type of construction, permanent and mobile homes, and condition of the structure (i.e., how well has the structure been maintained). For most assets, this would require site-specific analysis.

Mobile homes are at elevated risk because of the higher threat of mobilizing or overturning during high winds. Table 4.3.9-5 provides an estimate of the mobile homes per municipality. Only 8% of structures are mobile homes with the largest percentages of total structures in Lower Tyrone (18%), Georges (17%), Upper Tyrone (17%), Springhill (15%), Connellsville (14%), North Union (14%), Saltlick (14%), Springfield (14%), Bullskin (12%), Nicholson (12%), Dunbar (11%), Henry Clay (11%), and Stewart Townships (11%) and Smithfield Borough (11%). As recorded in data received from Fayette County, the total value of parcels with mobile homes is \$72,656,722.

MUNICIPALITY	TOTAL STRUCTURES	STRUCTURES ON MOBILE HOME PARCELS	PERCENT MOBILE HOMES
Belle Vernon Borough	450	5	1%
Brownsville Borough	1202	6	0%
Brownsville Township	346	6	2%

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Bullskin Township	3472	431	12%
Connellsville City	3321	13	0%
Connellsville Township	1129	162	14%
Dawson Borough	191	5	3%
Dunbar Borough	487	36	7%
Dunbar Township	3727	399	11%
Everson Borough	338	7	2%
Fairchance Borough	855	79	9%
Fayette City Borough	338	2	1%
Franklin Township	1277	110	9%
Georges Township	3196	557	17%
German Township	2639	219	8%
Henry Clay Township	1446	159	11%
Jefferson Township	974	76	8%
Lower Tyrone Township	557	99	18%
Luzerne Township	2144	110	5%
Markleysburg Borough	124	8	6%
Masontown Borough	1609	39	2%
Menallen Township	2326	221	10%
Newell Borough	269	3	1%
Nicholson Township	932	108	12%
North Union Township	6215	851	14%
Ohiopyle Borough	69	1	1%
Perry Township	1389	142	10%
Perryopolis Borough	910	77	8%
Point Marion Borough	530	7	1%
Redstone Township	2806	123	4%
Saltlick Township	1891	261	14%
Smithfield Borough	392	42	11%
South Connellsville Borough	896	79	9%
South Union Township	5126	148	3%
Springfield Township	1524	209	14%
Springhill Township	1451	223	15%
Stewart Township	468	51	11%

Uniontown City	4493	6	0%
Upper Tyrone Township	954	163	17%
Vanderbilt Borough	224	12	5%
Washington Township	1899	60	3%
Wharton Township	1914	149	8%
Grand Total	66,500	5,464	8%

Detailed condition and material data for structures within Fayette County is unavailable. Collecting such data is likely kept at the local level through building permitting, which presents a challenge for the County to maintain updated records, however the percentage of structures built prior to 1960 by census tract is depicted in the table below according to the ACS 2020 data. Census tract 2623, located within the City of Uniontown, has the largest percentage of structures built prior to 1960 at 89%. Action 2.6.3 has been added to the mitigation strategy for the County to prioritize working local building permitting to correct and improve structural data.

Table 4.3.9-6 Percentage of Structures Built Prior to 1960 by Census Tract

CENSUS TRACT NUMBER	PERCENTAGE OF STRUCTURES BUILT PRIOR TO 1960
Census Tract 2601	82%
Census Tract 2602	58%
Census Tract 2603	58%
Census Tract 2604.01	41%
Census Tract 2604.02	39%
Census Tract 2605	43%
Census Tract 2606	68%
Census Tract 2607	87%
Census Tract 2608	74%
Census Tract 2609	57%
Census Tract 2610	62%
Census Tract 2611	65%
Census Tract 2612	84%

Census Tract 2613	79%
Census Tract 2614.01	84%
Census Tract 2614.02	70%
Census Tract 2615	75%
Census Tract 2616	58%
Census Tract 2617	66%
Census Tract 2618	60%
Census Tract 2619	76%
Census Tract 2620	44%
Census Tract 2621	75%
Census Tract 2622	86%
Census Tract 2623	89%
Census Tract 2624	60%
Census Tract 2625	47%
Census Tract 2626	57%
Census Tract 2627.01	38%
Census Tract 2627.02	43%
Census Tract 2628	62%
Census Tract 2629	55%
Census Tract 2630	75%
Census Tract 2631	58%
Census Tract 2632	51%
Census Tract 2633	82%

The potential for tornadoes always exists. There has been an increase in the incidence of smaller tornadoes. However, The National Weather Service cannot accurately predict these smaller funnels, so there is difficulty in alerting the populace in a timely manner.

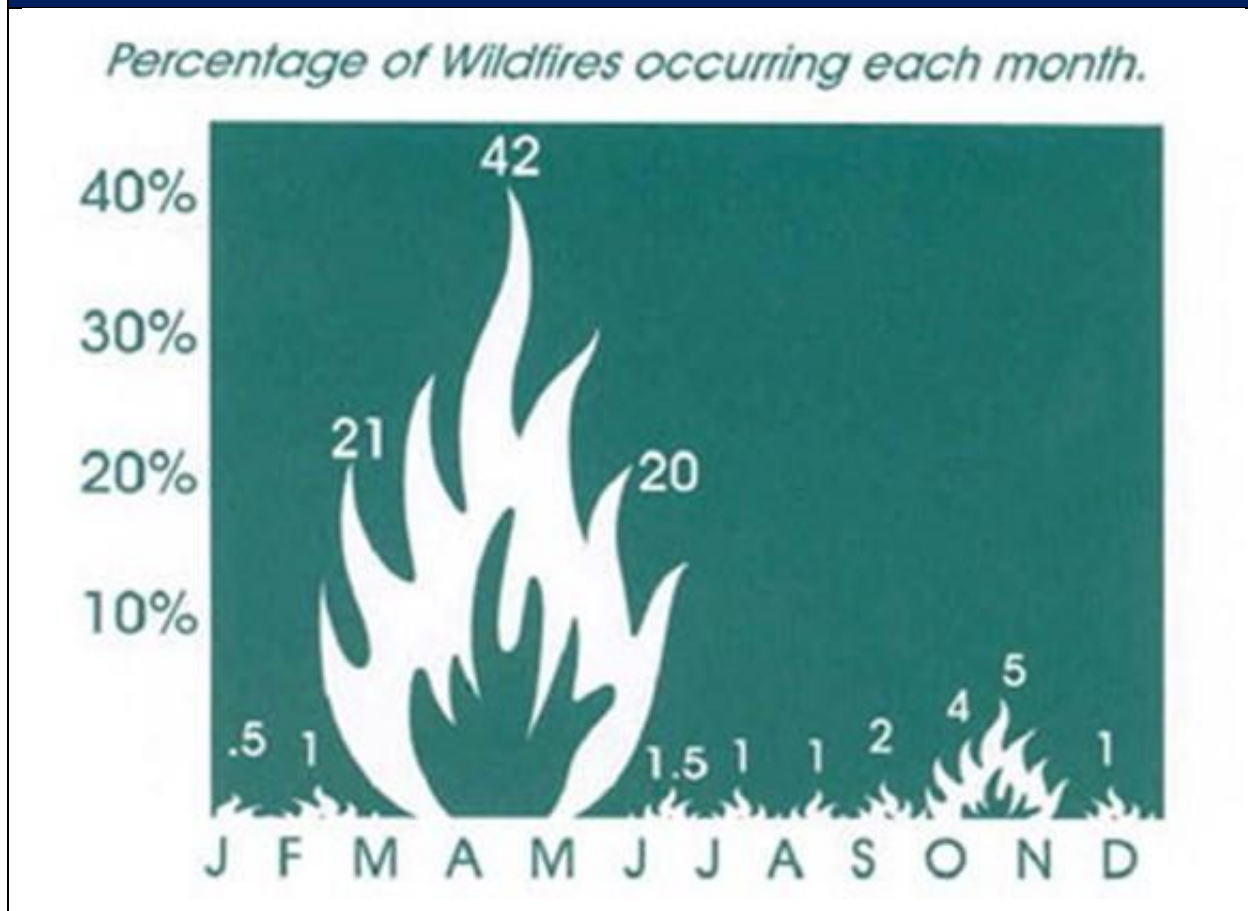
While the frequency of windstorms and minor tornadoes is expected to remain relatively constant, vulnerability increases in more densely developed areas. Since high wind events may affect the entire County, it is important to identify specific critical facilities and assets that are most vulnerable to the hazard. Due to their light-weight and often unanchored design, residential and commercial modular facilities are extremely vulnerable to high winds.

4.3.10. Wildfires

4.3.10.1. Location and Extent

Wildfires take place in less developed or completely undeveloped areas, spreading rapidly through vegetative fuels. They can occur any time of the year, but mostly occur during long, dry, hot spells. Any small fire, 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 open fields, grass, dense brush, and forests.

Under dry conditions or droughts, wildfires have the potential to burn forests as well as croplands. The greatest potential for wildfires is in the spring months of March, April, and May, and the autumn months of October and November; 83% of all Pennsylvania wildfires occur in these two time periods. In the spring, bare trees allow sunlight to reach the forest floor, drying fallen leaves and other ground debris. In the fall, dried leaves are also fuel for fires. Most fires are caused by human carelessness or negligence, especially debris burning. However, some are precipitated by lightning strikes and, in rare instances, spontaneous combustion. Figure 4.3.10-1 shows the percentage of wildfires occurring every month in Pennsylvania, showing the spikes in March, April, and May (DCNR, 2015).

Figure 4.3.10-1 Pennsylvania Wind Zones (DCNR, 2015)

Because designated park/recreation areas make up around 10% of the County's total acreage and much of the over 141,000 acres of farmland in the County are classified as "woodland," the potential geographic extent of wildfires is quite large (Fayette County Comprehensive Parks Plan, 2007).

4.3.10.2. Range of Magnitude

Wildfire events can range from small fires that can be managed by local firefighters to large fires impacting many acres of land. Large events may require evacuation from one or more communities and necessitate regional or national firefighting support. The impact of a severe wildfire can be devastating. A wildfire has the potential to kill people, livestock, fish, and wildlife. They often destroy property, valuable timber, forage, and recreational and scenic values.

In addition to the risk wildfires pose to the public and to property owners, the safety of firefighters is also a concern. Although loss of life among firefighters does not occur often in Pennsylvania, it is always a risk. More common firefighting injuries includes falls, sprains, abrasions, or heat-related injuries such as dehydration. Response to wildfires also exposes

emergency responders to the risk of motor vehicle accidents and can place them in remote areas away from the communities that they are chartered to protect.

Vegetation loss is often a concern, but it typically is not a serious impact since natural re-growth occurs with time. The most significant environmental impact is the potential for severe erosion, silting of stream beds and reservoirs, and flooding due to ground-cover loss following a fire event.

Wildfires have a positive environmental impact in that they burn dead trees, leaves, and grasses to allow more open spaces for new and different types of vegetation to grow and receive sunlight. Another positive effect of a wildfire is that it stimulates the growth of new shoots on trees and shrubs and its heat can open pinecones and other seed pods.

The largest wildfire in Pennsylvania in recent years burned 10,000 acres in the north-central area of the Commonwealth. This fire was controlled within a week. It destroyed five cabins, but there was no loss of life. Several other fires have burned over 2,000 acres each and again have been controlled within a week of the reported start. The worst-case scenario is a similar wildfire potentially killing people, livestock, and wildlife, and destroying property, valuable timber, forage land, cropland, and recreational areas.

4.3.10.3. Past Occurrence

Between 2002 and 2012, there were 165 wildfire events reported in Fayette County to DCNR. These wildfires burned approximately 507 acres of land. Table 4.3.10-1, organized by Municipality, provides a more detailed account of each of these events. More recently, in 2015, the PA DCNR reported there were 92 wildfires affecting 170 acres in District 4—the DCNR district encompassing most of southwestern Pennsylvania, including Fayette County (Pennsylvania Wildfire Summary, 2015).

Of all the municipalities, between 2002 and 2008, German and Henry Clay Townships have experienced the most wildfires with 20 and 14 respectively. However, Connellsville Township has experienced the largest number of acres burned because of wildfires. The most reported wildfire events (24) occurred in 2005, as well as the largest number of acres burned (120 acres). Unfortunately, wildfires with specific locations were not available from 2013 to 2016, however PA DCNR notes that Fayette County recorded a total of 21 wildfires in 2015 with 59.1 acres and \$4,091.91 in property damages. In 2016, there were only 13 wildfires, however 431.85 acres were damaged and the estimated cost of damages was approximately \$58,378. In addition, three injuries were recorded that year as a result of wildfire.

Table 4.3.10-1. Fayette County Wildfires (2002-2013) (PA DCNR, Bureau of Forestry, 2013. NOAA 2021)		
YEAR	MUNICIPALITY	AREA (ACRES)
2002	Bullskin Township	1.00

**Table 4.3.10-1. Fayette County Wildfires (2002-2013)
(PA DCNR, Bureau of Forestry, 2013. NOAA 2021)**

YEAR	MUNICIPALITY	AREA (ACRES)
2005	Bullskin Township	0.10
2005	Bullskin Township	0.25
2005	Bullskin Township	0.50
2008	Bullskin Township	8.10
2008	Bullskin Township	1.00
2010	Bullskin Township	0.00
2003	Connellsville City	5.00
2005	Connellsville City	60.00
2005	Connellsville City	6.00
2005	Connellsville City	1.00
2006	Connellsville City	0.10
2003	Connellsville Township	1.00
2008	Connellsville Township	1.50
2006	Dunbar Township	5.00
2006	Dunbar Township	8.00
2006	Dunbar Township	20.00
2007	Dunbar Township	2.00
2008	Dunbar Township	4.00
2009	Dunbar Township	15
2009	Dunbar Township	0.00
2009	Dunbar Township	3.00
2009	Dunbar Township	2.00
2009	Dunbar Township	3.00
2010	Dunbar Township	7.00
2011	Dunbar Township	0.00
2011	Dunbar Township	0.00
2011	Dunbar Township	0.00
2011	Dunbar Township	0.00
2011	Dunbar Township	0.00
2012	Dunbar Township	0.00
2012	Dunbar Township	14.00

**Table 4.3.10-1. Fayette County Wildfires (2002-2013)
(PA DCNR, Bureau of Forestry, 2013. NOAA 2021)**

YEAR	MUNICIPALITY	AREA (ACRES)
2012	Dunbar Township	1.00
2012	Dunbar Township	1.00
2013	Dunbar Township	0.00
2002	Georges Township	2.00
2009	Georges Township	1.00
2009	Georges Township	0.00
2010	Georges Township	1.00
2010	Georges Township	8.00
2004	German Township	5.00
2006	German Township	4.00
2006	German Township	2.00
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	8.00
2006	German Township	0.25
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2006	German Township	0.10
2007	German Township	0.50
2008	German Township	0.50
2008	German Township	1.00
2008	German Township	3.00
2009	German Township	1.00
2009	German Township	1.00

Table 4.3.10-1. Fayette County Wildfires (2002-2013) (PA DCNR, Bureau of Forestry, 2013. NOAA 2021)		
YEAR	MUNICIPALITY	AREA (ACRES)
2009	German Township	1.00
2009	German Township	1.00
2009	German Township	0.00
2009	German Township	1.00
2009	German Township	1.00
2009	German Township	1.00
2009	German Township	0.00
2009	German Township	0.00
2009	German Township	0.00
2009	German Township	0.00
2009	German Township	0.00
2009	German Township	0.00
2009	Georges Township	3.00
2011	German Township	20.00
2002	Henry Clay Township	0.10
2003	Henry Clay Township	5.00
2003	Henry Clay Township	1.30
2003	Henry Clay Township	0.10
2003	Henry Clay Township	0.10
2003	Henry Clay Township	0.10
2003	Henry Clay Township	0.10
2005	Henry Clay Township	1.00
2005	Henry Clay Township	1.00
2005	Henry Clay Township	1.00
2006	Henry Clay Township	3.00
2006	Henry Clay Township	0.50
2007	Henry Clay Township	1.00
2008	Henry Clay Township	0.10
2010	Henry Clay Township	1.00
2013	Henry Clay Township	2.00
2005	Jefferson Township	10.00

**Table 4.3.10-1. Fayette County Wildfires (2002-2013)
(PA DCNR, Bureau of Forestry, 2013. NOAA 2021)**

YEAR	MUNICIPALITY	AREA (ACRES)
2013	Jefferson Township	1.00
2009	Lower Tyrone Township	4.00
2002	Luzerne Township	0.10
2002	Luzerne Township	2.50
2005	Luzerne Township	15.00
2008	Menallen Township	0.10
2009	Menallen Township	3.00
2013	Nicholson Township	3.00
2003	North Union Township	20.00
2008	Perry Township	2.00
2009	Smithfield Borough	5.00
2003	South Connellsville Borough	1.00
2010	South Connellsville Borough	0.00
2009	South Union Township	1.00
2003	Springfield Township	1.00
2003	Springfield Township	4.00
2005	Springfield Township	2.80
2005	Springfield Township	0.50
2006	Springfield Township	12.00
2010	Springfield Township	8.00
2004	Springhill Township	12.00
2004	Springhill Township	1.00
2005	Springhill Township	10.00
2005	Springhill Township	1.00
2005	Springhill Township	1.00
2005	Springhill Township	1.00
2008	Springhill Township	8.50
2008	Springhill Township	1.50
2008	Springhill Township	0.10
2008	Springhill Township	0.10
2008	Springhill Township	0.10

Table 4.3.10-1. Fayette County Wildfires (2002-2013) (PA DCNR, Bureau of Forestry, 2013. NOAA 2021)		
YEAR	MUNICIPALITY	AREA (ACRES)
2008	Springhill Township	0.10
2008	Springhill Township	0.10
2008	Springhill Township	9.00
2008	Springhill Township	2.00
2009	Springhill Township	20.00
2009	Springhill Township	1.00
2010	Springhill Township	6.00
2010	Springhill Township	1.00
2012	Springhill Township	0.00
2003	Stewart Township	24.00
2005	Stewart Township	0.25
2005	Stewart Township	1.00
2007	Stewart Township	2.80
2008	Stewart Township	4.60
2010	Stewart Township	4.00
2010	Stewart Township	5.00
2010	Stewart Township	0.00
2010	Stewart Township	0.00
2010	Stewart Township	0.00
2012	Stewart Township	1.00
2013	Stewart Township	1.00
2002	Wharton Township	6.00
2003	Wharton Township	2.00
2003	Wharton Township	1.50
2004	Wharton Township	2.00
2004	Wharton Township	0.50
2005	Wharton Township	0.25
2005	Wharton Township	3.00
2005	Wharton Township	1.50
2005	Wharton Township	1.00
2005	Wharton Township	1.50

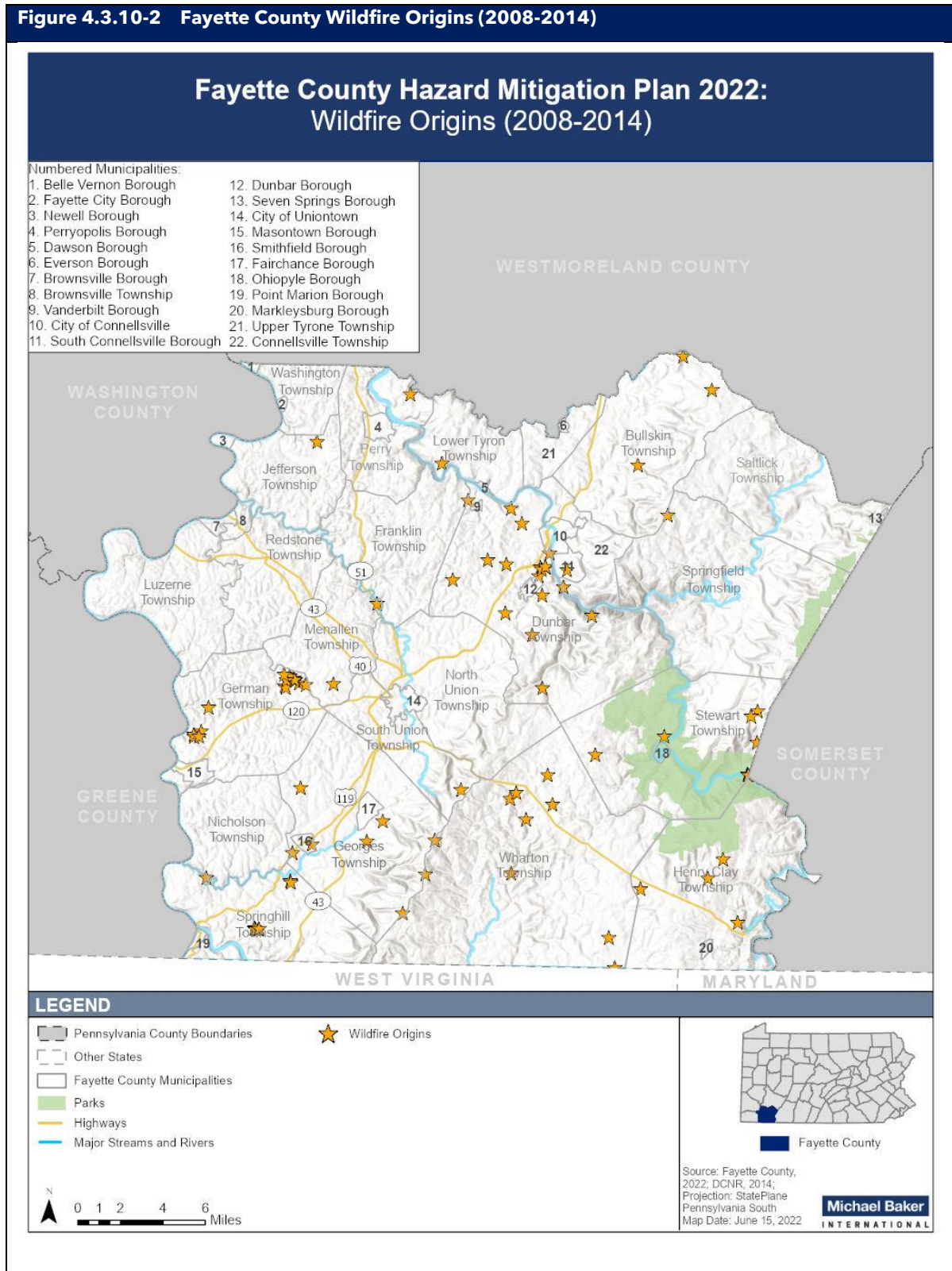
Table 4.3.10-1. Fayette County Wildfires (2002-2013) (PA DCNR, Bureau of Forestry, 2013. NOAA 2021)		
YEAR	MUNICIPALITY	AREA (ACRES)
2009	Wharton Township	1.00
2009	Wharton Township	3.00
2009	Wharton Township	1.00
2010	Wharton Township	0.00
2010	Wharton Township	0.00
2011	Wharton Township	0.00
2013	Wharton Township	7.00
2013	Wharton Township	5.00
2013	Wharton Township	0.00
2013	Wharton Township	0.00
TOTAL		506.8

The locations of Fayette County wildfire events occurring from 2008 through 2013 are also displayed in Figure 4.3.13-2. The map shows that previous occurrences of wildfires, while taking place throughout the entire County, have been largely concentrated in German, Wharton, Stewart, and Springhill Townships, and Dunbar and South Connellsville Boroughs. As noted previously, locations of past occurrences recorded from 2014 to 2016 were not available and are not included in Figure 4.3.10-2.

There were 1,371 wildfires in 2021 in Pennsylvania, accounting for 2,981 acres burned. Five residences were destroyed, and 35 other structures were destroyed. There were 18 injuries and four fatalities. There were 140 fires in Fayette County in 2021, affecting 424.6 acres, with 131 of them occurring in springtime. Statewide, debris burning accounts for the highest number of fires in the state, with power lines accounting for the second most fires in 2021. Wildfire events reported in Fayette County Districts since 2021 are presented below.

Table 4.3.10-2 Fayette County Fires and Acreages from 2017-2021		
YEAR	NUMBER OF FIRES	ACRES
2021	140	424.6
2020	120	168
2019	50	61.9
2018	50	79.6
2017	52	74.8

Figure 4.3.10-2 Fayette County Wildfire Origins (2008-2014)



4.3.10.4. Future Occurrence

The likelihood of fires attaining significant size and intensity is unpredictable and highly dependent on environmental conditions and firefighting response. Weather conditions, particularly drought events, increase the likelihood of wildfires occurring. Wildfire events will occur in Fayette County every year. Based on the DCNR data collected from 2002 through 2013 and 2015 and 2016, Fayette County can expect around 18 wildfires in any given year (Pennsylvania Wildfire Summary, 2010). Therefore, annual occurrence should be considered *likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

It is important to note that 98% of wildfires in Pennsylvania are human-caused (PADCNR-BOF, 2010). Thus, there is rationale for including this hazard under the summary of human-made hazards. Nonetheless, the critical inference to draw from this statistic is that the occurrence of future wildfire events will strongly depend on patterns of human activity. Wildfires may also be more likely after invasive species infestations or high wind events; these events would add additional potential fuel load to fire-prone locations.

As NOAA has documented, annual average temperatures will continue to rise with climate change. This will create warmer, drier conditions that will not only increase the number of wildfire occurrences but also extend what is known as fire season. These conditions will also lead to extended droughts and a lack of moisture in fuels, such as trees, shrubs, grasses, and forest debris. Although wildfires are more common in the western and southeastern United States and modeling projections show increasing fire risk, Fayette County has also experienced an increase in wildfires as shown in the data collected from the County EMA and the Hazard and Risk Evaluation survey.

4.3.10.5. Vulnerability Assessment

The Pennsylvania Bureau of Forestry has conducted an independent wildfire hazard risk assessment for the various municipalities across Fayette County. Results of that assessment are shown in Figure 4.3.13 4. Wildfire hazard is defined based on conditions that affect wildfire ignition and/or behavior such as fuel, topography, and local weather. Based on this assessment, Fayette County ranges from low to high risk of wildfires. The western portion of the County, except for Luzerne Township, has a low vulnerability to wildfires. Municipalities assessed as moderately vulnerable include:

- Newell Borough;
- Fairchance Borough;
- Smithfield Borough;
- South Union Township; and
- Springhill Township.

In the 2021 Fayette County Hazard Mitigation Plan, Vanderbilt Borough was listed as moderately vulnerable. Its status has changed to low vulnerability of wildfires.

The eastern areas of the County with high vulnerability to wildfire hazards include:

- Bullskin Township;
- Connellsville Township;
- Springfield Township;
- Dunbar Township;
- North Union Township;
- Stewart Township;
- Georges Township;
- Wharton Township;
- Henry Clay Township; and
- Luzerne Township.

The table below breaks down Fayette County's facility vulnerabilities to wildfire by municipality. There are 66,500 structures vulnerable to wildfire in Fayette County. Of those 66,500 structures, 9,830 structures are in wooded areas, with 609 facilities considered critical facilities. There are 74 critical facilities located in wooded areas. Georges Township has the highest total of critical facilities within the county, and 43% of those 74 facilities are located in wooded areas. Additional information on each municipality is shown below.

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN WOODED AREAS	PERCENT STRUCTURES IN WOODED AREAS	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN WOODED AREAS	PERCENT CRITICAL FACILITIES IN WOODED AREAS
Belle Vernon Borough	450	5	1%	2	0	0%
Brownsville Borough	1202	14	1%	21	0	0%
Brownsville Township	346	36	10%	6	3	50%
Bullskin Township	3472	1005	29%	15	1	7%
Connellsville City	3321	22	1%	26	0	0%
Connellsville Township	1129	174	15%	9	1	11%
Dawson Borough	191	4	2%	3	0	0%
Dunbar Borough	487	28	6%	4	0	0%
Dunbar Township	3727	646	17%	28	3	11%
Everson Borough	338	1	0%	5	0	0%
Fairchance Borough	855	27	3%	11	0	0%
Fayette City Borough	338	34	10%	7	0	0%
Franklin Township	1277	227	18%	14	3	21%
Georges Township	3196	456	14%	44	19	43%

Table 4.3.10-3 Fayette County Structural Vulnerabilities by Municipality

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN WOODED AREAS	PERCENT STRUCTURES IN WOODED AREAS	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN WOODED AREAS	PERCENT CRITICAL FACILITIES IN WOODED AREAS
German Township	2639	409	15%	23	4	17%
Henry Clay Township	1446	738	51%	10	1	10%
Jefferson Township	974	241	25%	3	1	33%
Lower Tyrone Township	557	148	27%	5	1	20%
Luzerne Township	2144	255	12%	22	1	5%
Markleysburg Borough	124	6	5%	4	0	0%
Masontown Borough	1609	22	1%	12	0	0%
Menallen Township	2326	339	15%	24	6	25%
Newell Borough	269	10	4%	3	0	0%
Nicholson Township	932	205	22%	5	0	0%
North Union Township	6215	597	10%	45	6	13%
Ohiopyle Borough	69	5	7%	2	0	0%
Perry Township	1389	239	17%	5	0	0%
Perryopolis Borough	910	18	2%	12	1	8%
Point Marion Borough	530	16	3%	11	0	0%
Redstone Township	2806	259	9%	26	2	8%
Saltlick Township	1891	736	39%	16	0	0%
Smithfield Borough	392	9	2%	7	0	0%
South Connellsville Borough	896	82	9%	7	1	14%
South Union Township	5126	243	5%	31	0	0%
Springfield Township	1524	620	41%	15	2	13%
Springhill Township	1451	369	25%	16	6	38%
Stewart Township	468	261	56%	2	1	50%
Uniontown City	4493	4	0%	57	1	2%
Upper Tyrone Township	954	127	13%	4	0	0%
Vanderbilt Borough	224	8	4%	5	0	0%

Table 4.3.10-3 Fayette County Structural Vulnerabilities by Municipality

MUNICIPALITY	TOTAL STRUCTURES	TOTAL STRUCTURES IN WOODED AREAS	PERCENT STRUCTURES IN WOODED AREAS	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES IN WOODED AREAS	PERCENT CRITICAL FACILITIES IN WOODED AREAS
Washington Township	1899	176	9%	18	0	0%
Wharton Township	1914	1009	53%	24	10	42%
GRAND TOTAL	66,500	9,830	15%	609	74	12%

Fayette County structure vulnerabilities also have been broken down by general land use types. Fayette County has 9,825 structures across its municipalities. Residential land use structures have the highest volume of vulnerable structures, followed by agriculture and commercial land use types. Wharton Township has the highest total of structure vulnerabilities, followed by Bullskin Township. Wharton Township also has the highest amount of agriculture facilities of all the municipalities presented in the table below.

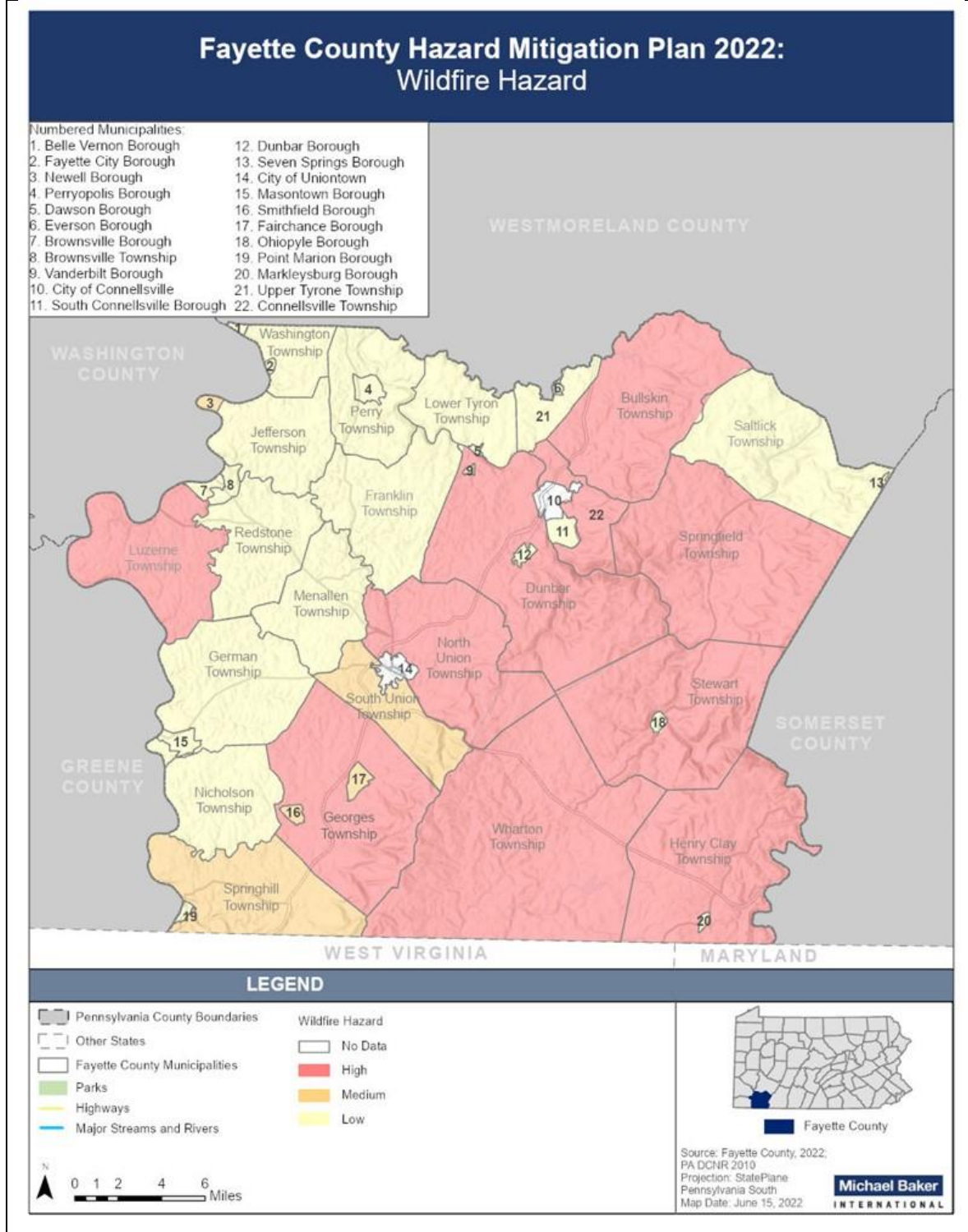
Table 4.3.10-4 Fayette County Structural Vulnerabilities by General Land Use Type

MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITY	VACANT	GRAND TOTAL
Belle Vernon Borough	0	0	0	0	5	0	0	0	5
Brownsville Borough	0	1	2	0	11	0	0	0	14
Brownsville Township	2	1	0	0	33	0	0	0	36
Bullskin Township	112	19	5	2	862	3	0	2	1005
Connellsville City	0	1	1	0	20	0	0	0	22
Connellsville Township	19	0	0	1	148	1	3	1	173
Dawson Borough	0	0	0	0	4	0	0	0	4
Dunbar Borough	0	1	0	0	27	0	0	0	28
Dunbar Township	118	21	15	6	481	3	1	1	646
Everson Borough	0	0	0	0	1	0	0	0	1
Fairchance Borough	1	0	5	0	20	1	0	0	27
Fayette City Borough	0	0	0	0	34	0	0	0	34
Franklin Township	77	2	1	0	146	1	0	0	227
Georges Township	77	10	7	1	359	1	0	0	455
German Township	66	9	10	3	318	1	2	0	409
Henry Clay Township	151	11	6	0	566	2	1	1	738
Jefferson Township	55	2	2	0	182	0	0	0	241
Lower Tyrone Township	21	7	3	1	115	1	0	1	149

Table 4.3.10-4 Fayette County Structural Vulnerabilities by General Land Use Type

MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITY	VACANT	GRAND TOTAL
Luzerne Township	45	2	9	2	195	0	0	1	254
Markleysburg Borough	1	0	0	0	5	0	0	0	6
Masontown Borough	0	0	0	0	22	0	0	0	22
Menallen Township	41	93	7	1	189	2	0	6	339
Newell Borough	1	0	0	0	9	0	0	0	10
Nicholson Township	58	3	1	0	141	2	0	0	205
North Union Township	69	15	15	1	490	6	1	0	597
Ohiopyle Borough	0	1	2	0	2	0	0	0	5
Perry Township	64	2	3	1	168	1	0	0	239
Perryopolis Borough	1	5	3	0	9	0	0	0	18
Point Marion Borough	0	0	0	0	16	0	0	0	16
Redstone Township	40	4	1	0	213	0	1	1	260
Saltlick Township	110	18	11	1	588	5	1	2	736
Smithfield Borough	2	0	0	0	6	1	0	0	9
South Connellsville Borough	1	0	1	0	80	0	0	0	82
South Union Township	14	2	8	0	212	7	0	0	243
Springfield Township	145	11	14	0	443	6	0	1	620
Springhill Township	72	6	11	4	273	0	0	0	366
Stewart Township	65	15	17	0	158	5	1	0	261
Uniontown City	0	0	3	0	1	0	0	0	4
Upper Tyrone Township	11	12	1	0	100	3	0	0	127
Vanderbilt Borough	0	1	0	0	7	0	0	0	8
Washington Township	24	6	4	0	142	0	0	0	176
Wharton Township	220	26	35	0	721	4	1	1	1008
Grand Total	1,683	307	203	24	7,522	56	12	18	9,825

Figure 4.3.10-3 Fayette County Wildfire Hazard Assessment

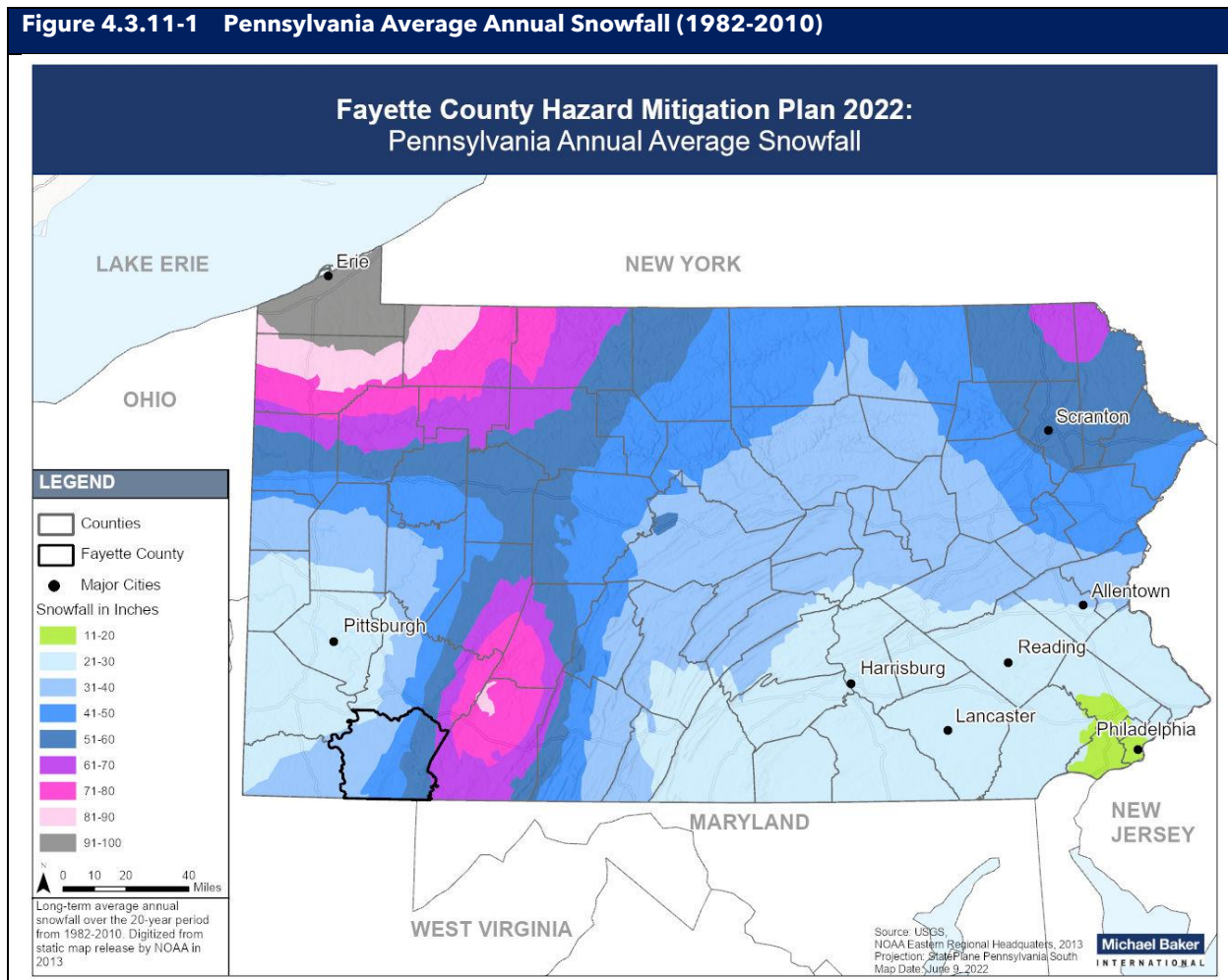


4.3.11. Winter Storms

4.3.11.1. Location and Extent

Winter storms are regional events that most often impact a most or all of Pennsylvania. In many cases, surrounding states and even the larger northeastern U.S. region are affected (NOAA NSSL, 2022b). As such, every County in the Commonwealth, including Fayette, is subject to severe winter storms. Winter storms begin as low-pressure systems that move through Pennsylvania either following the jet stream or developing as extra-tropical cyclonic weather systems over the Atlantic Ocean called Nor'easters (NOAA NSSL, 2022). The effects of these storms can sometimes last for weeks, bringing several inches or even feet of snow and ice and cold temperatures. From 1982-2010, annual snowfall in Fayette County averaged between 31 and 40 inches in most of the western portion of the County, 41-50 inches in the central portion of the County, and 51-60 inches in most of the eastern portion of the County. A small portion of westernmost Fayette County averages 21-30 inches of snowfall, and a small portion of easternmost Fayette County can see between 61-70 inches of snowfall. These gradations are shown in Figure 4.3.14-1.

Figure 4.3.11-1 Pennsylvania Average Annual Snowfall (1982-2010)



4.3.11.2. Range of Magnitude

Winter storms consist of cold temperatures, heavy snow or ice, and sometimes strong winds. They begin as low-pressure systems that move through Pennsylvania either following the jet stream or developing as extra-tropical cyclonic weather systems over the Atlantic Ocean called Nor'easters (NOAA NSSL, 2022b). Due to their regular occurrence, these storms are considered hazards only when they result in damage to specific structures or cause disruption to traffic, communications, electric power, or other utilities (FEMA, 2022).

A winter storm can adversely affect roadways, utilities, business activities, and can cause loss of life, frostbite, and freezing conditions (FEMA, 2022). These storms may include one or more of the following weather events:

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

Any of the above events can result in the closing of major or secondary roads (particularly in rural locations), stranded motorists, transportation incidents, loss of utility services, and depletion of oil heating supplies (FEMA, 2022). 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. Gradual melting of snow and ice provides excellent groundwater recharge. However, high temperatures following a heavy snowfall can cause rapid surface water runoff and severe flooding. The worst-case scenario for Fayette County is a severe blizzard lasting more than 24-hours, causing extended utility interruption, road closures, and cold temperatures.

4.3.11.3. Past Occurrence

Fayette County and the Commonwealth of Pennsylvania have a long history of severe winter weather. In the winter of 1993-1994, the state was hit by a series of protracted winter storms. The severity and nature of these storms combined with accompanying record-breaking frigid temperatures posed a major threat to the lives, safety and well-being of Commonwealth residents and caused major disruptions to the activities of schools, businesses, hospitals, and nursing homes (PEMA, 2018).

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 trees and power lines. Utility crews from a five-state area were called to assist in power restoration repairs. Officials from Pennsylvania Power and Light (PPL) Corporation stated that this was the worst winter storm in the history of the company; related damage-repair costs exceeded \$5,000,000 (PEMA, 2018).

Serious power supply shortages continued through mid-January because of record cold temperatures at many places, causing sporadic power generation outages across the Commonwealth. The entire Pennsylvania-New Jersey-Maryland grid and its partners in the District of Columbia, New York and Virginia experienced 15-30 minute rolling blackouts, threatening the lives of people and the safety of the facilities in which they resided. Power and fuel shortages affecting Pennsylvania and the East Coast power grid system required the Governor to recommend power conservation measures be taken by all commercial, residential, and industrial power consumers (PEMA, 2018).

The record cold conditions resulted in numerous water-main breaks and interruptions of service to thousands of Municipal and City water customers throughout the Commonwealth. Additionally, the extreme cold in conjunction with accumulations of frozen precipitation resulted in acute shortages of road salt. As a result, trucks were dispatched to haul salt from New York to expedite deliveries to Pennsylvania Department of Transportation storage sites (PEMA, 2018). In addition to the events described above, other winter storm events are listed in Table 4.3.11-1.

Table 4.3.11-1 History of Winter Storms in Fayette County (1950-2022) (NOAA NCEI, 2022 and Hazards and Vulnerability Research Institute, SHELDUS, 2011)		
DATE	TYPE	PROPERTY DAMAGE
12/29/1962	Heavy Snow, Wind	\$517,624
11/30/1974	Heavy Snow	\$942,026
03/14/1975	Heavy Snow, Sleet	\$100,000
01/26/1978	Heavy Snow	\$8,552,696
12/10/1992	Heavy Snow	\$114,135
3/13/1993	Blizzard	\$39,098
02/08/1994	Ice	\$31,401
01/02/1999	Winter storm	\$21,667
10/25/2005	Heavy Snow	\$27,659
12/05/2010	Blizzard	\$0.00
12/13/2010	Heavy Snow	\$0.00
01/31/2011	Ice Storm	\$0.00
02/01/2011	Ice Storm	\$0.00
02/21/2011	Heavy Snow	\$0.00
10/28/2011	Heavy Snow	\$0.00
01/02/2012	Heavy Snow	\$0.00
01/20/2012	Ice Storm	\$0.00
02/20/2012	Heavy Snow	\$0.00

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Table 4.3.11-1 History of Winter Storms in Fayette County (1950-2022) (NOAA NCEI, 2022 and Hazards and Vulnerability Research Institute, SHELDUS, 2011)

DATE	TYPE	PROPERTY DAMAGE
04/23/2012	Heavy Snow	\$0.00
10/29/2012	Heavy Snow	\$0.00
12/21/2012	Heavy Snow	\$0.00
12/26/2012	Ice Storm	\$0.00
03/05/2013	Heavy Snow	\$0.00
03/24/2013	Heavy Snow	\$0.00
11/23/2013	Winter Weather	\$0.00
01/21/2014	Heavy Snow	\$0.00
02/02/2014	Heavy Snow	\$0.00
02/02/2014	Winter Storm	\$0.00
02/04/2014	Winter Weather	\$0.00
03/02/2014	Winter Weather	\$0.00
03/29/2014	Winter Weather	\$0.00
11/26/2014	Winter Weather	\$0.00
12/02/2014	Winter Weather	\$0.00
01/03/2015	Winter Weather	\$0.00
03/03/2015	Heavy Snow	\$0.00
04/22/2015	Winter Weather	\$0.00
01/22/2016	Heavy Snow	\$0.00
04/08/2016	Winter Weather	\$0.00
01/05/2017	Winter Weather	\$0.00
02/08/2017	Heavy Snow	\$0.00
03/14/2017	Heavy Snow	\$0.00
12/29/2017	Winter Storm	\$0.00
01/12/2018	Winter Weather	\$0.00
01/29/2018	Winter Weather	\$0.00
02/17/2018	Heavy Snow	\$0.00
03/08/2018	Winter Weather	\$0.00
03/20/2018	Winter Storm	\$0.00
04/01/2018	Winter Weather	\$0.00
11/14/2018	Winter Weather	\$0.00
11/15/2018	Winter Storm	\$0.00
2/01/2019	Winter Weather	\$0.00
2/10/2019	Winter Weather	\$0.00
2/20/2019	Winter Weather	\$0.00
1/18/2020	Winter Weather	\$0.00
2/7/2020	Winter Weather	\$0.00
2/27/2020	Winter Weather	\$0.00
12/01/2020	Winter Storm	\$0.00
12/16/2020	Winter Storm	\$0.00
12/24/2020	Winter Weather	\$0.00
01/01/2021	Winter Weather	\$0.00
01/25/2021	Winter Weather	\$0.00
01/31/2021	Winter Weather	\$0.00
02/01/2021	Winter Weather	\$0.00
02/08/2021	Winter Weather	\$0.00
02/10/2021	Winter Weather	\$0.00
02/15/2021	Winter Storm	\$0.00

Table 4.3.11-1 History of Winter Storms in Fayette County (1950-2022) (NOAA NCEI, 2022 and Hazards and Vulnerability Research Institute, SHELDUS, 2011)		
DATE	TYPE	PROPERTY DAMAGE
02/18/2021	Winter Weather	\$0.00
01/06/2022	Winter Weather	\$0.00
1/16/2022	Winter Weather	\$0.00
TOTAL		\$10,346,306

On January 11, 2011, 11.2 inches of snow were recorded within a 24-hour period in Fayette County. As a low-pressure system over the Ohio Valley moved eastward and weakened, another low-pressure system intensified along the coast of Long Island, New York, bringing additional upslope heavy snow into Fayette County.

One of the more recent events to hit Fayette County was on January 1, 2016, bringing over two feet of snowfall to parts of the County and significantly impacting the operation of the County. Snow resulted from low pressure, strengthened by a deepening upper trough, lifted northward from the lower Mississippi through the Tennessee Valley with cyclogenesis occurring along the Carolinas. As a result, and with reinforcing cold air in northwesterly flow over the upper Ohio Valley, snow spread across the region late Friday morning.

4.3.11.4. Future Occurrence

Winter storms occur regularly and annually in Fayette County; their occurrence should be considered *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1). The County is located in an area with the chance of equaling or exceeding total snow depths of 21 to 70 inches (see Figure 4.3.11-1). An analysis of the past occurrences indicates that this trend will continue annually in the future.

Climate change may yield warmer winter conditions and shorter winters, but the likelihood of severe winter storms will increase. The warmer the planet, the more water is evaporated into the atmosphere leading to more precipitation in the form of heavy snow or downpours (National Geographic Society, 2022). Lower temperatures in Fayette County will lead to an increase in winter storms. As those temperatures increase into the spring, severe flooding often occurs in Fayette County and the southwestern Pennsylvania region.

4.3.11.5. Vulnerability Assessment

Based on the information available, all communities in Fayette County are essentially equally vulnerable to the direct impacts of winter storms. Snowfall is expected and normal in wintertime. The mountainous terrain and high elevation of the eastern portion of the County increases the vulnerability to winter storms. Residents of the mountainous areas of the County may be more susceptible, especially when emergency medical assistance is required. In addition, the more rural areas of the County are susceptible to isolation caused by winter storms. Frequently, especially in rural areas, loss of electric power means loss of heat for residential customers, which poses an immediate threat to human life. Areas that are heavily

wooded can make emergency response to these areas difficult when roadways are blocked by downed trees and wires.

The most obvious threat of winter weather is snow. Extreme snow is the most potentially disruptive to the public, for it can bring down power lines, trees, lead to roof collapses, and cause extremely hazardous driving conditions. Ice, cold temperatures, and high winds are also common and can be very dangerous. Severe winter storms could potentially produce an accumulation of snow and ice on trees and utility lines resulting in loss of electricity and blocked transportation routes.

Because of the frequency of winter storms, strategies have been developed to respond to these events. Snow removal and utility repair equipment is available to respond to typical events. The use of auxiliary heat and electricity supplies such as wood burning stoves, kerosene heaters and gasoline power generators reduces the vulnerability of humans to extreme cold temperatures commonly associated with winter storms. It is important to note that there is no requirement that public facilities or shelters that have generators report the fact that they have generators. Consequently, it may be difficult to accurately represent how many places have adequate shelter for the public in case of a winter storm event. Action 3.1.4 has been added for the County to work with municipalities to identify public facilities with generators as a means for shelter during winter storm events, and potentially other hazards.

People residing in structures lacking adequate equipment to protect against cold temperatures or significant snow and ice are more vulnerable to winter storm events. 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 many 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.

Vulnerability to the effects of winter storms on buildings is also dependent on the age of the building type, construction material used and condition of the structure. According to the U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, in Fayette County, 22% of the occupied housing units were constructed between 1960 and 1979, 21.8% were constructed between 1940 and 1959, and 32.2% were constructed prior to 1939. This means that 76% of occupied housing in Fayette County was built before 1980. These older structures may be more prone to damage with severe winter storm events.

4.3.12. Building or Structure Collapse

4.3.12.1. Location and Extent

Buildings and other engineered structures, including bridges, may collapse if their structural integrity is compromised, especially due to effects from other natural or human-made hazards. Older buildings or structures, structures that are not built to standard codes, or structures that have been weakened are more susceptible to be affected by these hazards.

Adherence to modern building codes can lower a building's risk to collapse. Building codes – developed by the International Code Council in partnership with FEMA and other federal, state, local, and private authorities – specify the minimum legal design and construction requirements for structural integrity, construction materials, and fire protection (FEMA, 2014). Most buildings constructed after 1961 in Fayette County were built under modern building codes as adopted in the Pennsylvania Uniform Construction Code.

Bridges serve to connect both large and small roadways and communities throughout the County. Whether they span another roadway or a body of water, bridges are a crucial part of every transportation system. However, many of Pennsylvania's bridge structures are aging and in great need of repair. Inspection and maintenance are necessary to observe and mitigate the extent of the disrepair, especially on older structures.

4.3.12.2. Range of Magnitude

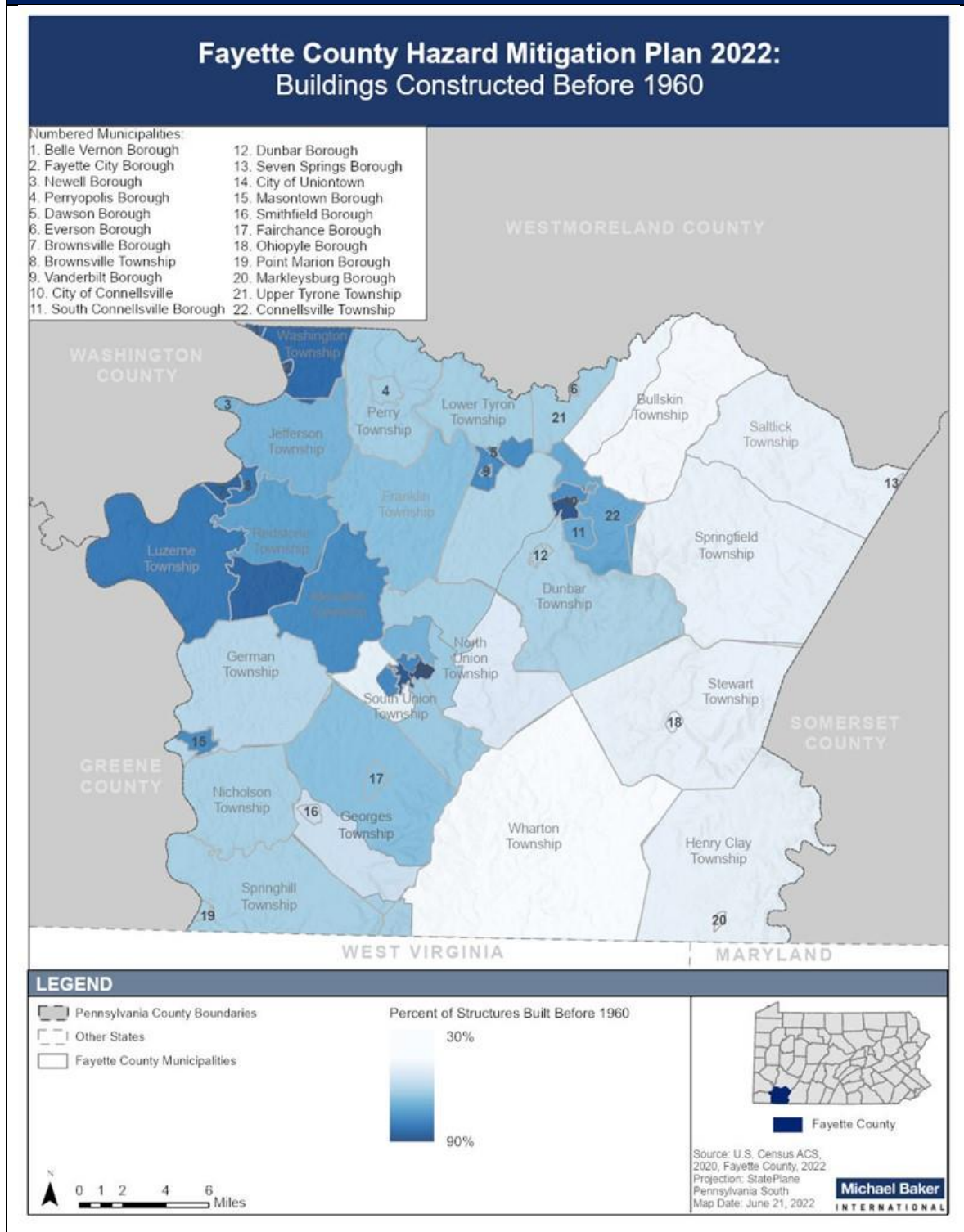
There are different effects of a collapse, depending on the type and cause of the collapse and the type of structure that collapses. A building collapsing inward will likely result in debris field which is dense but has a small footprint. However, if a building collapses in an outward direction, the debris field will be more widely scattered (University of Michigan, 2011). Both of these types of collapses can cause injury to and endanger the lives of those inside or near the structure and can result in damages to nearby property. Though occupied buildings are less likely to collapse because they would generally be maintained, more risk of death or injury would be likely with the collapse of an occupied building.

Disrepair can critically affect the integrity of the bridge structure. The level of disrepair depends on how much of the structure is damaged and how critical that portion of the structure is to the safety of drivers. Some structures only need deck replacement or a new superstructure, while others have substructure problems and should be entirely replaced.

A worst-case scenario for a bridge structure collapse is for a high traffic bridge to collapse during rush hour causing many injuries and several deaths. A worst-case scenario for a building collapse would be for a building with multiple people in it to collapse in a denser area causing injuries and possible death to those in the building as well as around the area.

Of all the structures in Fayette County municipalities, between 30% and 90% of structures were built before 1960, depending on municipality. As shown in Table 4.3.30, municipalities have structures built before 1960 predominantly on the western portion of the County, while municipalities on the Somerset County boundary have a smaller percentage of structures built before 1960.

Figure 4.3.12-1 Fayette County Buildings Constructed Before 1960



4.3.12.3. Past Occurrence

Between 2005 and 2011, Fayette County recorded five incidences of building or structure collapse. On March 15, 2005, an eight-foot basement wall collapsed on building being dismantled in Brownsville Township, one person was treated at local hospitals for injuries sustained in the collapse. On November 15, 2006, a New Salem firefighter was injured when a structure collapsed at a residential fire in Menallen Township. On January 5, 2008, one person was reported trapped in the collapse of bleachers during cheerleading practice at the Uniontown Senior High School in the city of Uniontown. On January 8, 2008, a partial commercial building collapsed in Vanderbilt Borough; no injuries were reported. Another building collapse occurred on March 28, 2011 in Connellsville City.

More recently since 2011, there have been three reports of building collapses. Rain and high winds on October 28, 2015 caused the south wall of an abandoned building to partially collapse in Connellsville City. Due to a fire on March 13, 2015, the roof of a homeless shelter collapsed. Interestingly, the building was less than 10 years old and it was unknown why the structure caught fire. A total of 10 people lived in the building, and fortunately no one was injured. On December 18, 2016, a home in Georges Township partially collapsed while a family of two was home along with three dogs and one cat. No one was injured in the incident.

Structural collapses have continued in recent years. Five people also were rescued when an apartment building partially collapsed in August 2018 due to heavy rains. In October 2020, a portion of Market Street collapsed in Brownsville that shut down Market Street. Five people also were rescued when an apartment building partially collapsed in August 2018 due to heavy rains.

4.3.12.4. Future Occurrence

It is impossible to predict when and where a building collapse may occur. Structures and buildings can collapse due to deterioration of bridge critical load bearing members and building structural integrity, but external occurrences can also impact bridges and buildings as noted for events in Fayette County. The anecdotal increase in the amount of blighted and abandoned buildings also increases the risk of a building collapse in Fayette County.

The Interstate 35W Bridge that collapsed into the Mississippi River sparked all state transportation departments to take a closer look at the state of their bridges. Pennsylvania has the third-largest number of bridges in the nation, but the most bridges classified as "structurally deficient" (PennDOT, 2015). Pennsylvania ranks last nationwide with the worst conditions for state-owned bridges (Glenside News Globe Times Chronicle, 2011). Consequently, the entire state will see an increased focus on prevention of structure collapse. Bridge closures can create significant detours and limit transportation through the county. For instance, the more than 120-year-old Layton Bridge that connects Perryopolis and Route 51 was temporarily closed for necessary repair in July 2022, creating significant detours for frequent users of the bridge.

On January 23, 2017, PennDOT announced a public meeting regarding the replacement of six Fayette County bridges including: Kooser Road and Pritts Road bridges in Springfield Township; Melcroft Road bridges in Saltlick Township; and County Line Road bridges in Saltlick Township. These efforts are a component of the Rapid Bridge Replacement Project.

This public-private partnership (P3) Rapid Bridge Replacement Project was awarded by the Pennsylvania Department of Transportation (PennDOT) to the consortium of Plenary Walsh Keystone Partners (PWKP). The Commonwealth of Pennsylvania is taking advantage of the new P3 tool, signed into law in 2012, to address the state's roughly 4,500 structurally deficient (SD) bridges. The project is an initiative to replace 558 aging bridges throughout Pennsylvania. Replacing the bridges will provide motorists with new, modern structures and allow PennDOT to remove them from their structurally deficient list. The bridges are primarily crossings on smaller state highways, many in rural areas, rather than interstate bridges or large river crossings.

The future occurrence of building and structure collapse can be considered *unlikely* as defined by the Risk Factor methodology probability criteria (see Table 4.4-1).

As mentioned in section 4.3.8, global warming will likely increase the frequency of precipitation events, therefore leading to additional soil saturation in Fayette County. Dated and structurally deficient homes could be further weakened by frequent or heightened soil saturation, therefore increasing the rate of building or structure collapse. The negative effects of climate change on all natural hazards present significant potential damages to buildings and structures. Snow or subsidence damage, water encroachment, and poor indoor climate make a building more vulnerable to collapse and a shorter lifespan. Reinforced concrete, a widely used material in construction, is incredibly strong. A warmer and wetter climate will alter the durability of the material as the steel inside the concrete becomes wet and rusts and expands. This can produce cracks in the concrete and weaken the structure. Architects and engineers are designing buildings and other structures, such as bridges, to withstand a wide range of climate impacts related to weather and geological issues (Boydell, 2021).

4.3.12.5. Vulnerability Assessment

The most vulnerable areas of the County are those with the highest concentration of deteriorating structures. Structures can either collapse into themselves or in an outward direction depending on the cause of the collapse. Construction activities, earthquakes, and subsidence can lead to a structure collapsing in on itself. Weather related hazards, including snowfall and wind, and terrorism can cause a building to collapse in an outward direction (University of Michigan, 2011). Since the HMSC determined that Fayette County was not at great risk to earthquakes, subsidence, or terrorism, the greatest risk for collapse is from cascading effects on structures, especially those with lower pre-existing structural integrity, by construction activities, from heavy snowfall during winter storms, from an imbalance of water forces on either side of a structural wall, and from high winds during storms.

As described in Section 4.3.11.5, according to the U.S. U.S. Census Bureau, 2016-2020 American Community Survey 5-Year Estimates, in Fayette County, 22% of the occupied housing units were constructed between 1960 and 1979, 21.8% were constructed between 1940 and 1959, and 32.2% were constructed prior to 1939. This means that 76% of occupied housing in Fayette County was built before 1980. These older structures may be more prone to damage with severe winter storm events. Table 4.3.9-6 on page 1-132 also notes the percentage of structures built prior to 1960 by census tract as provided by the ACS 2020.

In Fayette County, most bridges, approximately 80%, are owned and maintained by the state, the rest are owned and maintained by the County or local municipalities. PennDOT defines the following bridge terminology for the operational status of bridges.

- **Open:** Bridge is open to traveling public
- **Closed:** Bridge is closed to vehicular traffic (barriers and signs put in place); pedestrian traffic may or may not be allowed
- **Posted:** Bridge is open, but signs have been placed stating a weight limit that can travel across the bridge

Additionally, PennDOT defines Structurally Deficient as an indication of the bridge's overall status in terms of structural soundness and ability to service traveling public. If a bridge is marked as structurally deficient, that indicates that the bridge has deterioration to one or more of its major components (PennDOT, 2011).

Table 4.3.12-1 shows the numbers of closed and structurally deficient bridges owned by the state and the County and local municipalities. Countywide, approximately 26 percent of the bridges are structurally deficient. Structurally deficient bridges are often still safe for vehicles to cross over but will need work in the near future. One bridge was closed to vehicular traffic due to its structural deficiencies (PennDOT, 2017).

Table 4.3.12-1 State of Bridge Deterioration in Fayette County (PennDOT, 2022)				
BRIDGE OWNER	TOTAL BRIDGES	CLOSED BRIDGES	POSTED BRIDGES	STRUCTURALLY DEFICIENT BRIDGE STRUCTURES
State Owned	434	3	16	96*
County and Local Owned	118	6	31	49*
TOTAL	552	9	47	145*

Note: * denotes data carried over from 2017.

In Table 4.3.12-2, the deficient bridges owned by the State and by the County or local municipalities are given, broken down by Municipality, along with the total number of bridges in each Municipality. It is important to note that some bridges may cross more than one Municipality and therefore are accounted for in both municipalities. According to PennDOT data, there are 159 state bridges in Good Condition, 224 in Fair Condition, and 51 in Poor Condition. There are 21 local bridges in good condition, 47 in fair condition, and 50 in poor condition.

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Table 4.3.12-2 State of Bridge Structure Deterioration in Fayette County by Municipality (PennDOT, 2017)

MUNICIPALITY	TOTAL BRIDGES	TOTAL LOCAL/ COUNTY OWNED	LOCAL/ COUNTY FUNCTIONALLY OBSOLETE	LOCAL/COUNTY STRUCTURALLY DEFICIENT	TOTAL STATE OWNED	STATE FUNCTIONALLY OBSOLETE	STATE STRUCTURALLY DEFICIENT
Belle Vernon Borough	1	0	0	0	1	1	0
Brownsville Borough	6	2	0	1	4	1	2
Brownsville Township	4	2	0	2	2	1	0
Bullskin Township	51	10	0	4	41	1	12
Connellsville City	12	3	0	2	9	1	4
Connellsville Township	4	0	0	0	4	0	2
Dawson Borough	1	0	0	0	1	0	0
Dunbar Borough	4	2	0	0	2	0	0
Dunbar Township	20	4	0	2	16	3	4
Everson Borough	0	0	0	0	0	0	0
Fairchance Borough	5	0	0	0	5	4	0
Fayette City Borough	6	1	1	0	5	4	0
Franklin Township	20	1	0	1	19	0	7

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Table 4.3.12-2 State of Bridge Structure Deterioration in Fayette County by Municipality (PennDOT, 2017)

MUNICIPALITY	TOTAL BRIDGES	TOTAL LOCAL/ COUNTY OWNED	LOCAL/ COUNTY FUNCTIONALLY OBSOLETE	LOCAL/COUNTY STRUCTURALLY DEFICIENT	TOTAL STATE OWNED	STATE FUNCTIONALLY OBSOLETE	STATE STRUCTURALLY DEFICIENT
Georges Township	29	11	1	4	18	0	1
German Township	34	10	1	5	24	1	9
Henry Clay Township	14	5	0	2	9	1	3
Jefferson Township	13	0	0	0	13	0	4
Lower Tyrone Township	8	0	0	0	8	0	1
Luzerne Township	15	0	0	0	15	1	8
Markleysburg Borough	0	0	0	0	0	0	0
Masontown Borough	1	0	0	0	1	0	0
Menallen Township	15	3	0	2	12	1	0
Newell Borough	1				1	0	0
Nicholson Township	17	3	0	1	14	1	4
North Union Township	37	5	2	1	32	2	2
Ohiopyle Borough	2	0	0	0	2	0	0

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Table 4.3.12-2 State of Bridge Structure Deterioration in Fayette County by Municipality (PennDOT, 2017)

MUNICIPALITY	TOTAL BRIDGES	TOTAL LOCAL/ COUNTY OWNED	LOCAL/ COUNTY FUNCTIONALLY OBSOLETE	LOCAL/COUNTY STRUCTURALLY DEFICIENT	TOTAL STATE OWNED	STATE FUNCTIONALLY OBSOLETE	STATE STRUCTURALLY DEFICIENT
Perryopolis Borough	5	0	0	0	5	0	1
Perry Township	13	1	1	0	12	2	1
Point Marion Borough	2	1	0	1	1	0	0
Redstone Township	27	7	0	5	20	0	7
Saltlick Township	30	10	2	2	20	1	4
Smithfield Borough	1				1	0	0
South Connellsville Borough	0	0	0	0	0	0	0
South Union Township	46	7	1	2	39	3	1
Springfield Township	18	8	3	2	10	1	4
Springhill Township	19	3	0	3	16	3	2
Stewart Township	12	3	1	1	9	0	0
Uniontown City	14	7	3	3	7	1	2
Upper Tyrone Township	12	0	0	0	12	1	2

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Table 4.3.12-2 State of Bridge Structure Deterioration in Fayette County by Municipality (PennDOT, 2017)

MUNICIPALITY	TOTAL BRIDGES	TOTAL LOCAL/ COUNTY OWNED	LOCAL/ COUNTY FUNCTIONALLY OBSOLETE	LOCAL/COUNTY STRUCTURALLY DEFICIENT	TOTAL STATE OWNED	STATE FUNCTIONALLY OBSOLETE	STATE STRUCTURALLY DEFICIENT
Vanderbilt Borough	3	1	0	1	2	0	0
Washington Township	17	1	0	1	16	4	5
Wharton Township	38	7	0	1	31	1	10

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality

STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	43180	2.6004E+13	Addison Township, Henry Clay Township	YOUGH DAM (SOMERFIELD)	STATE HIGHWAY AGENCY	2005	OPEN, NO RESTRICTION
S	Fair	16705	2.60906E+13	Belle Vernon Borough	BELLE VERNON BOROUGH	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Fair	16548	2.64037E+13	Brownsville Borough	BROWNSVILLE BOROUGH	STATE HIGHWAY AGENCY	1969	OPEN, NO RESTRICTION
S	Poor	16958	2.64003E+13	Brownsville Borough	BROWNSVILLE BOROUGH	STATE HIGHWAY AGENCY	1839	OPEN, NO RESTRICTION
S	Poor	16959	2.64003E+13	Brownsville Borough	BROWNSVILLE BOROUGH	RAILROAD	1900	OPEN, NO RESTRICTION
L	Poor	17066	2.67202E+13	Brownsville Borough	1700' SE OF JACKSON ST	TOWN OR TOWNSHIP HIGHWAY AGENCY	1920	POSTED FOR LOAD
L	Poor	17164	2.67403E+13	Brownsville Borough	BROWNSVILLE AVENUE BR	TOWN OR TOWNSHIP HIGHWAY AGENCY	1976	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Poor	17165	2.67403E+13	Brownsville Borough	BESIDE PUBLIC LIBRARY	TOWN OR TOWNSHIP HIGHWAY AGENCY	1974	OPEN-WOULD BE POSTED/CLOSED BUT FOR TEMP CONDITION
S	Fair	16549	2.6004E+13	Brownsville Township	BROWNSVILLE TOWNSHIP	STATE HIGHWAY AGENCY	1969	OPEN, NO RESTRICTION
S	Fair	16965	2.64003E+13	Brownsville Township	BROWNSVILLE & JEFFERSON T	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Good	16707	2.60982E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Good	16738	2.61019E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Good	16740	2.61021E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Good	16791	2.6105E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Good	16805	2.61051E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Good	17183	2.61052E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Good	45759	2.61023E+13	Bullskin Township	Near SR 1051 intersection	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION
S	Good	47493	2.60982E+13	Bullskin Township	3.8 mi N from SR 0119	STATE HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
S	Good	47705	2.60982E+13	Bullskin Township	2.3 mi S from SR 0031	STATE HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
S	Good	53426	2.6105E+13	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	2016	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	53794	2.61051E+1 3	Bullskin Township	0.5 M. East of SR 1019	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	68121	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	2021	OPEN, NO RESTRICTION
S	Good	68122	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	2021	OPEN, NO RESTRICTION
S	Fair	16636	2.60119E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16637	2.60119E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16638	2.60119E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
S	Fair	16706	2.60982E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	16710	2.60982E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Fair	16735	2.61013E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1923	OPEN, NO RESTRICTION
S	Fair	16746	2.61027E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16750	2.61029E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
S	Fair	16765	2.61034E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1956	OPEN, NO RESTRICTION
S	Fair	16766	2.61035E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1987	OPEN, NO RESTRICTION
S	Fair	16783	2.61044E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16787	2.61048E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1954	OPEN, NO RESTRICTION
S	Fair	16790	2.6105E+13	Bullskin Township	SR 1050/1051 INTERSECTION	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Fair	16803	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
S	Fair	16804	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	16807	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	16808	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Fair	16810	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	17180	2.68017E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
S	Fair	17184	2.61066E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1966	OPEN, NO RESTRICTION
S	Poor	16708	2.60982E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1932	OPEN, NO RESTRICTION
S	Poor	16712	2.60982E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Poor	16737	2.61019E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	POSTED FOR LOAD
S	Poor	16744	2.61025E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Poor	16745	2.61027E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Poor	16812	2.61051E+1 3	Bullskin Township	BULLSKIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	POSTED FOR LOAD
L	Good	39928	2.67202E+1 3	Bullskin Township	AT THE RTE 119 INTERSECT	COUNTY HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
L	Good	69102	2.67202E+1 3	Bullskin Township	Bullskin Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	2020	OPEN, NO RESTRICTION
L	Fair	48481	2.67202E+1 3	Bullskin Township	SE of Hammondville	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Fair	48482	2.67202E+1 3	Bullskin Township	East of Wooddale	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Fair	48484	2.67202E+1 3	Bullskin Township	East of Hammondville	TOWN OR TOWNSHIP HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
L	Fair	48485	2.67202E+1 3	Bullskin Township	East of Hammondville	TOWN OR TOWNSHIP HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
L	Fair	48488	2.67202E+1 3	Bullskin Township	East of Hammondville	TOWN OR TOWNSHIP HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
L	Fair	56957	2.67202E+1 3	Bullskin Township	Bullskin Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	1901	OPEN, NO RESTRICTION
L	Fair	57027	2.67202E+1 3	Bullskin Township	Adjacent to U.S. 119	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, POSTING RECOMMENDED-NOT LEGALLY IMPLEMENTED
L	Poor	17068	2.67202E+1 3	Bullskin Township	SOUTH OF RT982- T906 JUNCT	COUNTY HIGHWAY AGENCY	1920	POSTED FOR LOAD
L	Poor	17070	2.67202E+1 3	Bullskin Township	SOUTH OF RT982- T906 JUNCT	COUNTY HIGHWAY AGENCY	1920	POSTED FOR LOAD
L	Poor	48486	2.67202E+1 3	Bullskin Township	Hammondville	TOWN OR TOWNSHIP HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16634	2.60119E+1 3	Bullskin Township, Connellsville Township	CONNELLSVILLE & BULLSKIN	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Poor	16764	2.61034E+1 3	Bullskin Township, Connellsville Township	CONNELLSVILLE TOWNSHIP	STATE HIGHWAY AGENCY	1956	OPEN, NO RESTRICTION
S	Fair	40090	2.60281E+1 3	Confluence Borough, Henry Clay Township	CONFLUENCE BRIDGE	STATE HIGHWAY AGENCY	1998	OPEN, NO RESTRICTION
S	Good	16632	2.60119E+1 3	Connellsville City	CITY OF CONNELLSVILLE	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Good	40994	2.61037E+1 3	Connellsville City	CITY OF CONNELLSVILLE	STATE HIGHWAY AGENCY	2000	OPEN, NO RESTRICTION
S	Good	46184	2.60119E+1 3	Connellsville City	0.3mi N of SR 0201	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Good	48257	2.61037E+1 3	Connellsville City	0.9 mi S from SR 0711	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	53789	2.61031E+1 3	Connellsville City	CONNELLSVILLE CITY & TWP.	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16654	2.60201E+1 3	Connellsville City	CITY OF CONNELLSVILLE	STATE HIGHWAY AGENCY	1947	OPEN, NO RESTRICTION
S	Fair	16773	2.61037E+1 3	Connellsville City	CITY OF CONNELLSVILLE	STATE HIGHWAY AGENCY	1908	OPEN, NO RESTRICTION
S	Poor	16689	2.60711E+1 3	Connellsville City	Crawford Avenue Bridge	STATE HIGHWAY AGENCY	1959	OPEN, NO RESTRICTION
S	Poor	16771	2.61037E+1 3	Connellsville City	CITY OF CONNELLSVILLE	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
L	Good	46461	2.67204E+1 3	Connellsville City	700' W of SR201 @ 748	TOWN OR TOWNSHIP HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Poor	17155	2.67301E+1 3	Connellsville City	EAST PARK OVER CONNELL RN	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1938	OPEN, NO RESTRICTION
L	Poor	17156	2.67302E+1 3	Connellsville City	350' N. OF SR 119	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1974	OPEN, NO RESTRICTION
L	Poor	41535	2.67301E+1 3	Connellsville City	800'SOUTH EAST OF SR 1037	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1970	OPEN, NO RESTRICTION
S	Good	53790	2.61031E+1 3	Connellsville Township	UPPER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
L	Poor	17069	2.67202E+1 3	Connellsville Township	SOUTH OF RT119-906 JUNCT	COUNTY HIGHWAY AGENCY	1918	BRIDGE, CLOSED TO ALL TRAFFIC
S	Good	45581	2.61031E+1 3	Connellsville Township, Upper Tyrone Township	NW of Connellsville	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION
S	Fair	16763	2.61032E+1 3	Dunbar Borough	DUNBAR BOROUGH	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16814	2.61053E+1 3	Dunbar Borough	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16815	2.61053E+1 3	Dunbar Borough	DUNBAR BOROUGH	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
L	Fair	17166	2.67404E+1 3	Dunbar Borough	IN DUNBAR BOROUGH	COUNTY HIGHWAY AGENCY	1977	OPEN, NO RESTRICTION
L	Fair	17167	2.67405E+1 3	Dunbar Borough	CONNELLVILLE ST.IN BORO.	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1991	OPEN, NO RESTRICTION
S	Good	16802	2.61051E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1997	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	46919	2.61039E+1 3	Dunbar Township	0.7 mi S from SR 0201	STATE HIGHWAY AGENCY	2011	OPEN, NO RESTRICTION
S	Good	53795	2.61055E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	68120	2.61055E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	2021	OPEN, NO RESTRICTION
S	Fair	16733	2.6101E+13	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1969	OPEN, NO RESTRICTION
S	Fair	16734	2.6101E+13	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1900	OPEN, NO RESTRICTION
S	Fair	16749	2.61028E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	16786	2.61047E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	16798	2.61051E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
S	Fair	16818	2.61053E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1939	POSTED FOR LOAD
S	Fair	16826	2.61055E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16831	2.61055E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1937	POSTED FOR LOAD
S	Poor	16751	2.6103E+13	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1925	OPEN, NO RESTRICTION
S	Poor	16775	2.61039E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1938	POSTED FOR OTHER LOAD CAPACITY RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Poor	16801	2.61051E+1 3	Dunbar Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
L	Fair	17071	2.67204E+1 3	Dunbar Township	AT TWP DR INTERSECT	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1921	OPEN, NO RESTRICTION
L	Poor	17073	2.67204E+1 3	Dunbar Township	T846 AT KIMMELS	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1979	OPEN, NO RESTRICTION
L	Poor	17074	2.67204E+1 3	Dunbar Township	AT INDEPENDENCE AVE INTER	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1930	POSTED FOR LOAD
S	Fair	16692	2.60819E+1 3	Dunbar Township, Lower Tyrone Township	DUNBAR TOWNSHIP	STATE HIGHWAY AGENCY	1969	OPEN, NO RESTRICTION
S	Good	16842	2.61059E+1 3	East Huntingdon Township, Upper Tyrone Township	U. TYRONE & E. HUNTINGDON	STATE HIGHWAY AGENCY	1984	OPEN, NO RESTRICTION
S	Good	46325	2.60819E+1 3	East Huntingdon Township, Upper Tyrone Township	5.6 mi N of SR 0201	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Good	45193	2.60857E+1 3	Fairchance Borough	FAIRCHANCE BOROUGH	STATE HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
S	Fair	16934	2.63014E+1 3	Fairchance Borough	FAIRCHANCE BOROUGH	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Fair	16945	2.63027E+1 3	Fairchance Borough	FAIRCHANCE BOROUGH	STATE HIGHWAY AGENCY	1905	OPEN, NO RESTRICTION
S	Fair	16946	2.63027E+1 3	Fairchance Borough	FAIRCHANCE BOROUGH	STATE HIGHWAY AGENCY	1973	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	16665	2.60201E+13	Fayette City Borough	FAYETTE CITY BOROUGH	STATE HIGHWAY AGENCY	1947	OPEN, NO RESTRICTION
S	Good	42007	2.6404E+13	Fayette City Borough	FAYETTE CITY BOROUGH	STATE HIGHWAY AGENCY	2003	OPEN, NO RESTRICTION
S	Fair	16666	2.60201E+13	Fayette City Borough	FAYETTE CITY BOROUGH	STATE HIGHWAY AGENCY	1947	OPEN, NO RESTRICTION
S	Fair	16667	2.60201E+13	Fayette City Borough	FAYETTE CITY BOROUGH	STATE HIGHWAY AGENCY	1931	OPEN, NO RESTRICTION
S	Fair	17044	2.6404E+13	Fayette City Borough	FAYETTE CITY BOROUGH	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Good	16602	2.60051E+13	Franklin Township	WALTERSBURG	STATE HIGHWAY AGENCY	1957	OPEN, NO RESTRICTION
S	Good	16729	2.61008E+13	Franklin Township	PERRY & FRANKLIN TWPS.	STATE HIGHWAY AGENCY	1981	OPEN, NO RESTRICTION
S	Good	16986	2.6401E+13	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION
S	Good	40993	2.61008E+13	Franklin Township	FRANKILN TWP	STATE HIGHWAY AGENCY	2000	OPEN, NO RESTRICTION
S	Good	41148	2.60201E+13	Franklin Township	FRANKLIN TWP	STATE HIGHWAY AGENCY	2000	OPEN, NO RESTRICTION
S	Good	48600	2.64032E+13	Franklin Township	0.9 mi E from SR 0051	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	53788	2.61018E+13	Franklin Township	N. UNION & FRANKLIN TWPS.	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	56864	2.60201E+13	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	2019	OPEN, NO RESTRICTION
S	Good	57025	2.6401E+13	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	2019	OPEN, NO RESTRICTION

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STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16600	2.60051E+1 3	Franklin Township	MENALLEN TOWNSHIP	STATE HIGHWAY AGENCY	1957	OPEN, NO RESTRICTION
S	Fair	16603	2.60051E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1957	OPEN, NO RESTRICTION
S	Fair	16605	2.60051E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1957	OPEN, NO RESTRICTION
S	Fair	16988	2.64013E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Fair	17024	2.6403E+13	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1956	OPEN, NO RESTRICTION
S	Fair	17025	2.6403E+13	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	17028	2.64032E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Poor	16604	2.60051E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION
S	Poor	17029	2.64032E+1 3	Franklin Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1938	POSTED FOR LOAD
L	Good	17121	2.67216E+1 3	Franklin Township	FRANK-RED TWP BY SR 4028	COUNTY HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION
L	Poor	17076	2.67205E+1 3	Franklin Township	WEST OF SR 51	TOWN OR TOWNSHIP HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
S	Good	17023	2.64028E+1 3	Franklin Township, Jefferson Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Fair	16601	2.60051E+1 3	Franklin Township,	MENALLEN & FRANKLIN TWP.	STATE HIGHWAY AGENCY	1957	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
				Menallen Township				
S	Fair	16984	2.6401E+13	Franklin Township, Menallen Township	FRANKLIN TOWNSHIP	STATE HIGHWAY AGENCY	1954	OPEN, NO RESTRICTION
S	Fair	17026	2.64032E+13	Franklin Township, Menallen Township	MENALLEN & FRANKLIN TWP.	STATE HIGHWAY AGENCY	1988	OPEN, NO RESTRICTION
S	Fair	17016	2.64026E+13	Franklin Township, Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1937	POSTED FOR LOAD
S	Good	16592	2.60043E+13	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION
S	Good	16699	2.60857E+13	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
S	Good	16895	2.63007E+13	Georges Township	1.3 mi N of SR 0857	STATE HIGHWAY AGENCY	1959	OPEN, NO RESTRICTION
S	Good	43181	2.63007E+13	Georges Township	GEORGES TWP.	STATE HIGHWAY AGENCY	2005	OPEN, NO RESTRICTION
S	Good	48945	2.6301E+13	Georges Township	0.6 mi W from SR 0119	STATE HIGHWAY AGENCY	2014	OPEN, NO RESTRICTION
S	Fair	16591	2.60043E+13	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION
S	Fair	16593	2.60043E+13	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16614	2.60119E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION
S	Fair	16698	2.60857E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
S	Fair	16700	2.60857E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
S	Fair	16701	2.60857E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
S	Fair	16703	2.60857E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1954	OPEN, NO RESTRICTION
S	Fair	16893	2.63005E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
S	Fair	16913	2.63012E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
S	Fair	16935	2.63015E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1929	OPEN, NO RESTRICTION
S	Fair	16936	2.63015E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	16944	2.63025E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1931	OPEN, NO RESTRICTION
S	Fair	16947	2.63027E+1 3	Georges Township	FAIRCHANCE BOROUGH	STATE HIGHWAY AGENCY	1905	OPEN, NO RESTRICTION
S	Fair	16951	2.63029E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1979	OPEN, NO RESTRICTION
S	Poor	16901	2.63009E+1 3	Georges Township	GEORGES TOWNSHIP	STATE HIGHWAY AGENCY	1990	OPEN, NO RESTRICTION
L	Good	53639	2.67206E+1 3	Georges Township	South of Smithfield	COUNTY HIGHWAY AGENCY	2016	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Good	54735	2.67206E+1 3	Georges Township	2.1 Mile East of 119	COUNTY HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
L	Fair	17080	2.67206E+1 3	Georges Township	0.9 MI SE OF US 119	COUNTY HIGHWAY AGENCY	1979	OPEN, NO RESTRICTION
L	Fair	17086	2.67206E+1 3	Georges Township	300 FT SOUTH OF T- 375	TOWN OR TOWNSHIP HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
L	Poor	17077	2.67206E+1 3	Georges Township	350 FT SE OF SR 3007	TOWN OR TOWNSHIP HIGHWAY AGENCY	1985	OPEN, NO RESTRICTION
L	Poor	17078	2.67206E+1 3	Georges Township	200 FT NW OF SR 857	TOWN OR TOWNSHIP HIGHWAY AGENCY	1930	POSTED FOR LOAD
L	Poor	17079	2.67206E+1 3	Georges Township	500 FT W OF SR 0857	COUNTY HIGHWAY AGENCY	1903	POSTED FOR LOAD
L	Poor	17087	2.67206E+1 3	Georges Township	500 FT NE OF MUD PIKE RD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1930	POSTED FOR LOAD
S	Good	16916	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1916	OPEN, NO RESTRICTION
S	Good	41086	2.64004E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2000	OPEN, NO RESTRICTION
S	Good	47167	2.60166E+1 3	German Township	2.2 mi N from SR 0021	STATE HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
S	Good	47530	2.63013E+1 3	German Township	1.1 mi N from SR 0166	STATE HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
S	Good	52700	2.63013E+1 3	German Township	0.9 mi N from SR 0166	STATE HIGHWAY AGENCY	2015	OPEN, NO RESTRICTION
S	Good	53800	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Good	53801	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	53802	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	53803	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Good	53804	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Fair	16540	2.60021E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16541	2.60021E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16542	2.60021E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16543	2.60021E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16911	2.63012E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16912	2.63012E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	16914	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1950	OPEN, NO RESTRICTION
S	Fair	16917	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16918	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Fair	16919	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Fair	16931	2.63013E+1 3	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1925	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Poor	16539	2.60021E+13	German Township	GERMAN TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
L	Good	48269	2.67207E+13	German Township	German Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	1955	OPEN, NO RESTRICTION
L	Fair	17089	2.67207E+13	German Township	575 FT WEST OF COLLEGE AV	TOWN OR TOWNSHIP HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
L	Fair	17091	2.67207E+13	German Township	AT SR 166 INTERSECTION	TOWN OR TOWNSHIP HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
L	Fair	17092	2.67207E+13	German Township	BETWEEN SR 21 AND SR 166	COUNTY HIGHWAY AGENCY	1903	OPEN, NO RESTRICTION
L	Fair	17094	2.67207E+13	German Township	WEST OF FOOTEDALE	COUNTY HIGHWAY AGENCY	2001	OPEN, NO RESTRICTION
L	Poor	17088	2.67207E+13	German Township	1.4 MI N OF SR 0166	COUNTY HIGHWAY AGENCY	1958	POSTED FOR LOAD
L	Poor	17090	2.67207E+13	German Township	250 FT EAST OF DEMNIAK RD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1929	POSTED FOR LOAD
L	Poor	17093	2.67207E+13	German Township	100' S of SR3012	COUNTY HIGHWAY AGENCY	1920	POSTED FOR LOAD
L	Poor	17095	2.67207E+13	German Township	1.4 MI NW OF SR 0166	COUNTY HIGHWAY AGENCY	1905	BRIDGE, CLOSED TO ALL TRAFFIC
L	Poor	48270	2.67207E+13	German Township	German Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	1955	OPEN, NO RESTRICTION
S	Good	42459	2.60281E+13	Henry Clay Township	HENRY CLAY TWP.	STATE HIGHWAY AGENCY	2004	OPEN, NO RESTRICTION
S	Fair	16586	2.6004E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1939	OPEN, NO RESTRICTION
S	Fair	16587	2.6004E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16589	2.6004E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1944	OPEN, NO RESTRICTION
S	Fair	16670	2.60281E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1951	OPEN, NO RESTRICTION
S	Fair	16885	2.62033E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1939	OPEN, NO RESTRICTION
S	Poor	16668	2.60281E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1921	OPEN, NO RESTRICTION
S	Poor	16669	2.60281E+13	Henry Clay Township	HENRY CLAY TOWNSHIP	STATE HIGHWAY AGENCY	1921	OPEN, NO RESTRICTION
L	Good	48477	2.67208E+13	Henry Clay Township	Henry Clay TWP	TOWN OR TOWNSHIP HIGHWAY AGENCY	1990	OPEN, NO RESTRICTION
L	Fair	17096	2.67208E+13	Henry Clay Township	350' EAST PA RT 281	COUNTY HIGHWAY AGENCY	1966	OPEN, NO RESTRICTION
L	Fair	17098	2.67208E+13	Henry Clay Township	NE OF FLAT ROCK	TOWN OR TOWNSHIP HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
L	Poor	17100	2.67208E+13	Henry Clay Township	NEAR YOUGH DAM	COUNTY HIGHWAY AGENCY	1910	OPEN, NO RESTRICTION
S	Good	17036	2.64036E+13	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1973	OPEN, NO RESTRICTION
S	Good	42461	2.64027E+13	Jefferson Township	JEFFERSON TWP.	STATE HIGHWAY AGENCY	2004	OPEN, NO RESTRICTION
S	Good	56649	2.64036E+13	Jefferson Township	Jefferson Township	STATE HIGHWAY AGENCY	2019	OPEN, NO RESTRICTION
S	Fair	16970	2.64005E+13	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16987	2.64011E+13	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1925	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	17017	2.64027E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
S	Fair	17019	2.64027E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	17035	2.64036E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Poor	16660	2.60201E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1918	OPEN, NO RESTRICTION
S	Poor	16661	2.60201E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1929	OPEN, NO RESTRICTION
S	Poor	16662	2.60201E+1 3	Jefferson Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
S	Poor	17034	2.64036E+1 3	Jefferson Township	JEFFERSON TOWNSHIP	STATE HIGHWAY AGENCY	1962	BRIDGE, CLOSED TO ALL TRAFFIC
L	Poor	17118	2.67216E+1 3	Jefferson Township	NEAR BRAZNELL	COUNTY HIGHWAY AGENCY	1962	POSTED FOR LOAD
S	Good	49115	2.64005E+1 3	Jefferson Township, Redstone Township	0.3 mi N from SR 4028	STATE HIGHWAY AGENCY	2014	OPEN, NO RESTRICTION
S	Good	55911	2.64028E+1 3	Jefferson Township, Redstone Township	2.9mi W from SR 0051	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Fair	16716	2.61002E+1 3	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
S	Fair	16717	2.61002E+1 3	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1922	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16718	2.61002E+13	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION
S	Fair	16719	2.61002E+13	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION
S	Fair	16774	2.61038E+13	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1956	OPEN, NO RESTRICTION
S	Fair	16778	2.61041E+13	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Poor	16693	2.60819E+13	Lower Tyrone Township	LOWER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1913	OPEN, NO RESTRICTION
S	Good	40340	2.61041E+13	Lower Tyrone Township, South Huntingdon Township	LOWER TYRONE TWP	STATE HIGHWAY AGENCY	1998	OPEN, NO RESTRICTION
S	Good	16932	2.63013E+13	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Good	54582	2.64022E+13	Luzerne Township	1.7 mi E from SR 4020	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	57076	2.64001E+13	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	2019	OPEN, NO RESTRICTION
S	Fair	16953	2.64001E+13	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION
S	Fair	16971	2.64006E+13	Luzerne Township	LUZERNE & REDSTONE TWP.	STATE HIGHWAY AGENCY	1961	OPEN, NO RESTRICTION
S	Fair	16999	2.6402E+13	Luzerne Township	REDSTONE & LUZERNE TWPS.	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Poor	16933	2.63013E+13	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Poor	16954	2.64001E+1 3	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION
S	Poor	16955	2.64001E+1 3	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION
S	Poor	16956	2.64003E+1 3	Luzerne Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Poor	17013	2.64022E+1 3	Luzerne Township	LUZERNE TOWNSHIP	RAILROAD	1910	OPEN, NO RESTRICTION
L	Poor	17114	2.67216E+1 3	Luzerne Township	SIMPSON STATION	COUNTY HIGHWAY AGENCY	1905	BRIDGE, CLOSED TO ALL TRAFFIC
L	Poor	17116	2.67216E+1 3	Luzerne Township	BETWEEN REPUB & MERRITTS	COUNTY HIGHWAY AGENCY	1964	POSTED FOR LOAD
L	Poor	17119	2.67216E+1 3	Luzerne Township	OUTSIDE ALLISON NO. 2	COUNTY HIGHWAY AGENCY	1963	POSTED FOR LOAD
S	Good	45245	2.60166E+1 3	Luzerne Township, Redstone Township	2 Miles N. of SR 4008	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION
S	Good	48589	2.60166E+1 3	Luzerne Township, Redstone Township	1.4 mi S from SR 0040	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	53783	2.60166E+1 3	Luzerne Township, Redstone Township	REDSTONE & LUZERNE TWPS.	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16650	2.60166E+1 3	Luzerne Township, Redstone Township	LUZERNE TOWNSHIP	STATE HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
S	Good	48298	2.60021E+1 3	Masontown Borough,	1.2 mi W from SR 0166	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
				Monongahela Township				
S	Good	45505	2.6401E+13	Menallen Township	East of SR 0040	STATE HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
S	Good	46152	2.64006E+13	Menallen Township	4.5 mi W of SR 0040	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Fair	16943	2.63023E+13	Menallen Township	MENALLEN TOWNSHIP	STATE HIGHWAY AGENCY	1938	POSTED FOR LOAD
S	Fair	16976	2.64006E+13	Menallen Township	MENALLEN TOWNSHIP	STATE HIGHWAY AGENCY	1921	OPEN, NO RESTRICTION
S	Fair	16989	2.64014E+13	Menallen Township	MENALLEN TOWNSHIP	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Poor	16942	2.63023E+13	Menallen Township	GERMAN & MENALLEN TWPS.	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Poor	16993	2.64016E+13	Menallen Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1927	OPEN, NO RESTRICTION
L	Poor	17103	2.67212E+13	Menallen Township	SOUTH OF WALTERSBURG	TOWN OR TOWNSHIP HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
L	Poor	48516	2.67212E+13	Menallen Township	Menallen TWP	TOWN OR TOWNSHIP HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
S	Fair	16977	2.64006E+13	Menallen Township, South Union Township	MENALLEN & S. UNION TWPS.	STATE HIGHWAY AGENCY	1985	OPEN, NO RESTRICTION
S	Good	16645	2.60166E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION
S	Good	42460	2.63009E+13	Nicholson Township	NICHOLSON TWP.	STATE HIGHWAY AGENCY	2004	OPEN, NO RESTRICTION

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STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	46850	2.63006E+13	Nicholson Township	1.1 mi W from SR 0119	STATE HIGHWAY AGENCY	2011	OPEN, NO RESTRICTION
S	Good	53799	2.63011E+13	Nicholson Township	NICHOLSON & GERMAN TWPS.	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Fair	16644	2.60166E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION
S	Fair	16905	2.6301E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1955	OPEN, NO RESTRICTION
S	Fair	16906	2.6301E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Fair	16909	2.63011E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1940	POSTED FOR LOAD
S	Poor	16646	2.60166E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1928	OPEN, NO RESTRICTION
S	Poor	16898	2.63008E+13	Nicholson Township	NICHOLSON TOWNSHIP	STATE HIGHWAY AGENCY	1911	POSTED FOR LOAD
L	Good	17105	2.67213E+13	Nicholson Township	EAST OF SR 3011	COUNTY HIGHWAY AGENCY	2000	OPEN, NO RESTRICTION
L	Fair	17106	2.67213E+13	Nicholson Township	0.8 MI NW OF SR 0119	COUNTY HIGHWAY AGENCY	1966	POSTED FOR LOAD
L	Poor	17104	2.67213E+13	Nicholson Township	1.0 MI NE OF SR 0166	COUNTY HIGHWAY AGENCY	1910	POSTED FOR LOAD
L	Poor	17144	2.6722E+13	Nicholson Township	NEAR T336-T354 JUNCTION	COUNTY HIGHWAY AGENCY	1909	BRIDGE, CLOSED TO ALL TRAFFIC
S	Good	16642	2.60166E+13	Nicholson Township, Springhill Township	SPRINGHILL/NICHOLSON TWP.	STATE HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION

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STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	41267	2.63003E+1 3	Nicholson Township, Springhill Township	SPRINGHILL/NICHOLS ON TWP.	STATE HIGHWAY AGENCY	2001	OPEN, NO RESTRICTION
S	Good	41620	2.63003E+1 3	Nicholson Township, Springhill Township	NICHOLSON/SPRING HILL TWPS	STATE HIGHWAY AGENCY	2002	OPEN, NO RESTRICTION
S	Good	42122	2.63003E+1 3	Nicholson Township, Springhill Township	SPRINGHILL/NICHOLS ON TWPS	STATE HIGHWAY AGENCY	2003	OPEN, NO RESTRICTION
S	Fair	16613	2.60119E+1 3	Nicholson Township, Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1987	OPEN, NO RESTRICTION
S	Good	16621	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	16622	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	16626	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	16743	2.61024E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Good	16835	2.61055E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1990	OPEN, NO RESTRICTION
S	Good	16875	2.62021E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION
S	Good	17179	2.68013E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
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S	Good	45192	2.60051E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
S	Good	45998	2.62027E+1 3	North Union Township	2.6 mi S of SR 0119	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Good	47942	2.62021E+1 3	North Union Township	7.5 mi N from SR 0040	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	53792	2.61043E+1 3	North Union Township	N. UNION & FRANKLIN TWPS.	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Fair	16598	2.60051E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Fair	16623	2.61069E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16625	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16627	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16628	2.60119E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16739	2.6102E+13	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1956	OPEN, NO RESTRICTION
S	Fair	16741	2.61022E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16795	2.61051E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16796	2.61051E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1950	OPEN, NO RESTRICTION
S	Fair	16797	2.61051E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1952	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16836	2.61055E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1970	OPEN, NO RESTRICTION
S	Fair	16874	2.62021E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16877	2.62023E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1953	OPEN, NO RESTRICTION
S	Fair	16878	2.62023E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1943	OPEN, NO RESTRICTION
S	Fair	16880	2.62027E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	16882	2.62027E+1 3	North Union Township	NORTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
L	Fair	17108	2.67214E+1 3	North Union Township	OLIVER LIMITS	COUNTY HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
L	Fair	17112	2.67214E+1 3	North Union Township	OLIVER	COUNTY HIGHWAY AGENCY	1926	POSTED FOR LOAD
L	Fair	43206	2.67214E+1 3	North Union Township	FAN HOLLOW	COUNTY HIGHWAY AGENCY	2005	OPEN, NO RESTRICTION
L	Poor	17110	2.67214E+1 3	North Union Township	AT SWPA RR EAST UNIONTOWN	COUNTY HIGHWAY AGENCY	1963	POSTED FOR LOAD
L	Poor	48478	2.67214E+1 3	North Union Township	Bute	TOWN OR TOWNSHIP HIGHWAY AGENCY	1965	OPEN, POSTING RECOMMENDED-NOT LEGALLY IMPLEMENTED
S	Fair	16616	2.60119E+1 3	North Union Township, South Union Township	SOUTH & NORTH UNION TWP.	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16617	2.60119E+1 3	North Union Township, South Union Township	SOUTH & NORTH UNION TWP.	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	53796	2.61058E+13	null	SALTICK & DONEGAL TWPS.	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	53797	2.61058E+13	null	SALTICK & DONEGAL TWPS.	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16552	2.6004E+13	null	MENALLEN, SOUTH TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16838	2.61058E+13	null	SALTICK & DONEGAL TWPS.	STATE HIGHWAY AGENCY	1948	OPEN, NO RESTRICTION
S	Fair	16839	2.61058E+13	null	SALTICK & DONEGAL TWPS.	STATE HIGHWAY AGENCY	1948	OPEN, NO RESTRICTION
S	Fair	17061	2.6204E+13	null	NORTH & SOUTH UNION TWP.	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Fair	17063	2.6204E+13	null	NORTH & SOUTH UNION TWP.	STATE HIGHWAY AGENCY	1929	OPEN, NO RESTRICTION
S	Poor	16837	2.61058E+13	null	BULLSKIN & MT. PLEASANT T	STATE HIGHWAY AGENCY	1948	OPEN, NO RESTRICTION
S	Good	16677	2.60381E+13	Ohiopyle Borough	OHIOPYLE BOROUGH	STATE HIGHWAY AGENCY	1975	OPEN, NO RESTRICTION
S	Good	57253	2.60381E+13	Ohiopyle Borough	Ohiopyle Borough	STATE HIGHWAY AGENCY	2020	OPEN, NO RESTRICTION
S	Fair	16676	2.60381E+13	Ohiopyle Borough	OHIOPYLE BOROUGH	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
S	Good	16608	2.60051E+13	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1929	OPEN, NO RESTRICTION
S	Good	16659	2.60201E+13	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Good	17037	2.64038E+13	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	17181	2.68019E+1 3	Perry Township	Ramp- PA 51 N to PA 201 N	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Good	46249	2.64046E+1 3	Perry Township	0.4 mi N of SR 0051	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Fair	16607	2.60051E+1 3	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Fair	16609	2.60051E+1 3	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Fair	16728	2.61008E+1 3	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	17040	2.64038E+1 3	Perry Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1898	OPEN, NO RESTRICTION
S	Fair	17182	2.68019E+1 3	Perry Township	Ramp- PA 201 N to PA 51 N	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Fair	67883	2.60051E+1 3	Perry Township	51/201 Interchange	STATE HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
S	Poor	17042	2.64038E+1 3	Perry Township	LAYTON BRIDGE	STATE HIGHWAY AGENCY	1892	BRIDGE, CLOSED TO ALL TRAFFIC
L	Fair	48518	2.67215E+1 3	Perry Township	South of Perryopolis	TOWN OR TOWNSHIP HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
S	Fair	16714	2.61002E+1 3	Perry Township, South Huntingdon Township	PERRY TOWNSHIP	STATE HIGHWAY AGENCY	1966	OPEN, NO RESTRICTION
S	Good	16606	2.60051E+1 3	Perryopolis Borough	PERRYOPOLIS BOROUGH	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
S	Fair	16994	2.64017E+1 3	Perryopolis Borough	PERRYOPOLIS BOROUGH	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	17038	2.64038E+13	Perryopolis Borough	PERRYOPOLIS BOROUGH	STATE HIGHWAY AGENCY	1939	POSTED FOR LOAD
S	Fair	17039	2.64038E+13	Perryopolis Borough	PERRYOPOLIS BOROUGH	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Fair	16610	2.60119E+13	Point Marion Borough	POINT MARION BOROUGH	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
L	Poor	17169	2.67414E+13	Point Marion Borough	PT. MARION BORO OFF 119	TOWN OR TOWNSHIP HIGHWAY AGENCY	1921	BRIDGE, CLOSED TO ALL TRAFFIC
S	Fair	40339	2.60119E+13	Point Marion Borough, Springhill Township	CHEAT RIVER @ PT MARION	STATE HIGHWAY AGENCY	1998	OPEN, NO RESTRICTION
S	Good	16983	2.64008E+13	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Good	45370	2.64016E+13	Redstone Township	0.5 MI E of SR 40	STATE HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
S	Good	45509	2.6004E+13	Redstone Township	E of Brownsville	STATE HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
S	Good	45854	2.60166E+13	Redstone Township	1.2 mi S of SR 0040	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION
S	Good	54483	2.64026E+13	Redstone Township	1.6 mi E from SR 4028	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	55914	2.64028E+13	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16972	2.64006E+13	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1961	OPEN, NO RESTRICTION
S	Fair	16973	2.64006E+13	Redstone Township	REDSTONE & MENALLEN TWPS.	STATE HIGHWAY AGENCY	1961	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16980	2.64008E+1 3	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16982	2.64008E+1 3	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Fair	17020	2.64028E+1 3	Redstone Township	REDSTONE TOWNSHIP	STATE HIGHWAY AGENCY	1969	OPEN, NO RESTRICTION
L	Good	43196	2.67216E+1 3	Redstone Township	NEAR MERRITTSTOWN	COUNTY HIGHWAY AGENCY	2004	OPEN, NO RESTRICTION
L	Good	45870	2.67201E+1 3	Redstone Township	Between Rt 40 & Lynn	TOWN OR TOWNSHIP HIGHWAY AGENCY	2008	OPEN, NO RESTRICTION
L	Poor	17120	2.67216E+1 3	Redstone Township	100' W of T-655	COUNTY HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Good	46911	2.61054E+1 3	Salt Lick Township	0.6 mi E from SR 0381	STATE HIGHWAY AGENCY	2011	OPEN, NO RESTRICTION
S	Good	47932	2.61054E+1 3	Salt Lick Township	2.9 mi E from SR 0381	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	47947	2.61054E+1 3	Salt Lick Township	0.1 mi E from SR 0381	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Good	53787	2.61007E+1 3	Salt Lick Township	SALTICK TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	53793	2.6105E+13	Salt Lick Township	SALTICK TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16684	2.60381E+1 3	Salt Lick Township	SALTICK TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16685	2.60381E+1 3	Salt Lick Township	SALTICK TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16686	2.60381E+1 3	Salt Lick Township	SALTICK TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16722	2.61003E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Fair	16724	2.61005E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16792	2.6105E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	16793	2.6105E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	16813	2.61051E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	16819	2.61054E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Poor	16723	2.61005E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Poor	16732	2.61009E+13	Salt Lick Township	SALTLICK TOWNSHIP	STATE HIGHWAY AGENCY	1922	OPEN, NO RESTRICTION
L	Good	57028	2.67217E+13	Salt Lick Township	Saltlick Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	2014	OPEN, NO RESTRICTION
L	Fair	17122	2.67217E+13	Salt Lick Township	WEST OF CHAMPION	TOWN OR TOWNSHIP HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
L	Fair	17123	2.67217E+13	Salt Lick Township	1.5 MI. NE OF INDIAN HEAD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Fair	17124	2.67217E+13	Salt Lick Township	AT THE SR 1005 INTERSECT	TOWN OR TOWNSHIP HIGHWAY AGENCY	1950	OPEN, NO RESTRICTION
L	Fair	17125	2.67217E+13	Salt Lick Township	700' FROM SR1054 INTERSEC	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Fair	17127	2.67217E+13	Salt Lick Township	EAST OF ROUTE 381	COUNTY HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Fair	17129	2.67217E+13	Salt Lick Township	.5 MI.EAST OF MELCROFT	TOWN OR TOWNSHIP HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
L	Fair	17142	2.67219E+13	Salt Lick Township	AT SR 1009 INTERSECTION	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Fair	56965	2.67217E+13	Salt Lick Township	Saltlick Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	1901	OPEN, NO RESTRICTION
L	Poor	17126	2.67217E+13	Salt Lick Township	150' W OF MELCROFT ROAD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1950	POSTED FOR LOAD
L	Poor	17128	2.67217E+13	Salt Lick Township	225' E OF SR 381/711	TOWN OR TOWNSHIP HIGHWAY AGENCY	1940	POSTED FOR LOAD
L	Poor	17130	2.67217E+13	Salt Lick Township	NEAR SR 1005 INTERSECTION	TOWN OR TOWNSHIP HIGHWAY AGENCY	1940	POSTED FOR LOAD
S	Good	41729	2.61031E+13	Scottdale Borough	SCOTTDALE&U TYRONE TWP.	STATE HIGHWAY AGENCY	2002	OPEN, NO RESTRICTION
S	Good	16544	2.60021E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1989	OPEN, NO RESTRICTION
S	Good	16545	2.60021E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	16555	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	16560	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Good	16561	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Good	16566	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16568	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	16569	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16570	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16571	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16573	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16574	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16576	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	16615	2.60119E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Good	16950	2.63027E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION
S	Good	17178	2.68008E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Good	46413	2.62025E+1 3	South Union Township	1.2 mi N of SR 3027	STATE HIGHWAY AGENCY	2010	OPEN, NO RESTRICTION
S	Good	48379	2.63009E+1 3	South Union Township	0.3 mi S from SR 0040	STATE HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
S	Fair	16556	2.6004E+13	South Union Township	US40/PA21 Interchange	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16557	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16563	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION

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STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16564	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Fair	16567	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Fair	16575	2.6004E+13	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1993	OPEN, NO RESTRICTION
S	Fair	16883	2.62031E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	16903	2.63009E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Fair	16904	2.63009E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Fair	16948	2.63027E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1983	OPEN, NO RESTRICTION
S	Fair	16949	2.63027E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1992	OPEN, NO RESTRICTION
S	Fair	17062	2.6204E+13	South Union Township	NORTH & SOUTH UNION TWP.	STATE HIGHWAY AGENCY	1900	OPEN, NO RESTRICTION
S	Fair	17174	2.68003E+1 3	South Union Township	Ramp from 3009 to US 40WB	STATE HIGHWAY AGENCY	1972	OPEN, NO RESTRICTION
S	Fair	17175	2.68005E+1 3	South Union Township	40WB to 21 & 21 to 40WB	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Fair	17176	2.68005E+1 3	South Union Township	PA 21 ramp to US 40 EB	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Poor	16884	2.62031E+1 3	South Union Township	SOUTH UNION TOWNSHIP	STATE HIGHWAY AGENCY	1918	POSTED FOR LOAD
L	Good	17137	2.67218E+1 3	South Union Township	JUST OFF LEBANON AVE	TOWN OR TOWNSHIP HIGHWAY AGENCY	1991	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Good	41489	2.67218E+1 3	South Union Township	VILLAGE OF LEITH	COUNTY HIGHWAY AGENCY	2001	OPEN, NO RESTRICTION
L	Good	48174	2.67218E+1 3	South Union Township	Leith/Behnd U-town H.S.	COUNTY HIGHWAY AGENCY	2013	OPEN, NO RESTRICTION
L	Good	48517	2.67212E+1 3	South Union Township	Menallen/South Union TWPS	TOWN OR TOWNSHIP HIGHWAY AGENCY	2007	OPEN, NO RESTRICTION
L	Fair	17131	2.67218E+1 3	South Union Township	1/4 MI EAST OF SR 2025	TOWN OR TOWNSHIP HIGHWAY AGENCY	1900	POSTED FOR LOAD
L	Fair	17135	2.67218E+1 3	South Union Township	SOUTH OF HATFIELD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1978	OPEN, NO RESTRICTION
L	Fair	17136	2.67218E+1 3	South Union Township	BROWNFIELD	COUNTY HIGHWAY AGENCY	1967	OPEN, NO RESTRICTION
L	Poor	17134	2.67218E+1 3	South Union Township	LEITH	COUNTY HIGHWAY AGENCY	1930	POSTED FOR LOAD
S	Good	44416	2.60381E+1 3	Springfield Township	0.3 MI NORTH OF SR 1001	STATE HIGHWAY AGENCY	2007	OPEN, NO RESTRICTION
S	Good	48990	2.60381E+1 3	Springfield Township	1.6 mi S from SR 0653	STATE HIGHWAY AGENCY	2014	OPEN, NO RESTRICTION
S	Good	53785	2.61001E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	53786	2.61003E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Fair	16690	2.60711E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1926	OPEN, NO RESTRICTION
S	Fair	16721	2.61003E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1937	OPEN, NO RESTRICTION
S	Fair	16731	2.61009E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1948	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Poor	16682	2.60381E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Poor	16683	2.60381E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Poor	16688	2.60653E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	STATE HIGHWAY AGENCY	1968	OPEN, NO RESTRICTION
L	Fair	17138	2.67219E+1 3	Springfield Township	WEST OF ROUTE 381	COUNTY HIGHWAY AGENCY	1905	OPEN, NO RESTRICTION
L	Fair	17139	2.67219E+1 3	Springfield Township	MILL RUN JUNCTION	COUNTY HIGHWAY AGENCY	1918	OPEN, NO RESTRICTION
L	Fair	17140	2.67219E+1 3	Springfield Township	AT ROGERS MILLS	COUNTY HIGHWAY AGENCY	1910	OPEN, NO RESTRICTION
L	Fair	48479	2.67219E+1 3	Springfield Township	SPRINGFIELD TOWNSHIP	TOWN OR TOWNSHIP HIGHWAY AGENCY	1985	OPEN, NO RESTRICTION
L	Fair	48480	2.67219E+1 3	Springfield Township	Springfield Twp.	TOWN OR TOWNSHIP HIGHWAY AGENCY	1980	OPEN, NO RESTRICTION
L	Poor	17141	2.67219E+1 3	Springfield Township	175' E OF SR 381	TOWN OR TOWNSHIP HIGHWAY AGENCY	1955	POSTED FOR LOAD
L	Poor	17143	2.67219E+1 3	Springfield Township	AT SR 1009 INTERSECT	TOWN OR TOWNSHIP HIGHWAY AGENCY	1950	POSTED FOR LOAD
S	Fair	16679	2.60381E+1 3	Springfield Township, Stewart Township	STEWART & SPRINGFIELD TWP	STATE HIGHWAY AGENCY	1958	OPEN, NO RESTRICTION
S	Good	16696	2.60857E+1 3	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Good	45566	2.63009E+1 3	Springhill Township	0.61 mi S of US119	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	57091	2.60119E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	2019	OPEN, NO RESTRICTION
S	Fair	16640	2.60166E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1933	OPEN, NO RESTRICTION
S	Fair	16641	2.60166E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1933	OPEN, NO RESTRICTION
S	Fair	16697	2.60857E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1960	OPEN, NO RESTRICTION
S	Fair	16886	2.63002E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1926	OPEN, NO RESTRICTION
S	Fair	16887	2.63003E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION
S	Fair	16891	2.63004E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1970	OPEN, NO RESTRICTION
S	Fair	16892	2.63005E+13	Springhill Township	SPRINGHILL TOWNSHIP	STATE HIGHWAY AGENCY	1922	OPEN, NO RESTRICTION
L	Poor	17145	2.6722E+13	Springhill Township	NICHOL-SPRINGHILL BORDER	COUNTY HIGHWAY AGENCY	1918	BRIDGE, CLOSED TO ALL TRAFFIC
L	Poor	17146	2.6722E+13	Springhill Township	SOUTH OF LAKE LYNN	TOWN OR TOWNSHIP HIGHWAY AGENCY	1949	OPEN, NO RESTRICTION
L	Poor	56053	2.6722E+13	Springhill Township	1 Mile West of Woodbridge	TOWN OR TOWNSHIP HIGHWAY AGENCY	1901	OPEN, NO RESTRICTION
S	Good	16869	2.62019E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
S	Good	47691	2.60381E+13	Stewart Township	10.2 mi N from SR 0040	STATE HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
S	Fair	16823	2.61055E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16867	2.62011E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16870	2.62019E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	16871	2.62019E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
S	Fair	16872	2.62019E+13	Stewart Township	STEWART TOWNSHIP	STATE HIGHWAY AGENCY	1938	OPEN, NO RESTRICTION
L	Good	41519	2.67221E+13	Stewart Township	W OF SR 2011 BY OHIO PYLE	COUNTY HIGHWAY AGENCY	2001	OPEN, NO RESTRICTION
L	Fair	17148	2.67221E+13	Stewart Township	WEST OF SR2019/381 INTER	COUNTY HIGHWAY AGENCY	1965	OPEN, NO RESTRICTION
L	Poor	17149	2.67221E+13	Stewart Township	1/4 mi N of T-415	COUNTY HIGHWAY AGENCY	1904	POSTED FOR LOAD
S	Good	52779	2.60051E+13	Uniontown City	0.8 mi S from SR 0119	STATE HIGHWAY AGENCY	2015	OPEN, NO RESTRICTION
S	Good	67838	2.6204E+13	Uniontown City	CITY OF UNIONTOWN	STATE HIGHWAY AGENCY	2020	OPEN, NO RESTRICTION
S	Fair	17058	2.6204E+13	Uniontown City	CITY OF UNIONTOWN	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	17060	2.6204E+13	Uniontown City	CITY OF UNIONTOWN	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Poor	17059	2.6204E+13	Uniontown City	CITY OF UNIONTOWN	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
L	Good	17162	2.67303E+13	Uniontown City	700' WEST OF FAYETTE ST.	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1994	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Fair	17157	2.67303E+1 3	Uniontown City	DUNBAR STREET	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1997	OPEN, NO RESTRICTION
L	Fair	17159	2.67303E+1 3	Uniontown City	400' FROM PENN ST. INTER.	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1994	OPEN, NO RESTRICTION
L	Fair	17161	2.67303E+1 3	Uniontown City	300' EAST OF GALLATIN AVE	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1930	OPEN, NO RESTRICTION
L	Poor	17158	2.67303E+1 3	Uniontown City	400' SOUTH OF CHURCH ST.	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1971	POSTED FOR LOAD
L	Poor	17160	2.67303E+1 3	Uniontown City	200' NORTH OF PENN ST	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1953	POSTED FOR LOAD
L	Poor	17163	2.67303E+1 3	Uniontown City	500' S OF MT VERNON AVE	CITY, MUNICIPAL, HIGHWAY AGENCY, OR BOROUGH	1913	OPEN, NO RESTRICTION
S	Good	16747	2.61027E+1 3	Upper Tyrone Township	UPPER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1922	OPEN, NO RESTRICTION
S	Good	45712	2.61031E+1 3	Upper Tyrone Township	N of Connellsville	STATE HIGHWAY AGENCY	2009	OPEN, NO RESTRICTION
S	Good	53791	2.61031E+1 3	Upper Tyrone Township	CONNELLSVILLE & U. TYRONE	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Fair	16639	2.60119E+1 3	Upper Tyrone Township	UPPER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1964	OPEN, NO RESTRICTION
S	Fair	16748	2.61027E+1 3	Upper Tyrone Township	U. TYRONE & E. HUNTINGDON	STATE HIGHWAY AGENCY	1988	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16760	2.61031E+13	Upper Tyrone Township	UPPER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Fair	16781	2.61042E+13	Upper Tyrone Township	UPPER TYRONE TOWNSHIP	STATE HIGHWAY AGENCY	1971	OPEN, NO RESTRICTION
S	Good	41577	2.61045E+13	Vanderbilt Borough	SR 0201 INTERSECTION	STATE HIGHWAY AGENCY	2002	OPEN, NO RESTRICTION
S	Fair	16655	2.60201E+13	Vanderbilt Borough	VANDERBILT BOROUGH	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
S	Fair	16656	2.60201E+13	Vanderbilt Borough	VANDERBILT BOROUGH	STATE HIGHWAY AGENCY	1984	OPEN, NO RESTRICTION
L	Poor	17170	2.67417E+13	Vanderbilt Borough	VANDERBILT BOROUGH	COUNTY HIGHWAY AGENCY	1928	POSTED FOR LOAD
S	Good	17050	2.6404E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1990	OPEN, NO RESTRICTION
S	Good	44998	2.6404E+13	Washington Township	0.81 MI E FROM SR201	STATE HIGHWAY AGENCY	2006	OPEN, NO RESTRICTION
S	Good	52781	2.64046E+13	Washington Township	3.2 mi N from SR 0051	STATE HIGHWAY AGENCY	2015	OPEN, NO RESTRICTION
S	Good	53806	2.64044E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	56936	2.64046E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	2020	OPEN, NO RESTRICTION
S	Fair	16663	2.60201E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1917	OPEN, NO RESTRICTION
S	Fair	16704	2.60906E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1930	OPEN, NO RESTRICTION
S	Fair	16967	2.64003E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1968	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16996	2.64019E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1911	OPEN, NO RESTRICTION
S	Fair	16997	2.64019E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION
S	Fair	17046	2.6404E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	17047	2.6404E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Fair	17048	2.6404E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
S	Poor	16664	2.60201E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1919	OPEN, NO RESTRICTION
S	Poor	16995	2.64019E+13	Washington Township	WASHINGTON TOWNSHIP	STATE HIGHWAY AGENCY	1941	OPEN, NO RESTRICTION
L	Fair	17168	2.67408E+13	Washington Township	JOHNSON HOLLOW & SR 4044	COUNTY HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
L	Poor	17150	2.67223E+13	Washington Township	300' E OF MIKULA RD	TOWN OR TOWNSHIP HIGHWAY AGENCY	1952	POSTED FOR LOAD
S	Good	16583	2.6004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1994	OPEN, NO RESTRICTION
S	Good	16849	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1936	OPEN, NO RESTRICTION
S	Good	16854	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1989	OPEN, NO RESTRICTION
S	Good	16858	2.62005E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Good	16859	2.62005E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Good	16860	2.62005E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1996	OPEN, NO RESTRICTION
S	Good	53598	2.62015E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	2018	OPEN, NO RESTRICTION
S	Good	53784	2.60381E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	2017	OPEN, NO RESTRICTION
S	Good	67595	2.62003E+13	Wharton Township	Wharton Township	STATE HIGHWAY AGENCY	2020	OPEN, NO RESTRICTION
S	Fair	16580	2.6004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
S	Fair	16581	2.6004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1935	OPEN, NO RESTRICTION
S	Fair	16582	2.6004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1936	OPEN, NO RESTRICTION
S	Fair	16584	2.6004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1990	OPEN, NO RESTRICTION
S	Fair	16846	2.62002E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16847	2.62002E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1940	OPEN, NO RESTRICTION
S	Fair	16848	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1951	OPEN, NO RESTRICTION
S	Fair	16850	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION
S	Fair	16851	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1920	POSTED FOR LOAD
S	Fair	16853	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1920	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
S	Fair	16856	2.62004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1934	OPEN, NO RESTRICTION
S	Fair	16857	2.62004E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1948	OPEN, NO RESTRICTION
S	Fair	16861	2.62007E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1954	OPEN, NO RESTRICTION
S	Fair	16862	2.62008E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1946	POSTED FOR OTHER LOAD CAPACITY RESTRICTION
S	Fair	16863	2.6201E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1962	OPEN, NO RESTRICTION
S	Fair	16864	2.62011E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1942	POSTED FOR LOAD
S	Poor	16674	2.60381E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1961	OPEN, NO RESTRICTION
S	Poor	16675	2.60381E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1923	OPEN, NO RESTRICTION
S	Poor	16845	2.62002E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1940	POSTED FOR LOAD
S	Poor	16852	2.62003E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1920	BRIDGE, CLOSED TO ALL TRAFFIC
S	Poor	16865	2.62011E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1942	OPEN, NO RESTRICTION
S	Poor	16866	2.62011E+13	Wharton Township	WHARTON TOWNSHIP	STATE HIGHWAY AGENCY	1931	OPEN, NO RESTRICTION
L	Good	17152	2.67224E+13	Wharton Township	200' East of SR2003	COUNTY HIGHWAY AGENCY	1991	OPEN, NO RESTRICTION

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Table 4.3.12-3 State of Bridge Structure Deterioration in Fayette County by Municipality								
STATE/ LOCAL	CONDITIO N	BR KEY	BRIDGE ID	MUNICIPALITY	LOCATION/STRUCTU RE NAME	OWNER	YEAR BUILT	POSTING STATUS
L	Good	47477	2.67224E+1 3	Wharton Township	NEAR MILL RUN SCHOOL ROAD	TOWN OR TOWNSHIP HIGHWAY AGENCY	2012	OPEN, NO RESTRICTION
L	Good	48983	2.67224E+1 3	Wharton Township	Wharton Township	TOWN OR TOWNSHIP HIGHWAY AGENCY	2014	OPEN, NO RESTRICTION
L	Fair	17107	2.67214E+1 3	Wharton Township	EAST OF ROUTE 381	COUNTY HIGHWAY AGENCY	1898	OPEN, NO RESTRICTION
L	Fair	17151	2.67224E+1 3	Wharton Township	EAST OF ELLIOTSVILLE	COUNTY HIGHWAY AGENCY	1901	OPEN, NO RESTRICTION
L	Fair	17153	2.67224E+1 3	Wharton Township	75' East of SR 2003	COUNTY HIGHWAY AGENCY	1903	POSTED FOR LOAD

4.3.13. Civil Disturbance

4.3.13.1. Location and Extent

Civil disturbance is a broad term that is typically used by law enforcement to describe one or more forms of disturbance caused by a group of people. Civil disturbances are typically a symptom of, and a form of protest against, major socio-political problems. Civil disturbance hazards include the following.

- **Famine:** Involving a widespread scarcity of food leading to malnutrition, increased mortality, and a period of psychosocial instability associated with the scarcity of food, such as riots, theft of food, and the falls of governments caused by political instability borne of an inability to deal with the crisis caused by famine (Brennan, 2014).
- **Economic Collapse, Recession:** Very slow or negative growth (The Economist, 2009).
- **Misinformation:** Erroneous information spread unintentionally (Makkai, 1970).
- **Civil Disturbance, Public Unrest, Mass Hysteria, Riot:** Group acts of violence against property and individuals, for example (18 U.S.C. § 232, 2008).
- **Strike, Labor Dispute:** Controversies related to the terms and conditions of employment, for example (29 U.S.C. § 113, 2008).

Typically, the severity of the action coincides with the level of public outrage. In addition to a form of protest against major socio-political problems, civil disturbances can also arise out of union protest, institutional population uprising, or from large celebrations that become disorderly.

The scale and scope of civil disturbance events varies widely. However, government facilities, landmarks, prisons, and universities are common sites where crowds and mobs may gather.

4.3.13.2. Range of Magnitude

Civil disturbances can take the form of small gatherings or large groups blocking or impeding access to a building or disrupting normal activities by generating noise and intimidating people. They can range from a peaceful sit-in to a full-scale riot, in which a mob burns or otherwise destroys property and terrorizes individuals. Even in its more passive forms, a group that blocks roadways, sidewalks, or buildings interferes with public order. Often that which was intended to be a peaceful demonstration to the public and the government can escalate into general chaos. There are two types of large gatherings typically associated with civil disturbances: a crowd and a mob. A crowd may be defined as a casual, temporary collection of people without a strong, cohesive relationship. Crowds can be classified into four categories (Juniata County PA MJHMP, 2008):

- **Casual Crowd:** A casual crowd is merely a group of people who happen to be in the same place at the same time. Violent conduct does not occur.
- **Cohesive Crowd:** A cohesive crowd consists of members who are involved in some type of unified behavior. Members of this group are involved in some type of common

activity, such as worshipping, dancing, or watching a sporting event. Although they may have intense internal discipline, they require substantial provocation to arouse to action.

- **Expressive Crowd:** An expressive crowd is one held together by a common commitment or purpose. Although they may not be formally organized, they are assembled as an expression of common sentiment or frustration. Members wish to be seen as a formidable influence. One of the best examples of this type is a group assembled to protest.
- **Aggressive Crowd:** An aggressive crowd is comprised of individuals who have assembled for a specific purpose. This crowd often has leaders who attempt to arouse the members or motivate them to action. Members are noisy and threatening and will taunt authorities. They may be more impulsive and emotional, and require only minimal stimulation to arouse violence. Examples of this type of crowd could include demonstrators and strikers, though not all demonstrators and strikers are aggressive.
- **A mob** can be defined as a large disorderly crowd or throng. Mobs are usually emotional, loud, tumultuous, violent, and lawless. Similar to crowds, mobs have different levels of commitment and can be classified into four categories (Alvarez and Bachman, 2007):
 - **Aggressive Mob:** An aggressive mob is one that attacks, riots, and terrorizes. The object of violence may be a person, property, or both. An aggressive mob is distinguished from an aggressive crowd only by lawless activity. Examples of aggressive mobs are the inmate mobs in prisons and jails, mobs that act out their frustrations after political defeat, or violent mobs at political protests or rallies.
 - **Escape Mob:** An escape mob is attempting to flee from something such as a fire, bomb, flood, or other catastrophe. Members of escape mobs are generally difficult to control and can be characterized by unreasonable terror.
 - **Acquisitive Mob:** An acquisitive mob is one motivated by a desire to acquire something. Riots caused by other factors often turn into looting sprees. This mob exploits a lack of control by authorities in safeguarding property.
 - **Expressive Mob:** An expressive mob is one that expresses fervor or revelry following some sporting event, religious activity, or celebration. Members experience a release of pent-up emotions in highly charged situations.

The worst-case scenario for Fayette County would be an aggressive crowd or an expressive mob protesting on or within a major thoroughfare, most likely formed near a major educational institution or headquarters.

4.3.13.3. Past Occurrence

According to PEIRS data for Fayette County, the only past occurrence of a civil disturbance was a prison disturbance on December 21, 2007 at the State Correctional Institution in Luzerne Township. Four injuries were reported during the disturbance.

PEIRS was discontinued in 2010, therefore an exact record of the number of incidents is no longer available. To collect further information, past occurrences of civil disturbances were collected through local and national news and social media. Since the 2011 HMPU, there have been no major civil disturbances documented in Fayette County.

In June 2020 protests erupted around the country in response to the death in police custody of George Floyd on May 25, 2020. Most protests were peaceful however in some cities around the country protests resulted in injury, death, and property damage. Minor protests related to the George Floyd case occurred within Fayette County.

In 2022, the Supreme Court decision in *Dobbs v. Jackson Women's Health Organization* determined that a Mississippi law that bans most abortions after 15 weeks is constitutional and overturned the constitutional right to abortion established by *Roe v. Wade* in 1973. The decision led to national protests.

The impacts of civil disturbance events are contingent upon numerous factors including issues, politics, and method of response. Generally, the impact of civil disturbance events is nominal and short-lived unless acts of sabotage are performed. There may be minor injuries to first responders or participants from physical confrontations, and vandalism may cause minimal damage to property, facilities, and infrastructure. Adequate law enforcement at planned civil disturbance events and around likely target locations like the offices of state agencies minimizes the chances of a small assembly of individuals turning into a significant disturbance.

4.3.13.4. Future Occurrence

Civil disturbance is always a possibility as long as there is discrimination or other perceived social or economic injustices. However, it may be possible to recognize the potential for an event to occur in the near-term. For example, an upcoming significant sporting event at one of the colleges or universities in the Commonwealth or the City of Pittsburgh may result in gathering of large crowds or immediately after significant national news involving political or social debates. Local law enforcement should anticipate these types of events and be prepared to handle a crowd so that peaceful gatherings are prevented from turning into unruly public disturbances.

It is difficult to determine the influence that climate change will have on the risk of civil disturbance. It can be suggested that colder and hotter temperatures can lead to public unrest or strikes. Specifically if residents and employees do not have access to cooling or heating equipment within or outside of their homes, safe or comfortable modes of transportation. Climate change and weather can lead to negative economic growth and limited food production, possibly resulting in famine or economic collapse.

The future occurrence of civil disturbance can be considered *unlikely* as defined by the Risk Factor methodology probability criteria (see Table 4.4-1).

4.3.13.5. Vulnerability Assessment

The vulnerability of individual jurisdictions is difficult to determine because civil disturbance hazards are tied to the current political and economic climate. A jurisdiction that is very vulnerable one month may be less vulnerable the next. However, in general, Fayette County may have lower than average vulnerability in Pennsylvania due to lower concentrations of local, state, and federal facilities.

Jurisdictional losses for civil disturbance events are difficult to predict and can vary significantly in range. For example, the State College Riot in July 1998, fueled by alcohol consumption, resulted in approximately \$150,000 in damages. Sites previously identified in these sections are locations where such events are more likely to occur and therefore should be considered more vulnerable. Adequate law enforcement at these locations minimizes the changes of a small assembly of people turning into a significant disturbance. This will ensure improved response times, optimal communications, and containment of the event, as during these events major roadways can be blocked and disturb traffic and larger events may involve the interruption or removal of communication.

More broadly, in the case of large civil disturbance events, the County may incur losses related to work stoppages in addition to any acts of vandalism that may occur. Failure to pursue a program of civil disturbance awareness may result in increased loss of lives and property.

As described on the previous page, civil disturbances may occur at target locations like the offices of state agencies minimizes the chances of a small assembly of individuals turning into a significant disturbance. Table 2.5-1 lists critical facilities identified by the County per municipality. The City of Uniontown is the only municipality with County buildings and more than one police station and prison. The City and South Union Township also have financial institutions, and all municipalities have one municipal facility. These facilities should be monitored and considered and evaluated for appropriate protection systems in future HMP updates.

4.3.14. Dam Failure

*Due to data sensitivity, the Dam Failure Profile is located in **Appendix G**.*

4.3.15. Disorientation

4.3.15.1. Location and Extent

Large numbers of people are attracted to Pennsylvania's rural areas for recreational purposes such as hiking, camping, hunting, and fishing. As a result, people can become lost or trapped in remote and rugged wilderness areas. Search and rescue (SAR) may be required for people who suffer from medical problems or injuries and those who become accidentally or intentionally disoriented. Search and rescue efforts are focused in and around state forest and state park lands (DCNR, 2009).

Fayette County is largely rural and heavily wooded with steep mountains and numerous rivers and streams. Popular outdoor recreational activities include biking, rock-climbing, hiking hunting, fishing, and boating. Nearly 60 percent of Fayette County's land area is forested and the southeastern portion of the County consists of state game land, state parks, and state forests as shown in Figure 4.3.15-1.

Another factor leading to people becoming lost or trapped in wilderness areas is their access to communication or wayfinding measures with devices over data or cellular networks. With multiple cellular networks and coverage plans available to the user, OpenSignal is a company that collects data from phone applications to identify cellular cover, signal strength, and nearby towers in relation to a phone's geographic location. According to OpenSignal March 2017, cellular reception in Fayette County is strong within the municipalities and along major roadways, however, can be limited in less developed areas. It is also important to note that sufficient data could not be collected in the state game lands and parks. A map displaying the cellular signal in Fayette County can be seen in Figure 4.3.15-2.

Figure 4.3.15-1 Fayette County Areas of Potential Disorientation

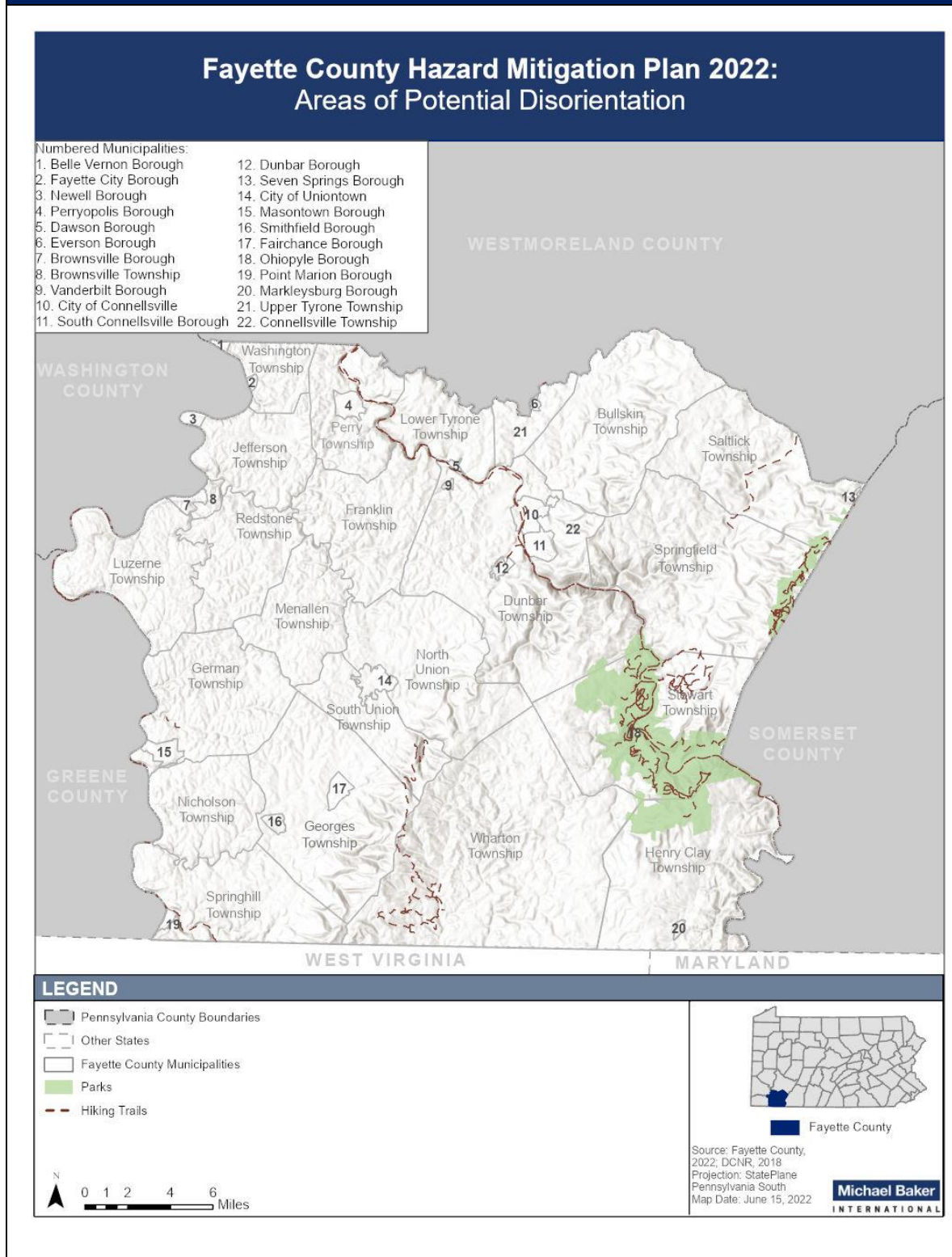
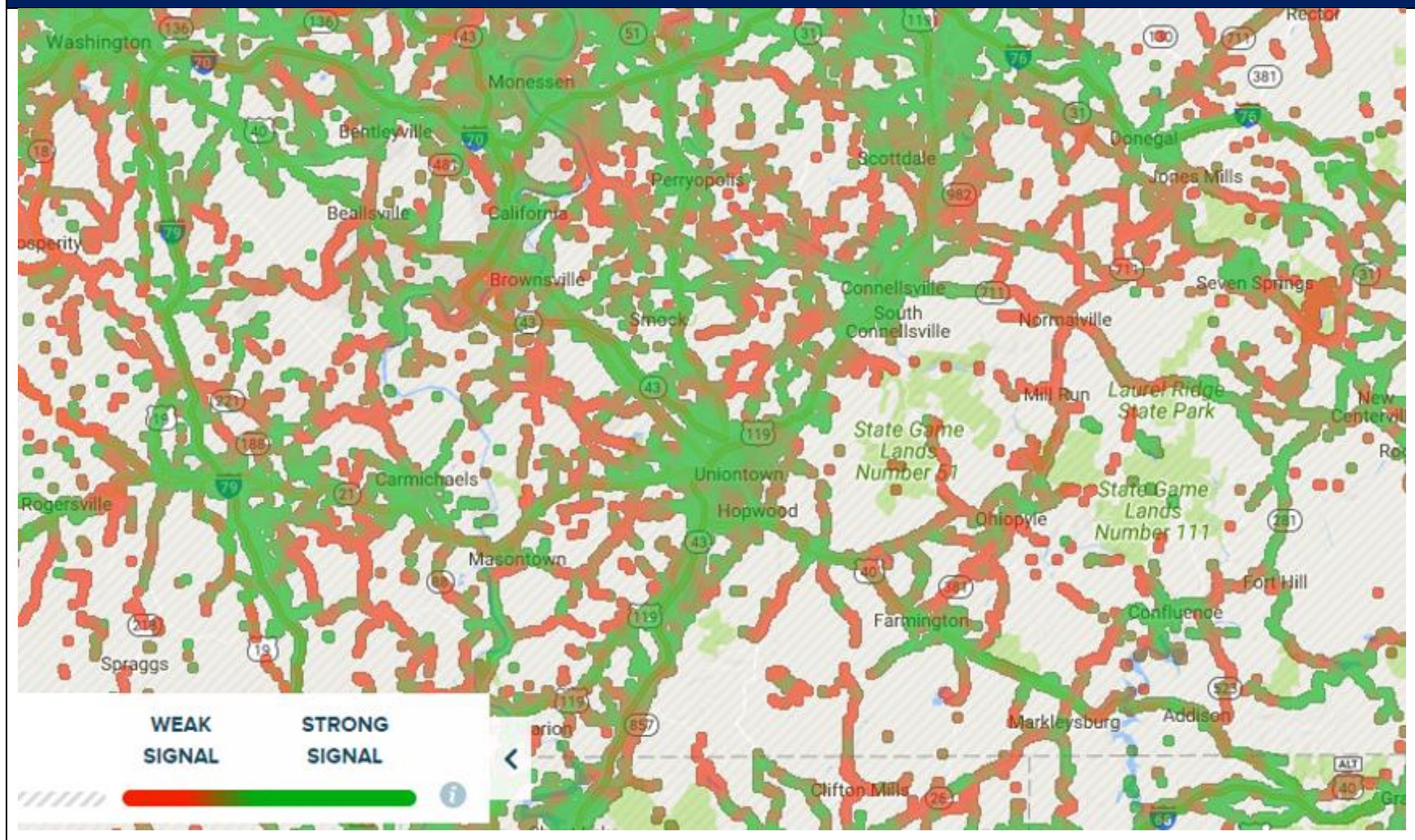


Figure 4.3.15-2 Fayette County Cellular Signal



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4.3.15.2. Range of Magnitude

A wide variety of factors can contribute to outcome of a search and rescue mission, but the most common dangers associated with disorientation are lack of food, water, shelter, and medical care. Fayette County generally has a constant abundance of water and during the warmer summer months shelter is less of a necessity than during winter months when extreme temperatures can pose a more serious threat. Age, physical fitness, and familiarity with the area can also have a bearing on the outcome.

The worst-case scenario associated with disorientation involves the allocation of significant emergency response resources to locate the missing person or persons during severe weather conditions, endangering the lives of the responders as well as the disoriented person.

4.3.15.3. Past Occurrence

Each year several people become lost in Fayette County's wilderness areas. SAR operations use resources such as man-hours and equipment. According to available information no deaths have been reported because of disorientation in the County.

While a detailed, comprehensive list of incidents involving disorientation and SAR is not available, annual reports by PEMA state that there have been 16 SAR operations in Fayette County between January 2006 and June 2008. In addition, the Fayette County Sheriff's Tactical Search and Rescue receive approximately a dozen call-outs per year for missing persons.

4.3.15.4. Future of Occurrence

It is impossible to predict when and where disorientation may occur. During times when activities such as hunting, hiking, biking, and camping increase, so does the likelihood of individuals becoming disoriented. Fayette County continues to gain popularity as a tourist and recreational destination and therefore the probability of future occurrence is expected to increase proportionately. Based on available past occurrence data the probability of the County experiencing a disorientation incident is *unlikely* as defined by the Risk Factor methodology probability criteria (see Table 4.4-1).

It is important to note the direct influence that high temperatures have on disorientation events. Climate change has yielded a rise in average temperatures globally. A rise in average maximum temperature would directly affect the rates of recorded disorientation events, as a result of heat-exposure. In addition, people exposed to colder temperatures can result in frostbite and depending on the length of time, severe frostbite or fatality.

4.3.15.5. Vulnerability Assessment

Individuals are most likely to become disorientated in areas of vast, open wilderness. Children and the elderly are more vulnerable to the exposure of elements. Bikers, hunters, hikers, and All-terrain vehicle (ATV) riders have been the most common victims of disorientation. Many outdoor, recreational activities commonly associated with disorientation take place during the

warmer months of spring and summer and pose a somewhat lesser risk because of the average temperature range during these seasons. The County continues to gain popularity as a tourist, recreational, and outdoor recreational destination. The most dangerous period to become lost outdoors is during the winter months when heat and shelter are vital. As described above and in Figure 4.3.15-1, nearly 60 percent of Fayette County's land area is forested and the southeastern portion of the County consists of state game land, state parks, and state forests. These areas are where populations are most vulnerable.

While prevention is the best solution to disorientation, lessening the impacts of this hazard by identifying and quickly locating individuals that have become lost or injured is equally important. There are several resources available on a state and local level for responding to SAR events. The DCNR is the primary coordinator for SAR operations efforts on state lands within Pennsylvania. The Pennsylvania Search and Rescue Council (PSARC) is made up of representatives from DCNR, PEMA, law enforcement, emergency managers and responders, and others. PSARC sets training and operational standards to SAR teams throughout the Commonwealth in addition to mission response coordination and providing SAR prevention and response education to local officials and the public (PSARC, 2010).

In addition, the Fayette County Search and Rescue organization is a primary source for coordinating SAR events. Furthermore, Fayette County has additional resources and a working relationship with Mountaineer Area Rescue Group based in Morgantown, West Virginia, and Allegheny Mountain Rescue Group (AMRG) based in Pittsburgh, Pennsylvania.

4.3.16. Drowning

4.3.16.1. Location and Extent

Drowning accidents can be categorized as unintentional, suicide, homicide, or undetermined depending on the circumstances (PA DOH, 2015). Unintentional drowning can be a significant hazard in communities with numerous water bodies (e.g., ponds, lakes, rivers, etc.) and extensive outdoor recreational activity. Drowning rates are particularly high for children ages 1-14 according to the CDC. In addition, drowning accidents can occur in swimming pools at private residences as above ground pools and inflatable pools become more popular.

Fayette County is a tourist destination and water-related recreational opportunities such as fishing, boating, and swimming are popular among visitors. One of the most popular tourist destinations in the County is the Ohiopyle State Park which is also a popular location for whitewater activities.

4.3.16.2. Range of Magnitude

Drowning generally results in death. However, non-fatal drownings can cause brain damage that may result in long-term disabilities including memory problems, learning disabilities, and loss of basic nervous system functions. In a typical year, counties in Pennsylvania can range from having zero to a hundred drowning incidents, depending on factors such as the physical

environment (access to water bodies) and a combination of social and cultural issues (wanting to learn how to swim and interest in recreational water-related activities).

Drowning rates are particularly high for children between ages one and fourteen according to the Center for Disease Control (CDC, 2011). Across the state, thirty-three percent of residents who died from drowning were under 20 years of age (PA DOH, 2004). Approximately seventy-six percent of drowning accidents in Pennsylvania from 2001 to 2005 were unintentional, another fourteen percent were suicides, eight percent were from undetermined causes, and less than two percent were deemed homicides.

A worst-case scenario would be if one or multiple deaths resulted from drowning. In 2001 two seventeen-year-old males drowned together while swimming at the Francis E. Walter Dam. One of the males was a trained lifeguard, who tried to save his friend who experienced cramping while swimming at the dam (The Morning Call, 2001).

4.3.16.3. Past Occurrence

There is no official Federal, State, or County reporting system for drownings. However, based on Pennsylvania Department of Health data gathered between 2000 and 2022, there were 28 drowning incidences in Fayette County. However, these incidences occurred between 2000 and 2010 with no recordings from 2011 to 2016 as seen in Table 4.3.16-1.

Table 4.3.16-1 Past Occurrences of Drowning in Fayette County (PA DOH, 2022)			
YEAR	NUMBER OF INCIDENTS	YEAR	NUMBER OF INCIDENTS
2000	3	2012	0
2001	0	2013	0
2002	2	2014	0
2003	1	2015	0
2004	3	2016	0
2005	0	2017	2
2006	0	2018	2
2007	1	2019	6
2008	1	2020	0
2009	1	2021	4
2010	1	2022*	1
2011	0	TOTAL	28
* Data for 2022 includes 1/1/2022 through 6/22/2022			

4.3.16.4. Future of Occurrence

It is impossible to predict when and where drowning may occur. During the warm summer months, as activities such as swimming, boating, and fishing increase so does the likelihood of drowning. Based on past occurrence, Fayette County can expect to experience two drownings every year. Therefore, the probability is *likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

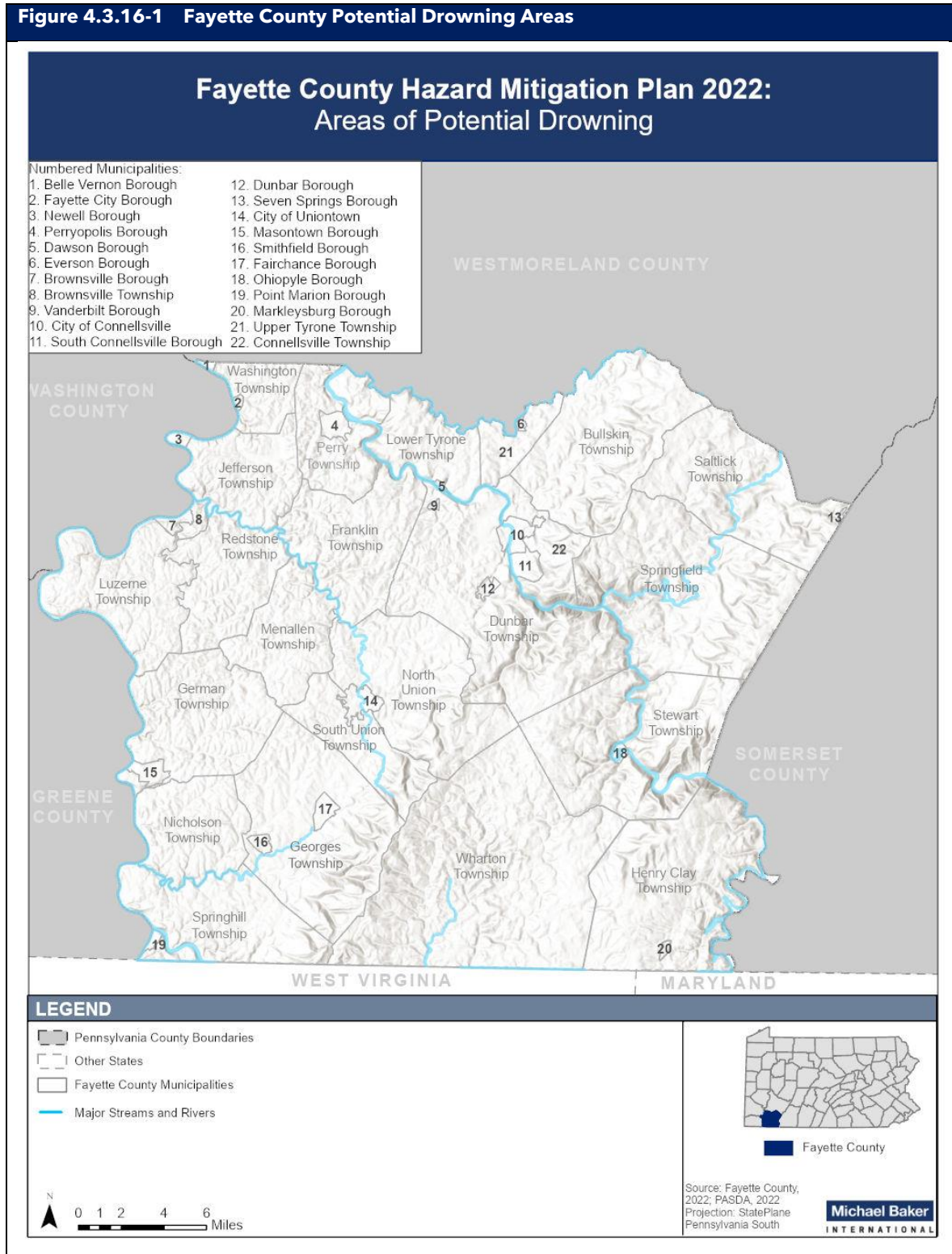
One of Fayette Counties recorded drowning incidents occurred within Ohio Pyle State Park, which is commonly known for its rapid river conditions. Climate changes rise in precipitation frequency will continue to influence the influx of stormwater runoff to these high velocity river systems and likely increase the likelihood of non-swimmable river conditions. These harsh conditions can pose heightened drowning risks to the communities accessing the Fayette County rivers and other water bodies. It is critical to note the relationship between structure resiliency and drowning. The impacts of climate change, as described in Section 4.3.14.4, Building or Structure Collapse, Future Occurrence, also applies to bridges, which can be vulnerable to climate change resulting in collapse and increase in drowning risk.

A Forbes article referenced the World Health Organization's report that climate related extreme weather exents or disasters could increase the burden of deaths by drowning by as much as 50% in the Asia Pacific Region. The region is comprised of some of the most polluted citie in the world, contributing to global temperature rise and thereby retreating glaciers and intense floods (Shetty, 2021).

4.3.16.5. Vulnerability Assessment

It is impossible to predict when and where drowning may occur; however, given past occurrences of drownings in Fayette County As tourism continues to be a major draw in the County, particularly Ohiopyle State Park, and the number of visitors grows, drowning is likely to continue without effective mitigation actions in place. During the warm summer months, as activities such as swimming, boating and fishing increase so does the likelihood of drowning. Figure 4.3.16-1 shows water areas within Fayette County that should be evaluated to decrease the County's vulnerability to future incidences.

Figure 4.3.16-1 Fayette County Potential Drowning Areas



4.3.17. Environmental Hazards

4.3.17.1. Location and Extent

Environmental hazards in Fayette County focus mainly on hazardous material release, coal mining, and oil and gas well drilling. These hazards result from human activities and industries and can result in injury and death to humans and damage to property. Additional environmental hazards include superfund facilities, manure spills, and product defect or contamination. These are included in the definition of environmental hazards but were not profiled in the HMP update. Superfund sites are hazards originating from abandoned hazardous waste sites listed on the National Priorities List. The EPA maintains superfund site information which includes hazardous waste sites, potentially hazardous waste sites and remedial activities across the nation, including sites that are on the National Priorities List (NPL) or being considered for the NPL. There are 95 superfund sites in Pennsylvania. Manure spills involve the release of stored or transported agricultural waste. Product defect or contamination includes highly flammable or otherwise unsafe consumer products and dangerous foods.

No information on deaths, serious injury, or property damage could be found for superfund sites, manure spills, or product defect or contamination; therefore, these types of environmental hazards were not profiled in this plan.

This hazard profile describes hazardous material release, including coal mining. Oil and gas well drilling are profiled separately.

Hazardous Material Release

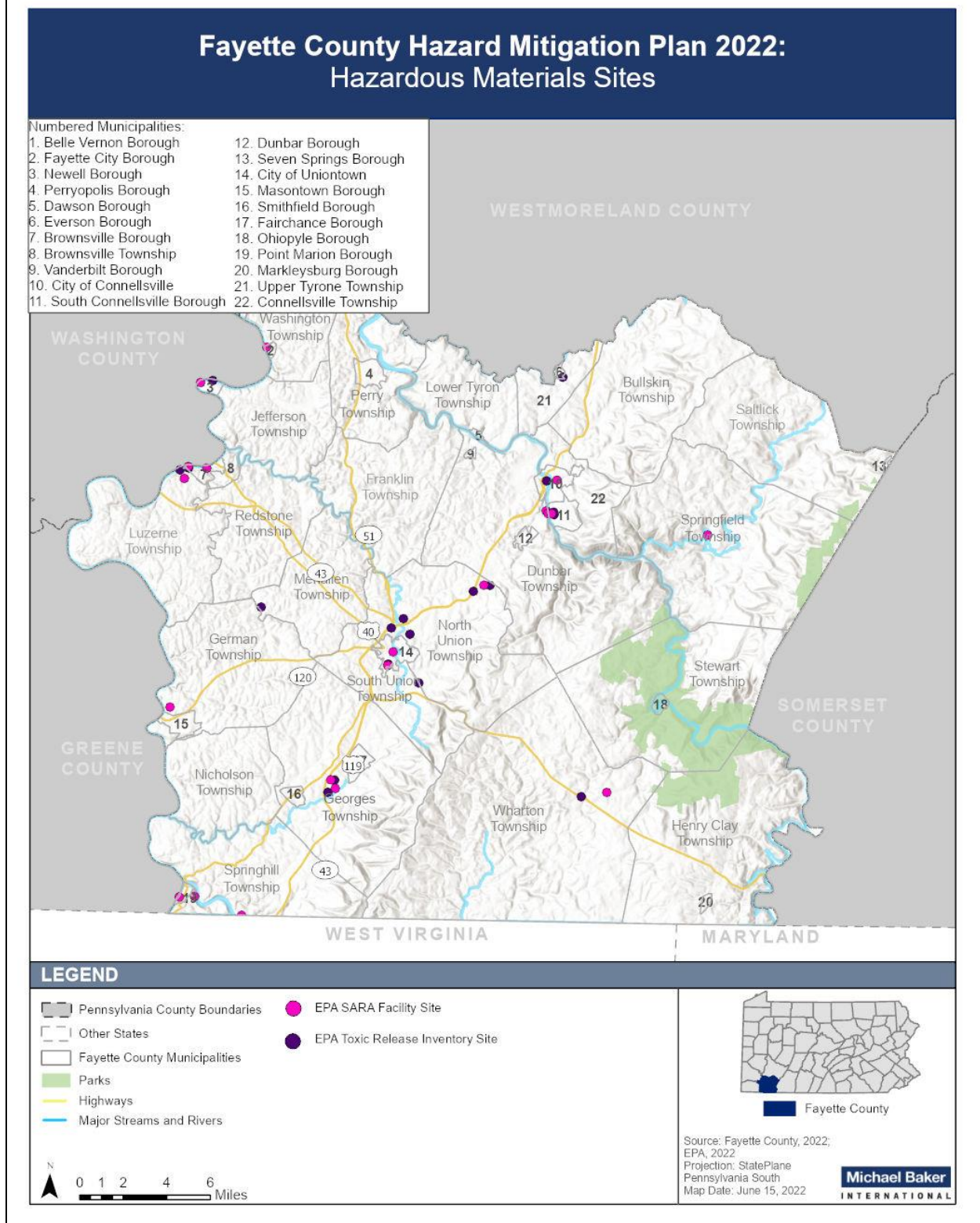
Hazardous material releases pose threats to the natural environment, the built environment, and public safety through the diffusion of harmful substances, materials, or products. Hazardous materials can include toxic chemicals, infectious substances, bio-hazardous waste, and any materials that are explosive, corrosive, flammable, or radioactive (PL 1990-165, §207(e)). Hazardous material releases can occur wherever hazardous materials are manufactured, used, stored, or transported. Such releases can occur along transportation routes or at fixed-site facilities. Hazardous material releases can result in human and wildlife injury, property damage, and contamination of air, water, and soils.

Fixed-site facilities that use, manufacture, or store hazardous materials in Fayette County pose risk and must comply with both 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. These legislations require that all owners or operators of facilities that manufacture, produce, use, import, export, store, supply, or distribute any extremely hazardous substance, as defined by the EPA, at or above the threshold planning quantity, as established by EPA, shall report to the County where the facility is located and to the Commonwealth that the facility is subject to the

requirement to assist the Local Emergency Planning Committee (LEPC) in the development of an Off-site Emergency Response Plan. The community right-to-know reporting requirements keep communities abreast of the presence and release of chemicals at individual facilities. There are 32 SARA Title III facilities in Fayette County. Table 4.3.17-1 provides the name of each facility and its location with respect to the SFHA. Figure 4.3.17-1 provides the geographic location of SARA facilities throughout the County. As shown on the map, most of the SARA Title III facilities are clustered around either Uniontown City or Connellsville City.

Table 4.3.17-1 Hazardous Materials Facilities (Fayette County EMA, 2017)		
FACILITY	MUNICIPALITY	SFHA
Municipal Authority of Belle Vernon	Belle Vernon Borough	Yes
PA American Water (Brownsville)	Brownsville Borough	No
Verizon - Brownsville	Brownsville Borough	No
Verizon - Connellsville	Connellsville City	No
Connellsville Municipal Authority	Connellsville City	Yes
North Fayette Municipal Authority	Dunbar Township	Yes
Municipal Authority of Westmoreland County	Dunbar Township	No
Verizon - Fairchance	Fairchance Borough	No
Municipal Authority of Washington Township	Fayette City	Yes
Johnson Matthey Inc.	Georges Township	No
Fairchance Water Treatment Plant	Georges Township	No
Microdiamont USA	Georges Township	No
Fayette Energy Facility (Duke Energy)	German Township	No
PA American Water Hiller Reservoir	Luzerne Township	No
Masontown Water Treatment Plant	Masontown Borough	Yes
Newell Municipal Authority	Newell Borough	No
Henwil Corporation	Newell Borough	Yes
Greater Uniontown Joint Sewage Plant	North Union Township	No
Universal Well Services	North Union Township	No
PA American Water Mountain Connection	North Union Township	No
Point Marion Waste Water Treatment Plan	Point Marion Borough	Yes
Crown Cork and Seal	South Connellsville Borough	No
Uniontown Country Club	South Union Township	No
Indian Creek Valley Water Authority	Springfield Township	No
Albert Gallatin Municipal Authority	Springhill Township	No
Point Marion Water Service	Springhill Township	No
United Dairy (Fikes)	Uniontown City	No
Verizon - Uniontown	Uniontown City	No
Nemacolin Woodlands	Wharton Township	No

Figure 4.3.17-1 Fayette County SARA Title III Facility Locations

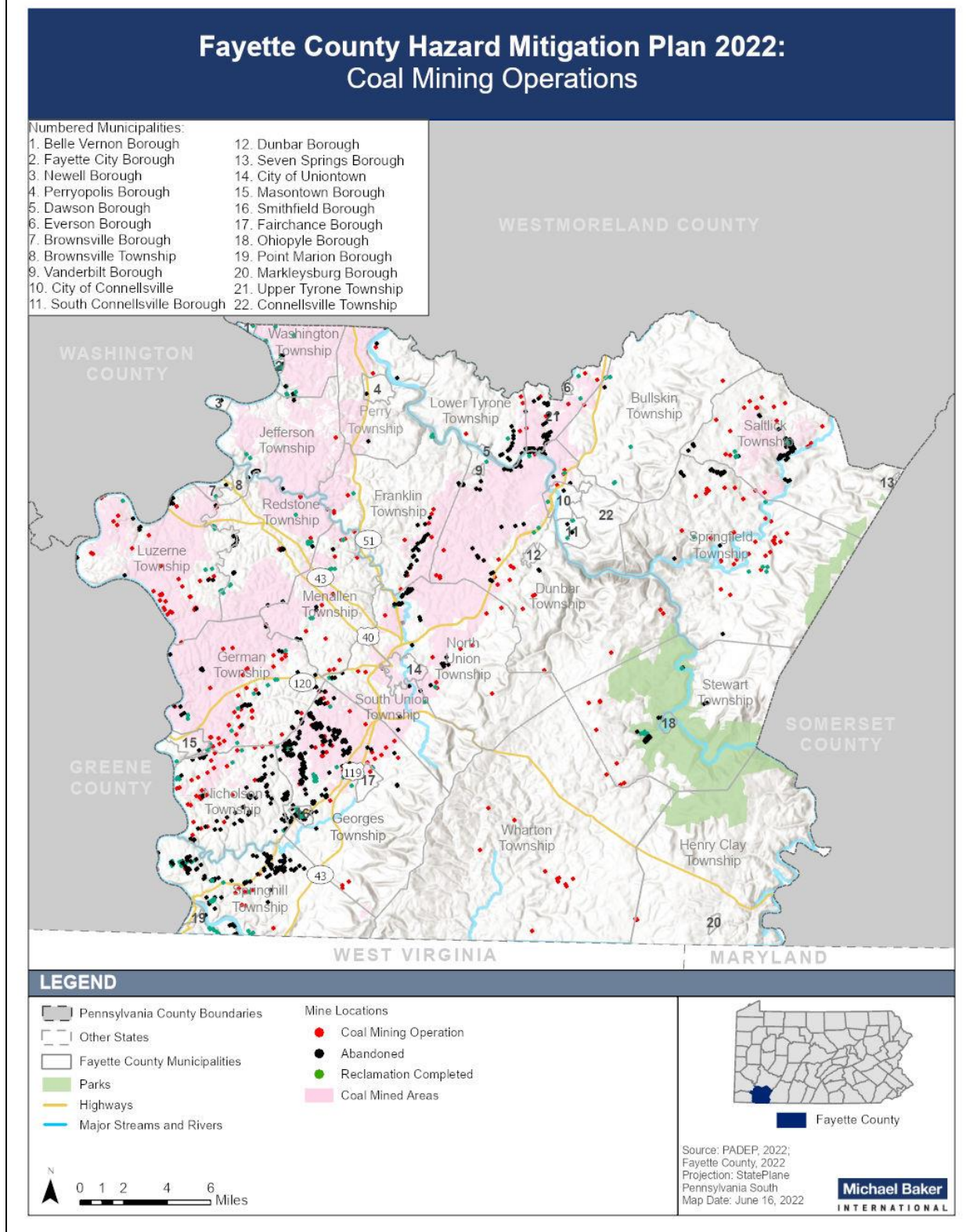


Coal Mining

Section 4.3.6 discussed mining as a major factor that can make an area more susceptible to subsidence and sinkholes. This section will focus on how mining can potentially act as an environmental hazard.

Mining, including surface, underground, and open-pit operations, was conducted in Pennsylvania before the 1680s and was instrumental in the development of the Commonwealth. As such, Pennsylvania was one of the first states to initiate, promulgate, and enforce environmental regulations related to mining, including mine reclamation. Active mining continues in Fayette County as depicted in Figure 4.3.17-2, showing the location of 187 active coal mining operations in the County. There are 99 inactive and 31 abandoned coal mines within Fayette County.

Figure 4.3.17-2 Fayette County Coal Mining Operations



There remains a legacy of abandoned mines, waste piles, and degraded groundwater and surface water in the Commonwealth. The EPA estimates that over 3,000 miles of streams in Pennsylvania have been contaminated by acid mine drainage which occurs when metal sulfides in rock oxidize and generate acidity in water that comes in contact with them. Table 4.3.17-2 shows coal slurry ponds in the County including impoundment name, Mine Safety and Health Administration (MSHA) ID number and the capacity. A slurry pond is an impoundment used to store waste created during coal preparation also known as washing. The waste contained in the impoundment consists of silt, dust, water, coal fines and washing/treatment chemicals. Coal slurry impoundments are considered dams and classified accordingly by the PA DEP.

The greatest hazard associated with coal slurry ponds is impoundment failure due to seepage, embankment weakness and undermining, all of which could result in flooding. Breakthroughs associated with deep mining have also led to flooding of underground mine operations. The slurry holding capacity of impoundments in the Commonwealth ranges from tens of millions to billions of gallons.

Table 4.3.17-2 Summary of Coal Slurry Impoundments in Fayette County (Coal Impoundment LIS, 2016)	
IMPOUNDMENT NAME	MSHA ID NO.
Isabella Fresh Water Pond	1211-PA02-00001-03
Isabella Slurry Pond	1211-PA02-00001-06
LaBelle Slurry Pond #3 Tailings	1211-PA02-00003-04
Slurry Pond	1211-PA02-00363-02
Slurry Pond #2 La Belle Site	1211-PA02-00003-03

4.3.17.2. Range of Magnitude

A. Hazardous Material Release

Hazardous material releases can contaminate air, water and soils, possibly resulting in death and/or injuries. Dispersion can take place rapidly when transported by water and wind. While often accidental, releases can occur as a result of human carelessness, intentional acts, or natural hazards. When caused by natural hazards, these incidents are known as secondary events. Hazardous materials can include toxic chemicals, radioactive materials, infectious substances, and hazardous wastes. Such releases can affect nearby populations and contaminate critical or sensitive environmental areas.

With a hazardous material release, whether accidental or intentional, there are several potentially exacerbating or mitigating circumstances that will affect its severity or impact. Mitigating conditions are precautionary measures taken in advance to reduce the impact of a release on the surrounding environment. Primary and secondary containment or shielding by sheltering-in-place protects people and property from the harmful effects of a hazardous

material release. Exacerbating conditions, characteristics that can enhance or magnify the effects of a hazardous material release include:

- **Weather Conditions:** Affects how the hazard occurs and develops;
- **Micro-Meteorological Effects of Buildings and Terrain:** Alters dispersion of hazardous materials; and
- **Non-Compliance with Applicable Codes (e.g., Building or Fire Codes) and Maintenance Failures (e.g., Fire Protection and Containment Features):** Can substantially increase the damage to the facility itself and to surrounding buildings.

The severity of the incident is dependent not only on the circumstances described above, but also with the type of material released and the distance and related response time for emergency response teams. The areas within closest proximity to the releases are generally at greatest risk, yet depending on the agent, a release can travel great distances or remain present in the environment for a long period of time (e.g. centuries to millennia for radioactive materials), resulting in extensive impacts on people and the environment.

A worst-case scenario event of a hazardous material release occurred in March 2009 when a tractor trailer overturned spilling 33,000 pounds of toxic hydrofluoric acid near Wind Gap, Pennsylvania, resulting in the evacuation of 5,000 people (USA Today, 2009). Residents were evacuated because contact with concentrated solutions of the acid can cause severe burns, and inhaling the gas can cause respiratory irritation, severe eye damage, and pulmonary edema. The environmental impacts of hazardous material releases include:

- Hydrologic Effects: Surface and Groundwater Contamination;
- Other Effects on Water Quality such as Changes in Water Temperature;
- Damage to Streams, Lakes, Ponds, Estuaries, and Wetland Ecosystems;
- Air Quality Effects: Pollutants, Smoke, and Dust;
- Loss of Quality in Landscape;
- Reduced Soil Quality;
- Damage to Plant Communities: Loss of Biodiversity; Damage to Vegetation; and
- Damage to Animal Species: Animal Fatalities; Degradation of Wildlife and Aquatic Habitat; Pollution of Drinking Water for Wildlife; Loss of Biodiversity; Disease.

B. Coal Mining

Major impacts from mining include surface-elevation changes and subsidence, modification of vegetation, the chemical degradation and flow redistribution of surface water and groundwater, the creation of mine voids and entry openings, adverse aesthetic impacts, and changes in land use. In addition, active and abandoned mines can also result in injury and loss of human life. This can occur in active mines where workers are injured or killed by mine collapse, entrapment, poisonous gases, inundation, explosions, fires, equipment malfunction, and improper ventilation. Injuries and death, such as All-Terrain Vehicle (ATV) accidents and drowning, can also occur in abandoned mines.

The mineral-waste disposal from coal mining also is a hazard. Past disposal practices have dotted Pennsylvania's landscape with unsightly refuse piles. Many of the refuse piles contain combustible materials that cause long-term air-quality problems if ignited. Burning refuse piles have also been linked to major underground coal fires, such as those at Centralia and Shamokin in the Anthracite region of Pennsylvania.

Also as potentially dangerous are slurry ponds or tailings dams. Mineral byproducts from coal mining are pumped to slurry or tailings dams for removal by sedimentation. If the dams or structures supporting the slurry ponds fail, they pose hazards similar to dam failure (see **Appendix G – Dam Failure Profile**). Reject wastes from coal mining that contain sulfide minerals can also degrade groundwater and surface water that comes into contact with them. Coal refuse piles have historically been prolific sources of acid mine drainage which has impaired many streams in Pennsylvania.

Pennsylvania has a long history of mining, and there have been numerous mining accidents. The worst-case scenario event in Pennsylvania mining history occurred in 1962 in Centralia, Pennsylvania, when an underground fire began in the coal mines underneath the town. The federal government offered buyouts of homes of residents so they could relocate from Centralia, resulting in a cost of over \$40 million to carry this out and demolish homes. In 1992, Pennsylvania claimed eminent domain on all properties in the town and condemned all of the buildings. In 1981 the town had over 1,000 residents, but today only a few remain. One of the worst mining accidents in the United States since 1950 occurred in nearby West Virginia. On April 5, 2010, twenty-nine miners were killed at the Upper Big Branch Mine by an explosion.

There are many environmental impacts due to coal mining. Mining activities and acid mine drainage can contaminate surface and groundwater, create acid mine drainage, and cause changes in water temperature and damage to streams, lakes, ponds, estuaries, and wetland ecosystems. Mine explosions or burning refuse piles can cause air quality problems. Although mine reclamation is required for much surface mining activity, there is still a loss of quality in landscape, damage to vegetation, and habitat.

4.3.17.3. Past Occurrence

Hazardous Material Release

Since the passage of SARA Title III, facilities which produce, use, or store hazardous chemicals must notify the public through their County's emergency dispatch center and PEMA, if an accidental release of a hazardous substance meets or exceeds a designated reportable quantity and affects or has the potential to affect persons and/or the environment outside the plant. SARA Title III and Pennsylvania Hazardous Material Emergency Planning and Response Act (Act 165) also require a written follow-up report to PEMA and to the County where the facility is located. These written follow-up reports include any known or anticipated health risks associated with the release and actions to be taken to mitigate potential future incidents. In addition, Section 204(a)(10) of Act 165 requires PEMA to staff and operate a 24-hour State

Emergency Operations Center (EOC) to provide effective emergency response coordination. The annual number of incidents from 2008 to 2011 and 2015-2018 are recorded in PEMA's Pennsylvania Hazardous Material Emergency Planning and Response Act Annual Reports are presented in Table 4.3.17-1. From 2003 to 2009, there were 128 hazardous materials incidents in the County reported through PEIRS as described in Table 4.3.17-2. For hazardous materials releases occurring in transit, see Section 4.3.22.

Table 4.3.17-1 Fayette County Annual Number of Hazardous Material Releases (PEMA)	
YEAR	NUMBER OF INCIDENTS
2008	84
2009	64
2010	99
2011	104
2015	110
2016	102
2017	135
2018	15

Table 4.3.17-2 Fayette County Past Occurrences of Hazardous Materials Incidents (2002-2009)		
DATE	TYPE	LOCATION
01/23/2002	Hydraulic Oil Spill	German Township
02/28/2002	Gasoline Spill	Connellsville City
03/02/2002	Natural Gas Release	Dunbar Township
03/16/2002	Natural Gas Release	Luzerne Township
03/09/2002	Chemical Release	Newell Borough
03/20/2002	Kerosene Spill	South Union Township
04/21/2002	Heating Oil Spill	Dunbar Township
04/05/2002	Natural Gas Release	North Union Township
05/06/2002	Tire Fire	Perry Township
05/17/2002	Diesel Fuel Spill	Uniontown City
06/07/2002	Gasoline Spill	Brownsville Township
06/26/2002	Diesel Fuel Spill	Connellsville Township
06/26/2002	Chemical Release	Menallen Township
08/14/2002	Diesel Fuel Spill	Connellsville City
09/26/2002	Diesel Fuel Spill	Everson Borough
09/14/2002	Chemical Spill	Masontown Borough
01/09/2002	Heating Oil Spill	Stewart Township
02/01/2003	Well Fires	Luzerne Township
05/08/2003	Oil Sheen	Newell Borough
06/2003	Diesel Fuel Spill	Belle Vernon Borough
06/25/2003	Chemical Spill	Connellsville City
07/25/2003	Oil Sheen	Belle Vernon Borough

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.17-2 Fayette County Past Occurrences of Hazardous Materials Incidents (2002-2009)

DATE	TYPE	LOCATION
07/20/2003	Flammable Liquids and Solids	Uniontown City
08/12/2003	Heating Oil Spill	North Union Township
09/24/2003	Oil Sheen	Brownsville Borough
09/09/2003	Natural Gas Release	Connellsville City
09/18/2003	Gasoline Spill	Dunbar Township
10/23/2003	Explosions	North Union Township
12/21/2003	Natural Gas Release	Luzerne Township
12/16/2003	Natural Gas Release	Menallen Township
01/14/2004	Oil Sheen	Fayette City
01/18/2004	Natural Gas Release	South Union Township
02/02/2004	Well Fires	German Township
03/07/2004	Diesel Fuel Spill	German Township
07/13/2004	Natural Gas Release	Newell Borough
07/12/2004	Oil Spill	Wharton Township
08/04/2004	Oil Sheen	Markleysburg Borough
09/10/2004	Diesel Fuel Spill	Bullskin Borough
11/30/2004	Natural Gas Release	Dunbar Borough
11/10/2004	Odor Investigation	South Union Township
12/31/2004	Natural Gas Release	Newell Borough
01/16/2005	Chemical Release	Connellsville Township
01/04/2005	Tire Fire	Springfield Township
02/22/2005	Natural Gas Release	Uniontown City
03/13/2005	Natural Gas Release	Franklin Township
04/18/2005	Natural Gas Release	German Township
04/11/2005	Natural Gas Release	North Union Township
05/10/2005	Miscellaneous Oils	Brownsville Township
05/11/2005	Chemical Spill	German Township
05/24/2005	Heating Oil Spill	German Township
05/20/2005	Natural Gas Release	North Union Township
05/09/2005	Explosions	Wharton Township
06/21/2005	Tire Fire	Dunbar Township
06/17/2005	Natural Gas Release	German Township
06/17/2005	Chemical Spill	Uniontown City
07/26/2005	Diesel Fuel Spill	Connellsville Township
07/16/2005	Military Ordnance	Fairchance Borough
07/15/2005	Chemical Release	Georges Township
08/31/2005	Heating Oil Spill	Menallen Township
08/09/2005	Bio-Hazardous Waste	North Union Township
09/14/2005	Natural Gas Release	German Township
10/06/2005	Junkyard Fire	Georges Township
10/17/2005	Hydraulic Oil Spill	Uniontown City
11/16/2005	Diesel Fuel Spill	Perry Township

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.17-2 Fayette County Past Occurrences of Hazardous Materials Incidents (2002-2009)

DATE	TYPE	LOCATION
11/29/2005	Well Fires	Redstone Township
12/23/2005	Diesel Fuel Spill	Bullskin Township
12/25/2005	Natural Gas Release	Washington Township
01/07/2006	Natural Gas Release	Dunbar Township
02/14/2006	Well Fires	Jefferson Township
02/20/2006	Hydraulic Oil Spill	Masontown Borough
02/15/2006	Hydraulic Oil Spill	Newell Borough
03/27/2006	Hydraulic Oil Spill	Belle Vernon Borough
03/30/2006	Diesel Fuel Spill	Belle Vernon Borough
03/11/2006	Bio-Hazardous Waste	Redstone Township
04/08/2006	Bomb Found	Henry Clay Township
04/11/2006	Chemical Release	Luzerne Township
04/21/2006	Industrial Accident	Luzerne Township
04/01/2006	Dynamite Found	Wharton Township
05/16/2006	Odor Investigation	Dunbar Township
05/25/2006	Industrial Accident	Springhill Township
09/01/2006	Natural Gas Release	Redstone Township
09/14/2006	Heating Oil Spill	Redstone Township
10/24/2006	Natural Gas Release	Vanderbilt Borough
11/08/2006	Oil Spill	Masontown Borough
12/15/2006	Oil Spill	Masontown Borough
12/11/2006	Bio-Hazardous Waste	Redstone Township
01/02/2007	Diesel Fuel Spill	Newell Borough
03/11/2007	Natural Gas Release	Georges Township
03/29/2007	Natural Gas Release	North Union Township
04/15/2007	Heating Oil Spill	Luzerne Township
06/14/2007	Tire Fire	Connellsville Township
06/04/2007	Hydraulic Oil Spill	Masontown Borough
08/26/2007	Heating Oil Spill	Bullskin Township
08/18/2007	Natural Gas Release	Connellsville Township
08/07/2007	Natural Gas Release	German Township
08/10/2007	Hydraulic Oil Spill	Masontown Borough
08/08/2007	Military Ordnance	North Union Township
08/22/2007	Dynamite Found	Wharton Township
09/24/2007	Dynamite Found	German Township
10/05/2007	Hydraulic Oil Spill	Masontown Borough
10/31/2007	Military Ordnance	Springhill Township
11/26/2007	Heating Oil Spill	Dunbar Township
11/20/2007	Heating Oil Spill	Lower Tyrone Township
12/16/2007	Heating Oil Spill	Georges Township
01/07/2008	Natural Gas Release	Washington Township
03/27/2008	Natural Gas Release	Belle Vernon Borough
03/27/2008	Natural Gas Release	Nicholson Township

Table 4.3.17-2 Fayette County Past Occurrences of Hazardous Materials Incidents (2002-2009)

DATE	TYPE	LOCATION
05/13/2008	Oil Spill	German Township
05/22/2008	Natural Gas Release	South Union Township
06/14/2008	Heating Oil Spill	German Township
06/26/2008	Heating Oil Spill	Luzerne Township
06/19/2008	Military Ordnance	Washington Township
07/11/2008	Diesel Fuel Spill	Dunbar Township
08/21/2008	Military Ordnance	Connellsville City
09/11/2008	Natural Gas Release	Brownsville Township
09/30/2008	Natural Gas Release	Jefferson Township
09/03/2008	Natural Gas Release	Luzerne Township
10/20/2008	Industrial Accident	Luzerne Township
11/13/2008	Heating Oil Spill	Masontown Borough
11/07/2008	Chemical Release	North Union Township
01/15/2009	Natural Gas Release	Georges Township
01/07/2009	Toxic/Infectious Substances	Uniontown City
02/06/2009	Explosions	Springhill Township
03/16/2009	Diesel Fuel Spill	Belle Vernon
03/18/2009	Hydraulic Oil Spill	Newell Borough
04/18/2009	Natural Gas Release	Dunbar Township
04/16/2009	Natural Gas Release	Luzerne Township
05/09/2009	Military Ordnance	German Township

Coal Mining

Although state and federal (U.S. Department of Labor, EPA, and the Office of Surface Mining and Reclamation) laws require occupational health, safety, and environmental protection in all mining activities, mining accidents still occur. The U.S. Department of Labor Mine Safety and Health Administration tracks mining accidents and injuries. From 2006 to 2016, there were 5,851 operator injuries (including 9 deaths) reported in Pennsylvania resulting from surface and underground bituminous and anthracite coal mining activities. Of the 5,851 incidents, 4,504 occurred from 2012 to 2016. Of the 12 fatalities that occurred in 2015, three were in Pennsylvania and all in the southwestern region. Beyond operator accidents, there can be incidents that are a result of falls, drowning, electrocution, and ATV crashes (MSHA, 2016).

On January 8th, 2022, a worker in a Springhill Township, Fayette County, was killed as a result of a mine collapse. It is believed the mine ceiling collapsed onto equipment that the individual was working with (PADEP, 2022).

The DEP Bureau of Mine Safety is required by law to investigate all fatal and serious accidents that occur at underground Commonwealth mines. A mine emergency is defined as a serious situation or occurrence that happens unexpectedly and demands immediate action or a condition of urgent need for action or assistance such as a state of emergency.

4.3.17.4. Future Occurrence

A. Hazardous Materials

While many hazardous material release incidents have occurred in Pennsylvania in the past, they are generally considered difficult to predict. An occurrence is largely dependent upon the accidental or intentional actions of a person or group. Intentional acts are addressed in Section 4.3.22: Terrorism. Risk associated with hazardous materials release is expected to remain moderate and *unlikely*.

Facilities in Fayette County storing and producing hazardous waste may be at risk for accidental hazardous material release because of stormwater runoff. Hazardous materials facilities in Fayette include locations such as reservoirs, water treatment plants, and other water utility services. Increases in annual precipitation, resulting from climate change, could impose further water related stresses on these facilities and ultimately increase the risk for environmental release. Similar to coal mining, the disposal of hazardous materials is critical to reduce vulnerability to people and land.

B. Coal Mining

It is difficult to forecast the severity and frequency of coal mining accidents and environmental damage in Pennsylvania. Although throughout time, the government has strengthened mining and reclamation operation and environmental regulations, permitting, and inspection criteria, this has not prevented mining accidents and environmental damage from occurring.

Surface subsidence resulting from underground mining continues to be a major concern of those impacted by the mining industry (see Section 4.3.11). Despite the use of deep mine roof-support methods, some subsidence will eventually occur.

Acid mine drainage is already a major concern for Fayette County. Rainfall events cause both increases and decreases in acid and metals concentrations and their loadings from mine wastes, and unmined mineralized areas. Climate change will increase acid mine drainage, potentially resulting in contaminated water ecosystem of semi-arid and arid mining areas. The disposal of untreated and treated mining wastes and tailings is a threat to environmental contamination including groundwater, surface water, wetlands, land, and animals (Sommer, 2021). It is likely that Pennsylvania will continue to modify its laws to reflect additional environmental awareness. Stricter controls on reclamation, perhaps specifically addressing the disposal of mining residuals, are likely. State and federal laws and programs have historically placed an emphasis on environmental preservation and reclamation.

As in the past, it seems likely that Pennsylvania will be at the forefront of these programs and future occurrence is *unlikely*.

4.3.17.5. Vulnerability Assessment

The vulnerability of jurisdictions to environmental hazards differs based on the type of environmental hazard being examined. While explosions or other catastrophic incidents at hazardous material facilities or coal mining operations could cause property damage, the

primary concern is the population living near those sites who would potentially need to be evacuated. For hazardous material releases at fixed facilities, vulnerability is defined as populations within 1.5 miles of SARA facilities. For coal mining incidents, vulnerability is defined as populations living within 1.5 miles of active coal mines.

Table 4.3.17-3 provides this vulnerability information by Municipality. Looking across all kinds of environmental hazards, the highest population, 49% of the total population, is at risk to fixed-facility hazardous material releases because of the high number of SARA facilities in densely populated areas. Vulnerability is lower for active coal mines, 31%, since there are so few in the County.

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Table 4.3.17-3 Total Population and Percent of Population Vulnerable to Environmental Hazards					
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY (%)	ESTIMATED POPULATION IN COAL MINE AREA	ESTIMATED POPULATION IN COAL MINE AREA (%)
Belle Vernon Borough	1,419	51	4%	305	21.5%
Brownsville Borough	2,701	2,699	100%	856	31.7%
Brownsville Township	221	221	100%	0	0.0%
Bullskin Township	6,861	460	7%	101	1.5%
Connellsville City	8,210	8,098	99%	1,127	13.7%
Connellsville Township	867	744	86%	303	34.9%
Dawson Borough	313	0	0%	0	0.0%
Dunbar Borough	1,663	551	33%	10	0.6%
Dunbar Township	6,440	1,627	25%	4,019	62.4%
Everson Borough	751	735	98%	0	0.0%
Fairchance Borough	2,619	2,608	100%	216	8.2%
Fayette City Borough	591	591	100%	35	5.9%
Franklin Township	1,774	0	0%	130	7.3%
Georges Township	4,938	1,255	25%	1,963	39.8%
German Township	4,271	536	13%	2,574	60.3%
Henry Clay Township	1,756	0	0%	0	0.0%
Jefferson Township	2,886	316	11%	1,499	51.9%
Lower Tyrone Township	1,268	0	0%	12	0.9%
Luzerne Township	5,529	1,160	21%	4,184	75.7%
Markleysburg Borough	397	0	0%	0	0.0%

Table 4.3.17-3 Total Population and Percent of Population Vulnerable to Environmental Hazards					
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY (%)	ESTIMATED POPULATION IN COAL MINE AREA	ESTIMATED POPULATION IN COAL MINE AREA (%)
Masontown Borough	3,504	2,954	84%	913	26.1%
Menallen Township	4,653	1,159	25%	1,439	30.9%
Newell Borough	397	397	100%	0	0.0%
Nicholson Township	1,770	18	1%	87	4.9%
North Union Township	14,689	11,617	79%	5,863	39.9%
Ohiopyle Borough	55	0	0%	0	0.0%
Perry Township	3,310	0	0%	544	16.4%
Perryopolis Borough	1,243	0	0%	0	0.0%
Point Marion Borough	974	974	100%	0	0.0%
Redstone Township	6,302	1,096	17%	2,352	37.3%
Saltlick Township	3,938	0	0%	358	9.1%
Smithfield Borough	1,101	509	46%	0	0.0%
South Connellsville Borough	2,502	2,491	100%	0	0.0%
South Union Township	8,516	6,316	74%	3,880	45.6%
Springfield Township	4,068	677	17%	27	0.7%
Springhill Township	3,455	1,105	32%	0	0.0%
Stewart Township	859	61	7%	0	0.0%
Uniontown City	10,714	10,681	100%	6,121	57.1%
Upper Tyrone Township	2,911	1,578	54%	789	27.1%
Vanderbilt Borough	322	0	0%	0	0.0%

Table 4.3.17-3 Total Population and Percent of Population Vulnerable to Environmental Hazards					
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY	ESTIMATED POPULATION WITHIN 1.5 MILES OF SARA OR TRI FACILITY (%)	ESTIMATED POPULATION IN COAL MINE AREA	ESTIMATED POPULATION IN COAL MINE AREA (%)
Washington Township	3,515	2,275	65%	3,169	90.2%
Wharton Township	4,005	1,537	38%	0	0.0%
Grand Total	138,278	67,097	49%	42,876	31%

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4.3.18. Conventional Oil and Gas Wells

4.3.18.1. Location and Extent

One of the dominant industries in Fayette County is extraction, both coal mining and conventional and unconventional oil and gas well drilling. Coal mining has occurred in Fayette County since the 1700s, with conventional drilling and unconventional drilling becoming more prevalent in recent decades. Coal mining hazards are addressed in Section 4.3.7 Sinkhole and Subsidence, as they are mostly related to incidents of land failure in Fayette County.

Oil and gas development in Pennsylvania is extensive and has been ongoing for over 150 years, with the most recent phase of exploration and production activities targeting the Marcellus and Utica shales. Regulatory standards for the industry have evolved significantly as a function of both advances in technology and a more intense focus on environmental protection. Between 300,000 and 760,000 oil and gas wells have been drilled in Pennsylvania since the first commercial oil well was developed in 1859. Additionally, oil and gas development has been taking place for nearly a century prior to permitting requirements enacted in 1955, an estimated 100,00 to 560,000 abandoned wells are yet to be accounted for in the state (PA DEP, 2021d). PA DEP differentiates between conventional and unconventional oil and gas wells. Conventional wells are traditional vertical wells, while unconventional wells are typically horizontally drilled wells commonly associated with the Marcellus Shale. Unconventional gas wells are profiled in Section 4.3.19.

There are approximately 4438 conventional oil and gas wells drilled in Fayette County (PA DEP, 2022). Conventional wells are defined as traditional vertical wells. Well types and statuses countywide are as follows:

Well Types

- Oil Wells: <1% (1)
- Gas Wells: 93%
- Combined Oil and Gas Wells: >2%
- Other Types of Conventional Wells: 2%
- Undetermined: 2%

Well Statuses

- Active: 71%
- Abandoned: <1% (13)
- Orphaned: <1% (3)
- Plugged: 8%
- Other Statuses: 20%

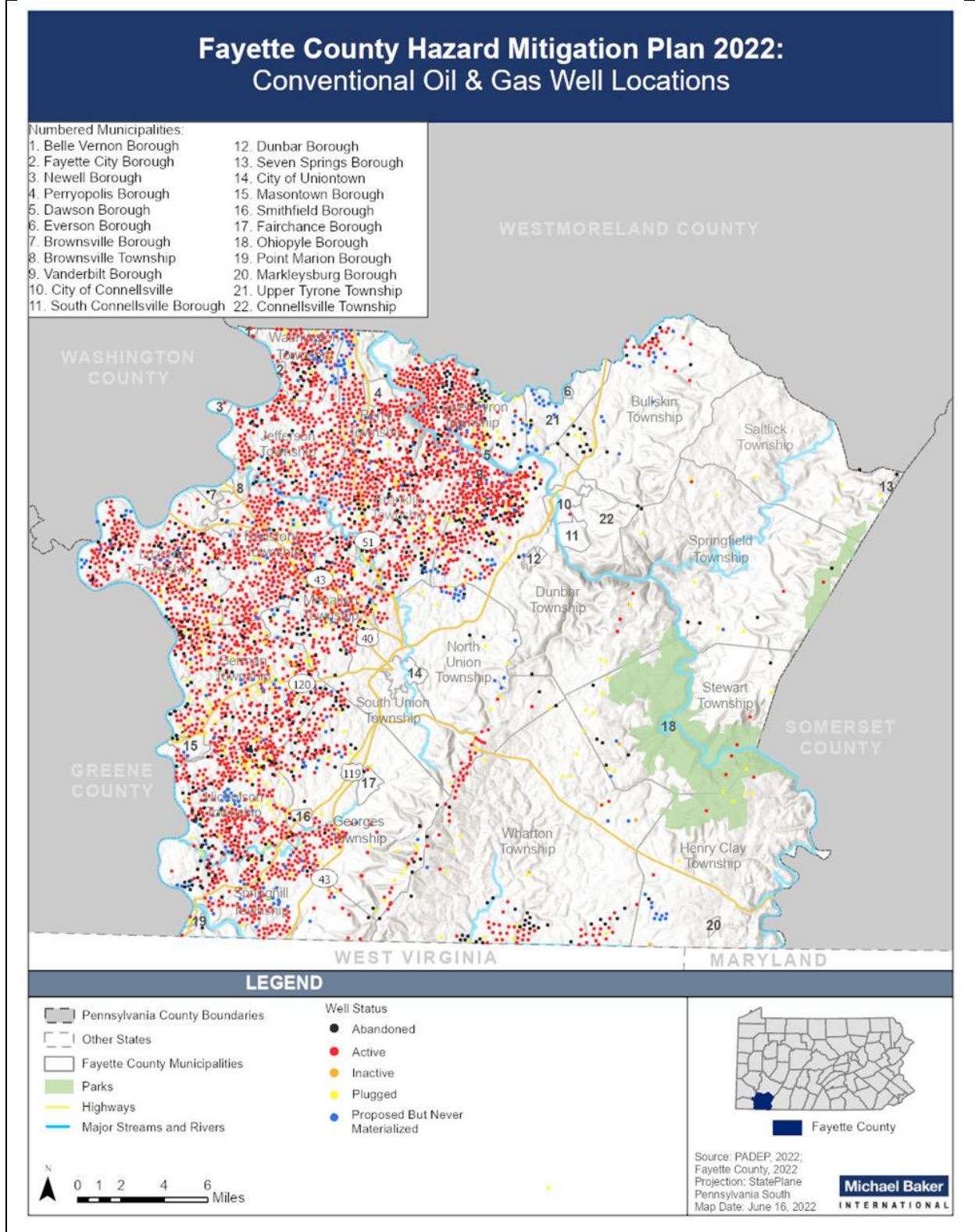
Other statuses include “proposed, but never materialized” meaning that a permit application was submitted but not approved, a well was entered erroneously into the database, or the permit was issued but the well was never drilled, and “operator reported not drilled,” meaning the well permit has expired without being drilled or that the operator will not seek to drill.

There are active and abandoned oil and gas wells in 35 of 42 municipalities in Fayette County with activity concentrated in the northern and western portion of the county as shown in Figure 4.3.18-1. Data on conventional oil and gas wells obtained from PA DEP, provided in Table 4.3.18-1 below, shows that over German Township and Franklin Township have the largest number of conventional oil and gas wells, with 505 and 504 wells respectively.

Private water supplies such as domestic water wells in the vicinity of oil and gas wells are at risk of contamination from brine and other pollutants including methane which can pose a fire hazard. Private drinking water is largely unregulated and therefore the existing data is largely incomplete and/or inaccurate. Some information is submitted to the Pennsylvania Topographic and Geological Survey by water well drillers via the PaGWIS system, but this data is voluntarily reported.

MUNICIPALITY	NUMBER OF WELLS	MUNICIPALITY	NUMBER OF WELLS
Belle Vernon Boro	3	Nicholson Twp	314
Brownsville Boro	1	North Union Twp	53
Bullskin Twp	59	Perry Twp	289
Connellsville City	4	Perryopolis Boro	1
Dunbar Boro	12	Point Marion Boro	1
Dunbar Twp	354	Redstone Twp	341
Fairchance Boro	2	Saltlick Twp	6
Fayette City Boro	2	Smithfield Boro	2
Franklin Twp	504	South Union Twp	19
Georges Twp	217	Springfield Twp	17
German Twp	505	Springhill Twp	218
Henry Clay Twp	16	Stewart Twp	18
Jefferson Twp	255	Uniontown City	2
Lower Tyrone Twp	266	Upper Tyrone Twp	27
Luzerne Twp	377	Vanderbilt Boro	3
Masontown Boro	4	Washington Twp	135
Menallen Twp	297	Wharton Twp	113
Newell Boro	1	Total	4438

Figure 4.3.18-2 Fayette County Coal Mining Operations



4.3.18.2. Range of Magnitude

As is the case with all-natural resource extraction, a variety of potential hazards exist with oil and gas extraction. Abandoned oil and gas wells that are not properly plugged can contaminate groundwater and consequently domestic drinking water wells. Surface waters and soil are sometimes polluted by brine, a salty wastewater product of oil and gas well drilling, and from oil spills occurring at the drilling site or from a pipeline breach. This can spoil public drinking water supplies and be particularly detrimental to vegetation and aquatic animals.

Methane can leak into domestic drinking wells and pose fire and explosion hazards. In addition, natural gas well fires can occur when natural gas is ignited at the well site. Often, these fires erupt during drilling when a spark from machinery or equipment ignites the gas. The initial explosion and resulting flames have the potential to seriously injure or kill individuals in the immediate area. These fires are often difficult to extinguish due to the intensity of the flame and the abundant fuel source. When methane gas from unplugged gas wells seeps into underground coal mines, miners are at risk of asphyxiation and are subject to impacts of explosion.

Common accidents involving gas well sites include "blowouts," which are an explosion or failure of the rig. Though injury and death have resulted from oil and gas well drilling and extraction, the majority of impacts from this human-made hazard are environmental in nature. Wells that are improperly drilled or plugged can contaminate groundwater resulting in water well contamination or eventually surface water contamination. Drilling additives stored on site can leak and contaminate soil, surface water, and groundwater. Oil leaks at the well site from oil pipelines contaminate soil and surface water and damage aquatic life and ecosystems.

4.3.18.3. Past Occurrence

Pennsylvania has a long history of oil and gas well drilling and though infrequent, many accidents and incidents have occurred related to the extraction of these natural resources. While no comprehensive list of oil and gas related incidents exists for the area, the PA DEP has made oil and gas well compliance information available to the public. Since January 1, 2000, there have been 1,201 environmental health and safety violations at oil and gas wells in Fayette County. Of these violations, 942 were conventional well violations. These violations range in severity, from failure to implement protective plans like erosion and sedimentation control plans and encroachment plans to more serious infractions like discharging pollutant materials into the waters of the Commonwealth.

4.3.18.4. Future Occurrence

It is difficult to predict when and where environmental hazards will arise as they are often related to equipment failure and human error. Adequate monitoring through the Department of Environment Protection (DEP) will reduce the likelihood of potential impacts to the

community and the environment. Risk associated with conventional oil and gas drilling is expected to remain moderate though.

The number of permits issued for oil and gas wells decreases each year, though production continues to increase. Between 2018 and 2022, only 167 permits were issued in Fayette County, five of those permits were for conventional wells. These were located in Georges Township (3) and Springhill Township (2) (PA DEP, 2022d).

Additionally, the number of orphaned and abandoned wells statewide has increased, roughly 200,000 orphaned/abandoned wells were reported in the 2020 Annual Report. In PA DEP's 2019 Annual Report, they identified a study in partnership with DCNR in Cornplanter State Forest to measure methane leakage from identified orphan wells. This research will help PA DEP better estimate emissions from the thousands of orphaned and abandoned wells in Pennsylvania and determine how to quantify threats from abandoned wells (PA DEP, 2019b).

Based on the short history of past occurrence, the probability of future conventional and oil gas well events is considered *likely* according to the Risk Factor Methodology (see Section 4.4.1-1).

Many homes in Fayette County rely upon private water supplies. These water supplies may be at risk if they are in vicinity of oil and gas wells. German Township listed the most conventional oil wells in Fayette County and is primarily reliant upon private water due to the lack in public water supply throughout the township. Areas like this could see increased rates of oil and gas related exposures as a result of climate change. It is difficult to determine how frequent fluctuation in ground water, as a result of global-warming-related precipitation increases, will impact the potential for oil and gas contamination into these private water wells.

4.3.18.5. Vulnerability Assessment

Table 4.3.12-2 shows the structures and critical facilities that are vulnerable to conventional wells incidents. There are 51% of critical facilities in close proximity to a conventional well. A complete listing of critical facilities is in **Appendix E**.

Structures and critical facilities within 1,000 yards of conventional wells are considered vulnerable. There are 34,814 structures in close proximity to conventional wells county-wide (52% of all structures). 14 municipalities have 100% of their structures in close proximity to at least one conventional well. When looking at structures by property type, shown in Table 4.3.18-3, the majority of vulnerable structures are residential in nature, followed by agricultural uses.

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FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.18-3 Structures and Critical Facilities Vulnerable to Conventional Wells in Fayette County

MUNICIPALITY	TOTAL STRUCTURES	STRUCTURES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	PERCENT STRUCTURES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	PERCENT CRITICAL FACILITIES WITHIN 1,000 YDS OF A CONVENTIONAL WELL
Belle Vernon Borough	450	450	100%	2	0	0%
Brownsville Borough	1202	1202	100%	21	19	90%
Brownsville Township	346	316	91%	6	2	33%
Bullskin Township	3472	1275	37%	15	4	27%
Connellsville City	3321	1066	32%	26	5	19%
Connellsville Township	1129	141	12%	9	2	22%
Dawson Borough	191	191	100%	3	3	100%
Dunbar Borough	487	229	47%	4	1	25%
Dunbar Township	3727	2511	67%	28	13	46%
Everson Borough	338	0	0%	5	0	0%
Fairchance Borough	855	232	27%	11	2	18%
Fayette City Borough	338	338	100%	7	7	100%
Franklin Township	1277	1277	100%	14	14	100%
Georges Township	3196	1900	59%	44	24	55%
German Township	2639	2626	100%	23	23	100%
Henry Clay Township	1446	126	9%	10	2	20%
Jefferson Township	974	973	100%	3	3	100%
Lower Tyrone Township	557	557	100%	5	5	100%
Luzerne Township	2144	2126	99%	22	22	100%
Markleysburg Borough	124	0	0%	4	0	0%
Masontown Borough	1609	1590	99%	12	7	58%
Menallen Township	2326	2325	100%	24	24	100%
Newell Borough	269	136	51%	3	0	0%
Nicholson Township	932	929	100%	5	5	100%
North Union Township	6215	1074	17%	45	11	24%
Ohiopyle Borough	69	0	0%	2	0	0%

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.18-3 Structures and Critical Facilities Vulnerable to Conventional Wells in Fayette County

MUNICIPALITY	TOTAL STRUCTURES	STRUCTURES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	PERCENT STRUCTURES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES WITHIN 1,000 YDS OF A CONVENTIONAL WELL	PERCENT CRITICAL FACILITIES WITHIN 1,000 YDS OF A CONVENTIONAL WELL
Perry Township	1389	1239	89%	5	5	100%
Perryopolis Borough	910	835	92%	12	11	92%
Point Marion Borough	530	530	100%	11	11	100%
Redstone Township	2806	2805	100%	26	25	96%
Saltlick Township	1891	156	8%	16	0	0%
Smithfield Borough	392	392	100%	7	7	100%
South Connellsville Borough	896	231	26%	7	0	0%
South Union Township	5126	459	9%	31	3	10%
Springfield Township	1524	187	12%	15	4	27%
Springhill Township	1451	1343	93%	16	12	75%
Stewart Township	468	119	25%	2	0	0%
Uniontown City	4493	1	0%	57	1	2%
Upper Tyrone Township	954	314	33%	4	0	0%
Vanderbilt Borough	224	224	100%	5	5	100%
Washington Township	1899	1875	99%	18	16	89%
Wharton Township	1914	514	27%	24	11	46%
Grand Total	66500	34814	52%	609	309	51%

4.3.19. Unconventional Oil and Gas Wells

4.3.19.1. Location and Extent

PA DEP defines unconventional wells as wells drilled deep into shale rock formations found thousands of feet underground. These formations, mainly Marcellus Shale and Utica Shale, contain and produce natural gas. These wells use horizontal drilling techniques that use large quantities of high-pressure water, approximately one to eight million gallons, mixed with sand and other additives including hydrochloric and muriatic acid, to hydraulically fracture the rock. This practice is more commonly known as fracking. This type of extraction presents unique challenges for the county.

In recent years, the advancement in drilling technology and capability has allowed for natural gas extraction from the Marcellus Shale formation which exists at a depth of 5,000 to 8,000 feet (PA DEP, 2020). Marcellus Shale natural gas extraction presents new and unique challenges and hazards in the Commonwealth. The Marcellus Shale and the Utica Shale formations are located underneath the northern and western portions of Fayette County, which has led to an explosion of natural gas well drilling in the County, in addition to the traditional drilling. Activities associated with Marcellus Shale gas drilling can cause fire and pollute streams and drinking water. Additional hazards from oil and gas well drilling or particular concern to Fayette County exist in stray methane gas in the subsurface, which can migrate to wells and homes and ignite.

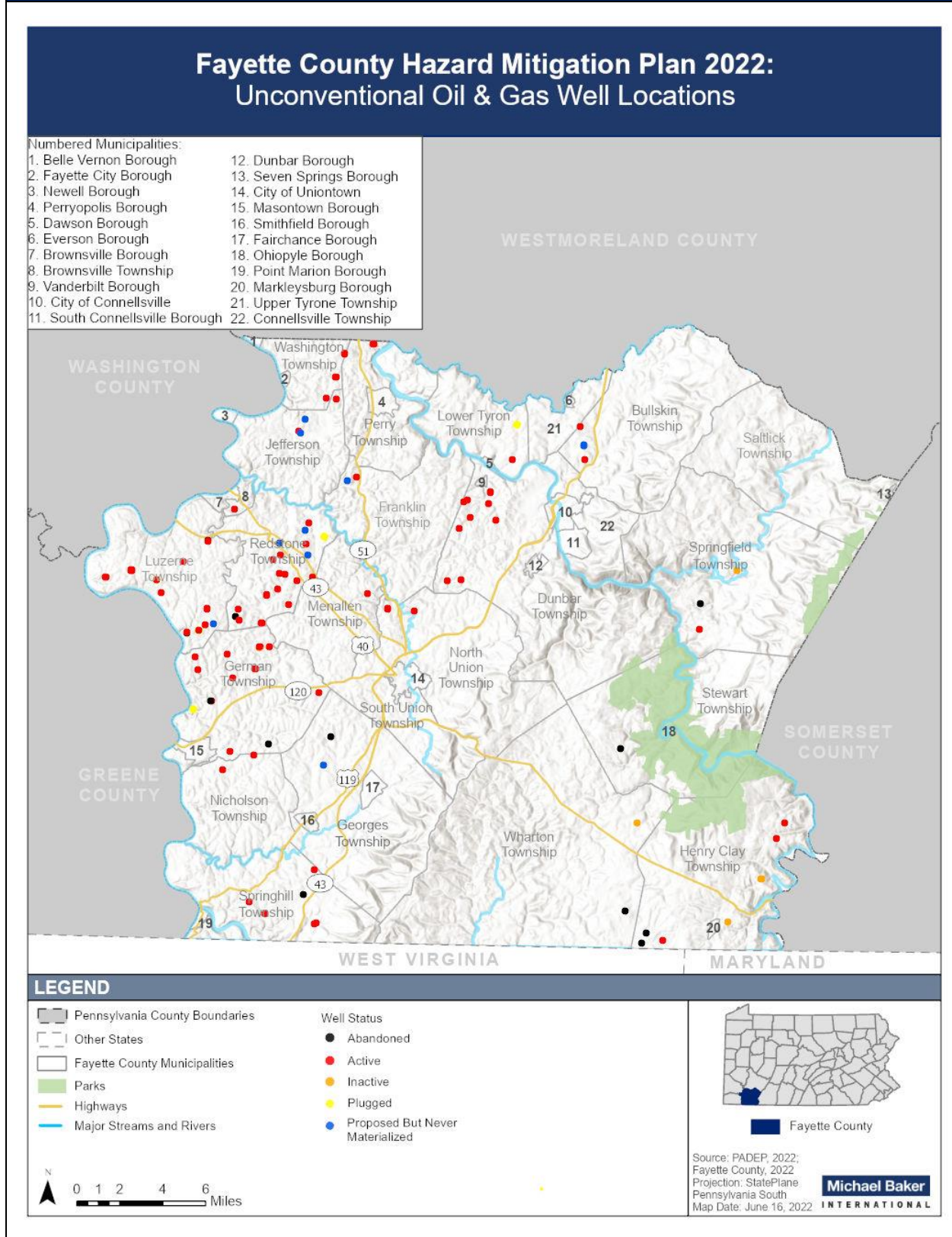
All of the unconventional wells in Fayette County are gas wells (99%). There are 492 unconventional oil and gas wells in Fayette County. This includes:

- 323 Active wells (66%)
- 14 Regulatory inactive status (3%)
- 15 Plugged wells (3%)
- 76 Proposed but never materialized (15%)
- 64 Operator reported not drilled (13%)

Table 4.3.13-1 lists the number of unconventional oil and gas wells in each municipality. As shown in Figure 4.3.13-1 unconventional wells are scattered throughout 21 of 42 municipalities in Fayette County. The highest number of unconventional wells are in Luzerne Township (88), Redstone Township (86), and German Township (83).

Table 4.3.19-1 Unconventional Oil and Gas Wells in Fayette County Municipalities (PA DEP, 2021e)	
MUNICIPALITY	NUMBER OF WELLS
Brownsville Twp	2
Bullskin Twp	12
Dunbar Twp	27
Franklin Twp	12
Georges Twp	6
German Twp	83
Henry Clay Twp	18
Jefferson Twp	21
Lower Tyrone Twp	6
Luzerne Twp	88
Menallen Twp	9
Nicholson Twp	15
North Union Twp	12
Perry Twp	6
Redstone Twp	86
Springfield Twp	7
Springhill Twp	38
Stewart Twp	5
Upper Tyrone Twp	2
Washington Twp	25
Wharton Twp	12
Total	492

Figure 4.3.19-1 Unconventional Oil & Gas Well Locations in Fayette County



4.3.19.2. Range of Magnitude

Horizontal drilling associated with unconventional oil and gas wells is accomplished by hydraulic fracturing, which involves pumping one to eight million gallons of water, mixed with sand and other additives, including hydrochloric or muriatic acid, into the shale formation. The fluid or "frac fluid" that is recovered from this process must be properly treated as the water quality is very poor.

Frac fluid is extremely saline and can be three to six times as salty as sea water. Other contaminants can include barium, bromine, lithium strontium, sulfate, ammonium, and very high concentrations of total dissolved solids (TDS). There is also some concern about normally occurring radioactive materials present in shale and potentially present in recovered drilling fluid, but there is very little data available on the radioactivity of frac fluid in Pennsylvania (Kirby, 2010). Currently there is no known technology to treat water with this level of salinity (Vidic, 2010). High levels of TDSs, though not harmful to humans, can be extremely harmful to aquatic life and can damage industrial equipment. Often recovered frac fluid is stored in earthen impoundments and after treatment is taken to a sewage treatment facility. There is concern surrounding the toxic solid waste that remains after frac fluid is treated.

Marcellus gas well drilling can have a variety of effects on the environment. For example, some areas have experienced stray methane gas in the subsurface; under certain conditions, this methane can migrate to private water supply wells and ultimately into a house or structure. Unmitigated methane can build to explosive concentrations. A proper well vent allows methane to vent to the atmosphere rather than build up to explosive levels. The risk of an explosion from stray methane varies from location to location based on site-specific conditions.

Surface waters and soil are sometimes polluted by brine, a salty wastewater product of gas well drilling, and from spills occurring at the drilling site or from a pipeline breach. This can spoil public drinking water supplies and be particularly detrimental to vegetation and aquatic animals.

Natural gas well fires occur when natural gas is ignited at the well site. Often, these fires erupt during drilling when a spark from machinery or equipment ignites the gas. The initial explosion and resulting flames have the potential to seriously injure or kill individuals in the immediate area. These fires are often difficult to extinguish due to the intensity of the flame and the abundant fuel source.

In addition to the traditional hazards associated with oil and gas well drilling, potential impacts from Marcellus Shale gas well drilling include the following:

Surface water depletion from high consumptive use with low return rates affecting drinking water supplies and aquatic ecosystems and organisms;

Contaminated surface and groundwater resulting from hydraulic fracturing and the recovery of contaminated hydraulic fracturing fluid;

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

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

The severity of the incident varies with concentration of natural gas released and the distance and related response time for emergency response teams. The areas within closest proximity to the releases are generally at greatest risk, yet a release can travel great distances, resulting in far-reaching effects on people and the environment.

Impacts of incidents at natural gas drilling sites can vary from relatively minor to catastrophic. If a large volume of natural gas escapes from a well at the surface, it will expand and spread over a large area. The potential for a major explosion of the gas exists; this explosion could kill hundreds of people, destroy property, spark wildland and urban fires, overwhelm the local EMS services and hospitals with the influx of casualties, force evacuations, close roads, cause utility outages (if a power or telephone transmission line is damaged), etc.

The worst-case scenario for an oil or gas well incident would be if there was a discharge of pollutant material like frac fluid into the waterways of Fayette County. This is particularly an issue in the central-to-southeastern portions of the County, where residents rely on domestic water wells for their potable water supply.

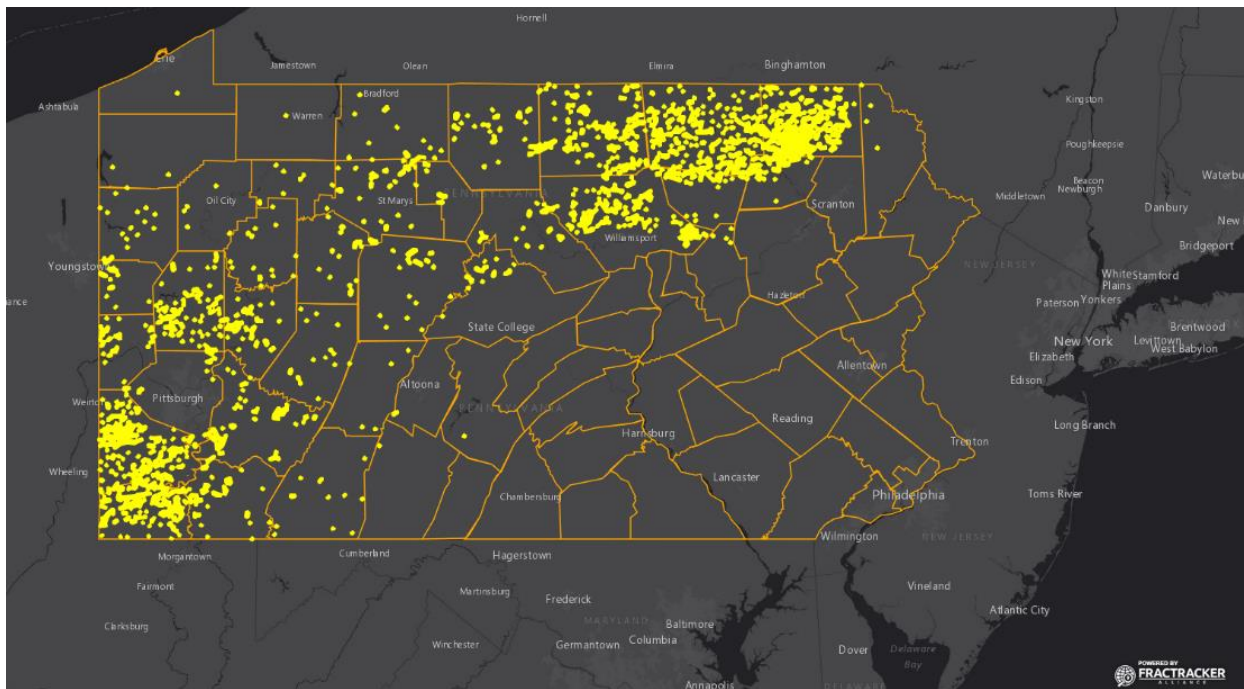
The impacts of oil and natural gas wells range in magnitude and extent. There are several potential impacts, including those on water, land, and air. Common accidents involving gas well sites include “blowouts,” which are an explosion or failure of the rig, as well as the potential for chemical contamination. The water used for hydraulic fracturing is composed of 87 chemicals, some of which have the potential to cause a danger to health of life (PA DEP, 2010). Beyond the purely environmental impacts of drilling, Fayette County is likely to be see significant indirect effects on its transportation infrastructure and land cover.

4.3.19.3. Past Occurrence

Pennsylvania has a long history of oil and gas well drilling and though infrequent, many accidents and incidents have occurred related to the extraction of these natural resources. While no comprehensive list of oil and gas related incidents exists for the area, the PA DEP has made oil and gas well compliance information available to the public. Since January 1, 2000, there have been 578 environmental health and safety violations at oil and gas wells in Fayette County. Of these violations, 186 occurred at unconventional wells. These violations range in severity, from failure to implement protective plans like erosion and sedimentation control plans and encroachment plans to more serious infractions like discharging pollutant materials into the waters of the Commonwealth. The most common infractions were:

- 79.16(B) - Well Drilling and Use Deviations (33 violations)
- 78a53 - Erosion and Sediment Control (13 violations)
- SWMA301 - Failure to properly store, transport, process or dispose of a residual waste. (23 violations)

Figure 4.3.19-2 Map of Unconventional Oil and Gas Violations in Pennsylvania 2008 - 2022 (FracTracker, 2022)



4.3.19.4. Future Occurrence

The likelihood of an emergency at a natural gas drilling site in Fayette County cannot be determined at this time, as there is little historical data to analyze. However, the likelihood of an incident within the County is expected to increase as the number of well sites increases. Future emergencies will occur at well sites as well as along the natural gas transportation network. As more permits are issued, this traffic will increase further. Also, the County will face

an increased risk of pipeline emergencies as the related infrastructure is put in place. Therefore the future occurrence of unconventional oil and gas well risk is *likely*.

YEAR	NUMBER OF PERMITS ISSUED
2018	56
2019	45
2020	44
2021	10
2022*	7

*2022 data through May of 2022.

Between 2018 and 2022, 162 permits for natural gas drilling in unconventional wells were issued. Table 4.3.13-2 lists the number of permits issued in Fayette County per year between 2018 and May 2022. Table.

Table 4.3.13-3 shows a breakdown of unconventional permits issued per year. The industry is highly regulated by the Pennsylvania DEP, and local response agencies have been trained to deal with accidents at the sites, but the threat of releases, fire, and explosions remains.

MUNICIPALITY	NUMBER OF PERMITS ISSUED
German Township	85
Jefferson Township	1
Luzerne Township	71
Springhill Township	5

*2022 data through May of 2022.

The unconventional well drilling in Fayette County not only implies the increased risk of an incident (that can include a chemical release, a fire, and/or an explosion) as well as the likelihood of a spill and ground (or surface) water contamination, but also increased development and deforestation, both which result in significantly more stress on the existing (transportation) infrastructure and impervious surface. The implications of the increased use of the transportation infrastructure are rather straightforward. The natural gas drilling process requires 2,300 to 4,000 truck trips per well (Cassidy, 2014), so that not only are there more trucks on the roads, but they are using roads often designed for heavy use. Increased use of the roads by heavy trucks can significantly increase the wear-and-tear on the roads (which were, in most cases, not designed for that type of traffic) and subsequently increase the likelihood of traffic incidents.

Careful consideration of which roads are actually suitable for heavy, industrial use and improved safety measures (including more traffic signals and officers, or a planned trucking

schedule) could help reduce traffic incidents and infrastructure degradation (Cassidy, 2014). Additionally, the industry could take responsibility for improving maintenance of the infrastructure and scheduling of their traffic so as to keep heavy truck flow to certain hours and thereby minimize incidents.

Impervious surfaces can increase the risk of flooding (as rain or run-off can no longer readily seep into the ground) and can prove exceedingly detrimental to maintaining a balanced ecosystem. Estimates vary slightly (based on location, technology, etc.), but the average footprint of a well pad is 1.3 hectares, and the associated infrastructure is 10.3 hectares (Evans and Kiesecker, 2014) (Environment America, 2013). If the indirect impacts are considered as well, this then the total land disturbance, and impact on the permeability of the ground, is 20.2 hectares, or about 50 acres (Evans and Kiesecker, 2014). If this unit is applied to the number of new wells since the 2017 plan update, then about 3,373 hectares (approximately 13 square miles), roughly 1.5 % of the total area of the County, was disturbed by or converted to a fracking use.

If continued investment and development in the natural gas industry is inevitable, then the County should take measures to plan for future development to help mitigate the impacts of well drilling on transportation infrastructure and impervious surfaces. One major component of this is the regulation of new well pads siting locations. The design and process of a shale, horizontal well, is such that the placement of the well pad is much more flexible (as there are multiple lateral wells that extend to a greater area), and the siting has the ability to take impacts to natural habitats into account. In determining more ecologically appropriate locations that reduce potential runoff, the County could require a setback from streams and wetlands, as well as avoidance of development on areas with a steep slope. Additionally, greater care and oversight could be taken to balance future well development with watershed needs and conservation goals.

Overall, the probability of future natural gas drilling incident events can be considered likely according to the Risk Factor Methodology (see Table 4.4.2-1).

The influence of climate change on Unconventional Oil and Gas activity is similar to that of Conventional Oil and Gas. Many unconventional drilling activities require significant land disturbance for well pads, pipelines, and other transport infrastructure. Increased precipitation, as a result of climate change, would threaten soil stabilities along well pads and pipeline rights-of-way and increase the risk of systematic failures within the gas network.

4.3.19.5. Vulnerability Assessment

Vulnerability to oil and gas well incidents is defined as being located within 1,000 yards of an unconventional oil or gas well. This buffer is what DEP uses as its "zone of culpability" for oil and gas well incidents. While explosions or other catastrophic incidents at an oil or gas well could cause property damage, of primary concern is the population living near these wells.

Table 4.3.13-4 shows the structures and critical facilities that are vulnerable to unconventional wells incidents. There are 4% of critical facilities within a close proximity to an unconventional well. A complete listing of critical facilities is available in **Appendix E**.

Structures and critical facilities within 1,000 yards of and unconventional wells are considered vulnerable. There are 4,281 structures in close proximity to unconventional wells county-wide (6% of all structures). When looking at structures by property type, shown in Table 4.3.13-5, the majority of vulnerable structures are unsurprisingly residential in nature, followed by agricultural uses.

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Table 4.3.19-4 Structures and Critical Facilities Vulnerable to Unconventional Wells in Fayette County						
MUNICIPALITY	TOTAL STRUCTURES	STRUCTURES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	PERCENT STRUCTURES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	PERCENT CRITICAL FACILITIES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL
Belle Vernon Borough	450	0	0%	2	0	0%
Brownsville Borough	1202	62	5%	21	3	14%
Brownsville Township	346	240	69%	6	2	33%
Bullskin Township	3472	273	8%	15	0	0%
Connellsville City	3321	0	0%	26	0	0%
Connellsville Township	1129	0	0%	9	0	0%
Dawson Borough	191	0	0%	3	0	0%
Dunbar Borough	487	0	0%	4	0	0%
Dunbar Township	3727	249	7%	28	0	0%
Everson Borough	338	0	0%	5	0	0%
Fairchance Borough	855	0	0%	11	0	0%
Fayette City Borough	338	0	0%	7	0	0%
Franklin Township	1277	40	3%	14	0	0%
Georges Township	3196	63	2%	44	0	0%
German Township	2639	641	24%	23	5	22%
Henry Clay Township	1446	183	13%	10	0	0%
Jefferson Township	974	146	15%	3	0	0%
Lower Tyrone Township	557	100	18%	5	0	0%
Luzerne Township	2144	236	11%	22	0	0%
Markleysburg Borough	124	30	24%	4	0	0%
Masontown Borough	1609	0	0%	12	0	0%
Menallen Township	2326	304	13%	24	5	21%
Newell Borough	269	0	0%	3	0	0%
Nicholson Township	932	49	5%	5	0	0%
North Union Township	6215	121	2%	45	0	0%

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Table 4.3.19-4 Structures and Critical Facilities Vulnerable to Unconventional Wells in Fayette County						
MUNICIPALITY	TOTAL STRUCTURES	STRUCTURES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	PERCENT STRUCTURES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	TOTAL CRITICAL FACILITIES	CRITICAL FACILITIES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL	PERCENT CRITICAL FACILITIES WITHIN 1,000 YDS OF AN UNCONVENTIONAL WELL
Ohiopyle Borough	69	0	0%	2	0	0%
Perry Township	1389	113	8%	5	0	0%
Perryopolis Borough	910	0	0%	12	0	0%
Point Marion Borough	530	0	0%	11	0	0%
Redstone Township	2806	997	36%	26	6	23%
Saltlick Township	1891	0	0%	16	0	0%
Smithfield Borough	392	0	0%	7	0	0%
South Connellsville Borough	896	0	0%	7	0	0%
South Union Township	5126	6	0%	31	0	0%
Springfield Township	1524	72	5%	15	0	0%
Springhill Township	1451	144	10%	16	2	13%
Stewart Township	468	9	2%	2	0	0%
Uniontown City	4493	0	0%	57	0	0%
Upper Tyrone Township	954	8	1%	4	0	0%
Vanderbilt Borough	224	78	35%	5	1	20%
Washington Township	1899	78	4%	18	0	0%
Wharton Township	1914	39	2%	24	0	0%
Grand Total	66,500	4281	6%	609	24	4%

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.19-5 Structures Vulnerable to Unconventional Wells by Land Use in Fayette County									
MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITIES	VACANT	TOTAL
Belle Vernon Borough	0	0	0	0	0	0	0	0	0
Brownsville Borough	0	1	5	0	54	1	1	0	62
Brownsville Township	0	9	4	0	227	0	0	0	240
Bullskin Township	14	23	13	4	219	0	0	0	273
Connellsville City	0	0	0	0	0	0	0	0	0
Connellsville Township	0	0	0	0	0	0	0	0	0
Dawson Borough	0	0	0	0	0	0	0	0	0
Dunbar Borough	0	0	0	0	0	0	0	0	0
Dunbar Township	53	6	1	4	184	1	0	0	249
Everson Borough	0	0	0	0	0	0	0	0	0
Fairchance Borough	0	0	0	0	0	0	0	0	0
Fayette City Borough	0	0	0	0	0	0	0	0	0
Franklin Township	12	2	0	0	25	1	0	0	40
Georges Township	6	1	2	1	52	1	0	0	63
German Township	83	16	15	3	520	4	0	0	641
Henry Clay Township	36	2	5	0	136	2	0	2	183
Jefferson Township	16	2	3	0	125	0	0	0	146
Lower Tyrone Township	19	6	4	1	69	0	0	1	100
Luzerne Township	58	0	5	1	170	2	0	0	236
Markleysburg Borough	0	0	3	0	27	0	0	0	30
Masontown Borough	0	0	0	0	0	0	0	0	0
Menallen Township	17	18	5	0	261	3	0	0	304
Newell Borough	0	0	0	0	0	0	0	0	0
Nicholson Township	18	1	2	0	27	1	0	0	49
North Union Township	15	7	1	0	98	0	0	0	121
Ohiopyle Borough	0	0	0	0	0	0	0	0	0
Perry Township	19	16	2	0	74	2	0	0	113
Perryopolis Borough	0	0	0	0	0	0	0	0	0

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.19-5 Structures Vulnerable to Unconventional Wells by Land Use in Fayette County

MUNICIPALITY	AGRICULTURE	COMMERCIAL	EXEMPT	INDUSTRIAL	RESIDENTIAL	UNKNOWN	UTILITIES	VACANT	TOTAL
Point Marion Borough	0	0	0	0	0	0	0	0	0
Redstone Township	99	50	8	5	833	0	1	1	997
Saltlick Township	0	0	0	0	0	0	0	0	0
Smithfield Borough	0	0	0	0	0	0	0	0	0
South Connellsville Borough	0	0	0	0	0	0	0	0	0
South Union Township	0	0	0	0	6	0	0	0	6
Springfield Township	17	0	0	0	55	0	0	0	72
Springhill Township	25	1	6	4	106	2	0	0	144
Stewart Township	3	0	0	0	6	0	0	0	9
Uniontown City	0	0	0	0	0	0	0	0	0
Upper Tyrone Township	4	0	1	0	3	0	0	0	8
Vanderbilt Borough	0	1	6	0	68	3	0	0	78
Washington Township	23	3	2	0	50	0	0	0	78
Wharton Township	12	2	0	0	25	0	0	0	39
Grand Total	549	167	93	23	3420	23	2	4	4281

4.3.20. Opioid Addiction Response

4.3.20.1. Location and Extent

Opioid addiction occurs when an individual becomes physically dependent on opioid, a class of drugs that reduces pain. Opioid is used as a broad term and includes opiates, which are drugs naturally extracted from certain types of poppy plants and narcotics. Opioids can also be synthetically made to emulate opium.

According to the Drug Enforcement Administration (DEA) opioids come in various forms: tablets, capsules, skin patches, powder, chunks in various colors from white to shades of brown and black, liquid form for oral use and injection, syrups, suppositories, and lollipops. The CDC defines the following as the three most common types of opioids:

- **Prescription Opioids:** Opioid medication prescribed by doctors for pain treatment. Prescription opioids can be synthetic-oxycodone (OxyContin) or hydrocodone (Vicodin), or natural, like morphine.
- **Fentanyl:** A powerful synthetic opioid that is 50 to 100 times more powerful than morphine and used for treating severe pain. Illegally made and distributed fentanyl is becoming more prevalent.
- **Heroin:** An illegal natural opioid processed from morphine and is also becoming more commonly used in the United States.

Opioids are highly addictive. They block the body's ability to feel pain and can create a sense of euphoria. Additionally, individuals often build a tolerance to opioids, which can lead to misuse and overdose.

Opioid addiction impacts the entire Commonwealth. Nationally, Pennsylvania is among four of the hardest hit states from opioid-related deaths, along with West Virginia, Ohio, and New Hampshire. The CDC estimates that 91,799 drug overdose deaths occurred in the U.S. in 2020, with opioids involved in 68,630 deaths. In Pennsylvania, overdoses caused by opioids have become the leading cause of accidental death, surpassing automobile accidents (CDC, 2017).

People under the age of 35 have been particularly vulnerable to opioid crisis. According to a joint intelligence report prepared by the DEA Philadelphia Division and the University of Pittsburgh, between 2015 and 2016 in Pennsylvania, fentanyl use increased 380 percent among 15- to 24-year-olds while heroin use increased 970 percent in the 25- to 34-year age range. The report also documented a higher percentage of drug-related deaths attributed to opioid use in Pennsylvania's rural communities at 42 percent, compared to 34 percent in urban communities.

4.3.20.2. Range of Magnitude

Opioid addiction can lead to overdose, which can be fatal. The most dangerous side effect of an opioid overdose is depressed breathing. The lack of oxygen to the brain causes permanent brain damage, leading to organ failure, and eventually, death. Signs and symptoms include respiratory depression, drowsiness, disorientation, pinpoint pupils, and clammy skin.

Opioid addiction can also be passed from mother to child in the womb. This condition, known as neonatal abstinence syndrome, has increased five-fold from 2000 to 2012, according to the National Institute on Drug Abuse (NIDA), resulting in an estimated 22,000 babies in the United States born with this condition (NIDA, 2017).

First responders – paramedics, police officers, and fire fighters, are also affected by Pennsylvania’s opioid addiction crisis. In addition to the crisis consuming time and resources, first responders also face exposure risk, particularly to synthetic fentanyl. According to the DEA, it takes two to three milligrams of fentanyl to induce respiratory depression, arrest, and possibly death. Since fentanyl is indistinguishable from several other narcotics and powdered substances, first responders must take extra precaution when dealing with calls related to drug abuse (DEA, 2017).

One of the worst examples of the impacts of the opioid crisis occurred in March 2018 when 13 people in York County died from opioid-related overdoses in 10 days, six of which occurred within 48 hours. The County Coroner suspected that a particularly potent batch of heroin or fentanyl was to blame (Sentinel, 2018). Similarly, the City of Hazelton, in Luzerne County, experienced five opioid overdoses in 12 hours with two resulting in death on May 4, 2018. The Hazelton Police Chief warned citizens about a potentially deadly batch of heroin, possibly laced with fentanyl (WNEP, 2018). The worst-case scenario for Fayette County would be multiple deaths within a month similar to the March 2018 event in York County. In addition, limited responders and resources would affect the situation.

4.3.20.3. Past Occurrence

The CDC found that opioids are the main cause of drug-related overdoses and deaths, being responsible for nearly 75 percent of drug-related deaths nationally in 2017. In 2015 there were 41 drug overdoses reported, and in 2016 there were 60 reported, a 46% increase. In Pennsylvania, of the more than 4,600 drug-related deaths in Pennsylvania in 2016, nearly 84 percent were attributed to two or more drugs. Therefore, drug-related overdose and death statistics account for all drug types, however, as noted above, the majority of drug-related deaths involve opioids. Philadelphia and Allegheny Counties have reported the largest numbers of drug overdoses in 2015 and 2016, while Cambria, Philadelphia, Beaver, and Armstrong Counties had the highest number of drug overdoses per capita (DEA, 2016).

As shown in Table 4.3.20-1, Pennsylvania has experienced an increase in drug-related deaths each year since 2014.

Number of Drug-Related Deaths per Year in Pennsylvania (CDC, 2022)	
YEAR	TOTAL DEATHS
2014	2,732
2015	3,264
2016	4,627
2017	5,388
2018	4,415
2019	4,377
2020	5,168

Though the opioid addiction crisis is complex and unprecedented, it is widely acknowledged that the opioid crisis began in the late 1990s when pharmaceutical companies introduced opioid-based pain medication, such as OxyContin, Percocet, and Vicodin. As these drugs became more frequently prescribed, misuse and overdose increased, and it became clear that prescription opioids were highly addictive (NIDA, 2018).

4.3.20.4. Future Occurrence

Pennsylvania has seen a steady rise in opioid-related deaths over the last several years, with drug-related death rates increasing 102 percent between 2014 and 2017. If opioid-related deaths continue to increase at this pace, then the Commonwealth could experience an estimated 10,000 drug-related deaths in the year 2020.

However, future occurrences of opioid addiction and misuse, overdose, and fatalities are unclear as the state moves forward with overdose prevention initiatives. In January 2018, Governor Tom Wolf declared Pennsylvania's opioid addictions epidemic a disaster emergency. This declaration should enhance coordination and data collection between state and local responders, improve tools for families and first responders, and expand treatment access. The declaration also improves access to naloxone, a lifesaving drug that reverses those effects of a drug-overdose. In addition, a new Opioid Coordination Group has is housed within the PEMA (PA DOH, 2018).

Fayette County is creating a drug and alcohol map noting where overdoses occur. The Fayette County Reduction Task Force is conducting regular meetings and developing a Strategic Plan to combat the epidemic, such as Fire and Police being equipped with the resources to respond to drugs. In two weeks, a survey that was sent out to look at the stigma and discuss why is the epidemic happening in the County will be evaluated.

Additionally, climate change does not have any anticipated impacts on addition or addition response.

Overall, the probability of future opioid overdose and death in Fayette County is *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1). Nationally, opioid dispensing rates in 2020 were 43.3 prescriptions per 100 people, according to the CDC. Fayette County dispensing rates in 2020 were higher than the national average of 43.3 prescriptions per 100 people, according to the CDC. In Fayette County, the dispensing rate was 81.064, nearly double the national average. Fayette County had the second highest dispensing rate of all Pennsylvania counties in 2020.

4.3.20.5. Vulnerability Assessment

In general, municipalities that are more densely populated, such as Belle Vernon Borough, Connellsville City; Everson Borough; Uniontown City; Brownsville Borough; Dawson Borough; Dunbar Borough; Fairchance Borough; Fayette City Borough; Masontown Borough; Point Marion Borough; and Vanderbilt Borough, are more vulnerable to opioid addictions threats as access to drugs increase. In addition, municipalities near interstates are vulnerable due to the close accessibility. However, as stated above, rural communities in general experienced larger per-capita opioid-related deaths.

Municipal losses in the opioid addiction crisis stem from lost wages, productivity, and resources than losses to buildings or land. Pennsylvania counties such as Fayette County have seen an increase of time and resources devoted to the opioid epidemic as overdose and response increases. Impacts including total costs to municipalities are only beginning to be understood, researched, and tracked. There is no comprehensive database currently tracking monetary losses at the local level. However, the American Enterprise Institute (AEI), using national data from the CDC and White House Council of Economic Advisors, calculated a total cost per capita (\$1,799), of the opioid epidemic of Pennsylvania. The estimated total cost to Pennsylvania is more than \$23 billion with Fayette County totaling \$236,575,696. Nationally, the economic cost of the opioid addiction crisis is estimated at \$504 billion (CEA, 2017). In the future, Fayette County's drug and alcohol map will reflect locations where overdoses are occurring and identify those areas where additional outreach and support is needed.

4.3.21. Terrorism

4.3.21.1. Location and Extent

The term "terrorism" refers to intentional, criminal, malicious acts, but the functional definition of terrorism can be interpreted in many ways. Officially, terrorism is defined in the Code of Federal Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives" (28 CFR §0.85).

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

weapons of mass destruction (WMD), including biological, chemical, radiological, and nuclear weapons; arson, incendiary, explosive, and armed attacks; industrial sabotage and agriterrorism; intentional hazardous materials releases; and cyber-terrorism.

Terrorism is a threat everywhere, but there are a number of important considerations in evaluating terrorism hazards, such as the existence of facilities, landmarks, or other buildings of international, national, or regional importance. High-risk targets for acts of terrorism include military and civilian government facilities, international airports, large cities, and high-profile landmarks. Terrorists might also target large public gatherings, water and food supplies, utilities, and corporate centers. Furthermore, terrorists are capable of spreading fear by sending explosives or chemical and biological agents through the mail (FEMA, April 2009). Additionally, terrorists use threats to create fear, to try to convince citizens of the powerlessness of their government, and/or to get publicity for their cause. Nonetheless, terrorism can take many forms, and terrorists have a wide range of personal, political, or cultural agendas to meet their objectives, such as:

- Agriterrorism,
- Arson/incendiary attack,
- Armed attack,
- Biological agent,
- Chemical agent,
- Cyberterrorism,
- Conventional bomb,
- Intentional hazardous materials or radiological releases, or
- Nuclear bombs.

The probability of terrorism cannot be quantified with as great a level of accuracy as that of many natural hazards. Furthermore, these incidents generally occur at a specific location, such as a government building, rather than encompassing an area such as a floodplain. This type of attack could take place at any facility or public or private location in the County. Fayette County is more likely to be target of a domestic terrorist attack versus an international terrorist attack. Overall, the County does not have many high profile structures or companies. However, it does have various public gathering areas such as parks, recreational spots, and historical sites such as Ohiopyle State Park; Laurel Ridge State Park; Forbes State Forest; Fort Necessity; and the Albert Gallatin House/Friendship Hill. Local schools (eight public and 15 private) and universities such as the Westmoreland County Community College (WCCC) Fayette County Campus in Uniontown and the Penn State Fayette Campus in North Union Township are also potential targets. Although greatly smaller in size compared to the Pittsburgh International Airport in Allegheny County, the Mount Pleasant-Scottdale Airport and the Joseph A. Hardy Connellsville Airport are also potential targets of terrorism. Lastly, the

hazardous facilities and sites described in Section 4.3.20 should also be considered potential terrorist targets.

4.3.21.2. Range of Magnitude

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

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

Depending on the type of terrorist attack, there may be significant loss of life for humans and animals as well as economic losses. Additionally, the impact of the attack itself may be exacerbated by human services agencies like community support programs, health and medical services, public assistance programs, and social services experiencing physical damage to facilities, supplies, and equipment and disruption of emergency communications. There may also be ancillary effects of terrorism such as urban fires or, in the case of a radiological device, radioactive fallout that can multiply the impact of a terrorist event.

A worst-case scenario for a terrorist incident in Fayette County would be if a radioactive or "dirty" bomb would be detonated at a chemical facility or a facility with a sustained fuel source. This would result in a large explosion with the added danger of nuclear radiation and chemical exposure. This type of event would cause casualties and fatalities across all demographics, and depending on the time of recovery, would cause severe economic losses. In addition to the physical injuries, there will be high emotional and behavioral impacts on the population who was near the attack, as well as the residents of Fayette County who were not near the attack.

4.3.21.3. Past Occurrence

Like just about every other county in the nation, Fayette County has had its share of domestic terrorism incidents. Whether it was a prison uprising, a hostage situation, a protest, civil unrest or bomb threats, the County has been able to respond and resolve the situation with minimal impact on the public as a whole.

There has been a high consciousness of terrorist activity in the press with few catastrophic events. The most significant terrorist attack on U.S. soil occurred on September 11, 2001; Flight 93, the fourth hijacked aircraft in the attack, crashed in neighboring Somerset County, Pennsylvania. For nearly two weeks, members of the Fayette County EMA / Hazmat Team worked on scene with federal, state, and local agencies coordinating resources during the response and investigation process.

A second wave of terror began a few weeks later when letters tainted with anthrax began showing up in Florida, New York, and Washington DC. Security in the County was heightened, and reports of suspicious substances began to pop up all over the County. During the next three months, the Fayette County Hazardous Materials Response Team responded to 14 calls for suspicious substances. There were no confirmed cases of anthrax in the County.

Table 4.3-43 indicates the potential terrorist incidents reported to PEIRS from 2002 through 2009. Currently, there is no official Federal, State, or County reporting system for terrorist attacks. Potential terrorist attacks and threats occurring from 2010 to 2015, also shown in Table 4.3-43, were collected through local newspaper articles, televised headlines, and social media. The majority the potential attacks were in the form of bomb threats. Most recently on October 27, 2016, a bomb threat was found on the back of a stall door in the girls' bathroom claiming a bomb would go off at 7:30 a.m. The note was found by a student at approximately 7:20 a.m. and notified school officials. Students were evacuated to the football field within five minutes. Fingerprints were taken from the stall door and sent to the State Police Crime Lab and a search of the schools was conducted (Choiniere, 2016).

Table 4.3.21-1 Potential Terrorist Attacks	
DATE	INCIDENT
02/20/2002	Bomb Threat
03/23/2002	Bomb Threat
03/27/2002	Bomb Threat
04/07/2002	Bomb Threat
07/31/2002	Bomb Threat
07/31/2002	Bomb Threat
10/31/2002	Bomb Threat
01/05/2003	Bomb Threat
01/09/2003	Bomb Threat
01/16/2003	Bomb Threat
02/04/2003	Bomb Threat
02/27/2003	Terroristic Threat
03/04/2003	Suspicious Activity

Table 4.3.21-1 Potential Terrorist Attacks	
DATE	INCIDENT
03/10/2003	Bomb Threat
03/12/2003	Bomb Threat
03/19/2003	Bomb Threat
03/22/2003	Bomb Threat
03/23/2003	Bomb Threat
03/24/2003	Bomb Threat
03/28/2003	Bomb Threat
04/16/2003	Bomb Threat
10/08/2003	Bomb Threat
01/28/2004	Bomb Threat
03/26/2004	Suspicious Substance
05/05/2004	School Bomb Threat
05/10/2004	Terroristic Threat
06/22/2004	Terroristic Threat
11/29/2004	Bomb Threat
12/22/2004	Suspicious Device
01/31/2005	School Bomb Threat
03/01/2005	Suspicious Activity
03/09/2005	School Bomb Threat
03/15/2005	Bomb Threat
03/16/2005	School Bomb Threat
03/17/2005	School Bomb Threat
03/18/2005	Bomb Threat
04/15/2005	Suspicious Substance
04/19/2005	Bomb Threat
05/19/2005	School Bomb Threat
05/26/2005	Bomb Threat
07/19/2005	Bomb Threat
11/03/2005	Suspicious Device
04/08/2006	Bomb Found
04/26/2006	School Bomb Threat
05/27/2006	Suspicious Device

Table 4.3.21-1 Potential Terrorist Attacks	
DATE	INCIDENT
07/27/2006	Suspicious Device
08/14/2006	Suspicious Substance
03/25/2007	Suspicious Device
04/03/2007	School Bomb Threat
04/19/2007	School Bomb Threat
05/26/2007	Suspicious Package
08/29/2007	Suspicious Activity
02/23/2008	Bomb Threat
10/15/2008	Suspicious Device
03/06/2009	Suspicious Device
03/22/2013	Suspicious Object Found in Uniontown City
06/16/2015	Bomb Threat at Bank in Redstone Township
07/28/2015	Terroristic Threat to Two Firefighters in Dunbar Township
08/05/2015	Terroristic Threat Sent from Fayette County Prison Inmate to President Obama and White House
11/11/2015	Bomb Threat at Walmart in South Union Township
01/12/2016	Laurel Highlands Middle School Bomb Threat
03/25/2016	Bomb Threat at Walmart in Uniontown City
09/15/2016	Laurel Highlands High School Bomb Threat
10/27/2016	Albert Gallatin High School Bomb Threat
01/26/2018	Terroristic Threats against Uniontown High School Students
02/27/2018	Shooting Threat against Connellsville High School
09/6/2018	Shooting Threat against Uniontown Hospital
09/09/2018	Gunman Shoots Four Outside Fayette Co. Courtroom

4.3.21.4. Future Occurrence

An important consideration in estimating the likelihood of a terrorist incident is the existence of facilities, landmarks, or other buildings of national or regional importance. These incidents generally occur at a specific location, such as a government building, rather than encompassing an area such as a floodplain. Thus, planning should be asset-specific, identifying potentially at-risk critical facilities and systems in the community. As previously noted, Fayette County does not have many high profile and public places that could be

considered terrorist targets, but does have parks, recreational areas, historical sites, universities, local airports, and hazardous facilities and sites.

Southwestern Pennsylvania's Region 13 Task Force, which covers Allegheny, Armstrong, Beaver, Butler, Cambria, Fayette, Greene, Indiana, Lawrence, Mercer, the City of Pittsburgh, Somerset, Venango, Washington, and Westmoreland counties, is working together with other agencies and disciplines to prevent future terroristic acts. The PA Region 13 Task Force is an intergovernmental and multi-jurisdictional body covering 737 municipalities, and it has capabilities to prevent, respond to, and mitigate terroristic acts, including:

- Hazmat Teams: 15
- Bomb Disposal Teams: 2
- Explosive Detection K9 Teams: 16
- Water Response Teams: 27
- Urban Search and Rescue
- Western All Hazards Fusion Center
- Regional Communication Network (ESInet)
- Regional 9-1-1 • Tactical (SWAT) Teams

Based on historical events, Fayette County can expect to experience multiple reports of suspicious activities and bomb threats each year, particularly within school districts and select public or commercial services and facilities, but these have not historically manifested in terrorism events. Although previous events have not resulted in what are considered significant terrorist attacks, the severity of a future incident cannot be predicted with a sufficient level of certainty. Prediction of terrorist attacks is almost impossible because terrorism is a result of human factors. As long as fringe groups maintain radically different ideas than that of the government or general population, terrorism is a possibility. Overall, it is *unlikely* that Fayette County will be the target of a major terrorism attack as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

Additionally, climate change does not have any anticipated impacts on terrorism or terrorism response.

4.3.21.5. Vulnerability Assessment

Since the probability of terrorism occurring cannot be quantified in the same way as that of many natural hazards, it is not possible to assess vulnerability in terms of likelihood of occurrence. Instead, vulnerability is assessed in terms of specific assets. By identifying potentially at-risk terrorist targets in Fayette County, planning efforts can be put in place to reduce the risk of attack. FEMA's Integrating Manmade Hazards into Mitigation Planning (2003) encourages site-specific assessments that 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 including:

- **Inherent vulnerability:**
 - *Visibility* – How aware is the public of the existence of the facility?
 - *Utility* – How valuable might the place be in meeting the objectives of a potential terrorist?
 - *Accessibility* – How accessible is the place to the public?
 - *Asset mobility* – is the asset's location fixed or mobile?
 - *Presence of hazardous materials* – Are flammable, explosive, biological, chemical and/or radiological materials present on site? If so, are they well secured?
 - *Potential for collateral damage* – What are the potential consequences for the surrounding area if the asset is attacked or damaged?
 - *Occupancy* – What is the potential for mass casualties based on the maximum number of individuals on site at a given time?
- **Tactical vulnerability:**
 - *Site Perimeter*
 - *Site planning and Landscape Design* – Is the facility designed with security in mind – both site-specific and with regard to adjacent land uses?
 - *Parking Security* – Are vehicle access and parking managed in a way that separates vehicles and structures?
 - *Building Envelope*
 - *Structural Engineering* – Is the building's envelope designed to be blast-resistant? Does it provide collective protection against chemical, biological, and radiological contaminants?
 - *Facility Interior*
 - *Architectural and Interior Space Planning* – Does security screening cover all public and private areas?
 - *Mechanical Engineering* – Are utilities and Heating, Ventilating and Air Conditioning (HVAC) systems protected and/or backed up with redundant systems?
 - *Electrical Engineering* – Are emergency power and telecommunications available? Are alarm systems operational? Is lightning sufficient?
 - *Fire Protection Engineering* – Are the building's water supply and fire suppression systems adequate, code-compliant, and protected? Are on-site personnel trained appropriately? Are local first responders aware of the nature of the operations at the facility?
 - *Electronic and Organized Security* – Are systems and personnel in place to monitor and protect the facility?

As described under the Civil Disturbances hazard profile, target locations for terrorism are similar. Table 2.5-1 lists critical facilities identified by the County per municipality. The City of Uniontown is the only municipality with County buildings and more than one police station and prison. The City and South Union Township also have financial institutions, and all

municipalities have one municipal facility. These facilities should be monitored and considered and evaluated for appropriate protection systems in future HMP updates.

4.3.22. Transportation Incidents

4.3.22.1. Location and Extent

For the purposes of this plan, transportation incidents are defined as incidents involving highway, air, and rail travel. Figure 4.3.22-1 shows the major highways, rail lines, and airports located throughout Fayette County.

Traffic and rail incidents can occur anywhere along their respective corridors in Fayette County. Aviation accidents typically occur within 5 miles of take-off or landing, but can occur Countywide. Table 4.3.22-1 lists the different types of identified traffic and rail accidents.

Table 4.3.22-1 Identified Types of Traffic and Rail Incidents		
MODE	TYPE OF ACCIDENT	DESCRIPTION
Traffic	Non-Collision	A harmful event that does not involve a collision, such as a fire, explosion, or overturn.
	Angle	A crash in which two vehicles on opposite roadways collide at an intersection, driveway, or ramp.
	Rear-End	A crash in which vehicles traveling in the same direction on the same road collide.
	Head-On	A crash in which vehicles traveling in opposite directions, on the same road collide.
	Sideswipe	A crash between two vehicles in which the sides of the vehicles engage.
	Hit Fixed Object	A collision in which a vehicle hits a stationary object on or adjacent to the roadway.
	Hit Pedestrian	A collision between a motor vehicle and any person not in or upon the vehicle.
Rail	Derailment	An accident on a railway in which a train leaves the rails.
	Collision	An accident in which a train strikes something such as another train or highway motor vehicle.
	Other	Accidents caused by other circumstances like obstructions on rails, fire, or explosion.

Figure 4.3.22-2 shows the traffic volume along major highways and roadways in Fayette County. Heavily traveled highways and roadways are U.S. Route 40 and 119 and Pennsylvania Routes 43, 51, 21, and 857. Recent traffic counts show State Route 21 hits 22,000 vehicles per day as the main commerce route between Greene County and Fayette County.

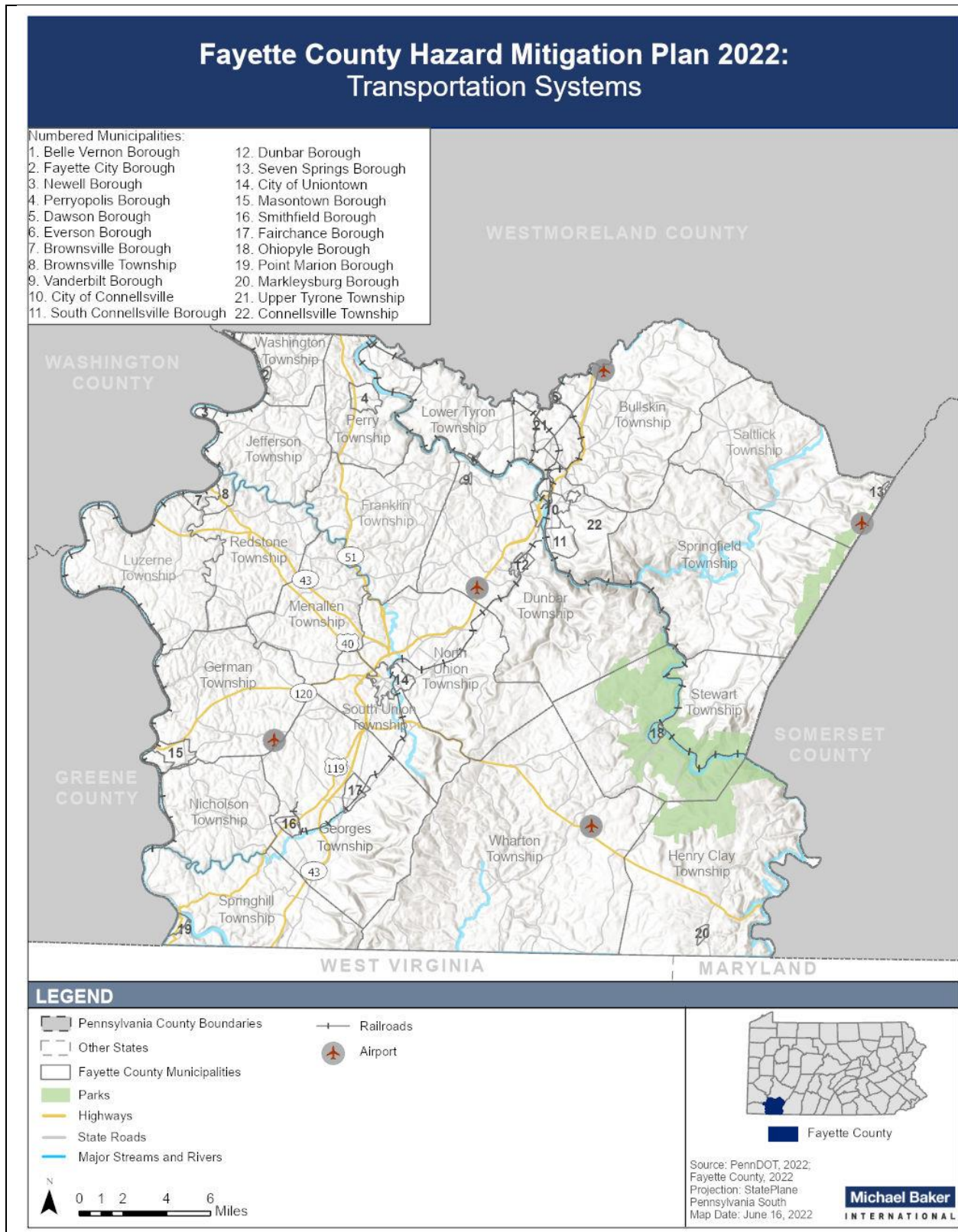
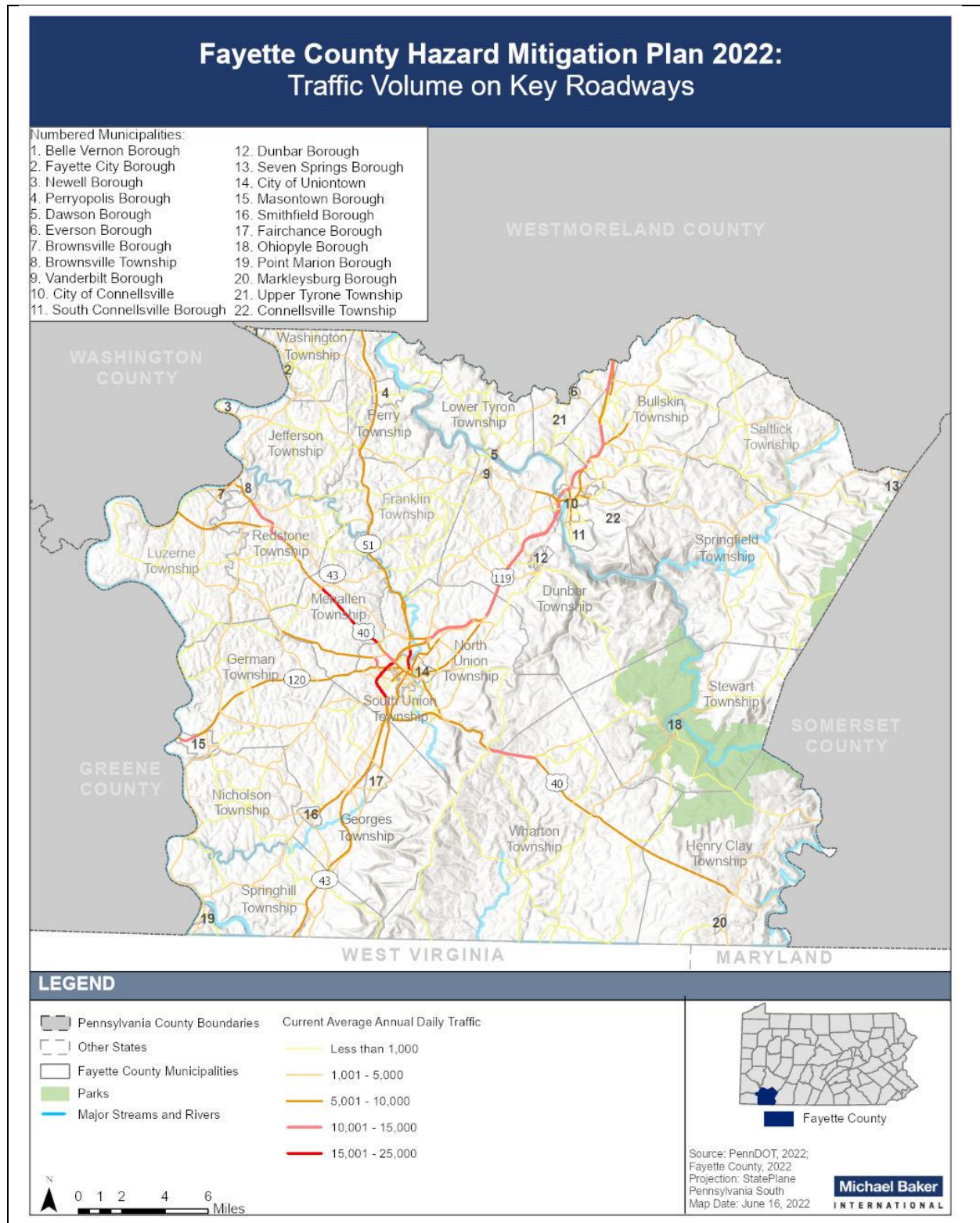


Figure 4.3.22-2 Fayette County Traffic Volume on Key Roadways



Transportation of hazardous materials on highways involves tanker trucks or trailers which are responsible for the greatest number of hazard material release incidents. There are over

120,000 miles of highway in the state and many of those are used to transport hazardous materials (Center for Rural Pennsylvania, 2008). These roads also cross rivers and streams at many points and have the potential to pollute watersheds that serve as domestic water supplies for parts of the state.

Potential also exists for hazardous material releases to occur along rail lines as collisions and derailments of train cars can result in large spills. A number of severe rail events have reportedly occurred in Pennsylvania. In addition, Fayette County's rail lines that lie in valleys next to stream beds increase the impact of rail-related releases and increase the possibility of water contamination during a release.

Pipelines can also transport hazardous liquids and flammable substances such as natural gas. Incidents can occur when pipes corrode, are damaged during excavation or other forces, or are incorrectly operated. There are no liquid pipelines present in the County, however there are 291 miles of gas pipeline in Fayette County (PA HMP 2013). In addition, hazardous materials can be transported by aircraft or by watercraft. Crashes, spills of materials, and fires on these vessels can pose a hazard.

4.3.22.2. Range of Magnitude

Significant passenger vehicle, air, and rail transportation incidents can result in a wide range of outcomes from damage solely to property to serious injury or death. The most serious transportation incidents include a release of hazardous material. As described in Section 4.3.20, weather conditions, micro-meteorological effects of buildings and terrain, and non-compliance with applicable codes can exacerbate these releases. Response time and quantity and type of material release also impact the severity of an accident.

Most air incidents are non-fatal and cause minor injuries or property damage. The majority of motor vehicle crashes are non-fatal in Pennsylvania. In 2020, PennDOT estimated seven injuries in reportable traffic crashes every hour, and one fatality every eight hours (PennDOT, 2020). On average in Pennsylvania, in 2020, there were approximately 12 reportable traffic crashes per hour. It should be noted that travel rates were lower than usual in 2020 due to the COVID-19 pandemic. Most fatal crashes occur in the summer months of June and July (PennDOT, 2020).

Railway and roadway accidents in particular have the potential to result in hazardous materials release. Transportation incidents can also result in broader infrastructure damage. Like the range of magnitude, the environmental impacts of transportation incidents can vary greatly. In the case of a simple motor vehicle crash, train derailment, or aviation accident, the environmental impact is minimal. However, if the accident involves any type of vehicle moving chemicals or other hazardous materials, the impact will be considerably larger and may include an explosion or the release of potentially hazardous material. The worst-case scenario for a roadway transportation accident involves multiple cars colliding with a vehicle

transporting hazardous materials. This event would cause multiple injuries and deaths, closure of roadways, and environmental impacts from hazardous materials releasing. For a complete discussion of the environmental impacts of hazardous materials releases, see Section 4.3.20.

The transportation of crude oil by rail has increased exponentially since the 2011 HMP, and this growing concern was echoed by municipal officials at every meeting. The worst-case scenario for a rail accident, like the Lac-Megantic train derailment in Quebec in July 2012, would have no warning time. There would be the potential for serious loss of life and loss of property in the event of an explosion. The rail infrastructure would be damaged, and mass evacuations would be needed to reduce exposure to chemicals. An accident of this nature would not only cause environmental harm and endanger human health, but it would also cause a disruption of the economy in Fayette County during recovery.

A worst-case scenario for air transportation incidents in Fayette County would be if a larger plane crashed into a residential or industrial area, causing mass fatalities and property destruction. In terms of a vehicular accident, the worst-case scenario would be a collision involving car(s) and a vehicle transporting hazardous materials, most likely during high traffic hours, resulting in multiple injuries and deaths and the release of materials affecting both the population and environment.

4.3.22.3. Past Occurrence

The most common transportation incidents in Fayette County involve highway incidents involving motor vehicles. Vehicular transportation incidents like this are a daily occurrence throughout Pennsylvania. Table 4.3-45 shows the number of vehicle accidents in Fayette County between 2000 and 2020, as well as the break down by fatal crashes, crashes that cause injuries, and the crashes that result only in property damage. The table shows that the number of crashes declined for the most part from 2000 to 2006, and has remained relatively constant since then. Except for 2000 and 2003, the number of accidents never broke above 1,500. Most recently, the number of accidents declined from 1,247 in 2018 to 1,080 in 2019. There was a slight increase in the number of accidents from 1,080 in 2019 to 1,104 in 2020. The number of fatal accidents has been much more variable than the number of accidents in Fayette County. The highest number of fatal crashes in Fayette County occurred in with 2007 (32 fatal accidents), 2011 (31 fatal accidents), and 2009 (30 fatal accidents). Fayette County accounted for approximately 1.1% of total crashes in Pennsylvania and 2.4% of statewide traffic fatalities in 2020 (PennDOT, 2020).

Table 4.3.22-2 Total Number of Accidents and Accidents Causing Fatalities, Injuries, and Property Damage in Fayette County (2000-2020) (PennDOT Crash Facts and Statistics, 2000-2020)				
YEAR	NUMBER OF ACCIDENTS	TOTAL FATAL ACCIDENTS	TOTAL INJURY ACCIDENTS	TOTAL PROPERTY DAMAGE ONLY ACCIDENTS
2000	1,688	17	1,078	593

Table 4.3.22-2 Total Number of Accidents and Accidents Causing Fatalities, Injuries, and Property Damage in Fayette County (2000-2020) (PennDOT Crash Facts and Statistics, 2000-2020)				
YEAR	NUMBER OF ACCIDENTS	TOTAL FATAL ACCIDENTS	TOTAL INJURY ACCIDENTS	TOTAL PROPERTY DAMAGE ONLY ACCIDENTS
2001	1,497	19	901	577
2002	1,495	28	N/A	N/A
2003	1,519	21	855	643
2004	1,425	18	820	587
2005	1,293	27	717	549
2006	1,174	19	662	493
2007	1,250	32	681	537
2008	1,302	27	713	562
2009	1,183	30	625	528
2010	1,185	18	629	538
2011	1,136	31	632	481
2012	1,178	19	594	565
2013	1,185	16	574	595
2014	1,184	15	575	594
2015	1,237	25	549	663
2016	1,134	19	533	582
2017	1,247	21	597	629
2018	1,247	18	547	681
2019	1,080	16	512	551
2020	1,104	24	463	617
TOTAL	23,232	460	13,257	12,228

Fuel spillages due to an accident with a tanker truck or rupture of fuel tanks are the main causes of transportation-related hazardous materials incidents in Fayette County.

Transportation-related hazardous material release incidents are tracked by the federal government. The U.S. Department of Transportation Pipeline and Hazardous Materials Safety Administration (PHMSA) maintains information on hazardous material releases by highway, freight, air, and rail incidents. PHMSA reports that there have been 32 release incidents in Fayette County from 1990 to July 18, 2022. Table 4.3-46 lists the number of release incidents which have occurred by year along with their method of release. The majority of the releases were highway releases, and three occurred via rail.

Table 4.3.21-3 Total Number of Hazardous Material Release Incidents and Method of Release in Fayette County (PHMSA, 2022)

YEAR	TOTAL NUMBER OF RELEASES	METHOD OF RELEASE			
		AIR	FREIGHT FORWARDER	HIGHWAY	RAIL
1990	1	0	0	1	0
1991	0	0	0	0	0
1992	2	0	0	2	0
1993	0	0	0	0	0
1994	2	0	0	2	0
1995	1	0	0	1	0
1996	2	0	0	2	0
1997	4	1	0	3	0
1998	0	0	0	0	0
1999	2	0	0	2	0
2000	1	0	0	1	0
2001	1	0	0	1	0
2002	1	0	0	1	0
2003	0	0	0	0	0
2004	0	0	0	0	0
2005	0	0	0	0	0
2006	3	0	0	2	1
2007	2	0	0	2	0
2008	1	0	0	1	0
2009	2	0	0	0	2
2010	1	0	0	0	1
2011	2	0	0	2	0
2012	0	0	0	0	0
2013	0	0	0	0	0
2014	1	0	0	1	0
2015	1	0	0	1	0
2016	0	0	0	0	0
2017	0	0	0	0	0
2018	2	0	0	1	1
2019	0	0	0	0	0
2020	0	0	0	0	0
2021	0	0	0	0	0
TOTAL	32	1	0	26	5

4.3.22.4. Future Occurrence

Transportation incidents have little to no warning time and are nearly impossible to predict. However, as Tables 4.3-41 and 4.3-42 show, the amount of traffic accidents and hazardous material releases have remained constant in recent years. Additionally, the trucking industry is expected to continue and thereby increasing the number of long-haul trucks operating in the County on a daily basis. The increase in Bakken crude oil transportation by rail represents an increase in risk to future transportation incidents by rail. Based on all of these factors, the probability of transportation incidents is characterized as *highly likely* according to the Risk Factor Methodology (See Table 4.4-1).

Climate change imposes greater risk on safe driving conditions in the form of ponding water along roadways, ice and sleet road conditions, overall weakened roadway structures due to saturated soil conditions, and lack of driver visibility during severe weather events. The continued rise in average temperature results in heightened precipitation frequencies, therefore exposing Fayette County drivers to the previously listed risks and increasing the likelihood for transportation incidents.

4.3.22.5. Vulnerability Assessment

A transportation-related accident can occur on any stretch of road or railway in Fayette County. However, severe accidents are more likely along highways such as U.S. Route 40 and 119 and Pennsylvania Routes 43, 51, 21, and 857, which experience heavier traffic volumes. The combination of high traffic volume, severe winter weather in the County, and large numbers of hazardous materials haulers increase the chances of traffic accidents occurring.

Like highway incidents, rail incidents can impact populations living near rail lines. Recent rail incidents have shown a high risk for trains carrying crude oil to explode upon derailment (FracTracker, 2022). The average rate of aviation accidents nation-wide is 3.66 accidents per 100,000 nonmilitary flight hours. Therefore, the likelihood of a serious aviation incident in the County is considered low.

Utilizing Census Block data and proximity to modes of transportation, Tables 4.3-47 and 4.3-48 identify the population and critical facilities respectively within a half-mile of a major highway and rail line, as well as the percentage of the total population and critical facilities that are located within this the half-mile. This half-mile buffer represents the recommended evacuation zone around a highway or rail line in the event of a hazardous material release in transit. Overall, 16.6% of the population is within a half-mile of a major highway, and 17.9% is located within a half mile of a rail line. More than half (23%) of the County's critical facilities are located within a half-mile of a major highway, and 21% are located within a half-mile of a rail line.

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FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.22-4 Total Population and Percent of Population Vulnerable to Transportation Incidents and Hazardous Material Releases in Transit							
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY (5)	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE (%)	ESTIMATED POPULATION WITHIN 1.5 MILE OF AIRPORT	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR AIRPORT (%)
Belle Vernon Borough	1,419	0	0.0%	860	60.6%	0	0.0%
Brownsville Borough	2,701	652	24.1%	1,161	43.0%	0	0.0%
Brownsville Township	221	150	67.9%	0	0.0%	0	0.0%
Bullskin Township	6,861	856	12.5%	516	7.5%	14	0.2%
Connellsville City	8,210	2,800	34.1%	3,965	48.3%	0	0.0%
Connellsville Township	867	321	37.0%	254	29.3%	0	0.0%
Dawson Borough	313	0	0.0%	307	98.1%	0	0.0%
Dunbar Borough	1,663	172	10.3%	950	57.1%	0	0.0%
Dunbar Township	6,440	575	8.9%	543	8.4%	33	0.5%
Everson Borough	751	0	0.0%	735	97.9%	0	0.0%
Fairchance Borough	2,619	249	9.5%	1,315	50.2%	0	0.0%
Fayette City Borough	591	0	0.0%	454	76.8%	0	0.0%
Franklin Township	1,774	231	13.0%	0	0.0%	0	0.0%
Georges Township	4,938	1,140	23.1%	503	10.2%	15	0.3%
German Township	4,271	910	21.3%	424	9.9%	2	0.0%

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.3.22-4 Total Population and Percent of Population Vulnerable to Transportation Incidents and Hazardous Material Releases in Transit							
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY (5)	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE (%)	ESTIMATED POPULATION WITHIN 1.5 MILE OF AIRPORT	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR AIRPORT (%)
Henry Clay Township	1,756	446	25.4%	0	0.0%	0	0.0%
Jefferson Township	2,886	61	2.1%	220	7.6%	0	0.0%
Lower Tyrone Township	1,268	0	0.0%	201	15.9%	0	0.0%
Luzerne Township	5,529	36	0.7%	742	13.4%	0	0.0%
Markleysburg Borough	397	7	1.8%	0	0.0%	0	0.0%
Masontown Borough	3,504	749	21.4%	29	0.8%	0	0.0%
Menallen Township	4,653	1,073	23.1%	0	0.0%	0	0.0%
Newell Borough	397	0	0.0%	397	100.0%	0	0.0%
Nicholson Township	1,770	37	2.1%	367	20.7%	0	0.0%
North Union Township	14,689	2,494	17.0%	2,915	19.8%	0	0.0%
Ohiopyle Borough	55	0	0.0%	50	90.9%	0	0.0%
Perry Township	3,310	1,129	34.1%	298	9.0%	0	0.0%
Perryopolis Borough	1,243	281	22.6%	0	0.0%	0	0.0%
Point Marion Borough	974	967	99.3%	0	0.0%	0	0.0%
Redstone Township	6,302	817	13.0%	0	0.0%	0	0.0%

Table 4.3.22-4 Total Population and Percent of Population Vulnerable to Transportation Incidents and Hazardous Material Releases in Transit							
MUNICIPALITY	2010 TOTAL POPULATION	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR HIGHWAY (5)	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE	ESTIMATED POPULATION WITHIN 1.5 MILE OF RAIL LINE (%)	ESTIMATED POPULATION WITHIN 1.5 MILE OF AIRPORT	ESTIMATED POPULATION WITHIN 1.5 MILE OF MAJOR AIRPORT (%)
Saltlick Township	3,938	0	0.0%	0	0.0%	0	0.0%
Smithfield Borough	1,101	619	56.2%	245	22.3%	0	0.0%
South Connellsville Borough	2,502	0	0.0%	832	33.3%	0	0.0%
South Union Township	8,516	2,468	29.0%	1,282	15.1%	0	0.0%
Springfield Township	4,068	0	0.0%	27	0.7%	0	0.0%
Springhill Township	3,455	1,098	31.8%	85	2.5%	0	0.0%
Stewart Township	859	0	0.0%	6	0.7%	0	0.0%
Uniontown City	10,714	1,652	15.4%	3,046	28.4%	0	0.0%
Upper Tyrone Township	2,911	334	11.5%	1,743	59.9%	0	0.0%
Vanderbilt Borough	322	0	0.0%	0	0.0%	0	0.0%
Washington Township	3,515	38	1.1%	186	5.3%	0	0.0%
Wharton Township	4,005	617	15.4%	114	2.8%	25	0.6%
Grand Total	138,278	22,979	17%	24,772	18%	89	0.06%

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4.3.23. Urban Fire and Explosions

4.3.23.1. Location and Extent

Urban fire and explosion involves a structure or property fire within an urban or developed area. For hazard mitigation purposes, major urban fires involving large buildings and/or multiple properties are of primary concern. Statewide, this hazard occurs in the denser, more urbanized areas and occurs most often in residential structures (US Fire Administration, 2019). Urban fires can more easily spread from building to building in these denser areas.

Urban fires and explosions can be triggered or exacerbated by other disaster events such as floods, storms, drought, transportation accidents, hazardous materials releases, criminal activity such as arson, and terrorism. Urban fires have the potential to cause extensive damage to residential, commercial, or public property. Damage ranges from minor smoke and/or water damage to the destruction of buildings. People are often displaced for several months to years depending on the magnitude of the event. Urban fires and explosions can also cause injuries and death; in Pennsylvania, the fire mortality rate is approximately 13.9 deaths per million residents, or about 180 fire-related deaths per year. This is the 21st highest fire mortality rate in the nation and is higher than the national average of 13.3 deaths per million residents (US Fire Administration, 2019).

4.3.23.2. Range of Magnitude

The effects of a major urban fire include minor to significant property damage, loss of life, and residential or business displacement. Explosions are extremely rapid releases of energy that usually generate high temperatures and often lead to fires. The risk of severe explosions can be reduced through careful management of flammable and explosive hazardous materials (FEMA, 1997). The impacts of urban fire and explosion events vary based on the size of the incident and the population and structure where it occurs. Although most fires are small structural fires, the cumulative effect of these small incidents can be great in terms of property damage and lives lost. For instance, urban fires and explosions may result in lost wages due to temporarily or permanently closed businesses, destruction and damage involving business and personal assets, loss of tax base, recovery costs, and lost investments in destroyed property. Many small incidents have the potential for a fire disaster if early warning and fire department services are not available. The secondary effects of urban fire events relate to the ability of public, private, and non-profit entities to provide post-incident relief.

The secondary effects of urban fire and explosion events relate to the ability of public, private, and non-profit entities to provide post-incident relief. Human services agencies (community support programs, health and medical services, public assistance programs and social services) can be affected by urban fire and explosion events as well. Effects may consist of physical damage to facilities and equipment, disruption of emergency communications, loss of health and medical facilities and supplies, and an overwhelming load of victims who are suffering from the effects of the urban fire, including loss of their home or place of business.

The worst year on record for urban fires in Fayette County was in 2000 when a total of 11 people lost their lives. The worst-case scenario for Fayette County would involve an urban fire occurring during the summer and spreading to multiple structures, resulting in damaged utilities, significant property damages, and loss of life or injuries. While residential fires are more common, industrial fires have a potentially higher risk because of the possibility of there being flammable chemicals and a sustained fuel source at industrial sites.

4.3.23.3. Past Occurrence

Fayette County experiences no more than 10 urban fire and explosion events each year, most of which are small and affect a limited number of structures. PEIRS data indicates that from 2002-2009, there have been 47 urban fire events reported to PEMA. Please note that since PEIRS is a voluntary reporting system, this is not an inclusive list of fires in the County. Table 4.3.23-1 shows the number of urban fires per year during this time period.

Table 4.3.23-1 Number of Urban Fire Events Reported to PEIRS (2002-2009) (PEIRS, June 2009)	
YEAR	URBAN FIRES
2002	6
2003	7
2004	5
2005	6
2006	5
2007	9
2008	7
2009	2
TOTAL	47

As described in Section 2.5, PEIRS is no longer used as the Commonwealth's reporting system, so more recent events are not available from PEIRS. Other forms of media were used to collect more recent events. Most recently, a Perry Township home caught fire on February 13, 2017 around the 100 block of Barney Road. Fire Chief A.J. Boni commented the flames ripped through the home at lightning speed despite the Volunteer Fire Department being only a half a mile away. Neighboring Fire Departments were also available. One of the residents was taken to Uniontown Hospital to be evaluated (Iannotti, 2017).

On January 4, 2017, a fire in Brownsville Borough on Market Street started in an unoccupied commercial structure with second floor unoccupied apartments. Route 40 was forced to be closed, however no injuries were reported (Kurawsky, 2017). On August 5, 2016, firefighters were taken to the hospital for heat exhaustion due to humidity and temperature of the day, as well as minor injuries, after an apartment building caught fire in Redstone Township (Hardway,

2016). On November 21, 2016, another fire in Redstone Township required 14 local fire departments to respond to a fire on Route 40 at a local business and residence. First responders were on the scene for three hours. Both Washington County and Fayette County Fire Departments and EMA arrived to the scene (Choiniere, 2016).

4.3.23.4. Future Occurrence

Urban fire and explosion events can be considered *likely*, with minor events happening more frequently than major fires or explosions in the future. While residential fires are more common, industrial fires have a potentially higher risk because of the possibility of there being flammable chemicals and a sustained fuel source at industrial sites. While small fires may be more frequent, overall, the probability of future urban fire and explosion events that cause significant damage is considered unlikely, according to the Risk Factor Methodology (see Table 4.4-1).

There is also a growing threat of natural gas, particularly methane, migration into homes and sparking fires and explosions. These events could occur more frequently moving forward if natural gas extraction grows in the County. Risk also exists in facilities that are abandoned or blighted, which is a common issue in Fayette County. According to the Department of Community and Economic Development, Fayette County had more than 7,000 vacant residential and commercial structures in 2019, with approximately 4,600 of those vacant for more than 24 months.

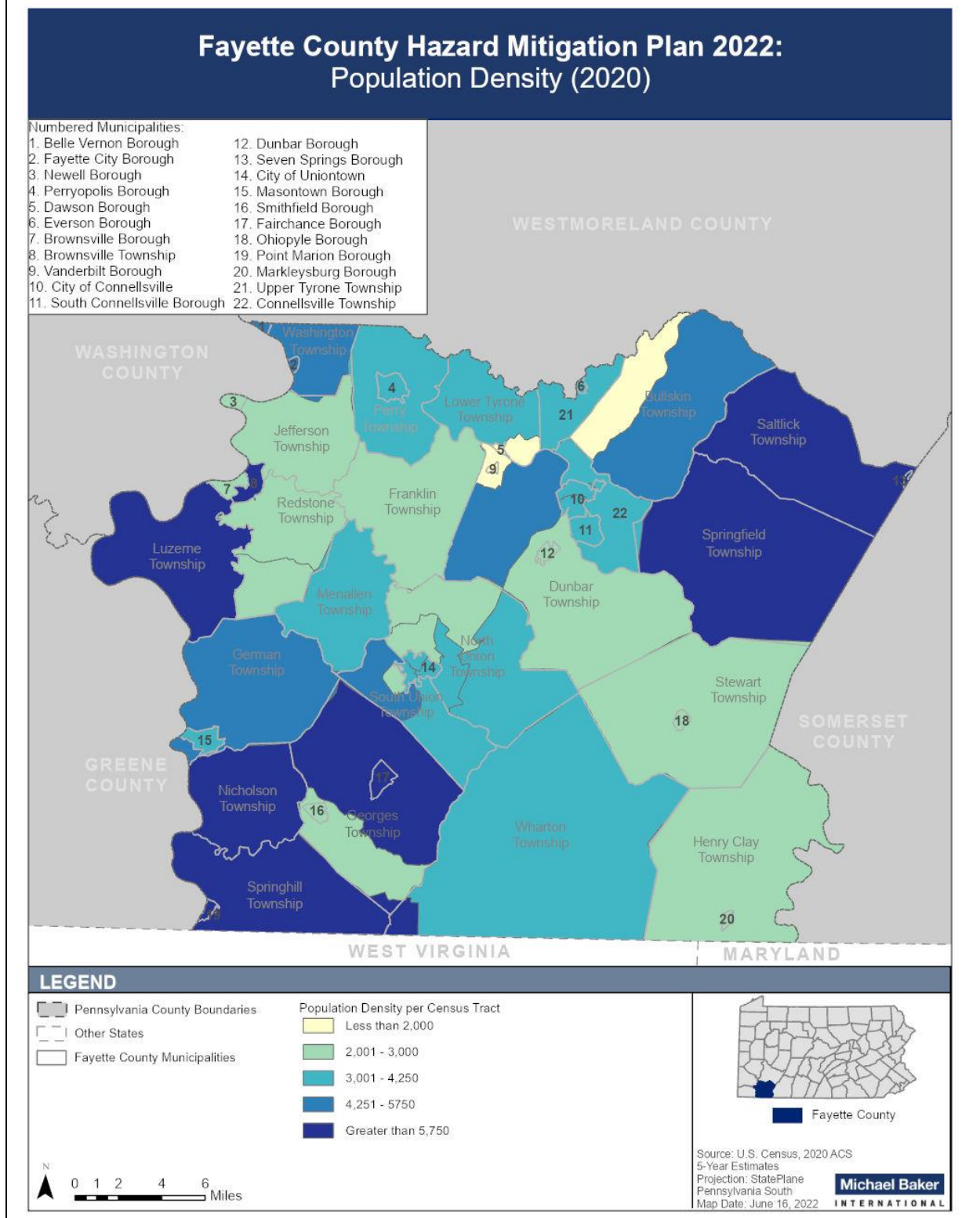
Preparedness is a significant factor in mitigating urban fire and explosion events. Through rapid response, structure fires can be extinguished before more damage is done. There are 51 fire stations within Fayette County, and collaboration with police and emergency services is pivotal to minimizing harm and further risk to communities within Fayette County.

As mentioned in section 4.3.10, the risk for wildfires also applies to urban fires and explosions. Climate change causes the rise in average annual temperatures, and any period without rain could pose increased fire risk for urban locations. Additionally, infrastructure further stresses in the form of energy demand to cool these urban structures during the summer months. Nearly 64% of homes in the County were constructed prior to 1970, and 33% of homes were constructed prior to 1940. Overused and dated infrastructure could pose additional risks to these urban developments, ultimately increasing the risk of fire and/or explosions.

4.3.23.5. Vulnerability Assessment

Areas where large buildings are located, or development is closely spaced should be considered more vulnerable to urban fire and explosion events; the 2015 population density is mapped in Figure 4.3.23-1. Not surprising, Uniontown and Connellsville Cities are the most densely populated.

Figure 4.3.24-1 Fayette County Population Density (2020)



While population density is an indicator of urban fire and explosion, in order to adequately assess vulnerability to urban fires and explosions, detailed information on the design specifications on the design specifications, specifically fire codes, used for the construction of individual buildings as required. As of December 31, 2006, all communities in Pennsylvania are required to comply with the Uniform Construction Codes. This includes requirements to comply with both the International Fire Code and the International Wildland Urban Interface Code. The adoption and enforcement of these codes will hopefully decrease the overall vulnerability of structures in Fayette County. However, these regulations will only affect new construction, as well as additions and renovations to existing structures. Older buildings that do not meet the criteria established in these modern fire codes will continue to remain vulnerable to urban fire and explosion events, as will vacant and unmaintained structures of nearly any age. Additionally, homes that are located in proximity to natural gas drilling operations may have an added vulnerability to fires and explosions. However, through collaboration and partnership with state officials, further funding to mitigate urban fire and explosions could be available.

4.3.24. Utility Interruptions

4.3.24.1. Location and Extent

Utility interruptions include any impairment of the functioning of telecommunication, gas, electric, water, or waste networks. Interruptions or outages occur because of geomagnetic storms, fuel or resources shortage, electromagnetic pulses, information technology failures, transmission facility or linear utility accident, and major energy, power, or utility failure. The focus of utility interruptions as a hazard lies in fuel, energy, or utility failure. These kinds of interruptions rarely spontaneously occur on their own; this hazard is often secondary to other natural hazard event, particularly transportation incidents, lightning strikes, extreme heat or cold events, and coastal and winter storms.

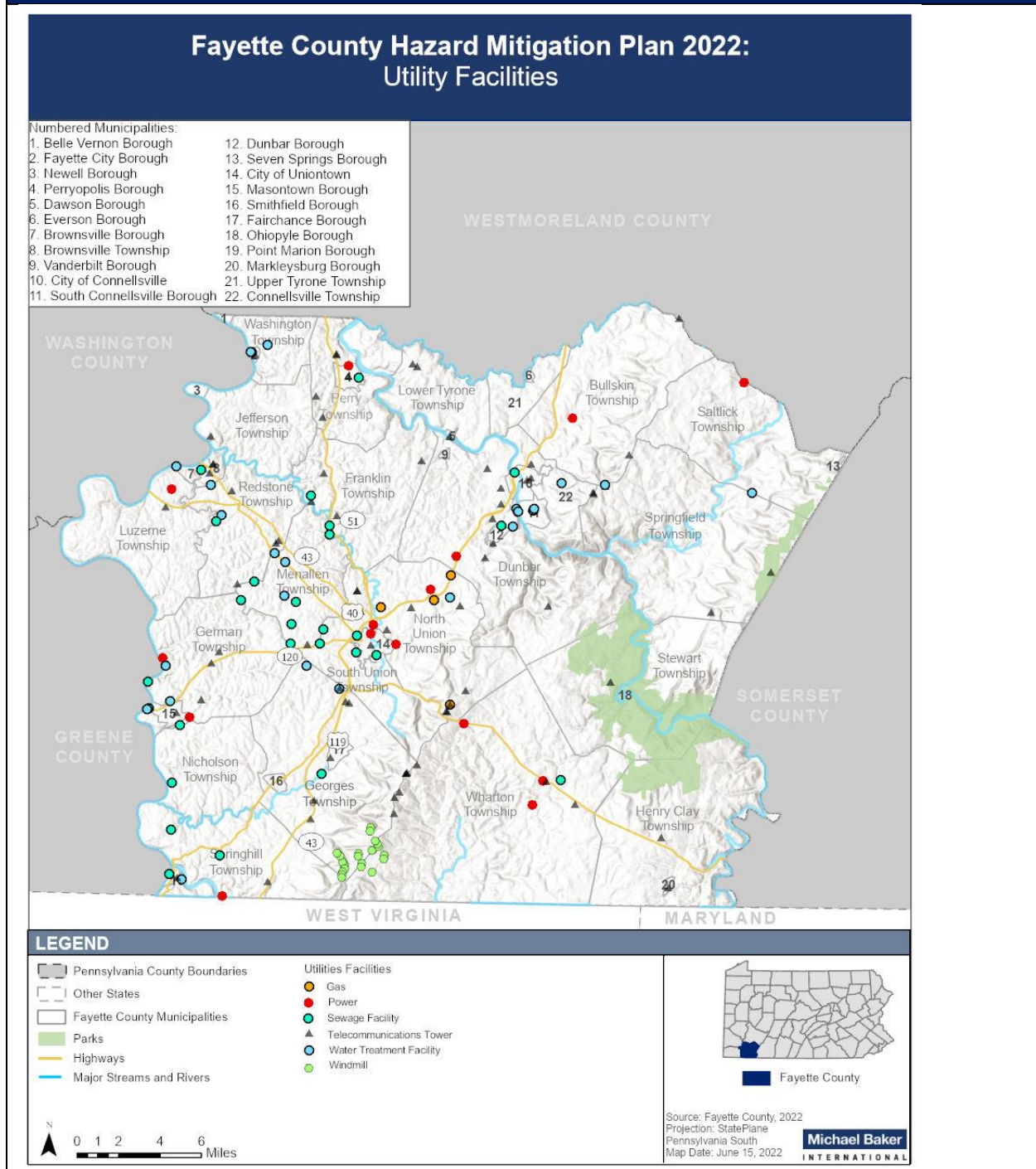
Utility interruptions in Fayette County occur regularly but are usually small-scale, localized incidents. Utility interruptions are possible anywhere there is utility service. Table 4.3-50 lists the major Fayette County utility companies. Water authorities are listed and discussed in Section 4.3.1.

Table 4.3.24-1 Major Utility Companies in Fayette County	
COMPANY	UTILITY TYPE
Consolidated Gas Transmission Corporation	Gas
Equitable Gas Company	
Columbia Gas of PA, Inc.	
Peoples Natural Gas Company	
Columbia Gas Transmission Corporation	
Allegheny Power Systems	Electric
Somerset Rural Electric Cooperative	
AT&T	Telecommunications
Comcast Cable Services	
Adelphia Cable Communications	

Table 4.3.24-1 Major Utility Companies in Fayette County	
COMPANY	UTILITY TYPE
Chartier Communications	Public Water Service
Sprint	
T-Mobile	
Verizon	
Bell Atlantic	
Albert Gallatin Municipal Authority: Serves Nicholson and Springhill Townships	
Belle Vernon Borough Municipal Authority: Serves Belle Vernon and North Belle Vernon Boroughs, Rostraver and Washington Townships	
Borough of Ohiopyle Water and Sewage Authority: Serves Ohiopyle Borough	
Fairchance Borough Municipal Authority: Serves Fairchance Borough and Georges Township	
Indian Creek Valley Water Authority: Serves Saltlick, Springfield, Bullskin, Connellsville, and Donegal Townships, Donegal Borough, and Mount Pleasant	
Jefferson Township Authority: Serves Jefferson Township	
Masontown Borough Authority: Serves Masontown Borough and German Township	
Mountain Water Association: Serves Georges, German, Nicholson, and Springhill Townships	
Municipal Authority of Washington Township: Serves Allenport, Roscoe, Elco, Stockdale, Fayette City Borough, and Washington and Jefferson Townships	
Municipal Authority of Westmoreland County: Serves Bullskin Township	
Nemacolin Woodlands Resort Water System: Serves Nemacolin Woodlands Resort	
Newell Municipal Authority: Serves Newell Borough	
North Fayette Municipal Authority: Serves Uniontown City, Dawson, Dunbar, Perryopolis, Smithfield, and Vanderbilt Boroughs, and Connellsville, Dunbar, Franklin, Georges, German, Lower Tyrone, Menallen, Nicholson, North Union, Perry, Redstone, South Union, Springhill, and Upper Tyrone Townships	
PA American Water (Brownsville District): Serves Brownsville Borough, West Brownsville, California, Coal Center Borough, and Brownsville, Luzerne, Redstone, and Jefferson Townships	
Penn American Water (Connellsville District): Serves Connellsville City, South Connellsville Borough, and Connellsville, Bullskin, and Dunbar Townships	
Penn American Water (Uniontown District): Serves Uniontown City, and South Union, North Union, Menallen, and Dunbar Townships	
Pleasant Valley Water Authority: Serves Bullskin and Connellsville Townships	
Point Marion Borough Water Authority: Serves Point Marion Borough and Springhill Township	
Redstone Water Company, Inc.: Serves Redstone Township	
Southwestern PA Water Authority: Serves Center, Cumberland, East Bethlehem, Franklin, Georges, German, Jefferson, Luzerne, Menallen, Morgan, Redstone, Washington, and Whiteley Townships and Clarksville, Deemston, Jefferson, Rices Landing, and Waynesburg Boroughs	
Stateline Municipal Services: Serves Springhill Township	
Tri-County Joint Municipal Authority: Serves Luzerne Township	

According to the U.S. Census Bureau 2016-2020 American Community Survey Five-Year Estimates, in Fayette County, 44.6% of occupied housing units use utility gas as their heat source, 18.7% of occupied housing units use electric heat, and the remainder of occupied housing units use fuel oil, kerosene, wood, or another source. As a result, an interruption in either of utility gas or electric heat could affect a significant number of residents. In addition, an increasing reliance on internet access and telecommunications could also affect a large number of residents at any given time.

Figure 4.3.25-1 Fayette County Utility Facilities



4.3.24.2. Range of Magnitude

The most severe utility interruptions will be regional or widespread power and telecommunications outages. With the loss of power, electrically powered equipment and systems will not be operational. Examples may include lighting; HVAC and ancillary support equipment; communication (i.e. public address systems, telephone, computer servers, and peripherals); ventilation systems; fire and security systems; refrigerators, sterilizers, trash compactors, office equipment; and medical equipment. This can cause food spoilage, loss of heat or air conditioning, basement flooding (sump pump failure), lack of light, loss of water (well pump failure), lack of phone service, or lack of internet service. However, this is most often a short-term nuisance rather than a catastrophic hazard.

The severity of a utility interruption can be compounded with extreme weather events, especially winter weather events. Interruptions can also be more severe for special needs populations that are dependent on electronic medical equipment. Utility interruptions can significantly hamper first responders in their efforts to provide aid in a compound disaster situation, especially with losses of telecommunications and wireless capabilities. Telecommunications interruptions will also hinder first responders' efforts. Additionally, an internet outage could be crippling to the economy, as many companies and government entities process payments and invoices electronically rather than with physical checks.

In a possible worst-case scenario, a winter storm event causes widespread power outages, leaving citizens without heat in the midst of subzero temperatures. The power outage also means that elderly populations or others at risk of health problems due to the lack of heat are unable to call for assistance or leave their homes. Power lines are unable to be repaired because of the magnitude of the storm, and the power outage lasts for several days.

4.3.24.3. Past Occurrence

Utility interruptions are largely minor, routine events. Power outages have been caused by winter storms, wind, vehicle accidents, and other factors.

The nationwide oil embargo of 1973 - 1974, the severe winter of 1976 - 1978, and the national gasoline shortage of 1979 emphasized the vulnerability of all residents in Fayette County to energy emergencies. Minor power outages occur annually, but more significant outages often occur in conjunction with other events. For example, during a 1989 winter storm, 32,000 residents of Fayette County were without electricity and 7,000 residents were without water for 3-4 days. A snow and ice storm with major ice accumulation in January 1999 resulted in many downed trees, power lines, and telephone lines, particularly near Wharton Township, where electric power was out for 2-3 days.

The creation of a platform in which LEMCs could report outages has previously been a consideration as a beneficial tool, yet it can be difficult to monitor whether it is a widespread outage because many LEMCs live outside of his or her designated municipality. For example,

the County is usually only notified if a transformer connected to a critical facility goes offline or breaks. The Fayette County EMA noted a strong partnership with First Energy as the utility provides notifies the County of any planned outages. It is important to maintain this partnership in the future.

4.3.24.4. Future Occurrence

In September of 2022, the state of California experienced a heat wave strong enough to request the limitation of electricity consumption by its residents. While requests like this have not occurred historically in Fayette County, the rise in temperature, as a result of climate change, could make these occurrences more common in Pennsylvania. Utilities such as air conditioning units toll significantly on the power grid during summer months. Heightened temperatures will further demand upon these utilities and could ultimately result in events such as interruptions, restrictions, and blackouts.

Aging infrastructure also brings risk in the form of potential utility interruptions. As this equipment ages, it deteriorates from the constant wear and tear of service. As it ages, it reaches a point at which it will either fail on its own or as a result of outside forces (storms, loads it was designed to handle but no longer can, etc.). These failures cause service interruptions and can require expensive emergency repairs. In addition, as repairs have taken place along transmission routes, there is often a mix of new and old equipment along the line, as repair and not replacement is generally the choice made to resolve an issue.

Utility interruptions will continue to occur annually with minimal impact. Widespread utility interruption events usually occur approximately once every five years, usually as a secondary effect of an extreme weather event. These interruptions should be anticipated, and first responders should be prepared during severe weather events. Tracking power outages is a process that is currently underway, and the County is deliberating on the best approach - whether through a platform for LEMCs or local municipality officials, or a better relationship with all utility providers. Overall, the future probability of utility interruptions can be considered likely according to the Risk Factor Methodology (See Table 4.4-1). Action 2.6.4, "Work with utility providers and municipalities to record utility interruption occurrences to identify areas requiring investment." has been added to the mitigation action strategy.

4.3.24.5. Vulnerability Assessment

All jurisdictions are vulnerable on some level to utility interruptions, but because this hazard often occurs in conjunction with other hazards, jurisdictions that have been identified as more vulnerable to winter storms, windstorms, tornadoes, flooding, and other natural hazard events may also be more vulnerable to a utility interruption.

Utility outages pose a maximum threat to the special needs population in Fayette County. Resources such as electricity, communications, gas, and water supply are critical to ensure the health, safety, and general welfare of the citizenry. All critical infrastructure is vulnerable to the

effects of a power outage. The special needs population can be vulnerable to loss of heat or air conditioning during extreme heat; likewise, they can be vulnerable to periods of severe cold if they use electric heat and there is a power outage.

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 HMPU. Those categories include Probability of Future Events, Probable Impact, Spatial Extent, Warning Time, and Duration. Each degree of risk was assigned a value ranging from one to four. The weighting factor agreed upon by the planning team is shown in Table 4.4-1. To calculate the RF value for a given hazard, the assigned risk value for each category was multiplied by the weighting factor. The sum of all five categories equals the final RF value, as demonstrated in the following example equation:

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

Table 4.4.1-1 summarizes each of the five categories used for calculating a RF for each hazard. According to the weighting scheme applied, the highest possible RF value is 4.0.

Table 4.4.1-1 Risk Factor Analysis Results				
RISK ASSESSMENT CATEGORY	DEGREE OF RISK			WEIGHT VALUE
	LEVEL	CRITERIA	INDEX	
PROBABILITY <i>What is the likelihood of a hazard event occurring in a given year?</i>	UNLIKELY	LESS THAN 1% ANNUAL PROBABILITY	1	30%
	POSSIBLE	BETWEEN 1 & 49.9% ANNUAL PROBABILITY	2	
	LIKELY	BETWEEN 50 & 90% ANNUAL PROBABILITY	3	
	HIGHLY LIKELY		4	

Table 4.4.1-1 Risk Factor Analysis Results					
RISK ASSESSMENT CATEGORY	DEGREE OF RISK				WEIGHT VALUE
	LEVEL	CRITERIA		INDEX	
		GREATER THAN 90% ANNUAL PROBABILITY			
IMPACT <i>In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?</i>	MINOR	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.		1	30%
	LIMITED	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.		2	
	CRITICAL	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.		3	
	CATASTROPHIC	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.		4	
SPATIAL EXTENT <i>How large of an area could be impacted by a hazard event? Are impacts localized or regional?</i>	NEGLIGIBLE	LESS THAN 1% OF AREA AFFECTED		1	20%
	SMALL	BETWEEN 1 & 10.9 OF AREA AFFECTED		2	
	MODERATE	BETWEEN 11 & 25% OF AREA AFFECTED		3	
	LARGE	GREATER THAN 25% OF AREA AFFECTED		4	
WARNING TIME <i>Is there usually some lead time associated with the hazard</i>	MORE THAN 24 HRS	SELF-DEFINED	(NOTE: Levels of warning time and criteria that define them may be adjusted based	1	10%
	12 TO 24 HRS	SELF-DEFINED		2	
	6 TO 12 HRS	SELF-DEFINED		3	

Table 4.4.1-1 Risk Factor Analysis Results					
RISK ASSESSMENT CATEGORY	DEGREE OF RISK				WEIGHT VALUE
	LEVEL	CRITERIA		INDEX	
<i>event? Have warning measures been implemented?</i>	LESS THAN 6 HRS	SELF-DEFINED	<i>on hazard addressed.)</i>	4	
DURATION <i>How long does the hazard event usually last?</i>	LESS THAN 6 HRS	SELF-DEFINED	<i>(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)</i>	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 4.4.2-1 lists the Countywide Risk Factor calculated for each of the 22 potential hazards identified in the 2017 HMPU. Hazards identified as high risk have risk factors greater than or equal to 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. Fayette County has six high risk hazards, six moderate risk hazards, and 12 low risk hazards for a total of 24 hazards.

Table 4.4.2-1 Calculated Countywide Risk Factors							
RISK	HAZARD	RISK ASSESSMENT CATEGORY					RF
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
HIGH	Flood, Flash Flood, Ice Jam	4	3	4	3	2	3.4
	Extreme Temperature	4	3	4	1	3	3.3
	Opioid Addiction Response	4	4	2	3	1	3.2
	Winter Storm	4	3	3	2	2	3.1
	Wildfire	3	3	3	1	2	2.7
	Environmental Hazards	2	3	3	1	3	2.5
MODERATE	Tornado, Windstorm	3	2	2	2	2	2.3

Table 4.4.2-1 Calculated Countywide Risk Factors							
RISK	HAZARD	RISK ASSESSMENT CATEGORY					RF
		PROBABILITY	IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
	Conventional Oil and Gas Wells	2	2	2	2	2	2.3
	Unconventional Oil & Gas Wells	2	2	2	2	2	2.3
	Drought	2	2	3	1	4	2.3
	Pandemic and Infectious Disease	1	3	3	4	1	2.3
	Transportation Incidents	4	2	1	1	1	2.2
LOW	Utility Interruption	3	1	2	1	2	1.9
	Subsidence, Sinkhole	2	2	2	1	1	1.8
	Hailstorm	2	1	2	3	1	1.7
	Dam Failure	1	2	2	1	1	1.5
	Drowning	2	1	1	1	3	1.5
	Radon Exposure	2	1	1	2	1	1.4
	Terrorism	1	2	1	1	2	1.4
	Landslide	1	2	1	1	1	1.3
	Urban Fire and Explosion	1	2	1	1	1	1.3
	Building or Structure Collapse	1	1	1	1	1	1.3
	Disorientation	1	1	1	1	3	1.2
	Civil Disturbance	1	1	1	1	1	1.0

Table 4.4.2-2 shows the different municipalities in Fayette County and whether their risk is greater than (>), less than (<), or equal to (=) the risk factor assigned to the County as a whole.

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.4.2-2 Municipality Risk Evaluation																										
MUNICIPALITY		Flood, Flash Flood, Ice Jam (3.4)	Extreme Temperature (3.3)	Opioid Addiction Response (3.2)	Winter Storm (3.1)	Wildfire (2.7)	Environmental Hazards (2.5)	Tornado, Windstorm (2.3)	Conventonal Oil and Gas Wells (2.3)	Unconventional Oil & Gas Wells (2.3)	Drought (2.3)	Pandemic and Infectious Disease (2.3)	Transportation Incidents (2.3)	Utility Interruption (1.9)	Subsidence, Sinkhole (1.8)	Hailstorm (1.7)	Dam Failure (1.5)	Drowning (1.5)	Radon Exposure (1.4)	Terrorism (1.4)	Landslide (1.3)	Urban Fire and Explosion (1.3)	Building or Structure Collapse (1.3)	Disorientation (1.2)	Civil Disturbance (1.0)	
	Belle Vernon Borough	✓		✓				^		✓	✓										✓		✓			
	Brownsville Borough																									
	Brownsville Township																									
	Bullskin Township																									
	Connellsville City																									
	Connellsville Township																									
	Dawson Borough																									
	Dunbar Borough																									
	Dunbar Township																									

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 4.4.2-2 Municipality Risk Evaluation																									
MUNICIPALITY	Flood, Flash Flood, Ice Jam (3.4)	Extreme Temperature (3.3)	Opioid Addiction Response (3.2)	Winter Storm (3.1)	Wildfire (2.7)	Environmental Hazards (2.5)	Tornado, Windstorm (2.3)	Conventonal Oil and Gas Wells (2.3)	Unconventional Oil & Gas Wells (2.3)	Drought (2.3)	Pandemic and Infectious Disease (2.3)	Transportation Incidents (2.3)	Utility Interruption (1.9)	Subsidence, Sinkhole (1.8)	Hailstorm (1.7)	Dam Failure (1.5)	Drowning (1.5)	Radon Exposure (1.4)	Terrorism (1.4)	Landslide (1.3)	Urban Fire and Explosion (1.3)	Building or Structure Collapse (1.3)	Disorientation (1.2)	Civil Disturbance (1.0)	
	Everson Borough	=	=		=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Fairchance Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Fayette City Borough	=	=		=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Franklin Township	=	=		=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Georges Township	=	=	=	=	=	=	=	=	✓	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	German Township	=	=	✓	=	=	=	✓	=	✓	✓	✓	✓	=	=	=	=	=	✓	=	✓	=	✓	=	
	Henry Clay Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Jefferson Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	
	Lower Tyrone Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	✓	=	=	=	=	=	=	=	=	
	Luzerne Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=

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FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

MUNICIPALITY	Flood, Flash Flood, Ice Jam (3.4)	Extreme Temperature (3.3)	Opioid Addiction Response (3.2)	Winter Storm (3.1)	Wildfire (2.7)	Environmental Hazards (2.5)	Tornado, Windstorm (2.3)	Conventional Oil and Gas Wells (2.3)	Unconventional Oil & Gas Wells (2.3)	Drought (2.3)	Pandemic and Infectious Disease (2.3)	Transportation Incidents (2.3)	Utility Interruption (1.9)	Subsidence, Sinkhole (1.8)	Hailstorm (1.7)	Dam Failure (1.5)	Drowning (1.5)	Radon Exposure (1.4)	Terrorism (1.4)	Landslide (1.3)	Urban Fire and Explosion (1.3)	Building or Structure Collapse (1.3)	Disorientation (1.2)	Civil Disturbance (1.0)
Point Marion Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Redstone Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Saltlick Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Smithfield Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
South Connellsville Borough	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	✓	=	=	=	=	=	=	=	=
South Union Township	=	=	=	=	=	=	=	=	✓	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Springfield Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Springhill Township	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=

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4.4.3. Potential Loss Estimates

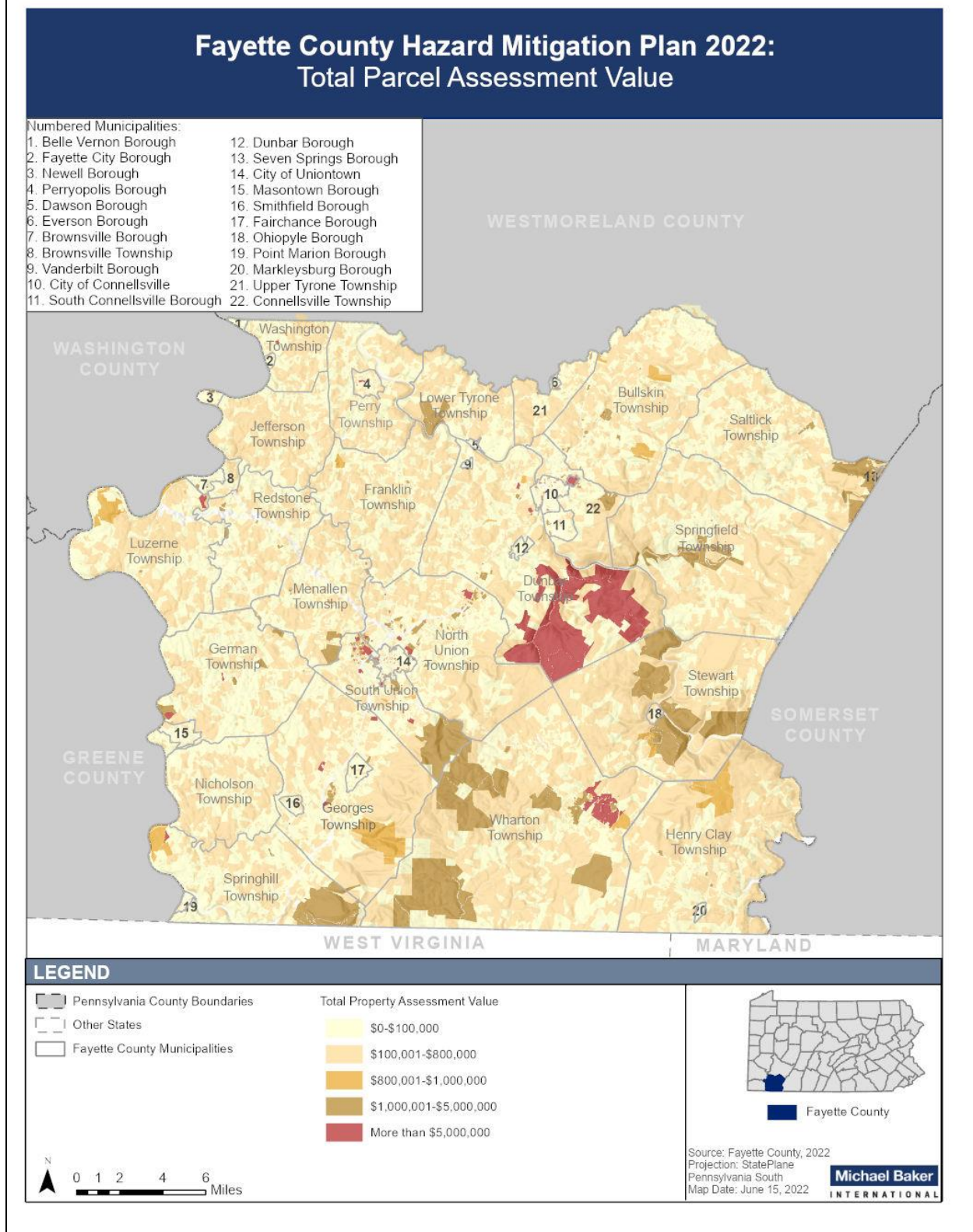
Estimates provided in this section are based geospatial analysis and previous events as reported to NCEI or SHELATUS. Estimates are considered potential in that they generally represent losses that could occur in a Countywide hazard scenario. In events that are localized, losses may be lower, while regional events could yield higher losses.

Potential loss estimates have four basic components.

- **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.

The parcel data used in this HMPU includes fair market price building values provided in the County tax assessment database. These values are representative of replacement value alone; content loss, functional loss, and displacement cost are not included. At the same time, though, they provide an indication of the total exposed value of buildings countywide. Figure 4.4.3-1 illustrates the range of structure values by parcel in Fayette County. Based on this valuation, the over 70,000 buildings in Fayette County are cumulatively worth about \$4,833,209,580. The largest municipalities in the County, such as the Uniontown City, Connellsville City, and Dunbar, Wharton, Lower Tyrone, and Springhill Townships have the potential to incur the greatest loss. Municipalities with smaller populations and a smaller number of parcels are anticipated to experience the lower losses, but even small losses in these communities can be devastating.

Figure 4.4.3-1 Parcel Assessment Value in Fayette County



Historical losses resulting from hazards in Fayette County are determined through reports from NCEI and SHEL DUS for flooding, tornado and windstorms, and winter storms. As reported in the Flood, Flash Flood, Ice Jam profile, past events have accumulated over \$23 million in damages.

Since 1950, tornadoes have resulted in nine injuries and no deaths; however, a total of \$6,857,750 has accrued in property damages. Windstorms, which tend to be more frequent, resulted in only six injuries, and \$3,443,250 in property damage. Looking just at events with wind speeds of over 50 knots, the average property damage per event was around \$15,342.68. Winter storms caused \$10,346,306 in property damages. Fortunately, of approximately 40 events documented by NOAA, only nine were recorded as causing property damage (NOAA NCEI, 2022).

Agricultural production and forested areas in Fayette County are highly vulnerable to natural hazard events, particularly drought. Data on agricultural losses are available from the USDA Risk Management Agency. The RMA operates and manages the Federal Crop Insurance Corporation, which provides crop insurance to American farmers. While not all crops are insured through RMA, their records provide strong insight into agricultural losses nationwide and in Fayette County. Looking holistically at agricultural production, any portion of Fayette County's \$28.8 million in agricultural products could be lost in a disaster event (USDA, 2019).

Prior flood losses can indicate future losses. Table 4.4-4 shows the total amount of claims paid in each municipality according to CIS. Uniontown City has the highest total coverage.

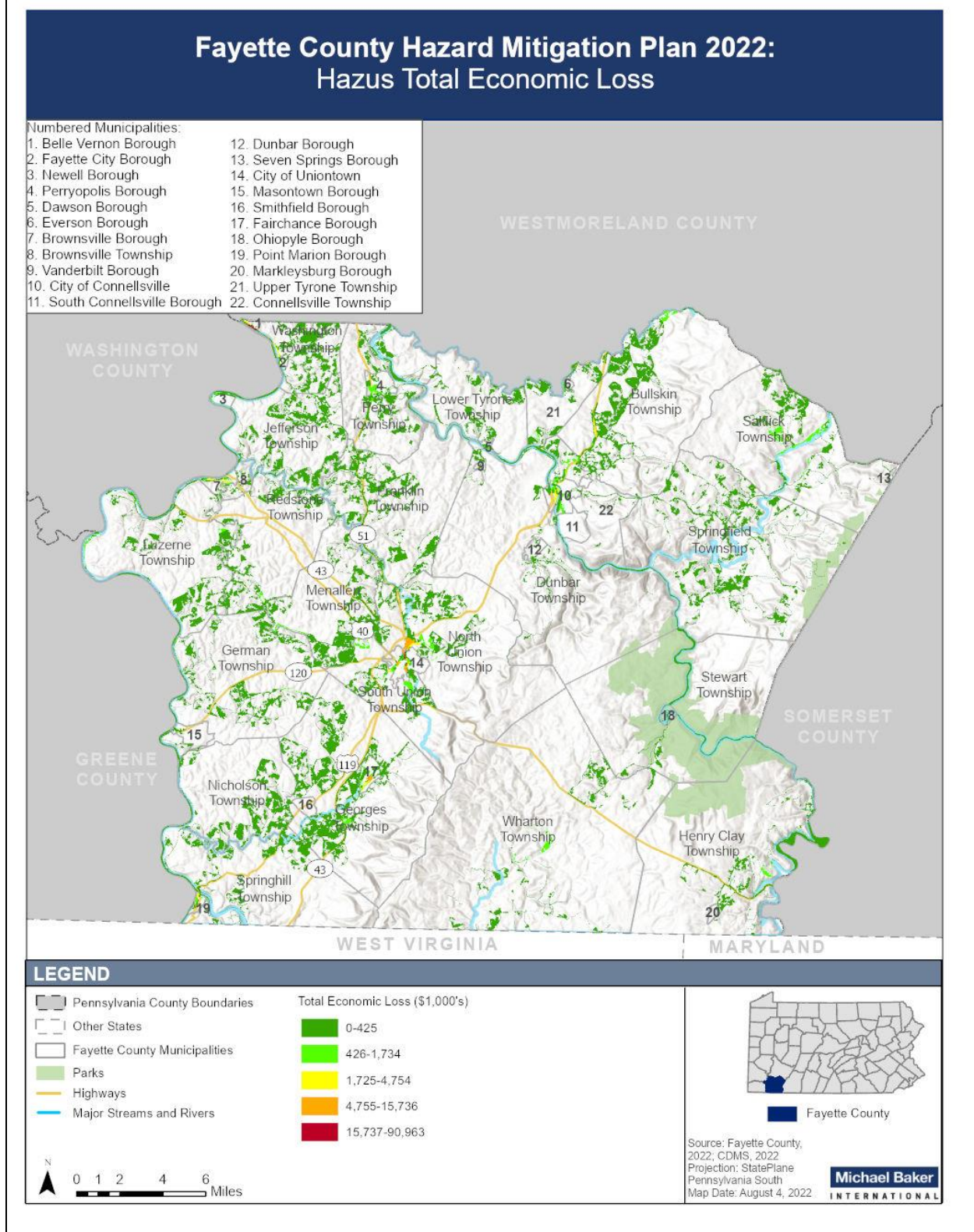
MUNICIPALITY	TOTAL COVERAGE
Belle Vernon Borough	\$757,400.00
Brownsville Borough	\$2,359,300.00
Brownsville Township	\$483,000.00
Bullskin Township	\$3,341,100.00
Connellsville City	\$3,560,800.00
Connellsville Township	\$0
Dawson Borough	\$775,900.00
Dunbar Borough	\$154,600.00
Dunbar Township	\$1,225,000.00
Everson Borough	\$0
Fairchance Borough	\$2,074,000.00
Fayette City Borough	\$700,000.00
Franklin Township	\$1,090,000.00
Georges Township	\$287,000.00
German Township	\$2,291,600.00
Henry Clay Township	\$1,151,000.00
Jefferson Township	\$280,000.00
Lower Tyrone Township	\$0.00
Luzerne Township	\$5,140,600.00
Markleysburg Borough	\$0.00
Masontown Borough	\$140,000.00
Menallen Township	\$678,000.00
Newell Borough	\$2,204,000.00
Nicholson Township	\$245,000.00
North Union Township	\$3,026,500.00
Ohiopyle Borough	\$0.00

Table 4.4.3-1 NFIP Coverage and Claims Information (CRS, 2022)	
MUNICIPALITY	TOTAL COVERAGE
Perry Township	\$2,790,300.00
Perryopolis Borough	\$1,466,000.00
Point Marion Borough	\$945,700.00
Redstone Township	\$350,000.00
Saltlick Township	\$1,936,500.00
South Union Township	\$4,676,500.00
Springfield Township	\$1,209,300.00
Springhill Township	608,000.00
Stewart Township	\$100,000.00
Uniontown City	\$11,514,200.00
Upper Tyrone Township	\$678,000.00
Vanderbilt Borough	\$0.00
Washington Township	\$2,349,500.00
Wharton Township	\$700,000.00
TOTAL	\$61,288,800.00

In addition to these losses, this Plan employed an enhanced HAZUS analysis for floods. As opposed to basic analysis using only default data, enhanced analysis incorporates some kind of more recent, up-to-date, or specific data for inclusion in the hazard models. The enhanced data incorporated into this HMP update included dissymmetric general building stock data from Fayette County and Level 2, Flood Depth Grid created by the consultant using the effective July 18, 2017 FIRM database. For more details on the methodology used to update the HAZUS data and view the Global Summary Report, see **Appendix F**.

Using these datasets in HAZUS-MH Version 3.2, total economic losses from a 1%-annual-chance flood in Fayette County are estimated over \$529.45 million, or 14.41% of the total replacement value. Approximately 20.72% of all losses are attributable to residential losses while 60% are commercial losses. Typically, the vast majority of building-related losses are residential. However, it was worth noting there is a small percent difference between the residential and commercial losses. Figure 4.4.3-2 shows a distribution of building-related losses across Fayette County. Losses are spread around the County, particularly the western portion due to its extensive development compared to the eastern portion's more forested, open areas. The highest losses are anticipated in larger municipalities such as Uniontown and Connellsville Cities and Brownsville and Fairchance Boroughs, exceeding \$1,000,000. Areas such as Perryopolis Borough and portions of Bullskin, Redstone, and Saltlick Townships can experience losses ranging from \$500,000 to \$1,700,000.

Figure 4.4.3-1 Fayette County HAZUS Modeled Flood Losses



4.4.4. Future Development and Vulnerability

Risk and vulnerability to natural and human-made hazard events are not static. Risk will increase or decrease as Counties and municipalities see changes in land use and development as well as changes in population. Fayette County is expected to experience a variety of factors that will, in some areas, increase vulnerability to hazards while in other areas, vulnerability may even be reduced.

Population change is perhaps the most significant indicator of changes in vulnerability in the future. As discussed in Section 2.3, the total population in Fayette County decreased between the 2000 and 2010 Census as well as in the 2020 estimate. population projections issued by the PADEP show this population decrease across the County will continue , as seen in Table 4.4-5. It is important to note that these population figures are projections only and are derived from birth rates, death rates, and migration information; if there are shifts in these patterns, the projections may change.

Table 4.4-2. Fayette County Population Projections (PADEP, 2014)

2000 CENSUS	2010 CENSUS	10-YEAR PERCENT CHANGE	2020 ACS	10-YEAR PERCENT CHANGE	2030 PROJECTED	10-YEAR PERCENT CHANGE	2040 PROJECTED	10-YEAR PERCENT CHANGE
148,536	136,591	-8.04	128,804	-5.7	127,240	1.62	122,794	.27%

The Fayette County Future Land Use Plan, within the 2000 County Comprehensive Plan, was developed to serve as a guide for development in the County. It is important to note that the following ten municipalities maintain their own zoning and comprehensive plans.

- Connellsville City
- Uniontown City
- Connellsville Township
- Henry Clay Township
- Ohiopyle Borough
- Perryopolis Borough
- South Union Township
- Stewart Township
- Washington Township
- Wharton Township

The Fayette County Future Land Use Plan describes nine future land use terms developed to provide concise and proactive land use categories to preserve, conserve, develop, or reuse land within the County.

- **Existing Built Areas:** Contiguous areas that are currently used for an activity or are occupied by a structure or built objective. These uses include residential, multi-family residential, commercial, highway commercial, institutional, industrial, and light industrial uses.
- **Future Growth Areas:** Areas that are best suited for future development to occur. Contiguous areas that have favorable topography, no steep slopes or environmental constraints, access to public utilities including sanitary and water, areas that have, or will have, adequate transportation access and areas within Enterprise Zones.

- **Rural Village:** The Rural Village Areas are generally pockets of small isolated settlements in a rural setting that may include a variety of uses such as residential, commercial, and neighborhood commercial.
- **Commercial Conservation Area:** Commercial conservation areas are lands currently owned for specific mineral or timber production. These uses may include mineral extraction, coal extraction, stone extraction, timber reserve, or oil and gas fields.
- **Agricultural Conservation Area:** Contiguous areas of land that have historically been devoted to agricultural production and are best suited for continued agricultural production based on soil quality and topographic limitations.
- **Land Reclamation Area:** Fayette County was a world leader in coal and coal production for nearly 100 years. This period of industrial progress now leaves a notable blemish on the County landscape. The land reclamation area is a tool to target specific sites within the County that are severely degraded due to either mine dumps, strip mining operations, quarry operations, landfills, junkyards, or brownfields.
- **Recreation/Cultural Resource Conservation Area:** This area includes lands dedicated to either public recreation or conservation and may include parks, state game lands, state forests, state parks, preserves, historic or cultural sites, and tourist oriented sites.
- **Resource Preservation Area:** The resource preservation area focuses on areas in the County that should not be developed on a large scale due to an environmental constraint including steep slopes, floodplains, wetlands, important forested areas, or unique natural features.
- **Rural Conservation Area:** Includes predominantly rural areas not incorporated into any of the above mentioned areas.

The 2022 Fayette County HMP is an opportunity to enhance the protection and delineation of Resource Preservation Areas and Rural Conservation Areas. Each Municipality's vulnerability towards landslides related to steep slopes, and floodplains should be documented to identify Resource Preservation Areas. In addition, forested areas that are prone to wildfires, open and agricultural land possibly affected by prolonged droughts should be denoted, as well as open areas of Rural Conservation areas should be protected from development through the Comprehensive Plan.

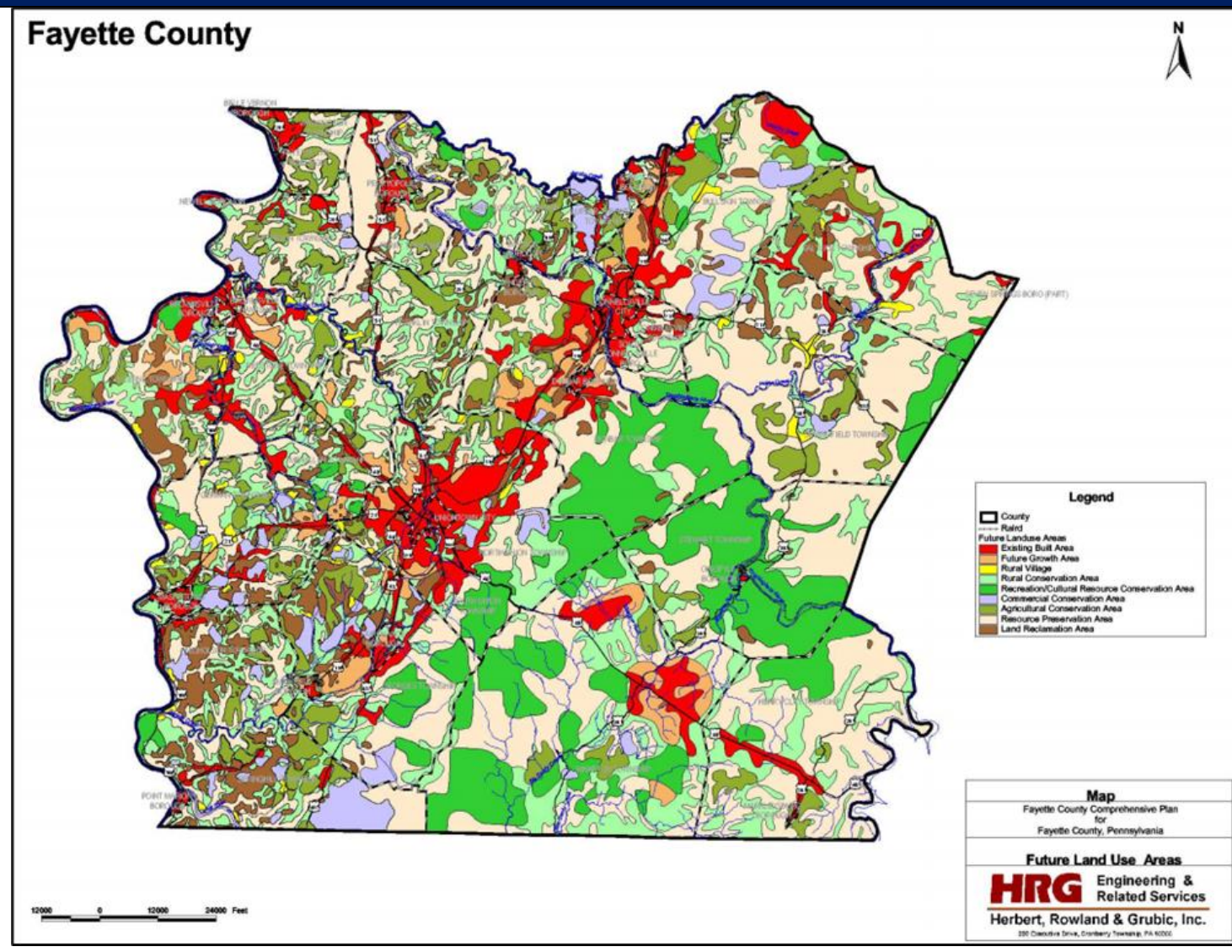
In addition, the Future Land Use Plan identifies specific Community Development Objectives that achieve an overall vision for the County.

- Protection and permanently preserve identified agricultural areas for agricultural use.
- Provide growth in appropriate areas.
- Establish urban growth boundaries.
- Limit growth and development in rural and conservation areas.
- Promote high quality design throughout the built environment.

Figure 4.4.4-1 shows the map of future land use created for Fayette County's 2000 Comprehensive Plan.

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Figure 4.4.4-1 Fayette County Future Land Use Plan (Fayette County 2000 Comprehensive Plan)



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In addition to population growth, historical building permit activity provides insight into ongoing development in the County. The Department of Housing and Urban Development (HUD) maintains data on the number of building permits issued for residential construction by jurisdictions across the U.S., data which is culled from the U.S. Census Bureau's Building Permits Survey. The number of building permits by Municipality for Fayette County was obtained from HUD's State of the Cities Data Systems (SOCDS) database for years 2010 through 2021.

Table 4.4-6 displays the number of residential building permits issued by Municipality for Fayette County from 2010 to 2021. Although this is the most complete dataset for building permits available, it is an incomplete list as Fayette County is not completely covered by permitting systems. Also, municipalities that issued no permits were excluded from the table.

MUNICIPALITY	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	TOTAL UNITS
Connellsville City	-	-	-	-	-	-	-	-	43	55	51	69	218
Connellsville Township	4	1	0	4	3	0	0	3	0	0	0	0	15
Menallen Township	0	0	0	1	7	0	0	9	0	2	23	21	63
Perryopolis Borough	0	0	0	0	1	0	0	2	0	1	1	1	6
Stewart Township	0	0	0	0	0	0	0	0	0	0	1	3	4
South Union Township	50	18	22	32	22	0	0	10	8	5	0	20	187
Uniontown City	0	2	4	2	1	0	0	78	0	8	0	0	95
Washington Township	3	0	1	3	1	0	0	0	1	1	1	1	12
Wharton Township	0	0	0	3	4	0	0	8	9	10	10	6	50
Fayette County Unincorporated Area	187	135	170	179	153	130	137	143	145	136	151	180	1,846
TOTAL	57	21	27	45	39	0	0	110	61	82	86	118	2,496

As seen from Table 4.4-6, the greatest share of growth in the County from 2010 to 2021 has occurred in Fayette County's Unincorporate Area. Among municipalities, the South Union Township - accounts for roughly 43 percent of development among incorporated jurisdictions in the County.

Making use of the analysis of Fayette County's current and future population and development trends, it is important to explore how these projected changes may influence the County's future vulnerability to the profiled hazards. Hazard vulnerability and loss potential will be higher in the places of higher density throughout the County, so as areas continue to grow and densify, these communities might become more vulnerable to hazards. For example, population growth and its associated development is likely to create increases in loss potential, as more people may be living in areas prone to hazards.

Although the redevelopment of land is preferable to the conversion of new land parcels for development, an increase in the population density of more urban areas in Fayette County can increase

the County's risk to certain hazards. This development can often place additional critical facilities, businesses, transportation networks, and populations in vulnerable areas. For example, while development occurs most often along transportation networks, because of their access and the increased demand for travel and access to services, this additional development increases the vulnerability to transportation incidents and hazardous material spills. Key hazards that are specific to Fayette County's growth and development trends include hazardous materials release, flooding and flash floods, transportation incidents, and urban fire and explosion.

As discussed previously, Fayette County's 2000 Comprehensive Plan incorporates Community Development Objectives to protect environmentally sensitive areas and preserve open space, which may help to funnel growth away from hazard-prone areas. In addition, while there may be growth areas that include SFHA or other hazard areas, to comply with state requirements, municipalities have floodplain regulations that limit construction within flood-prone areas and other hazard or environmentally sensitive areas like steep slopes. These provisions are included within each Municipality's and the County's subdivision and land development ordinance. The County subdivision and land development ordinance includes design standards to protect moderately steep and steep slopes, watercourses and wetlands, trees and woodlands, natural areas, air and water quality, and avoidance of hazardous development. Further, through multi-Municipal and Municipal Comprehensive Plans, environmentally sensitive areas such as biodiverse areas, floodplains, steep slopes, forested areas, landslide-prone areas, riparian corridors, and wildlife are addressed and appropriate recommendations pertaining to environmentally sensitive areas are provided.

This updated HMP can be used in tandem with the County's land use plan to guide future development because it identifies areas that may be more prone to hazards. Utilizing both the maps associated with the HMP and the future land use plan can assist Fayette County in accomplishing their goals of development and redevelopment and make them less prone to the negative impacts of hazards.

5. CAPABILITY ASSESSMENT

5.1. UPDATE PROCESS SUMMARY

The purpose of the Capability Assessment is to identify strengths and weaknesses that will affect the ability of the County and participating jurisdictions to implement mitigation actions. It is important to perform a mitigation capability assessment to develop a comprehensive and implementable mitigation strategy. Capabilities include a variety of regulations, existing planning mechanisms, and administrative capabilities provided through established agencies or authorities.

The Capability Assessment comprises a number of main components:

1. **Document Review** - an inventory of the County's existing planning and regulatory tools and a review and incorporation of existing plans and other technical information as appropriate;
2. **National Flood Insurance Program** - participation and status; and
3. **Municipal Capability Assessment** - an analysis of municipal capacity from a planning, policy, staffing, training, outreach, and political standpoint.

Based on these components as well as the vulnerability analysis identified earlier in the plan, Fayette County can assess its current resources and begin to address the legal, regulatory, administrative, financial, and other capabilities which it currently has at its disposal to address the potential hazards which make the County and its local municipalities vulnerable.

Fayette County has a number of existing resources and future opportunities 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 hazard event.

The 2017 HMP update included a capability assessment survey developed based on FEMA and PEMA guidance and was shortened from the 2011 HMP capability assessment survey to collect the most essential capability information. The survey asked about the most common plans, tools, and programs found in Fayette County communities; about staff and personnel resources; and ended with a self-assessment of capabilities. Municipalities were asked to complete the information to the best of their ability.

During the 2018, 2020, and 2021 annual updates, previously completed capability assessments recorded were distributed to municipalities to update and document new efforts to implement hazard mitigation planning practices. Continual engagement with municipalities in the annual updates encouraged making planning and regulatory, administrative and technical, financial, and education and outreach capabilities a priority for the community. The capability assessment is a good tool to identify local capabilities and to recognize gaps and weaknesses that can be addressed through future mitigation actions. The results of the capability assessment provide useful information for developing an effective mitigation strategy.

Mitigation action progress was well documented in the 2018 and 2020 annual updates, which made 2021 an opportunity to focus efforts more on the capability assessment. Unfortunately, only 12 municipalities of the 42 submitted capability assessments in 2021. It is worth highlighting that 33 municipalities submitted a capability assessment during the 2022 HMP update, compared to the 17 assessments submitted during the last full update in 2017, a 94% increase. For the annual updates and 2022 HMP update, previous capability assessment were provided dating back to 2011.

For the 2022 HMP update, the capability assessment survey was developed based on the most recent FEMA and PEMA guidance, and similar to the 2017 capability assessment survey asked about the common plans and programs, staff and personnel resources, and a self-assessment of capabilities. Communities were asked to complete the information to the best of their ability. Rather than the municipalities continually verify outdated capability assessment forms, municipalities were given a 2022 blank survey. Previously completed surveys would be referenced to populate the new form. The Capability Assessment Survey was provided in both hard copy (at meetings) and electronic format (via e-mail and the project website) to each municipality.

Additionally, many documents have been reviewed as part of this Plan Update. While some reviews have been derived from the 2010 and 2015 Plans and updated where applicable, additional documents have been identified and reviewed for purposes of integration into other local planning mechanisms. In addition, Fayette County EMA and the Director of Planning, Zoning, and Community Development identified county-level capabilities. Several plans and ordinances at the county and municipal level have been reviewed and a summary with options to integrate the data, information, and hazard mitigation goals and actions into other planning mechanisms are included.

The Mitigation Strategy, including the goals and actions, is incorporated into relevant planning mechanisms based on their pertinence and relevance to specific plans and ordinances. For example, all structural projects should be included in the Capital Improvements Program. Land use and zoning related projects should be incorporated into the County and/or Municipal Comprehensive Plans and Zoning Ordinances through collaboration with the Planning and Zoning departments. Likewise, information from relevant planning documents was used to inform and update the Hazard Mitigation Plan. A general list of relevant plans and documents and corresponding areas for incorporation are listed throughout this section.

5.2. CAPABILITY ASSESSMENT FINDINGS

5.2.1. Planning and Regulating Capability

Fayette County and participating jurisdictions have several planning and regulatory tools in place to support the goals of hazard mitigation planning. Additionally, these regulations provide opportunities for further mitigating the potentially negative effects of natural hazards.

The purpose of a plan/ordinance review as part of this planning process is trifold:

- To identify existing Commonwealth, Regional/County, and Municipal initiatives;

- To provide an inventory and review of sample plans and ordinances and identify sections in these documents that address hazard mitigation-related issues; and
- To provide a platform to integrate plans and other documents so recommendations and strategies are not in contradiction with one another (e.g., between the hazard mitigation plan and Comprehensive Plan).

A review of updated and existing zoning and subdivision ordinances, Comprehensive Plans, open space and recreation plans, stormwater management plans, sediment and erosion control plans, and emergency operations plans, among others, are summarized below by level of administration (Commonwealth, Regional/County, and Municipal).

In general, Fayette County municipalities with fewer residents usually have less staff resulting in limited supply of available resources compared to those municipalities with a greater number of residents. Therefore, areas with limited resources to address hazard mitigation may require a more unified or coordinated approach and/or more efficient utilization of a limited supply of available resources (i.e., financial, technical, and human).

Commonwealth of Pennsylvania Document Review

The 2018 Update of the **Pennsylvania State All-Hazard Mitigation Plan** goals and objectives that are applicable to the Fayette County HMPU are listed below. Opportunities to integrate these goals and objectives into the Update are listed in section 5.2.5. and applicability to the Fayette County Plan Update are summarized below.

- **Goal 1:** Protect lives, property, environmental quality, and resources of the Commonwealth.
 - **Objective 1-6:** Local building code enforcer training and outreach.
 - **Plan Integration:** Municipalities maintaining mitigation actions to enforce building codes.
 - **Objective 1-7:** Coordination, prioritization, and funding availability to address community needs for dam hazards.
 - **Plan Integration:** Creating the Mitigation Strategy goal to, "Monitor and ensure Emergency Action Plans for all high hazard dams in the County are current and dams are identified through GIS"
 - **Objective 1-8:** Encourage aggressive enforcement of floodplain and storm water management ordinances and other all-hazard regulations to reduce losses in high risk areas.
 - **Plan Integration:** Many mitigation actions proposed by the County and local municipalities focus on storm water and floodplain management.
 - **Objective 1-15:** Increase capacity and effectiveness of Commonwealth NFIP management.
 - **Plan Integration:** The County will continue to educate its municipalities on the NFIP.
- **Goal 2:** Enhance consistent coordination, collaboration, and communications among stakeholders.

- **Objective 2-2:** Promote integration of mitigation goals, objectives, and actions where appropriate in other planning initiatives.
 - **Plan Integration:** The County Comprehensive Plan is currently being updated and efforts are being made to incorporate valuable information from the HMP to the Plan. In addition, various municipalities are updating their Comprehensive Plan.
- **Objective 2-3:** Support the collection, update, and dissemination of datasets useful for hazard mitigation planning and implementation.
 - **Plan Integration:** The County is continually updating the list of critical facilities by working with municipalities, as well as improving records of previous occurrences of natural and man-made hazards.
- **Goal 3:** Provide a framework for active hazard mitigation planning and implementation.
 - **Objective 3-1:** Opportunities for regional organizations, businesses, and academia to be engaged in hazard mitigation planning.
 - **Plan Integration:** Washington County Planning Commission attended the planning kickoff and neighboring counties and organizations will continue to be invited and given opportunities to provide input on the process and HMP. In addition, meetings have been held separately with the Chamber of Commerce to educate local businesses on what is happening in their community. Hospitals and medical establishments, local school districts, and utility providers have also been invited to all meetings.

Hazard identification and risk assessment data for Fayette County has been incorporated into the appropriate sections of this Plan update from the 2018 PA All-Hazard Mitigation Plan.

Uniform Construction Code (UCC)

The **UCC** is the statewide building code (Act 45 of 1999) that took effect in Pennsylvania in April of 2004. The UCC is mandated by the State for all municipalities in Pennsylvania and establishes minimum regulations for most new construction, including additions and renovations to existing structures. All new construction is required to meet the UCC requirements statewide.

Commonwealth of Pennsylvania Governor's Executive Order 1999-1

The **Commonwealth of Pennsylvania Governor's Executive Order 1999-1** (Land Use Planning) provides the basis for the requirement to integrate hazard mitigation into comprehensive land use planning. As part of this executive order, the Interagency Land Use Team was established, comprising the following state agencies: Department of Agriculture; Department of Community and Economic Development; Department of Conservation and Natural Resources; Department of Environmental Protection; Governor's Green Government Council; Fish and Boat Commission; Game Commission; Department of Transportation; and the Pennsylvania Emergency Management Agency. One of the most significant outcomes of

PEMA's participation on the team is the integration of hazard mitigation goals and objectives into the comprehensive land use planning process.

Pennsylvania Erosion and Sediment Control Code

The **Pennsylvania Erosion and Sediment Control Code** requires all earthmoving projects in the Commonwealth to develop an erosion and sediment pollution control plan to ensure that proper site development practices are employed for land development and implement best management practices for the control of sediment pollution during construction. Pennsylvania DEP requires a National Pollution Discharge Elimination System (NPDES) permit for earthmoving activities exceeding one acre. As well as erosion and sediment pollution control during construction, the permit also addresses post-construction stormwater management.

Regional/County Document Review

The subsections below provide details on the types of major plans and ordinances that Fayette County and local municipalities use to support the goals of this hazard mitigation plan and provide opportunities for further mitigating the potentially negative effects of natural hazards through regulation.

County 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. Pennsylvania's MPC (Act 247 of 1968), as reauthorized and amended, requires counties to prepare and maintain a county Comprehensive Plan and to update it every 10 years. Local municipalities may prepare, but are not required by the MPC to prepare, a Comprehensive Plan.
- With regard to hazard mitigation planning, Section 301(a)2 of the MPC 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 considering storm drainage and floodplain management.
- 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. Pennsylvania's MPC (Act 247 of 1968), as reauthorized and amended, requires counties to prepare and maintain a County Comprehensive Plan and to update it every 10 years. In addition to the County Comprehensive Plan, 10 of the 42 municipalities have an adopted or in progress municipal Comprehensive Plan, as shown in Table 5.2-1.

The **Fayette County Comprehensive Plan** was updated and adopted in 2019. A Comprehensive Plan is a policy document identifying community goals and objectives for future growth and development with an emphasis on how and at what pace the County will

develop. In Fayette County, this is the policy basis for zoning decisions and other land development policies Countywide. Goals of the Fayette County Comprehensive Plan that are applicable to the County HMP are detailed below.

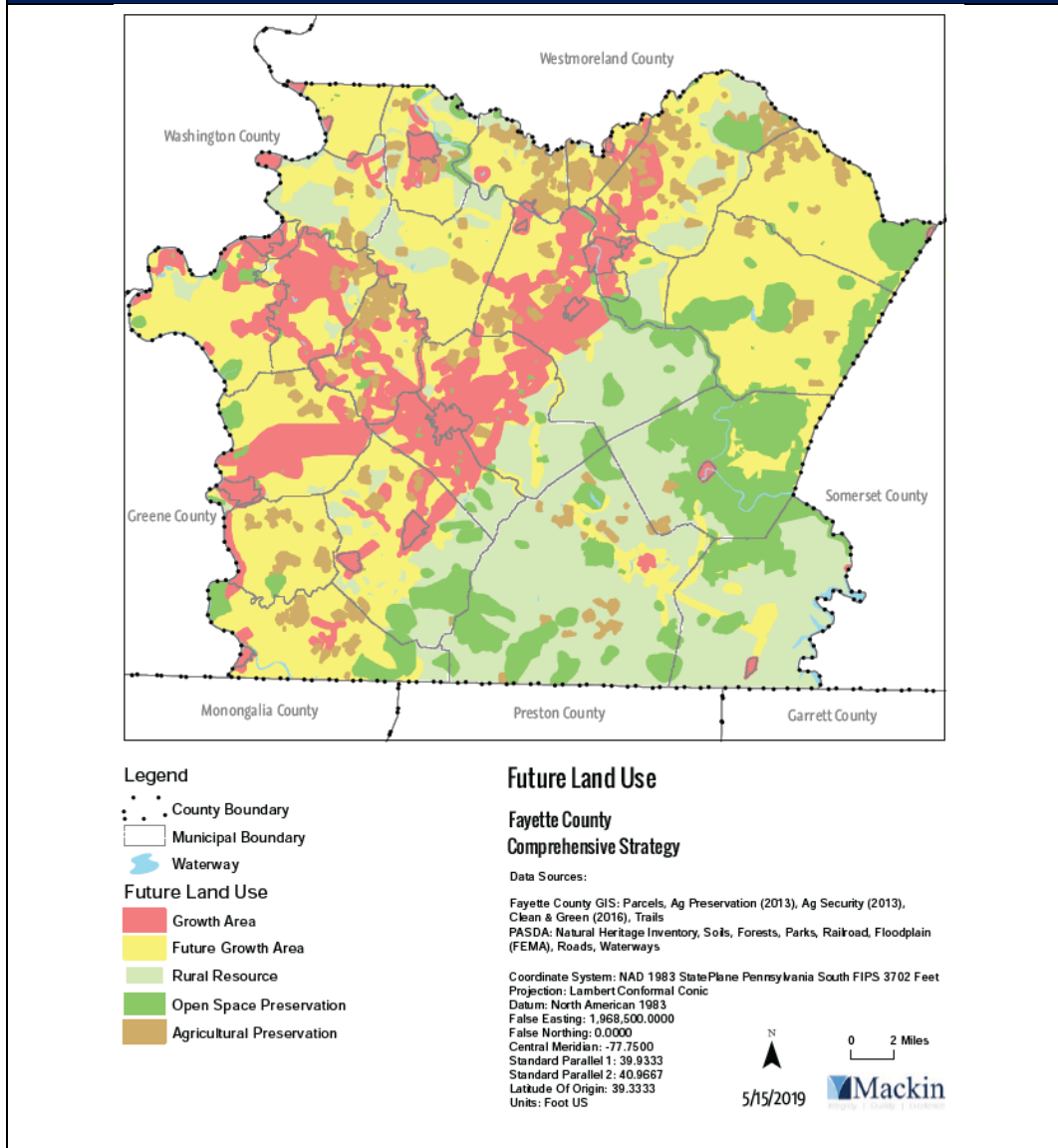


Applicable Goals from the Fayette County Comprehensive Plan:

- Support the agricultural industry as a vital component to the County's economy
- Expand broadband and cellular infrastructure
- Ensure transportation projects align with smart and sustainable growth
- Protect the rural character through sustainable land use policies
- Explore methods to increase the availability of public transportation
- Capitalize on the land and water trail network to drive tourism and economic development
- Ensure that communities are equipped to handle the impacts of tourism
- Protect the rural character from negative impacts related to tourism
- Preserve historic resources

Many of the goals described above are implemented through the future land use plan of the Comprehensive Plan. Areas of farmland and protected lands are outlined along with floodplains, waterways, and waterways of exceptional value or high quality. The future land use plan, shown in Figure 5.2.1-1 also designates areas of current and future growth, as well as rural resources. Using the hazard profiles and risk vulnerability as overlays, ideal, readily developable areas can be pinpointed. Additional opportunities to create synergy between the Fayette County HMPU and Comprehensive Plan are in section 5.2.5.

Figure 5.2.1-1 Fayette County Comprehensive Plan Current and Future Growth (Fayette County Comprehensive Plan, 2019)



Multi-municipal Comprehensive Plan

- Within Pennsylvania, no County-level capability assessment would be complete without considering the constituent municipalities. Local municipalities have their own governing body, enforce their own rules and regulations, purchase their own equipment, maintain their own infrastructure, and manage their own resources. In many ways, the County is only as good as the capabilities of its constituent municipalities. Therefore, the capability assessment does not consider Fayette County as a lone entity but evaluates it considering the various characteristics and differences of and between its municipalities.

- Many municipalities participated in regional Comprehensive Planning efforts designed to address specific issues and characteristics in a region of Fayette County that affect multiple municipalities. However, because land use authority in Pennsylvania is delegated to the local Municipality, communities are empowered to complete local or **Multi-municipal Comprehensive Plans**.

Since the 2017 Update, many municipalities have succeeded in creating governing plans. Some communities create joint Comprehensive Plans like German Township and Masontown Borough who share a joint Comprehensive Plan. Connellsville City's Comprehensive Plan was adopted in April 2019, and Washington Township's Plan in August 2018. Uniontown City and Menallen Township (August 2018) are currently in the process of developing Comprehensive Plans. Details of plan integration between the HMPU and multi-municipal comprehensive plans are in section 5.2.5. Highlights of each comprehensive plan are discussed below.

One of the priority goals of the **Connellsville Next, the City of Connellsville Comprehensive Plan** is the redevelopment of the Dutch Bottom neighborhood was severely impacted by flooding in 2016. A total of 23 homes in the neighborhood were acquired and demolished in the area with funds from a hazard mitigation grant. These properties are now restricted to only uses that will restore and or conserve natural floodplain purposes. The plan also identifies supporting land and natural resource preservation, creating transportation options, and serving people of all ages and abilities.

The **Menallen Township Comprehensive Plan** was updated and adopted in 2018. Like the Connellsville City Plan, Menallen Township also highlights populations over 60 as the fastest growing age group in the Township. Compared to its past industry of coal and gas, the Township has staked future economic growth in agricultural and tourism through its natural resources. The Comprehensive Plan is currently being updated.

The **Uniontown City Comprehensive Plan** has recently entered an update period. The began the process of updating their Comprehensive Plan at the beginning of 2022. A request for proposals was published by Uniontown earlier this year and the City is in the process of selecting a consultant as of June of 2022. The Office of Community Development plans to include all aspects of hazard mitigation in the City's updated comprehensive plan.

The **Washington Township Comprehensive Plan**, adopted in August 2018, had not been updated since 1966. The Township's zoning map had also dated back to 1966, thereby requiring modern case law, emerging land uses, and other new developments. Like many of the Fayette County municipalities, Washington Township also experienced an increase in aging populations since 2000 (65% increase in residents 50 to 59). The Township's location and highway connections present opportunities for residents to commute to a variety of job markets but also for increasing transportation incidents.

The **Fayette County Mountain Area Multi-Municipal Comprehensive Plan** is a joint Comprehensive Plan that was developed and adopted by seven Fayette County

municipalities. Henry Clay Township, Markleysburg Borough, Ohiopyle Borough, Saltlick Township, Springfield Township, Stewart Township, and Wharton Township use this plan as a guiding document for development and floodplain and floodway management. The Plan was developed in February/March 2010 and updated in April 2022.

Franklin Township noted in the 2022 HMP Update that a multi-municipal comprehensive is in development but an unknown timeframe. Connellsville Township noted it previously participated in the multi-municipal plan with the City of Connellsville and South Connellsville Borough, but the City has only conducted the recent update. South Connellsville Borough recorded in its assessment that there is not an updated plan in place.

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).

The EOP is reviewed at least biennially. Whenever portions of the plan are implemented in an emergency event or training exercise, a review is performed and changes are made where necessary. These changes are then distributed to the County's 42 local Emergency Management Coordinators (EMCs) for safekeeping.

Fayette County encourages all municipalities to have a local-level Evacuation Plan. Henry Clay Township has a EOP that has been in place since 2016 as well as an Evacuation Plan that took effect in the same year. Salt Lick Township has an EOP in place that is effective as of 2014. Lower Tyrone Township has an EOP that has been in place since 2006. Upper Tyrone Township's EOP is maintained by the EMC. Many other municipalities have adopted the County Emergency Operations Plan and follow guidance from the County EMA. Dawson Borough also has an EOP. Point Marion Borough's Fire Department is the lead department of the EOP. Everson Borough noted this is a priority for the EMA Director of the Borough to address as soon as possible.

Details to integrate EOPs and the HMPU are found in Section 5.2.5.

Zoning Ordinances

Zoning ordinances allow for local municipalities to regulate the use of land to protect the interest and safety of the general public. In Pennsylvania, the MPC establishes authority for communities to zone. Zoning ordinances can be designed to address unique conditions or concerns within a given community but must be based in maintaining public health and safety in a community. They may be used to create buffers between structures and high-risk areas, limit the type or density of development, and/or require land development to consider specific hazard vulnerabilities.

Zoning ordinances contain both a map that delineates zoning districts and text documenting the regulations that apply in each zoning district.

Countywide zoning ordinances were made effective in November 2006. The Fayette County Planning and Zoning Office administers the zoning and planning for 32 of the 42 municipalities in Fayette County. Connellsville City, Henry Clay Township, Menallen Township,

Ohiopyle Borough, Perryopolis Borough, South Union Township, Stewart Township, Uniontown City, Washington Township, and Wharton Township have their own zoning ordinances through their Municipal Comprehensive Plan. The local municipalities are responsible for reviewing all development applications for concurrency with local zoning regulations.

Subdivision Regulations

Subdivision and land development ordinances (SALDOs) are intended to regulate the development of housing, commercial, industrial, or other uses, including associated public infrastructure, as land is subdivided into buildable lots for sale or future development. Within these ordinances, guidelines on how land will be divided, the placement and size of roads and the location of infrastructure can reduce exposure of development to hazard events.

Article V of the MPC authorizes municipalities to prepare, enact, and enforce a subdivision and land development ordinance, including regulations to control the layout of streets, minimum lot sizes, and the provision of utilities. The objectives of a subdivision and land development ordinance are to do the following:

- Coordinate street patterns;
- Ensure that 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, elected officials, planning commissions, and other municipal officials

Similar to the zoning ordinances, subdivision and land development ordinances, effective in July 2006, were established Countywide, however Connellsville City, Henry Clay Township, Menallen Township, Ohiopyle Borough, Perryopolis Borough, South Union Township, Stewart Township, Uniontown City, Washington Township, and Wharton Township have their own subdivision regulations through their Municipal Comprehensive Plan.

Floodplain Management Ordinances

Municipalities can help regulate construction in floodplains through floodplain ordinances and floodplain management plans. Floodplain management plans describe how the community will reduce the impact of flood events through preventive and corrective actions. Through administration of floodplain ordinances, municipalities can ensure that all new construction or substantial improvements to existing structures located in a floodplain are flood-proofed, dry-proofed, or built above anticipated flood elevations. The NFIP establishes minimum ordinance requirements which must be met for that community to participate in the program. Opportunities and current efforts to integrate floodplain management ordinances with the Fayette County HMPU are detailed in Section 5.2.5.

Stormwater Management Plan or Ordinance

The proper management of stormwater runoff can improve conditions and decrease the chance of flooding. The Pennsylvania legislature enacted the Stormwater Management Act

(Act 167 of 1978), commonly called Act 167, requiring counties to develop stormwater management plans for designated watersheds. This planning effort results in sound engineering standards and criteria being incorporated into local codes and ordinances to manage stormwater runoff from new development in a coordinated, watershed-wide approach. Without such planning, stormwater is either not controlled by municipal ordinances, or is addressed on a site-by-site or municipal boundary basis. Municipalities within the same watershed may require different levels of stormwater control. The result is often the total disregard of downstream impacts or the compounding of existing flooding problems.

Act 167 Stormwater Management Plans are intended to improve stormwater management practices, mitigate potential negative impacts from future land uses, and improve the condition of impaired waterways. This type of plan provides local ordinances that incorporate standards and criteria to manage and maintain peak runoff flows throughout the combined watersheds as development occurs. Also, it is not the intent of this plan to solve existing flooding or runoff problems, but to identify for future correction and assure problems do not get worse. More specifically, this plan does not require municipalities to correct existing drainage problems.

Municipalities have an obligation to implement the criteria and standards developed in each watershed stormwater management plan by amending or adopting laws and regulations for land use and development. The implementation of stormwater management criteria and standards at the local level is 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. Municipalities within rapidly developing watersheds will benefit from the watershed stormwater management plan and will use the information for sound land use considerations. A watershed stormwater management plan is designed to aid the municipality in setting standards for the land uses it has proposed. 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.

As a result of a Countywide Plan, each Municipality was required to adopt an ordinance. A sample stormwater ordinance for reference was developed as part of the Plan. All of the municipalities in Fayette County report having, or the County has a record of them having, a stormwater management plan or stormwater management ordinances. Opportunities and current efforts to integrate stormwater management best practices with the HMPU are detailed in Section 5.2.5.

Key highlights collected from municipalities via the Capability Assessment include:

- Franklin Township noted a project on Crabapple Road was initiated to help with stormwater runoff on one of the Township roads to help prevent environmental issues. Due to financial instability, the project has been put on hold.
- The South Connellsville Borough Stormwater Management, Ordinance #306, was enacted on June 12, 2017 and provides information on flood mitigation strategies for the Borough.

Building Codes

- Building codes are important in mitigation, because codes are developed for regions of the country in consideration of the hazards present within that region. Consequently, structures that are built to applicable codes are inherently resistant to many hazards such as strong winds, floods, and earthquakes, and can help mitigate regional hazards like wildfires. In 2003, the Commonwealth of Pennsylvania implemented the Uniform Construction Code (UCC) (Act 45 of 1999), a comprehensive building code that establishes minimum regulations for most new construction, including additions and renovations to existing structures.
- The UCC 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 in requiring builders to use materials and methods that have been professionally evaluated for quality and safety, as well as requiring inspections of completed work to ensure compliance.
- 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 Department of Labor and Industry is responsible for all commercial code enforcement in that municipality. The Department of Labor and Industry also has sole jurisdiction for all state-owned buildings no matter where they are located.

Fayette County administers the UCC for the municipalities listed below. Nicholson Township noted they will be reviewing the UCC next summer for good development practices, and the Supervisor’s role is also code enforcement, which meets the first Thursday of every month. Similarly, the Point Marion Borough Police and Mayor work to ensure proper codes are in place.

- Belle Vernon Borough
- Bullskin Township
- Connellsville Township
- Dawson Borough
- Dunbar Borough
- Dunbar Township
- Everson Borough
- Fairchance Borough
- Franklin Township
- Lower Tyrone Township
- Luzerne Township
- Markleysburg Borough
- Masontown Borough

- Newell Borough
- Nicholson Township
- Ohiopyle Borough
- Point Marion Borough
- South Connellsville Borough
- Springhill Township
- Vanderbilt Borough
- Upper Tyrone Township

All other municipalities have elected to have a third party administer their UCC. For example, Georges and South Union Townships employ a third party to ensure structures built within the Township meet the code, and a key requirement is to conduct a floodplain review prior to issuing building permits.

Establishing building codes that meet resiliency results in less damages to property from natural hazards. This can include the types of materials or techniques used for construction, height restrictions, protected access points, and well-designed ingress and egress.

Other Planning and Regulatory Capabilities

Getting Outside Fayette County's Comprehensive Parks, Recreation, and Open Space, Greenways and Trails Plan, 2007, is the County's first Comprehensive Parks, Recreation, and Open Space, Greenways and Trails Plan. This plan provides a comprehensive series of physical recommendations in support of ecology, history, programs/events, activities, and behaviors for County Parks. This plan looks at land resources and identifies areas offering opportunities for preserving and protecting natural resources.

The **SolSmart Program** is a federally funded program to help communities be solar-friendly and to create awareness to communities in need of solar power education. The City of Uniontown noted its effective date as September 2, 2021.

5.2.1.1. Participation in the National Flood Insurance Program and the Community Rating System

Participation in the NFIP

The Pennsylvania Floodplain Management Act (Act 166 of 1978) requires every municipality with flood hazard areas identified by the Federal Emergency Management Agency (FEMA) to participate in the 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.

Of the 42 municipalities in Fayette County, 40 are actively participating in the NFIP. Since the 2017 HMPU, South Union Township has joined the NFIP. Smithfield Borough and South Connellsville Borough do not participate in the NFIP. Table 5.2.1-2 shows whether the

municipality is participating in NFIP, the number of policies they have, whether the municipality is in good standing,

Table 5.2.1-2 NFIP Participation in Fayette County (FEMA CIS, 2022)			
MUNICIPALITY	DATE ENTERED THE NFIP	# POLICIES IN FORCE	IS THE COMMUNITY IN GOOD STANDING?
Belle Vernon Borough	07/16/81	14	Yes
Brownsville Borough	09/16/81	10	Yes
Brownsville Township	02/17/82	3	Yes
Bullskin Township	04/16/91	20	Yes
Connellsville City	03/01/78	21	Yes
Connellsville Township	07/16/91	0	Yes
Dawson Borough	03/04/88	12	Yes
Dunbar Borough	07/04/88	2	Yes
Dunbar Township	07/04/88	4	Yes
Everson Borough	08/01/79	0	Yes
Fairchance Borough	04/16/91	17	Yes
Fayette City Borough	02/03/82	4	Yes
Franklin Township	03/18/91	4	Yes
Georges Township	04/16/91	5	Yes
German Township	04/16/91	13	Yes
Henry Clay Township	01/01/87	7	Yes
Jefferson Township	06/01/79	2	Yes
Lower Tyrone Township	03/04/88	0	Yes
Luzerne Township	03/01/82	19	Yes
Markleysburg Borough	06/19/85	0	Yes
Masontown Borough	09/04/91	1	Yes
Menallen Township	07/04/88	2	Yes
Newell Borough	04/15/81	14	Yes
Nicholson Township	09/04/91	2	Yes
North Union Township	04/16/91	12	Yes
Ohiopyle Borough	12/01/86	0	Yes
Perry Township	04/15/82	18	Yes
Perryopolis Borough	02/03/82	9	Yes
Point Marion Borough	07/04/88	9	Yes
Redstone Township	01/06/82	1	Yes
Saltlick Township	03/18/91	14	Yes
Smithfield Borough	Not Participating		
South Connellsville Borough	Not Participating		
South Union Township	04/16/91	20	Yes
Springfield Township	04/16/91	5	Yes
Springhill Township	03/18/91	2	Yes

Table 5.2.1-2 NFIP Participation in Fayette County (FEMA CIS, 2022)

MUNICIPALITY	DATE ENTERED THE NFIP	# POLICIES IN FORCE	IS THE COMMUNITY IN GOOD STANDING?
Stewart Township	01/01/87	1	Yes
Uniontown City	05/01/78	30	Yes
Upper Tyrone Township	03/15/79	5	Yes
Vanderbilt Borough	01/01/87	0	Yes
Washington Township	01/20/82	14	Yes
Wharton Township	01/01/87	2	Yes
TOTAL		318	

For a community to participate in the NFIP, it must adopt and enforce floodplain management regulations that meet or exceed the minimum NFIP standards and requirements. These standards are intended to prevent loss of life and property, as well as economic and social hardships that result from flooding. Once FEMA provides communities with flood hazard information upon which floodplain management regulations are based, the community is required to adopt a floodplain ordinance that meets or exceeds the minimum NFIP requirements.

Participation in the CRS

The NFIP's 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 damage 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 CRS in the NFIP and 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 CRS, flood insurance premium rates are adjusted to reflect the reduced flood risk resulting from community activities that meet a minimum of three of the following CRS goals:

- Reduce flood losses
- Reduce damage to property
- Protect public health and safety
- Prevent increases in flood damage from new construction
- Reduce the risk of erosion damage
- Protect natural and beneficial floodplain functions

- Facilitate accurate insurance rating
- Promote the awareness of flood insurance

There are 10 CRS classes that provide varied reduction in insurance premiums for property owners in both the SFHA and non-SFHA. 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 5 percent for Class 9 communities up to 45 percent for Class 1 communities. The CRS recognizes 18 creditable activities that are organized under four categories: Public Information, Mapping and Regulations, Flood Damage Reduction, and Flood Preparedness. Fayette County does not have any participating communities in the CRS.

Table 5.2-1 is an overview of local plans and regulations documented through the capability assessment surveys received from 2018 through 2022.

MUNICIPALITY	COMPREHENSIVE LAND USE PLAN	NFIP/FP REGULATIONS	SUBDIVISION REGULATIONS	ZONING REGULATIONS	STORMWATER MANAGEMENT PLAN AND ORDINANCE	UNIFORM CONSTRUCTION CODE OPT-IN
Belle Vernon Borough	X	X	X	X	X	X
Brownsville Borough	X	X	X	X	X	X
Brownsville Township	X	X	X	X	X	X
Bullskin Township	X	X	X	X	X	X
Connellsville City	X	X	X	X	X	X
Connellsville Township	X	X	X	X	X	X
Dawson Borough	X	X	X	X	X	X
Dunbar Borough	X	X	X	X	X	X
Dunbar Township	X	X	X	X	X	X
Everson Borough	X	X	X	X	X	X
Fairchance Borough	X	X	X	X	X	X
Fayette City Borough	X	X	X	X	X	X
Franklin Township	X	X	X	X	X	X
Georges Township	X	X	X	X	X	X
German Township	X	X	X	X	X	X
Henry Clay Township	X	X	X	X	X	X
Jefferson Township	X	X	X	X	X	X

Table 5.2.1-3 Capability Assessment Survey Summary of Major Plans and Regulations in Fayette County						
MUNICIPALITY	COMPREHENSIVE LAND USE PLAN	NFIP/FP REGULATIONS	SUBDIVISION REGULATIONS	ZONING REGULATIONS	STORMWATER MANAGEMENT PLAN AND ORDINANCE	UNIFORM CONSTRUCTION CODE OPT-IN
Lower Tyrone Township	X	X	X	X	X	X
Luzerne Township	X	X	X	X	X	X
Markleysburg Borough	X	X	X	X	X	X
Masontown Borough	X	X	X	X	X	X
Menallen Township	X	X	X	X	X	X
Newell Borough	X	X	X	X	X	X
Nicholson Township	X	X	X	X	X	X
North Union Township	X	X	X	X	X	X
Ohioptyle Borough	X	X	X	X	X	X
Perry Township	X	X	X	X	X	X
Perryopolis Borough	X	X	X	X	X	X
Point Marion Borough	X	X	X	X	X	X
Redstone Township	X	X	X	X	X	X
Saltlick Township	X	X	X	X	X	X
Smithfield Borough	X		X	X	X	X
South Connellsville Borough	X		X	X	X	X
South Union Township		X	X	X	X	X
Springfield Township	X	X	X	X	X	X
Springhill Township	X	X	X	X	X	X
Stewart Township	X	X	X	X	X	X
Uniontown City	X	X	X	X	X	X
Upper Tyrone Township	X	X	X	X	X	X
Vanderbilt Borough	X	X	X	X	X	X
Washington Township	X	X	X	X	X	X
Wharton Township	X	X	X	X	X	X

5.2.2. Administrative and Technical Capability

Administrative capability is described by an adequacy of departmental and personnel resources for the implementation of mitigation-related activities. Technical capability relates to an adequacy of knowledge and technical expertise of local government employees or the ability to contract outside resources for this expertise to effectively execute mitigation activities. Common examples of skill sets and technical personnel needed for hazard mitigation include: planners with knowledge of land development/management practices, engineers or professionals trained in construction practices related to buildings and/or infrastructure (e.g. building inspectors), planners or engineers with an understanding of natural and/or human caused hazards, emergency managers, floodplain administrators, land surveyors, scientists familiar with hazards in the community, staff with the education or expertise to assess community vulnerability to hazards, personnel skilled in geographic information systems, resource development staff or grant writers, fiscal staff to handle complex grant application processes.

Based on the 25 capability assessments collected during the 2022 HMPU and previous annual updates, municipalities in Fayette County have limited administrative and technical staff needed to conduct hazard mitigation-activities. Unfortunately, the same feedback was given by municipalities during the last full update 2017. Fayette County's 42 municipalities carry out daily operations and provide various community services according to local needs and limitations.

Some of the municipalities have formed cooperative agreements and work jointly with their neighboring municipalities to provide services such as police protection, fire and emergency response, wastewater treatment, water supply management, and planning, while others choose to operate independently. Fayette County's municipalities vary in staff size, resource availability, fiscal status, service provision, municipal population, overall size, and vulnerability to the profiled hazards. In addition, the County provides much support to municipalities regarding open space, trail, and greenway planning; enforcing the UCC and zoning; grant writing; agricultural preservation; waste management and recycling; as well as a County stormwater manager. Evident throughout the HMP process, the Fayette County EMA is extremely engaged with the local EMCs by providing education opportunities and support to achieve their mitigation actions.

Municipal Administration and Technical Capabilities

Emergency Management

Emergency management is a comprehensive, integrated program of mitigation, preparedness, response, and recovery for all types of emergencies and disasters. In Pennsylvania, Emergency Management begins at the municipal level, as required by the PA Emergency Management Service Code. Every county, city, borough, and township in the Commonwealth is required to have an emergency management coordinator selected by the elected officials of the jurisdiction. The ultimate responsibility for Emergency Management always rests with the chief elected officials and governing body; however, the Emergency

Management Coordinator's role is to develop plans, conduct training, and coordinate all available resources in the community pre- and post-disaster.

The responsibilities of the EMC are outlined in the Pennsylvania Code, Title 35 §7503:

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

All municipalities in Fayette County have EMCs, but it is not uncommon that one EMC covers multiple municipal jurisdictions or that the EMC also holds one or more roles in the municipality. Effective partnerships are created in advance of a disaster by the Emergency Management Coordinator through the development of a proactive, comprehensive emergency operations plan and other planning, training, and exercise programs.

The LEPC was formed in 1989 and meets every other month. The typical agenda items include, HAZMAT training/incident review, grant opportunities for HAZMAT operations and training, and review/adoption of SARA Title III hazard plans for off-site response.

Engineering

- A municipal engineer performs duties as directed in the areas of construction, reconstruction, maintenance, and repair of streets, roads, pavements, sanitary sewers, bridges, culverts, and other engineering work. The municipal engineer reviews and/or prepares plans, specifications, and estimates of the work undertaken within the municipality.
- When staff who are responsible for community planning or engineering the structures on which people rely are familiar with the hazards that can impact the community, there is a great potential for synergy. These staff members will design the communities and structures with hazard impacts in mind, resulting in more sustainable communities and stronger structures.
- Engineering and building and code officers are typically contracted as needed by most municipalities. Code enforcement officers typically review plans, construction projects, and compliance activities. They also make recommendations relating to specific hazard mitigation requirements per the existing ordinances.

The County Planning, Zoning, & Community Development Department noted all municipalities have an engineer either on staff or contracted, with most municipalities contracting. Firms include KL Engineering, Widmer Engineering, Inc., K2 Engineering, Inc., McMillan Engineering, Morris Knowles & Associates, Inc, The Eads Group, Polestar Engineering, Gibson-Thomas Engineering, and Property Maintenance Inspection Services LLC. These specific firms are contracted by multiple municipalities within Fayette County with some specific engineers representing multiple municipalities and serving also as the EMC and building code officer.

Among the municipalities that have either staff or contracted code enforcement officers there is a relatively even split between full and part-time code enforcement staff. Most municipality-contracted engineers, such as Dunbar, German, Washington, and Lower Tyrone Townships and South Connellsville Borough meet monthly with the elected officials to discuss any projects or updates throughout the month and also any concerns or actions required. Menallen Township's Planning Commission and K2 Engineering work together to provide engineering and code enforcement support. South Union Township's chief building officer is also the floodplain administrator. Vanderbilt Borough is currently hiring a new code enforcement officer whose sole requirement is to ensure all codes are followed. Upper Tyrone Township noted not having an in-house engineer, but the Township does have a code enforcement and builder officer. The officer does not meet on a regular schedule with the Municipality.

Contracted engineering and the DEPT typically develop Dam Safety Plans for municipalities. Due to the sensitivity of information, the County EMA has expressed challenges acquiring the information. In addition, most dams within Fayette County are private making it difficult to develop make the appropriate connections to involve those individuals in the HMP process. The DEP has not attended or participated in the HMP process within the last five years. By adding Goal 5 to the mitigation strategy, "Reduce the risks posed by the potential failure of HHPDs with the County," Fayette County EMA aims to work with local engineering firms or directly with municipalities to acquire copies of the Dam Safety Plans to maintain Emergency Action Plans, and to improve GIS data with dam locations. The County EMA does review existing Dam Safety Plans that are required to be compliant with the County.

Several municipalities like the City of Connellsville, German Township, Lower Tyrone Township, and Vanderbilt Borough all have a dedicated staff code enforcement officer. Several other municipalities like Belle Vernon Borough, Dawson Borough, Henry Clay Township, Saltlick Township, Point Marion Borough, and South Connellsville Borough contract an engineering firm to oversee code enforcement matters. The City of Connellsville noted Widmer Engineering assists in floodplain elevation certificates specifically. Henry Clay Township uses K2 Engineering, Inc. as its zoning officer as well. Wharton and Menallen Townships were the few municipalities noting a part-time civil engineer to review land development and stormwater plans for compliance with codes and ordinances. Smithfield, Point Marion, Dawson, and Everson Boroughs and Nicholson Township also use their engineering contract for civil engineering work. The City of Uniontown specifically called out its code enforcement officer as a key position to champion initiatives aimed at mitigation and reducing damages to property from hazards.

Floodplain Administrator

- Floodplain Administrators (FPAs) are experts in the rules and regulations of development in a floodplain and can provide vast amounts of information on the risks and impacts of building within those hazard areas. They are an integral part of the mitigation planning team and can make recommendations based on the needs and conditions of the community.

The 40 of 42 municipalities in Fayette County participate in the NFIP and have a designated FPA. For Fayette County, it is not out of the ordinary for a municipal official to hold more than one title. Those municipalities that noted having a Floodplain Administrator often listed their municipal engineer or contracted engineering firm, code enforcement officer, or municipal manager as responsible.

Grant-writing Staff or Other Fiscal Staff

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

The Fayette County Planning, Zoning, & Community Development Department often aids on grant writing. Saltlick Township stated they have used the County grant writing as a resource, and K2 Engineering as needed. Nicholson Township has received assistance from the County over the last 10 years. Many of the funding streams that can be used for hazard mitigation have substantial management and reporting requirements. Employing or having access to staff specializing in grants management will help the community ensure that it does not lose a grant opportunity because it did not meet the administrative requirements of that grant.

A few municipalities have a person on staff or a contract to provide grant writing support. In addition to engineering, Belle Vernon, Fairchance, and Smithfield Boroughs and Bullskin, Henry Clay, Jefferson, Menallen, and South Union Townships exercise their engineering contracts for grant writing support. Franklin Township uses an outside resource for grant writing, and the secretary handles all administrative paperwork. Wharton Township's senior project planner from McMiller Engineering, Inc. provided research and grant submittal for the replacement of Ford Crossing and undersized pipes to reduce flooding.

The City of Connellsville's city clerk of six years handles all administrative duties affiliated with the HMGP, and Connellsville, German, and Dunbar Townships' secretary and supervisor handle the grant administrative and writing tasks as needed. North Union Township and Everson and Point Marion Boroughs use their engineer for the grant administrative duties and larger grants. A few municipalities have a secretary with smaller grant writing and administrative capabilities. Point Marion Borough will also use the County as a resource. South

Connellsville Borough has outsourced an independent contractor for grant writing within the last six months. The City of Uniontown's Director of Community Development assists the community with development and hazard mitigation. The office assists in obtaining and managing grants for the City, as well as creating the Comprehensive Plan noted previously. Washington Township's secretary and treasurer perform grant administrative and writing duties as needed. A best practice for other municipalities to follow is, as of a year ago, Upper Tyrone Township's EMC has grant administrative experience which lends very well to applying for mitigation grant funding. Upper Tyrone Township's secretary of 14 years has grant writing experience.

Georges and Lower Tyrone Townships and Dawson, Newell, Markleysburg, and Vanderbilt Boroughs documented they did not have grant writing support and should be encouraged to use the County's resource. The County should consider in future updates to develop mitigation actions to ensure municipalities know the resources available or provide opportunities to develop those skillsets.

Experience Using Mapping (GIS) Software

- Spatial and tabular data are linked in a computerized, visual format through the use of sophisticated GIS technology. Through GIS projects, it is possible to accomplish environmental restoration, economic development, Smart Growth land use planning, infrastructure development, and training to use GIS for decision support.

Fayette County has GIS capabilities at the EMA and Planning level that can assist the municipalities. The County has a very sophisticated and comprehensive system database and is undertaking various initiatives to improve the data and make it more accessible to local municipalities. This should be an action the County continues to improve. None of the municipalities who submitted the Capability Assessment Survey noted contracted or in-house GIS support.

Additional County Administrative and Technical Resources

Fayette County Planning Commission

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

The Fayette County Planning Commission is a significant source of administrative and technical assistance. The Fayette County Planning Commission has a variety of responsibilities that include mapping of the County, the review of land development and subdivisions, and the orderly development of land. The commission also maintains extensive population and demographic data for the County and provides comprehensive information to potential developers and the general public.

The Planning Commission conducts and prepares numerous studies regarding environmental, economic, and general issues that impact County development and natural resources of the County. The commission also coordinates the development and preparation of various public affairs, information, and educational programs concerning County government. The Bridge Department, Department of Parks and Recreation, and flood control projects all fall under the Planning Commission's jurisdiction.

Municipal Planning Commissions

- In Pennsylvania planning responsibilities traditionally have been delegated to each County and local municipality through the municipal planning commission (MPC). The MPC conveys the planning authority and establishes the requirements that a municipality must follow. The Cities of Uniontown and Connellsville indicated that they have full-time planning staff who oversee planning and development-based issues.

Although most individual municipalities do not have a full-time planning staff, most municipalities have a staff member with an understanding of hazards (natural or otherwise) typically the Emergency Management Coordinator. All 42 municipalities in Fayette County have EMCs. It is not uncommon that one EMC covers multiple municipal jurisdictions.

State and Federal Administrative and Technical Resources

State Agencies

State agencies which can provide technical assistance for mitigation activities include, but are not limited to:

- Pennsylvania Department of Community and Economic Development,
- Pennsylvania Department of Conservation and Natural Resources,
- Pennsylvania Department of Environmental Protection, and
- Pennsylvania Department of Transportation.

Federal Agencies

Federal agencies which can provide technical assistance for mitigation activities include, but are not limited to:

- Army Corp of Engineers,
- Department of Housing and Urban Development,
- Department of Agriculture,
- Economic Development Administration,

- Emergency Management Institute,
- Environmental Protection Agency,
- FEMA, and
- The Small Business Administration.

5.2.3. Financial Capability

In general, the more financial resources a municipality has, the more technically capable it will be from a resource availability perspective. This is not necessarily the case, however when analyzing technical capability from a knowledge/skill level perspective. As such, technical capability must be analyzed by each municipality prior to implementing any hazard mitigation activity. It is important to note; however, that much like fiscal capability, shortfalls in technical capability may be overcome by cooperative arrangements, coordinated efforts, and/or resource efficiency.

Financial capability is important to the implementation of hazard mitigation activities. Every jurisdiction must operate within the constraints of limited financial resources. During the 1960s and 1970s, state and federal grants-in-aid were available to finance many programs, including street improvements, water and sewer facilities, airports, and 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, resulting in the need to identify alternate means to augment revenue. The COVID-19 pandemic has resulted in communities across the country facing new challenges in balancing community economic recovery while also implementing hazard mitigation.

Based on Capability Assessment Survey responses and feedback from the communities, fiscal capabilities of Fayette County local municipalities vary from community-to-community, but the majority of municipalities reported fiscal limited capabilities.

Capital Improvement Program

- The Capital Improvement Plan (CIP) is a multiyear policy guide that identifies needed capital projects and is used to coordinate the financing and timing of public improvements. The CIP is the most common fiscal tool available to communities. Capital improvements relate to streets, stormwater systems, water distribution, sewage treatment, and other major public facilities. A capital improvement plan should be prepared by the respective county's planning commission and should include a capital budget. This budget identifies the highest priority projects recommended for funding in the next annual budget. The capital improvement plan is dynamic and can be tailored to specific circumstances.

Of the 31 capability assessment surveys submitted, the City of Connellsville, Henry Clay, North Union and Menallen Townships, and Vanderbilt and Fairchance Boroughs noted having a CIP

in place. The City of Uniontown, Saltlick and Wharton Townships, and Smithfield Borough representatives were unsure if a CIP existed.

The City of Connellsville highlighted that the CIP prioritized possible mitigation on the lower-west side through the HMGP. Vanderbilt Borough used its CIP to prioritize hazard mitigation projects such as correcting and rebuilding storm drains, fixing roadways, and stabilizing a recent landslide.

Impact Fees from Unconventional Gas Drilling

- The Pennsylvania Act 13 Impact Fee funded through unconventional oil and gas well drilling activities provides a fiscal mechanism available to Pennsylvania communities. The Oil and Gas Act (Act 13 of 2012) presented major changes to the oil and gas industry in Pennsylvania, including the authorization for local governments to adopt an impact fee and the provision of stronger environmental protections. The impact fees are allocated to County conservation districts, the Pennsylvania Fish and Boat Commission, the Pennsylvania Public Utility Commission, the Pennsylvania Department of Environmental Protection, the PEMA, the Pennsylvania Office of State Fire Commissioner, and the Pennsylvania Department of Transportation to address statewide issues. A portion of the impact fees are also allocated to local municipalities to address water, wastewater, and road infrastructure maintenance and improvements; emergency preparedness; environmental programs; tax reductions; increased safe/affordable housing; employee training; or planning initiatives.

The disbursement amount fluctuates based on well drilling activity. In 2021, a total of \$234.4 million in Act 13 impact fees were disbursed throughout Pennsylvania. Of that amount, over one million dollars was dispersed to Fayette County municipalities.

Development Impact Fees

- Development impact fees are one-time fees assessed to offset the cost of providing public services to a new development. In Pennsylvania, impact fee programs may be established for capital improvements associated with transportation infrastructure in accordance with section 505-A of the Pennsylvania Municipalities Planning Code and the Pennsylvania Transportation Partnership Act. This program would allow for investments in highway infrastructure to reduce hazard risks. In addition, Pennsylvania Act 203 of 1990: Municipalities Authorities Act Amendments, allows water and sewer authorities to charge tapping fees for infrastructure improvements to connect adjacent properties to systems. However, this authorization would only have limited value in addressing hazards. In other states, such impact fees may be dedicated to providing the related new water or sewer infrastructure, roads, parks and recreational areas, libraries, schools, etc. The new infrastructure may be less vulnerable to hazard impacts.

Community Development Block Grants

- These grants are designed to assist the vulnerable populations within the community by ensuring affordable housing, creating jobs, and providing direct services. The amount of each grant is determined by a formula that accounts for the community's need, poverty, population, housing, and comparison to other areas. The annual appropriation is divided among the states and local jurisdictions (referred to as "non-entitlement communities" and "entitlement communities"). The following are entitlement communities:
 - Central cities of Metropolitan Statistical Areas (MSAs);
 - Cities with at least 50,000 people;
 - Some urban counties with at least 200,000 people; and
 - States provide CDBG funds to non-entitlement jurisdictions.
- The majority of CDBG funds are required to be spent to benefit low- and moderate-income people. Also, there is a set of national objectives for the program, including addressing existing conditions that pose a threat to the health and welfare of the community (e.g., low-income housing in a floodplain).

Fayette County is eligible for Community Development Block Grant (CDBG) funding from the US Department of Housing and Urban Development (HUD). Belle Vernon, Markleysburg, and Newell Boroughs and Franklin, Georges, Lower Tyrone, Dunbar, Washington, and Wharton Townships documented they have not used CDBGs as a resource.

Connellsville, German, Jefferson, and North Union Townships and South Connellsville Borough do have access and experience with CDBGs. Henry Clay Township has used the PA DCED and the Commonwealth Financing Authority, and Menallen Township has used the Fayette County Redevelopment Authority directly for mitigation projects. The City of Uniontown's Office of Community Development will work with emergency management and others to identify what existing programs the city may qualify.

Utility Fees

Gas/Electric

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

Water and Sewer Authority Fees

- Water authorities are multipurpose 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 constructing 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 directly operated by municipal governments and by privately owned public utilities regulated by the Pennsylvania Public Utility Commission. The PADEP has a program to assist with consolidation of small individual water systems to make system upgrades more cost effective.

- Sewer authorities include multipurpose authorities with sewer projects. The authorities issue bonds to finance acquisition of existing systems or to finance construction, extension, and improvements. 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 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.

Belle Vernon Borough noted it is currently working to address utility age and infrastructure issues that affect flood mitigation and emergency response. Fairchance and South Connellsville Boroughs and Menallen Township also standardize utility fees. The Sewage Authority of German Township includes a utility fee. Jefferson Township has a light and hydrant fund. North Union Township has a stormwater and sewage utility fee. Smithfield Borough also has a sewage authority fee.

Franklin, George, Henry Clay, Lower Tyrone, Dunbar, South Union, Washington, and Wharton Townships and Everson, Dawson, Newell, and Markleysburg Boroughs noted there are no utility fees.

State and Federal Financial Resources and Grant Programs

The decision and capacity to implement mitigation-related activities is often strongly dependent on availability of local financial resources. While some mitigation actions are less costly than others, it is important that money is available locally to implement policies and projects. Financial resources are particularly important if communities are trying to leverage state or federal mitigation grant funding opportunities that require local-match contributions.

State funding sources that may be available for hazard mitigation planning activities at the time the HMP update was prepared include but are not limited to the following (DCED, 2020).

- [CFA/DCED Abandoned Mine Drainage Abatement and Treatment Program](#)
- [CFA/DCED Baseline Water Quality Data Program](#)
- [CFA/DCED First Industries Fund](#)

- [CFA/DCED Flood Mitigation Program](#)
- [CFA/DCED H2O PA Flood Control Projects](#)
- [CFA/DCED H2O PA High Hazard Unsafe Dam Projects](#)
- [CFA/DCED H2O PA Water Supply, Sanitary Sewer and Storm Water Projects](#)
- [CFA/DCED Orphan or Abandoned Well Plugging Program](#)
- [CFA/DCED PA Small Water and Sewer](#)
- [CFA/DCED Sewage Facilities Program](#)
- [CFA/DCED Watershed Restoration Protection Program](#)
- [DCED Business Financing Programs](#)
- [DCED Keystone Communities Program](#)
- [DCED Local Government Capital Project Loan Program](#)
- [DCED Municipal Assistance Program](#)
- [DCED/DEP Coal Refuse Energy and Reclamation Tax Credit Program](#)
- [DCED/DEP Private Dam Financial Assurance Program](#)
- [DCNR Community Conservation Partnerships Program](#)
- [DEP Growing Greener Plus Grants Program](#)
- [PennDOT Pennsylvania Infrastructure Bank \(PIB\) Loan](#)
- [Pennsylvania Infrastructure Investment Authority \(PENNVEST\)](#)
- [Pennsylvania Redevelopment Assistance Capital Program \(RACP\)](#)

Federal funding sources that may be available for hazard mitigation planning activities at the time the HMP update was prepared include but are not limited to the following.

- [Appalachian Regional Commission \(ARC\) POWER Initiative Grant Program](#)
- Department of Commerce (DOC)/Economic Development Authority (EDA) Construction Grant Program
- EDA Construction Grant Post Approval Process Tool for Grant Recipients (Version 5.0)
- <https://www.eda.gov/tools/grantee-information/>
- [Department of Energy Weatherization Assistance Program](#)
- [Department of Homeland Security Grant Program \(HSGP\)](#)
- [Department of Transportation/Federal Highway Administration Emergency Relief Program](#)
- DOC/EDA Planning Grants
- DOC/EDA Technical Assistance Grants FY 2016 - FY 2019 EDA PLANNING PROGRAM AND LOCAL TECHNICAL ASSISTANCE PROGRAM
- [DOC/EDA Revolving Loan Fund](#) (ACEDC RLF recipient)
- [FEMA Community Assistance Program - State Support Services Element \(CAP-SSSE\)](#)
- [FEMA Community Disaster Loan Program](#)
- [FEMA NFIP Community Rating System](#)
- [FEMA Emergency Management Performance Grants \(EMPG\)](#)
- [FEMA Environmental Planning and Historic Preservation Program \(EHP\)](#)

- [FEMA Flood Mitigation Assistance Program](#)
- [FEMA Hazard Mitigation Grant Program \(HMGP\)](#)
- [FEMA Individuals and Households Program \(IHP\)](#)
- [FEMA National Dam Safety Program](#)
- [FEMA National Flood Insurance Program](#)
- [FEMA Pre-Disaster Mitigation Program \(PDM\)](#)
- [FEMA Public Assistance Program \(PA\)](#)
- [FEMA Regional Catastrophic Preparedness Grant Program](#)
- [Housing and Urban Development \(HUD\) 5\(H\) Homeownership Program](#)
- [HUD Community Development Block Grant \(CDBG\)](#)
- [HUD Disaster Housing Assistance Program \(DHAP\)](#)
- [HUD/Federal Housing Administration \(FHA\) Title I Property Improvement Loans](#)
- [HUD/FHA Section 203\(h\) Mortgage Insurance for Disaster Victims](#)
- [HUD/FHA Section 203\(k\) Rehabilitation Mortgage Insurance](#)
- [HUD Partnership for Advancing Technology in Housing](#)
- [HUD Section 108 Loan Guarantee Programs](#)
- [Internal Revenue Service Casualty Loss-Special Disaster Provisions](#)
- [NOAA National Weather Service StormReady® Program](#)
- [USDA Natural Resources Conservation Service \(NRCS\) Easement Programs](#)
- [Small Business Administration Disaster Loan Programs](#)
- [United States Army Corps of Engineers \(USACE\) General Investigation \(GI\)](#)
- [USACE Continuing Authorities Program](#)
- [USACE Flood Plain Management Services Program \(FPMS\)](#)
- [USACE Inspection of Completed Works Program \(ICW\)](#)
- [USACE National Levee Safety Program](#)
- [USACE Planning Assistance to States](#)
- [USACE Rehabilitation and Inspection Program \(RIP\)](#)
- [United States Department of Agriculture \(USDA\)/Farm Service Agency \(FSA\) Emergency Conservation Program](#)
- [USDA/FSA Emergency Farm Loans](#)
- [USDA/Emergency Forest Restoration Program \(EFRP\)](#)
- [USDA Non-insured Crop Disaster Assistance Program \(NAP\)](#)
- [USDA/NRCS Emergency Watershed Protection Program](#)
- [USDA/NRCS Watershed Protection and Flood Prevention Program](#)
- [USDA Home Renovation Loans](#)
- [USDA/Rural Housing Service \(RHS\) Community Facilities Loans and Grants](#)
- [USDA/RHS Rural Housing Assistance](#)
- [USDA/RHS Section 502 Single-Family Housing Direct and Guaranteed Loans](#)
- [USDA/RHS Single Family Housing Repair Loans & Grants](#)
- [USDA/RHS Mutual Self-Help Housing Technical Assistance Grants](#)

- [USDA/Risk Management Agency Federal Crop Insurance Program](#)
- [USDA/Rural Development Business & Industry Loan Guarantees](#)

5.2.4. Education and Outreach

Education and outreach programs and methods are used to implement mitigation activities and communicate hazard-related information. Examples include fire safety programs that fire departments deliver to students at local schools; participation in community programs such as Firewise USA® or StormReady® and activities conducted as part of hazard awareness campaigns, such as Tornado or Flood Awareness Month. Some communities have their own public information or communications office to handle outreach initiatives. Overall, programs not relating to certification are not common within the County and limited responses were provided. Most responses received were no regarding education and outreach. Municipalities will be encouraged to develop mitigation actions related to education and outreach in upcoming updates.

Fayette County Website

Perhaps the largest and most extensive education and outreach opportunity is the Fayette County website. This site provides a variety of educational resources as well as links to County agencies and acts as a clearing house for information surrounding hazard mitigation as well as general development and other County activities (e.g. COVID-19 Vaccination locations and information). The Fayette County EMA website has been used as the hub for the hazard mitigation planning process over the years to include links to the adopted and draft HMP for comments, information on upcoming meetings, and required paperwork in the update process. Municipalities and local EMCs are familiar with the website making it easily accessible. The Fayette County EMA also has a program for residents to provide their phone numbers to receive call alerts. The EMA also provides seasonal and regular training and meetings with the local EMCs and municipalities.

Firewise USA® Program

The National Fire Protection Association (NFPA) administers the Firewise USA® Program to encourage local solutions for safety by involving homeowners in taking individual responsibility for preparing their homes from the risk of wildfire. The program provides resources to help homeowners learn how to adapt to living with wildfire and encourages neighbors to work together to take action to prevent losses. The national Firewise USA® Recognition Program has nearly 1,000 active member communities in 40 states, as well as a participation retention rate of 80 percent over the past decade. The program, aimed at homeowners, provides specific criteria for communities regarding wildfire preparedness, and offers national recognition for their work. According to the PA DCNR, Firewise USA® has replaced Firewise Communities which was discontinued in 2019. Only three Pennsylvania communities participate in NFPA Firewise USA, none are in Fayette County. No municipalities reported Firewise Communities designation.

StormReady®

StormReady® is an education and outreach program that helps arm communities with the communication and safety skills needed to save lives and property before, during, and after an event. All of Pennsylvania's 67 counties meet enrollment criteria.

Fayette County is certified as a StormReady Community by the National Weather Service. The Storm Ready program was established to help local governments improve the timeliness and effectiveness of hazardous weather-related warnings for the public. By participating in this program, local agencies can earn recognition for their jurisdiction by meeting the guidelines established by the National Weather Service in partnership with Federal, State, and local emergency management professionals. The certification also makes Fayette County and its municipalities eligible for 25 points in the Community Rating System, awarded to local governments that meet the flood threat recognition system.

The City of Uniontown noted the city is currently a weather ready nation ambassador and is currently beginning the process of becoming a storm ready community. Connellsville, Franklin, and Bullskin Townships also noted having its Stormready certification and receiving support from the County EMA regarding the Stormready program. The City of Connellsville takes advantage of the Advanced Hydrologic Prediction Service through the National Weather Service. Everson Borough uses social media to inform and to teach the community along with an open house with flyers and information.

VOAD

The Fayette County VOAD (Voluntary Organizations Active in Disaster) helps to pull resources from voluntary organizations in disaster recover efforts. Currently, in cooperation with the Western PA VOAD, VOAD is developing a plan to determine specific needs and respond to those needs. Mr. Greg Crossley, City of Uniontown, is Fayette County VOAD Chair.

The website provides links to online training system, both digitally accessibility and printable. VOAD resource surveys are also available to assist the organization in better understanding to coordinating available resources in a disaster. Volunteer organizations who wish to participate are encouraged to fill this survey out. The website is:

<https://www.fayettecountypa.org/728/VOAD>.

Seasonal Education Programs

The City of Uniontown and Vanderbilt Borough provide seasonal education programs for citizens and local officials every year. Uniontown also routinely conducts fire safety outreach in local schools and other locations. As mentioned previously, as of September 2021 the City became involved in SolSmart, a federally funded program focused on solar power education. South Connellsville Borough is currently working on an informational campaign that will utilize social media and a new website to let Borough residents know of disaster information,

recycling events, and updates on projects within the Borough. Everson Borough uses its social media website for training and reminders for upcoming meetings. Dawson Borough noted seasonal education programs are handled by the Street Department.

5.2.5. Plan Integration

Plan integration recognizes that hazard mitigation is most effective when it works in concert with other plans, regulations, and programs. Per FEMA, plan integration is described as the regular consideration and management of hazard risks in a community's existing planning framework. Plan integration is the process by which communities critically analyze their existing planning framework and align efforts to build a safer, smarter community. Plan integration involves a two-way exchange of information and incorporation of ideas and concepts between hazard mitigation plans (state and local) and other community plans. Specifically, plan integration involves the incorporation of hazard mitigation principles and actions into community plans and community planning mechanisms into hazard mitigation plans (FEMA, 2015).

In Pennsylvania, integrating hazard mitigation into planning tools is afforded through the Municipalities Planning Code in that protecting and promoting safety and health is a purpose of the code. Further, a purpose of the Municipalities Planning Code is "to minimize such problems as may presently exist or which may be foreseen," which is the focus of hazard mitigation planning.

When developing the HMP, the County Comprehensive Plan, Multi-Municipal Plans, EOP, and various land use ordinances and regulations provided key information. These documents are referenced where appropriate throughout the plan and links to the documents are included in **Appendix A - Bibliography**.

Moving forward, each of these documents should not be treated as unrelated and updated separately. The County and each participating municipality are responsible for incorporating the specific mitigation actions recommended in this Plan into the necessary planning documents, including the appropriate comprehensive plan, the County EOP, and any land use ordinances and regulations.

For example, zoning and other land use regulations can be amended to reflect the newly identified hazard areas, to ensure that development in those areas is minimized or at least conducted in a way that otherwise mitigates against the effects of hazards (e.g., requiring structures built in the floodplain to be elevated). As proposed changes to building codes are presented, their potential for mitigating damage due to hazards will be examined, and the changes will only be adopted if they are shown to lower risk. Changes to stormwater management plans will incorporate identified mitigation actions and will encourage increased participation in the NFIP.

Plan integration is not only accomplished through the MPC and planning tools such as comprehensive plans and zoning ordinances, but through capital improvement planning, area plans such as highway corridors and downtown plans, functional plans like stormwater and open space plans, and public and stakeholder outreach and education. This section highlights key opportunities for plan integration in Fayette County. Each of the plans and regulations

listed below includes a “Plan Integration” dialogue that should be ensue as these resources are updated.

Fayette County and its municipalities must ensure that the components of the HMP are integrated into existing community planning mechanisms and are generally consistent with goals, policies, or recommended actions. Fayette County and the Hazard Mitigation Steering Committee will utilize the existing maintenance schedule of each plan to incorporate the goals, policies, or recommended actions as each plan is updated.

Pennsylvania State All-Hazard Mitigation Plan

Examples of how the 2018 Update of the **Pennsylvania State All-Hazard Mitigation Plan** goals and objectives are integrated into the Fayette County HMPU are listed below.

- **Goal 1:** Protect lives, property, environmental quality, and resources of the Commonwealth.
 - ***Plan Integration with Fayette County HMPU:*** Goal 1 of the Fayette County HMPU emphasizes promoting hazard mitigation as a public value that ensures safer, more sustainable communities. Objectives and actions focus on educating the community to implement best practices outside of the home, but also inside (Objective 1.1). Information is also made available to community via websites maintained by the County and other municipalities who are accountable for the action (Actions 1.1.2 and 1.1.4). Mine subsidence has been a growing concern for Connellsville Township leading the Township to identify mine subsidence and bring it to the forefront of the municipality’s priorities (Action 1.1.5). Lastly, the County is working with the Chamber of Commerce to continue to administer vaccines to the public (Action 1.1.6).
- **Objective 1-6:** Local building code enforcer training and outreach.
 - ***Plan Integration with Fayette County HMPU:*** Municipalities maintaining mitigation actions to enforce building codes (Action 2.4.4).
- **Objective 1-7:** Coordination, prioritization, and funding availability to address community needs for dam hazards.
 - ***Plan Integration with Fayette County HMPU:*** The County has created an Action to, “Monitor and ensure Emergency Action Plans for all high hazard dams in the County are current and dams are identified through GIS” (Action 5.2.1). Municipalities have also incorporated reviewing Emergency Action Plans for all dams (Action 5.1.1.).
- **Objective 1-8:** Encourage aggressive enforcement of floodplain and storm water management ordinances and other all-hazard regulations to reduce losses in high risk areas.
 - ***Plan Integration with Fayette County HMPU:*** Many mitigation actions proposed by the County and local municipalities focus on storm water and floodplain

management. Example Actions are 2.1.1, 2.1.2, 2.1.3, 2.1.5, 2.1.6, 2.1.7, and 2.1.8.

- **Objective 1-15:** Increase capacity and effectiveness of Commonwealth NFIP management.
 - ***Plan Integration with Fayette County HMPU:*** The County will continue to educate its municipalities and insurance companies on the NFIP (Actions 2.5.1, 2.5.3, 2.5.4). Educating municipalities on the CRS program is also a priority for the County as noted in Action 2.5.5.
- **Goal 2:** Enhance consistent coordination, collaboration, and communications among stakeholders.
 - **Objective 2-2:** Promote integration of mitigation goals, objectives, and actions where appropriate in other planning initiatives.
 - ***Plan Integration with Fayette County HMPU:*** The County Comprehensive Plan is currently being updated and efforts are being made to incorporate valuable information from the HMP to the Plan. In addition, various municipalities are updating their Comprehensive Plan (Action 2.4.2).
 - **Objective 2-3:** Support the collection, update, and dissemination of datasets useful for hazard mitigation planning and implementation.
 - ***Plan Integration with Fayette County HMPU:*** The County is continually updating the list of critical facilities by working with municipalities, as well as improving records of previous occurrences of natural and man-made hazards (Actions 2.2.2 and 2.2.8).
- **Goal 3:** Provide a framework for active hazard mitigation planning and implementation.
 - **Objective 3-1:** Opportunities for regional organizations, businesses, and academia to be engaged in hazard mitigation planning.
 - ***Plan Integration with Fayette County HMPU:*** Washington County Planning Commission attended the planning kickoff and neighboring counties and organizations will continue to be invited and given opportunities to provide input on the process and HMP. In addition, meetings have been held separately with the Chamber of Commerce to educate local businesses on what is happening in their community. Hospitals and medical establishments, local school districts, and utility providers have also been invited to all meetings.

Fayette County Comprehensive Plan

As described in Section 2.2, many of the areas identified as tourist attractions in the Comprehensive Plan are ideal for natural resource protection efforts. Open areas of varying topography and outdoor recreation set Fayette County apart from other counties in southwestern Pennsylvania.

These areas are also vulnerable to disorientation and drowning occurrences because of the large open areas, water features, and signal reception. Past occurrences of each are listed in sections 4.3.15 and 4.3.16.

Lastly, the 2019 Comprehensive Plan noted the top four concerns of stakeholders are: Crime/Drugs, Lack of Employment Opportunities, Vacant Storefronts in Downtown and/or Commercial Areas, Loss of Young People/Graduates. Other concerns included Vacant/Dilapidated Housing, Poor Circulation and Connectivity, Environmental Concerns, and Loss of Agriculture/Open Space. Four main themes were outlined in the Comprehensive Plan to strengthen positive assets and improve weaknesses and concerns: A Place with a Healthy Economy, A Beautiful Place to Live, A Fun and Existing Place to Visit, and a Future Land Use Plan that would include an overall growth and development strategy. Regarding the HMP, the table shows natural and human-made hazards that influence the top concerns noted in the Comprehensive Plan. It is also significant that the concerns outlined can be improved via planning and regulatory mediums.

Table 5.5.1-1 Fayette County Comprehensive Plan Stakeholder Concerns and HMP Hazard Profiles Comparison

COMPREHENSIVE PLAN CONCERN	HMP HAZARD PROFILE
Crime/Drugs	Opioid Addition Response, Civil Disturbance
Vacant/Dilapidated Housing	Building or Structure Collapse, Urban Fire and Explosions, Utility Interruptions
Poor Circulation and Connectivity	Transportation Incidents
Environmental Concerns	Radon Exposure, Unconventional and Conventional Oil and Gas Wells, Environmental Hazards
Loss of Agriculture/Open Space	Drought

Fayette County should continue to make hazard data available when the 2022 HMP update is complete. The updated hazard data can be used to help update the County and local Comprehensive Plans and other planning documents. Additionally, hazard related data from consistency reviews should be transmitted annually to be used as part of the County's annual HMP review. This data can be used to help track plans and projects not only for the annual HMP review but for the 2027 HMP update.

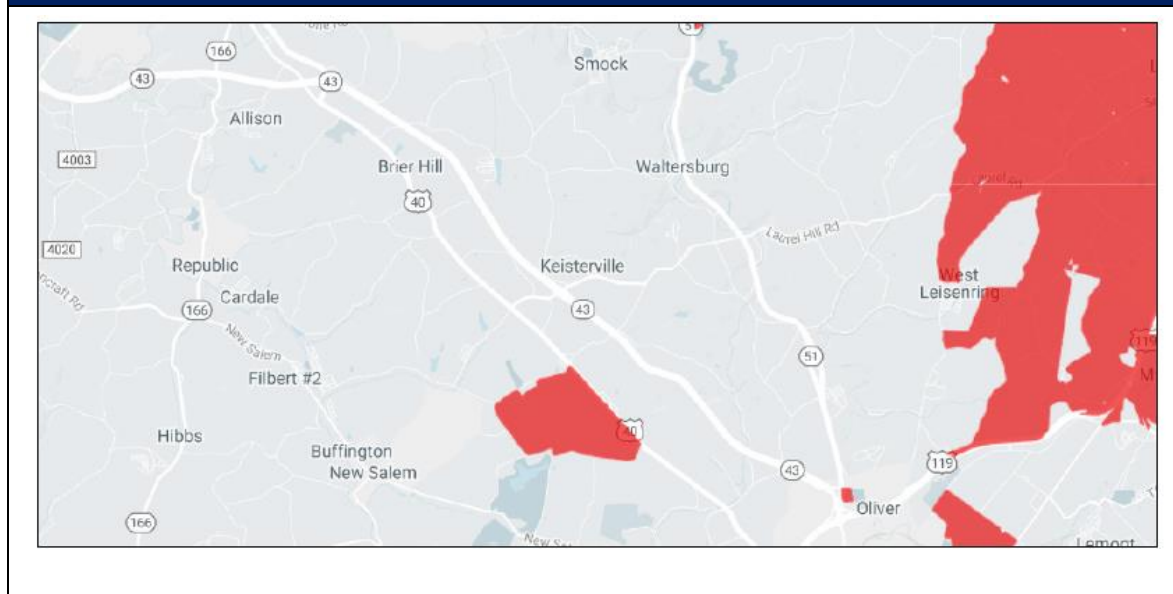
Multi-municipal Comprehensive Plans.

Since the 2017 Update, many municipalities have succeeded in creating governing plans. Some communities create joint Comprehensive Plans like German Township and Masontown Borough who share a joint Comprehensive Plan. Connellsville City's Comprehensive Plan was adopted in April 2019, and Washington Township's Plan in August 2018. Uniontown City and Menallen Township (August 2018) are currently in the process of developing Comprehensive Plans. Details of plan integration between the HMPU and multi-municipal comprehensive plans are detailed below.

Success stories, related to mitigation, identified in the **Connellsville Next, the City of Connellsville Comprehensive Plan** include: clearing blighted structure along Route 119 and implementing code enforcement to demolish condemned structures for site reuse. PennDOT also continues to improve bridges such as the Crawford Avenue Bridge. One of the priority

goals of this plan is the redevelopment of the Dutch Bottom neighborhood was severely impacted by flooding in 2016. A total of 23 homes in the neighborhood were acquired and

Figure 5.5.1-1 Menallen Township 2018 Fiber Internet Service Coverage (Menallen Township Comprehensive Plan, 2018)



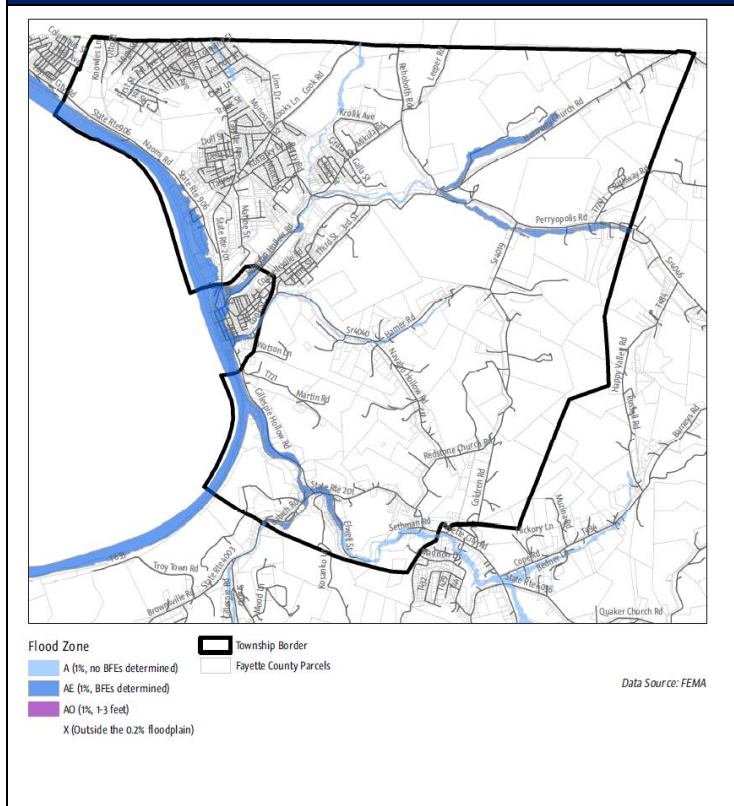
demolished in the area with funds from a hazard mitigation grant. These properties are now restricted to only uses that will restore and or conserve natural floodplain purposes. The plan also identifies supporting land and natural resource preservation, creating transportation options, and serving people of all ages and abilities.

Chapter six of the **Menallen Township Comprehensive Plan** details the environmental constraints to development as well as the potential hazards facing the community. The plan also provides guidelines for development in landslide and flood prone areas as well as detail the extent of legacy and on-going natural resource extraction within the Township. In addition, one-third of the housing was built pre-1940, a potential for building and structural collapses or urban fire. As the Township continues to grow and to improve utility interruption and connectivity, a plant upgrade to Upper Middletown has been proposed along with increasing fiber optic networks. The figure below shows fiber internet service coverage as of 2018. The Comprehensive Plan is currently being updated.

Washington Township Comprehensive Plan

The **Washington Township Comprehensive Plan** highlights a key concern among many municipalities, staffing capabilities, but specifically the police force. The municipality noted

**Figure 5.5.1-2 Washington Township Flood Zones
(Washington Township Comprehensive Plan, 2018)**



interest in feasibility studies to establish a multi-municipal police protection. The Volunteer Fire Department (VFD) is certified in CPR/first aid, and several members have state certification as emergency medical technicians and paramedics. The VFD is challenged by limited public water and fire hydrants, unsafe dilapidated buildings, and poor property maintenance and structures without updated fire alarm systems. Concerns collected from the wider municipal population through the comprehensive planning process present opportunities for mitigation actions that can suffice across multiple disciplines. Generally, utilities were outlined as a concern ranging from redundancy, bandwidth, condition, and accessibility. Lastly, Chapter five

summarizes the Township's natural environment such as its steep slopes, flood hazards, and industrial contamination. The Plan states slopes greater than 25% inhibit development, however development has occurred in these areas because only 2.5 of the 10 square miles is considered level. Most of the land is well-drained, and mapping shows limited areas at risk of significant property damage due to their location in the 100-year floodplain (shown in Figure 5.5.1-2).

The Pittsburgh seam, the world's richest mineral deposit, underlays most of the Township, and provided an economic stimulant to the area. The Comprehensive Plan reflects the County HMP's records of historical property damage from surface subsidence. Abandoned mines in the region were noted as contributors to stream pollution and a threat to aquatic life and public health. Overall, the Comprehensive Plan's objectives to develop and maintain safe, efficient, and cost-effective infrastructure, be a steward of natural resources, and reinforce a development pattern that preserves natural and rural areas aligns with the goals outlined in the County HMP.

Fayette County Mountain Area Multi-Municipal Comprehensive Plan

The **Fayette County Mountain Area Multi-Municipal Comprehensive Plan** is a joint Comprehensive Plan that was developed and adopted by seven Fayette County

municipalities. Henry Clay Township, Markleysburg Borough, Ohiopyle Borough, Saltlick Township, Springfield Township, Stewart Township, and Wharton Township use this plan as a guiding document for development and floodplain and floodway management. The Plan was developed in February/March 2010 and updated in April 2022.

North Union and South Union Comprehensive Plan

North and South Union Townships adopted a plan in 2007, but there is no plan for an update. The document identified 268.2 acres of floodplains located in the Township and directs the audience to the FEMA flood mapping for up-to-date floodplain information. The Plan states these areas should be considered open space and to not be developed, which aligns with its zoning and SALDO.

Floodplain Management Ordinances

Municipalities in Fayette County updated their floodplain ordinances in 2014, nearly all report using the Pennsylvania Model Ordinance. All municipalities participating in the NFIP have floodplain management ordinances. Most have standalone ordinances that are a part of the Municipal code, but a few include floodplain management regulations as a part of the zoning ordinance. South Union and Washington Townships specifically noted using the PA Model Ordinance to:

- Promote general health, welfare, and safety of the community;
- Encourage the utilization of appropriate construction practices in order to prevent or minimize flood damage in the future
- Minimize danger to public health by protecting the water supply and natural drainage; and
- Reduce financial burdens imposed on the community, its government units, and its residents by preventing excessive development in areas subject to flooding.

Belle Vernon noted the ordinance aids in the construction and development of properties within potential hazardous and/or flood-prone areas. Franklin Township requires construction activities within the floodplain to have all necessary permits prior to construction and for those applications to be reviewed to determine whether the proposed construction should take place.

The City of Connellsville is discussing the development of a streambank buffer protection program, and Dunbar Township has one in place. Fairchance Borough Engineers review all projects, plans, and policies as they relate to streambank buffers. In March 2017, Jefferson Township adopted a floodplain management plan. Nicholson Township noted the floodplain management ordinances prevent development in areas prone to flooding.

Stormwater Management Plan or Ordinance

Fayette County updated its **Stormwater Management Plan** in 2018 for the Youghiogheny River Watershed, Monongahela Watershed, and the Cheat River Watershed. Like the HMP,

stormwater management plans must be reviewed (and revised, if necessary) every five years. By adopting a Countywide Plan, the County is allowing for consistent standards and criteria to control stormwater runoff. Fayette County Conservation District along with the municipalities were involved in the planning process. Objectives established through this plan include reducing flooding; reducing soil ad stream bank erosion and sedimentation; improving the overall quality of the receiving streams; and implementing a stormwater management ordinance, all linking to the goals and vulnerabilities regarding flooding and water quality identified in the HMP.

EOPs

The Fayette County Emergency Management Agency is responsible for preparing and maintaining the **County EOP**. The risk assessment information presented in the existing HMP can be used to update the hazard vulnerability assessment section of the County EOP. The updated risk assessment information will affect subsequent updates to the EOP.

The Fayette County Emergency Management Agency should consider the County's HMP during its biennial review of the County EOP. Recommended changes to the HMP will then be coordinated with the Steering Committee.

The City of Connellsville has a City Emergency Plan in place. The plan is effective as of 2006 and is not slated for an update at this time. The City of Uniontown is currently in the process of updating it's 2015 Emergency Operations Plan. The plan incorporates hazard mitigation planning in addition to the typical emergency preparedness, response, and recovery details.

6. MITIGATION STRATEGY

6.1. UPDATE PROCESS SUMMARY

The mitigation strategy serves as the long-term road map to reduce the potential losses, vulnerabilities, and shortcomings identified in the Hazard Identification and Risk Assessment section. A typical mitigation strategy includes a list of goals and objectives, with mitigation actions to address the goals and objectives, that are then prioritized, based on the community's need.

Goals are long-term aspirations about the resiliency of the community given the potential effects of hazards. **Objectives** are measurable strategies that the Fayette County community has determined will be necessary to move closer to attaining each goal. **Actions** are the tasks that are proposed for realizing each objective.

The 2017 HMP included four goals and 12 objectives. During that update, there was a significant rework of the goals and objectives developed in the 2011 HMP. Changes included eliminating the hazard-specific goals and, instead, creating a single goal that addressed reductions in the possibility of damage and loss to existing community assets stemming from all hazards. This also ensured that additional goals would not be needed if more hazards were added to the HMP.

The review of the goals and objectives is summarized in Table 6.1-1.

Table 6.1-1 Review Summary of the 2017 Mitigation Strategy Goals and Objectives		
GOAL AND OBJECTIVES		COMMENTS
GOAL 1	Promote hazard mitigation as a public value that ensures safer, more sustainable communities.	The HMPT agreed that this goal should be continued into the 2022 HMPU.
Objective 1.1	Ensure community members have an understanding of the concept of hazard mitigation and be able to identify ways that they can mitigate hazards in the home as well as prepare for hazards outside the home.	No changes to Objectives 1.2 and 1.2 in the 2022 HMPU.
Objective 1.2	Review the existing Fayette County EOP and update where necessary based on the recommendations of the Fayette County Hazard Mitigation Plan.	
GOAL 2	Reduce possibility of damage and loss to existing community assets including addressable structures, critical facilities, and infrastructure for all hazards that affect Fayette County.	The HMPT agreed that this goal should be continued into the 2022 HMPU.
Objective 2.1	Using proven techniques, continually and jointly work with municipalities to identify new and existing areas that are subjective to constant repetitive flooding and work to combat this problem.	No changes to Objectives 2.1-2.6 in the 2022 HMPU.

Table 6.1-1 Review Summary of the 2017 Mitigation Strategy Goals and Objectives		
GOAL AND OBJECTIVES		COMMENTS
Objective 2.2	Assist municipalities and emergency responders with providing essential services to the communities.	
Objective 2.3	Focus mitigation efforts on structural projects that permanently protect property and reduce long-term losses.	
Objective 2.4	Reduce flood damage by continuing to evaluate high-hazard areas and directing new development away from high-hazard areas.	
Objective 2.5	Improve the enforcement of existing floodplain regulations.	
Objective 2.6	Research possible mitigation projects and continually compile State and Federal best practices.	
GOAL 3	Evaluate existing shelters to determine adequacy for current and future populations.	The HMPT agreed that this goal should be continued into the 2022 HMPU.
Objective 3.1	Ensure sufficient sheltering exists to meet the needs of the County's municipalities.	No changes to Objectives 3.1-3.3 in the 2022 HMPU.
Objective 3.2	Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and Fayette County EMA.	
Objective 3.3	Ensure sufficient shelter space exists to meet the needs of each Municipality.	
GOAL 4	Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.	The HMPT agreed that this goal should be continued into the 2022 HMPU.
Objective 4.1	Protect Fayette County's natural resources through the implementation of cost-effective and technically feasible mitigation projects.	No change to Objectives 4.1 in the 2022 HMPU.
GOAL 5	Reduce the risks posed by the potential failure of HHPDs within the County.	Goal 5 will be added to the 2022 HMPU.
Objective 5.1	Maintain Emergency Action Plans for all HHPDs.	Objectives 5.1 and 5.2 were added by the Fayette County EMA to meet HHPD requirements.
Objective 5.2	Collect and continually improve GIS data and records of dams in the County.	

Mitigation actions have been carried over and developed for the County as well as for each participating jurisdiction. While many actions may be more general in nature and could apply to more than one jurisdiction, some actions are specific to individual jurisdictions. The mitigation actions that were developed were based on the following: issues identified in the Hazard Identification and Risk Assessment, gaps identified in the mitigation capability analysis, input from the HMPT, and feedback from the Risk Assessment and Mitigation Solutions Workshop held June 15, 2022. These mitigation actions may be implemented through a

variety of local tools such as: changes in ordinances and policies, inclusion into capital improvements budgets, and grant funding.

County and Municipal actions in the 2017 Plan and those developed and updated during the three annual updates were distributed for the June 2022 Mitigation Solutions workshop for review and update. Each action has been assigned one of the following categories.

- "Completed" - Action was completed since the adoption of the 2017 Plan.
- "Cancelled" - Action was terminated.
- "Deferred" - Action that had not been initiated since the adoption of the 2017 Plan.
- "On-Going" - Action that is performed on a regular and continuous basis by the department, or progress has been made, but the action is not complete.

The majority of existing mitigation actions have been carried over into the 2022 Hazard Mitigation Plan as they are continuous actions or actions that were not completed. A list of these actions as well as their status is included in Table 6.1-2. Actions were evaluated by the HMPT and municipal officials with the intent of producing a usable mitigation action plan in 2022 with actions and projects that could be completed during a set timeframe. **Appendix C** contains a summary of responses provided by municipalities to the Mitigation Action Progress Report Form.

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
GOAL 1	Promote hazard mitigation as a public value that ensures safer, more sustainable communities.					
Fayette County	1.1.1: Provide workshops for community members and elected officials in each of the Fayette Forward* communities.	2020: Fayette County withdrew this action.	X			
Fayette County, Brownsville Borough, Brownsville Township, Uniontown City	1.1.2: Integrate hazard mitigation into the Community Response Preparedness program being presented in the County.	2018: Brownsville Township revised their Emergency Disaster Plan. Uniontown City expanded the use of social media and developed outreach programs and policies. The City sees a lack of public interest in these efforts and believes that education for the public and officials is important. Fayette County conducted several programs over the last year and will to			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		continue schedule. 2020: Brownsville Borough continues to integrate hazard mitigation into their Community Response Program. Uniontown City continues to update and rewrite their Emergency Operations Plan. The city also continued to expand the use of social media and has grown their followership significantly. 2021: Brownsville Township continues to integrate hazard mitigation into local plans and preparedness programs. The Township is currently developing a comprehensive plan, which is expected to be completed in 2022. Uniontown City continues to update and rewrite their Emergency Operations Plan. The City also continues to utilize two social media platforms for public outreach and reports good levels of interaction from the public via these channels. 2022: Uniontown City is still rewriting its EOP into CEM planner. The community outreach policy which is mainly utilization of two social media platforms continues with good interaction from the public. The EMC recently completed the G-393 Class form hazard mitigation planning. Obstacles include lack of community understanding of the priority of emergency management, and of course funding. With new resource opening up, it could improve. The EOP updates will continue bi-annually, and participation in annual and five-year will continue. Fayette County will continue to offer these as part of the program – 12 programs per year.				
Fayette County, Brownsville Borough, Uniontown City	1.1.3: Make information available to community members via the EMA website, utilizing links as well as to other sites offering	2018: Uniontown City uses social media platforms to share mitigation and preparedness information from a host of sources, weather updates, and mitigation options. For National Preparedness Month, the City launched a daily posting campaign. Funding is an obstacle to progress for the City. Also, added Opioid Addiction Response as an addressed hazard. Fayette			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
	mitigation information.	County distributes information to the community as it becomes available or is created. 2020: Brownsville Borough utilizes the Borough EMA website to provide stakeholders with mitigation resources and other information. Fayette County continues to provide mitigation resources via the County EMA website. Uniontown City continues to share incident information as well as hazard mitigation and preparedness ideas and information via social media. The city shares preparedness tips from multiple sources including PEMA/FEMA to their growing social media followership. 2021: Uniontown City continues to share incident information as well as hazard mitigation and preparedness ideas and information via social media. The City has also had success disseminating information via local radio stations. 2022: Uniontown City continues daily postings of weather, preparedness information, road closures, utility disruptions as well as campaigns for special periods such as National Preparedness Month. A substantial number of posts were shared or interacted with by the public as well as the local radio station. For example, close to 50 shares occurred on a public service announcement (PSA) concerning a traffic restriction recently. Fayette County implemented Code Red into the website.				
Franklin Township	1.1.4: Enforce stricter driveway ordinances to prevent water runoff into roadways.	2022: Franklin Township reviews ordinances annually while conducting annual inspections throughout the Township. Residences and businesses comply regarding runoff. Obstacles have been supplies if a residence requires to meet the ordinance, and the code enforcement officer handles it.			X	

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette County	1.2.1: Review and update all annexes of the Fayette County Emergency Operations Plan. Include participation from all municipalities in update process.	2018: Fayette County conducted plan review and updated annexes and contacts as needed. The County acknowledges that more pressing issues detract from dedicating time to this action, but the completion date should remain. 2020: Fayette County continues to review and update annexes every two years. 2022: Fayette County updated the EOP in 2021.			X	
GOAL 2	Reduce possibility of damage and loss to existing community assets including addressable structures, critical facilities, and infrastructure for all hazards that affect Fayette County.					
Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Everson Borough, Fairchance Borough, Fayette City Borough, Franklin Township, Georges Township, German Township, Lower Tyrone Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, North Union Township, Perry Township, Perryopolis Borough, Redstone Township, Saltlick Township, Springhill Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	2.1.1: Repair areas that are damaged due to poor drainage and runoff conditions. Utilize riprap and rebuild these areas with better technology.	2018: Bullskin Township is maximizing water absorption and minimizing run off by moving ditches away from the road, gradually tapering to the back of the ditch, and using rip rap where applicable. German Township is repairing drainage and run off areas by adding new drains and fixing slide areas in the Township. Delays in materials has interrupted progress. This action is a major part of the Townships budget and progress is made on a daily basis. Newell Borough declared the Action is ongoing. Saltlick Township has been stabilizing erosive areas such as ditches by using rip rap. All major areas have been stabilized. Uniontown City is working to procure grants for flooding. They have received a \$162,000 grant for both City creeks. They are spending \$70,000 on a HEC-RAS study and \$90,000 to begin implementing recommendations. A community event used volunteer hours to clean up creek banks, somewhat improving flow. The City will need more funds to mitigate their flooding hazard. Fayette County continues to support repairing damaged property and areas and recommends focusing on this action. North Union Township installed new rip-rap ditches and cross-pipes at Jefferson St and rip-rap ditches at Willow St. The Township experienced time constraints due to weather.		X	X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		2020: Brownsville Borough continues to repair damaged areas with poor drainage. Bullskin Township is moving ditches further from roadways and gradually tapering to the back of the ditch and using rip rap where applicable. Fayette County continues to support municipalities with the repair of damage from improper drainage and runoff. Masontown Borough completed the Excavation, R5 Rock Protection, and Stabilization of Cats Run Channel as well as Big Run Channel at River Ave. Newell Borough continues to repair areas damaged due to poor drainage and runoff. North Union Township reports the completion of repairs to a slide on Fan Hollow Road using aggregate and concrete. Redstone Township completed this action by relining the ditch on Route 40 to the culvert and adding 15 feet of " pipe. The Township also reports that the banks of the ditch have been seeded with grass. Saltlick Township replaced 30 cross drains, upgrading to larger diameter pipe when necessary, and installed rip rap at inlets and outlets. Uniontown City continues to use funding from the \$162,000 grant received in 2018 to implement the recommendations from the HEC-RAS study, though more funding is needed. 2021: German Township completed this action and reports no drainage issues in areas that were addressed. Lower Tyrone Township continues to monitor problem areas, clearing debris and reinforcing or repairing ditches when necessary. Saltlick Township continues to monitor and repair storm drains and ditches as needed. The Township annually regrades ditches, cleans storm drain pipes, and blows leaves and other debris out of ditches during autumn. Uniontown City continues to use funding from the \$162,000 grant received in 2018 to implement the recommendations from the HEC-RAS study, though more funding is needed. Recent progress includes debris removal from creeks. Upper Tyrone				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		Township continues to monitor problem areas and replace pipes and culverts as needed to prevent stormwater issues. Wharton Township continues to monitor problem areas. The Township also requires that all new construction meet the criteria laid out in the stormwater ordinance to help prevent future damage to infrastructure. 2022: Fayette County noted this Action is ongoing. Bullskin Township reported by absorption of water was maximized to minimize runoff by moving the ditch from a road with a gradual taper to the back of the ditch. Riprap is used where applicable, and the Action is ongoing as problems arise. Franklin Township noted annually and after storms there are inspections with repairs and better drainage systems are implemented. Since 2020, the Warchol Road drainage pipeline project was completed. Fayette City Borough and North Union Township noted the Action as ongoing. George Township noted it will continue to make repairs and perform regular maintenance to areas with poor drainage and runoff conditions, and identify other problem areas. Newell Borough incorporated new piping and drainage on 4th and Morgan Street, 2nd Street, and Miller Street. North Union Township is currently improving flooding issues on Kerr Street. Uniontown City continues to apply for grants and utilize grant money received to mitigate the flood threat on the two creeks that traverse the City. Also, the City had at least one business make a considerable investment by installing flood gates on their building. HEC-RAS money left over after the initial study was completed was used to make some improvements to the creeks, debris removal etc. This appears to have helped somewhat in the flow. Nicholson Township reported using riprap to rebuild drainage areas. Upper Tyrone Township noted there is milling along problem roads, and the Township is placing new piping along				

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		roads where needed or where none exists. Point Marion Borough deferred the Action.				
Fayette County, Brownsville Borough, Brownsville Township, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Dunbar Township, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, Perry Township, Redstone Township, Saltlick Township, Springhill Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	2.1.2: Clean debris from the banks and beds of creeks that constantly flood and evaluate the possibility of installing flood control measures on these areas.	2018: Brownsville Township removed trees and debris from Dunlap Creek but are encountering obstacles with funding and procuring equipment to remove the debris. Bullskin Township is working with engineers to target areas that are flood hazards based on the last flood on August 26, 2016. The township is still working with the engineering firm and is encountering obstacles with the DEP. German Township has deferred this action due to costly permits and a delay in time caused by rains. The Township holds this to be a very relevant action but does not feel it has the funding and resources to complete it. Newell Borough declared the Action is ongoing. Saltlick Township has removed trees and other obstacles that could block water flow from streams. Uniontown City is working to procure more funding for this action. The Fayette County Community Action Agency and Uniontown Public Library have both installed mitigation devices at their facilities. The City sees a lack of funding and DEP regulations as obstacles to progress. Fayette County will forward grants to the municipalities regarding clean up and flood control measures. 2020: Brownsville Borough continues to clean debris around flood prone creeks. Bullskin Township is still working with an engineering firm to target areas deemed flood hazards after 2016 flood. Fayette County continues to support all municipalities with the clearing of debris from banks and beds of creeks as well as installing flood control measures. Masontown Borough continues to clean and stabilize flood prone channels including Cats Run Channel and Big Run Channel. Newell Borough has withdrawn this action. Redstone Township continues to clean debris along roadways throughout the Township so that it does not wash into the stream. Saltlick Township continues to	X	X	X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		clear debris, including the removal of trees and other debris that get washed into bridges as needed. Uniontown City continues cleaning of banks and areas around creeks and removing debris via grants and community cleanup programs. Upper Tyrone Township reports working with the Jacobs Creek Watershed Associate to clean debris the creek. 2021: Brownsville Township continues to evaluate problem areas. The Township recently replaced a bridge head wall and removed debris and brush from stream banks. German Township continues cleaning of banks and areas around creeks and streams. Work is currently being done by hand due to delays related to permitting for the use of heavy equipment. Masontown Borough also continues to clean and stabilize flood prone channels including Cats Run and Big Run Channels. Saltlick Township continues to clear debris from the banks and beds of creeks. A large oak tree was removed recently from under a bridge to reduce possible flooding. Uniontown City continues cleaning of banks and areas around creeks and removing debris via grants, funding from private entities with interests along the creeks, and community cleanup programs. Wharton Township continues to clear debris from the banks and beds of creeks; however funding is limited and reduces the amount of work that can be done. 2022: Fayette County commended the municipalities who continue to execute this work. Bullskin Township is working with its engineering firm to target areas that are flood hazards from the last flood on August 26, 2016. Some banks have been armored with what the DED and USACE would allow. Dunbar Township plans to replace the stream crossing pipe with a bottomless low profile arch structure which would be sized to meet the stream during heavy rain events which would reduce flooding in the area. The Township has spoken with County Conservation about funding to				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		repair the slide. The section of Hollow Road could be reopened for better access to businesses, homes, and emergency vehicles. A five-foot pipe was removed at the stream crossing due to continuous flooding. Permits have been applied through the DEP so that the stream bank along Lower Sandy Hollow Road can be repaired which will alleviate the erosion and flooding near the road crossing and provide safe travel for motorists. Franklin Township continues to inspect and clean up banks and beds of creeks. Over the last two years, there have been monthly inspections plus inspections after storms to evaluate any debris build-up that will cause water to back-up and spill over. Georges Township continues to monitor and maintain high risk areas that are prone to flooding. The Township is looking into ways to mitigate flooding in these program areas. Newell Borough marked this Action as ongoing. Uniontown City will continue to work on funding with private entities with interests along the creek for clean-up programs. Vanderbilt Borough added the Action. Wharton Township continually repairs areas damaged due to poor drainage and runoff. Areas upstream and downstream of culverts are inspected after each runoff event. North Union Township signed up for this Action and noted debris removal from the streambank along Shutes Run is a current project. Upper Tyrone Township documented this Action is ongoing. Debris is cleaned every year, and the Township is working with Jacobs Creek Watershed. Point Marion Borough deferred the Action. Dawson Borough noted the Action as ongoing.				
Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Dunbar Township, Everson Borough, Fairchance Borough,	2.1.3: Maximize use of FEMA HMA grant and other programs to support all-hazard mitigation as well as acquisition/ demolition,	2018: Bullskin Township has purchased and demolished eight homes. One home is still in litigation with a Supervisor-imposed deadline of September 26, 2018. German Township has deferred this Action as it never received funding to complete it. Newell Borough declared the Action is ongoing. Uniontown City is pursuing grants	X		X	

FAYETTE COUNTY 2022 HAZARD MITIGATION PLAN UPDATE

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette City Borough, Georges Township, German Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, North Union Township, Perry Township, Perryopolis Borough, Point Marion Borough, Redstone Township, South Connellsville Borough, Springhill Township, Uniontown City, Upper Tyrone Township, Wharton Township	elevation, foundation stabilization, and relocation of hazard-prone residences along with stabilizing foundations, and/or flood-proofing of non-residential structures.	to fund these efforts and continuing to educate the public in mitigation efforts. The Fayette County Community Action Agency and Uniontown Public Library have both installed flood mitigation devices. Several businesses in flood-prone areas have begun maintaining a supply of sandbags and other materials that aid in mitigating flood damage. Funding schedules is an obstacle for the township due to storms dropping large amounts of water over a short period of time. Fayette County continues to provide support. North Union Township applied for a flood mitigation grant from DCED for cleaning Shutes Run, however the grant was denied. The Township will apply again next year and in the future. 2020: Brownsville Borough reports that this Action is ongoing. Bullskin Township is continuing to purchase and demolish homes within the flood plain. Eight homes were purchased and demolished as of September 2018 and another home was purchased in August 2020. Fayette County continues to support local municipalities get grants and encouraging them to participate in the HMP process. Masontown Borough continues to apply for Flood Mitigation Grants to improve Channels and Storm Sewers including the at N. Redwood St. and Cottage Ave. Newell Borough continues to utilize FEMA HMA grants as well as othe programs to fund mitigation projects. North Union Township continues to utilize grants to support mitigation actions. Uniontown City continues to pursue grants. The City also continues public education programs and encouraging property owners in flood prone areas to obtain flood insurance. Upper Tyrone Township has withdrawn this action. 2021: German Township has withdrawn this action. Masontown Borough continues to apply for mitigation funds. The Borough received a DCED Flood Mitigation Grant and is using funds to make improvements				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		to Big Run upstream of South Redwood Street. Uniontown City continues to pursue grants. The City also continues public education programs and encouraging property owners both in flood prone areas and those not in traditionally flood prone areas to obtain flood insurance. Wharton Township continues pursue grants to support hazard mitigation projects. The Township also continues to ensure that all new construction complies with all adopted ordinances. 2022: Fayette County notes several municipalities have completed and continue to perform the Action. Dunbar Township noted the state bridge inspection recently indicated that that six concrete box beams have deteriorated to the point of needing to be replaced in the new two years on the Riverside Drive Bridge (built in 1979). They have met with the County grant writing resource to coordinate with PennDOT. This bridge is the only access to two water treatment plants for Fayette and Westmoreland Counties. The Falls Avenue Bridge (built in 1930) was also recently inspected and indicated that the steel I-beams and the walls need to be replaced from corrosion and cracking within two years. Again, the Township met with the County grant writing resource who coordinates with PennDOT to place the bridges on the state transportation and infrastructure project list. The future plan would be to remove the bridge pier from the middle of the stream that would keep debris from collecting and causing flooding. Fayette City and Newell Boroughs noted the Action as ongoing. Georges Township continues to make repairs and perform regular maintenance. Uniontown City continues to pursue grants, encourage flood insurance acquisition even for those not directly within a floodplain, and educate the public. Some improvements have been debris removal around the creeks. Vanderbilt Borough added the Action. Wharton Township noted all				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		construction must comply with the adopted ordinances. Nicholson Township is identifying areas applicable areas for mitigation. Point Marion Borough documented it would like to reach out to the County for mitigation grant writing support and has not applied for any grants. North Union Township completed and removed the Action.				
Fayette County, Brownsville Borough, Brownsville Township, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Jefferson Township, Lower Tyrone Township, Luzerne Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, North Union Township, Perry Township, Perryopolis Borough, Saltlick Township, South Union Township, Springhill Township, Stewart Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	2.1.4: Potentially replace existing infrastructure that is continuously a problem in certain areas. This may include the storm sewer system, bridges, roadways, and culvert systems.	2018: Brownsville Township is developing a plan to address infrastructure problems and has placed a new wing wall on Century Bridge, paved five streets, and repaired two drains. Fund is an obstacle to progress. The township still needs to replace storm drains, pave roads, and replace Century Bridge. Bullskin Township has ongoing bridge and culvert projects and has experienced some obstacles from the DEP. German Township progresses this task daily through the replacement of culverts and miles of roads. The Township is experiencing a lack of manpower to complete this task. Newell Borough declared the Action is ongoing. Also, one culvert is being relocated while another is being studied for repair. Jefferson Township has replaced pipes and catch basins in Jefferson estates, and replaced 24" and 30" culverts with 48" ones. The Township sees funding as an obstacle to completing this task. Luzerne Township fixed a flooding issue on East Riverside Road. Saltlick Township has consulted their engineer to complete a HEC-RAS study to determine the best course of action to alleviate the flooding of a bridge and other roadways trap residents. The HEC-RAS study's findings will result in the Township to seek a grant to fund its proposed solution. Uniontown City hopes the mitigation grant used for the HECRA will reveal specific tasks for the City to complete. The City is aware of walls and culverts that have fallen into disrepair. The city is also upgrading much of the sewer system. Fayette County continues to support citizens on identifying problematic		X	X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		or hazardous infrastructure and locating funding sources. North Union Township replaced the Coal Street pipe and storm sewer, the West Penn pipe, and the Lemont Storm Sewer. More time is needed due to weather. 2020: Brownsville Borough continues to evaluate existing infrastructure to determine which pieces need repair and replacement. Bullskin Township is still repairing bridges and replacing culverts as needed. Fayette County continues to support municipalities with the replacement of infrastructure in frequent problem areas. Luzerne Township reports that this action is ongoing. Masontown Borough continues to replace failing infrastructure. Currently the Borough is tracking the replacement of a bridge on SR0166 as well as Storm Sewer improvements for Spring and Summer of 2021. Newell Borough replaced a storm sewer catch basin and repaired two others as well as extending the storm sewer coverage to an area adjacent to the Municipal building. North Union Township completed the installation of a cross drain at the Ruby View Development to help control erosion and ice buildup. Saltlick Township continues to replace infrastructure in problem areas. The Township contracted K2 engineering to perform a HEC-RAS study which showed that the bridge needs to be raised or replaces. The Township is working with the Fayette Co Bridge Department to obtain materials and grants to make adjustments to the bridge. Uniontown City continues to work with grant money to institute recommended mitigation actions. The city reported that a PennDOT bridge replacement project will include improvements to Coal Lick Run and another will include improvements to Redstone Creek. Upper Tyrone Township worked with PennDOT to replace existing pipe on SR1031 with a larger diameter				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		pipe. The Township reports that flooding is no longer an issue along SR1031. 2021: Brownsville Township continues to evaluate existing infrastructure. The Township has replaced pipes and catch basins in several problem areas. The Township is also pursuing additional grant funding to replace Century Bridge. German Township continues to replace aging infrastructure. The Township reports that progress has been good despite manpower shortages. Jefferson Township continues to replace aging infrastructure, including elements of the storm sewer system to alleviate flooding along roadways. Lower Tyrone Township reports that this action is ongoing. The Township contracted K2 Engineering to assess road conditions within the Township. Findings from the analysis revealed that repairs far exceed what the Township can afford and more funding will be required to make necessary repairs. Masontown Borough continues to replace failing infrastructure. The Borough reports that improvements or replacement of drainage structure(s) at S. Redwood and River Avenue have been designed and permitted and construction is expected to begin in Spring of 2022. Saltlick Township continues to monitor aging infrastructure. Albright Bridge was noted a frequent flooding problem. K2 Engineering was contracted to analyze the problem and recommended replacing the bridge. A HEC-RAS study was completed and funding is being investigated through various grants. Stewart Township continues to monitor and replace aging infrastructure when necessary despite very limited funds. Uniontown City continues to work with grant money to institute recommended mitigation actions outlined in the HEC-RAS study. The City also continues to pursue additional grant funding. Upper Tyrone Township installed storm sewer and culverts along Kings Hill Road to prevent flooding and berm washout. Wharton Township continues to monitor and replace				

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		aging infrastructure when necessary. The Township recently replace four culverts along Fayette Springs Road, Shepherd Road, and two along Mill Run School Road. The Township has also secured a DEP permit to install culverts along multiple other roads. 2022: Fayette County continues to support municipalities with the replacement of infrastructure in frequent problem areas. Franklin Township noted runoff was found going into Franklin Township Park. Fortunately, no damages occurred. The drainage will continue to be monitored. Georges Township performs regular maintenance on existing infrastructure. It is working to identify areas that are consistently problematic within the Township to take corrective action. Jefferson Township has been replacing concrete bell pipes with larger ADS pipes to help prevent storm damage. An engineer study is also underway to replace the storm system in Grindstone. The Township is currently seeking grants for these large projects. Newell Borough replaced a catch basic and piping and will continue to do so. South Union Township continues normal maintenance of road and stormwater systems. Uniontown City continues to use leftover grant funding along with pursuits of additional rounds of HEC-RAS funding to continue mitigation projects outlined in the HEC-RAS study. This has included cleaning of creek areas, removal of trash, maintaining trees, etc. Vanderbilt Borough added the Action, and Everson Borough removed the Action. North Union Township noted ongoing. Wharton Township noted the Township maintains all identified systems annually. Nicholson Township noted two bridges owned by the County need to be replaced - Lovers Leap Bridge and Gans Hill School Road Bridge. Upper Tyrone Township continues to replace old piping connected to culverts where needed. North Union Township noted this Action as completed				

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COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		and ongoing. The Township has secured CDBG funding and started a storm drain replacement project for Lemont Furnace, and funding is secured to replace and extend storm drainage on Kerr Street. It has also secured funding to replace the Postal Way Bridge over Rankin Run. Point Marion Borough deferred the Action.				
Luzerne Township	2.1.5: Repair drainage system failure due to sediment, debris or excessive water flow causing deterioration of manmade reinforcements at LaBelle Road/ Narrows Road; LaBelle Slurry Ponds.	2018: Luzerne Township is continuing efforts to complete this task. 2020: Luzerne Township completed this action, improving drainage at Labelle Road, Narrows Road, and the LaBelle Slurry Ponds. The Action should marked as completed and removed.				X
Luzerne Township	2.1.6: Repair drainage system failure due to sediment, debris or excessive water flow causing deterioration or manmade reinforcements at Pastime Gardens/ Narrows Road.	2020: Luzerne Township has referred this action to PennDOT.			X	
Fayette County	2.1.7: Obtain data annually from FEMA and PEMA to ensure the most up-to-date repetitive loss information on properties in the County and in the municipalities to plan future mitigation activities.	2018: Fayette County performed annual review of FEMA and PEMA data. Data is up to date. 2020: Fayette County reviews and double checks this information annually to ensure accuracy. They report that this action is ongoing and data is up to date. 2020: Efforts were made during the 2022 HMPU to update and provide data to the consultant. This will continue as the HMP is updated.			X	
Fayette County, Brownsville Borough, Uniontown City	2.2.1: Make snow routes available in certain	2018: Fayette County reviewed snow route designation process and shared information to municipalities.	X		X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
	municipalities where limited resources are available for snow removal.	2020: Brownsville Borough reports that this action is ongoing. Fayette County continues to support municipalities and make snow routes available to those with limited resources. Uniontown City withdrew this action. 2022: Fayette County continues to support municipalities and make snow routes available to those with limited resources.				
Fayette County, Brownsville Borough, Belle Vernon Borough, Bullskin Township, Connellsville City, Dunbar Borough, Dunbar Township, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson, Township, North Union Township, Perry Township, Perryopolis Borough, Redstone Township, Smithfield Borough, South Connellsville Borough, Springhill Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	2.2.2: Annually update this Plan's list of 'critical facilities' as guided by PEMA that could be affected by each identified hazard.	2018: Bullskin Township's update to its list of critical facilities is ongoing. German Township is meeting with local officials and residents to complete this action. The action has been ongoing for six months in the Township and will continue into next year. Newell Borough declared the Action is ongoing. Uniontown City is continuing to establish and maintain relationships with critical facilities including assisting with the maintenance and exercise of their internal emergency plans and integration of that information into the municipal EOP. The City has found that some facilities are better at communicating and collaborating than others, leaving the City sometimes unaware of significant changes. Also, added Opioid Addiction Response as an addressed hazard. Fayette County's update is ongoing and will continue during the year. North Union Township states the Action is ongoing and will continue to update. 2020: Brownsville Borough continues to update its list of critical facilities and reports no new facilities within the update period. Bullskin Township continues to update its list of critical facilities. Fayette County reports that this action is ongoing. The county reviews this data annually and makes changes when necessary. Masontown Borough reports no additional critical facilities have been added within the Borough. Newell Borough continues to update its list of critical facilities and reports that no new facilities were added during the update period. North Union Township continues to update their list of its list of critical facilities and reports no additions to	X		X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		the list for this update. Uniontown City also continues to update its list of critical facilities and reports that no additional facilities or major expansion have been added since the last update. Upper Tyrone Township reported no additional critical facilities. 2021: Dunbar Township noted the Monarch fire hydrants are not providing high enough water pressure to the Monarch area for firefighting. The Township noted needing to work with the utility provides and emphasizing the hydrants as critical facility. During a recent structure fire, the water pressure was lost due to the two hydrants being open during the same time. The Township is working to address the pressure issue and educate the VFDs. German Township continues to update its list of critical facilities and maintains an excellent working relationship with the County EMA office. Lower Tyrone Township added two critical facilities to their list with the County. The Township added a water tower and a water pumping station to their list of critical facilities. Uniontown City also continues to update its list of critical facilities and reports that no additional facilities or major expansion have been added since the last update. Upper Tyrone Township continues to update the list of critical facilities with the County. The Township reports no new facilities. Wharton Township continues to update its list of critical facilities with the County. 2022: Belle Vernon Borough removed the Action. Bullskin Township replaced three bridges and repaired one with a few more to be replaced or repaired as funds become available. The bridges selected were from a PennDOT inspection. Fayette County has also started updates. Franklin Township has an annual meeting with surveyors and County agency meetings to help identify current and new structures. Georges Township, North Union Township, and Everson Borough removed the Action. Newell Borough and Upper Tyrone				

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COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		Township noted ongoing. Uniontown City noted the County recently acquired a multi-story former bank and office building. It is currently undergoing extensive renovation and several County offices including the Election Bureau will be there. They also acquired a former office building next door to the courthouse which houses the District Attorney's office. Additionally, the new County prison is being constructed on the old Army Reserve property. This will add three critical infrastructure properties in the City. A list of over 60 critical infrastructure sites within the city was prepared and submitted to the County for this plan. Wharton Township prepares a list of critical facilities requiring improvements, and it is working on permitting for replacement to expedite the work once funding becomes available. Nicholson Township continues to add critical facilities to the County list, including utility lines, two water tanks, and high-tension wiring.				
Fayette County	2.2.3: Ensure that the municipalities have contingency plans in place for instances where the resources become overtaxed and additional help is needed.	2018: Fayette County will begin this Action in 2019. 2020: Fayette County reports that this is covered in regular EMC meetings and is a high priority for the County. 2022: Fayette County has worked with the Municipal officials to identify other resources.			X	
Brownsville Borough, Jefferson Township, Uniontown City	2.2.4: Conduct an engineering study to assess the incidence of landslide undermining existing roadways.	2018: Brownsville Borough has deferred this action. Jefferson Township has completed an engineering study for Newell Short Cut Road and has an engineering study underway for the Zias Road slide from 9/12/2018. Uniontown City has withdrawn this action. 2020: Brownsville Borough reports that this action is ongoing. 2021: Jefferson Township continues to look at other potential areas for study. 2022: Jefferson Township is looking to conduct an engineer study for Zazado Road. North Union Township would like to	X		X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		add this Action. They have completed two landslide stabilization projects since 2019: under Fan Hollow Road and Carr Road.				
Brownsville Borough, Jefferson Township, Uniontown City	2.2.5: Conduct an engineering study for cross benches and key ways cut into hill sides to prevent landslides onto roadways.	2018: Bullskin Township has deferred this action. Jefferson Township has had an engineer draw plans for cross cuts and backfill on Newell Short Cut Road. The project is ready for bid as of February 20, 2018 and is approximately \$100,000. Major rainfall on February 24, 2018 caused a slide, rupturing a water main and washing out over half of the road. This left 35 homes with only temporary water sources. Uniontown City has withdrawn this action. 2020: Brownsville Borough reports that this action is ongoing. 2022: Jefferson Township noted engineer plans are complete crosscuts and backfill projects. They are seeking grants for the cost estimate of \$700,000.	X		X	
Brownsville Borough, Saltlick Township, Uniontown City	2.2.6: Trim vegetation over utility lines to reduce utility interruptions resulting from storms.	2018: Saltlick Township reports that West Penn Power, through contracted agents, have been completing this action, but Laurel Highland Telephone Co has not. Uniontown City is continuing to maintain their relationship with First Energy (West Penn Power), the responsible company for this action. 2020: Brownsville Borough reports that they continue to work with West Penn Power to ensure that vegetation over utility lines is trimmed. Saltlick Township reports that West Penn Power continues to ensure that vegetation is trimmed along utility lines within the Township. Uniontown City continues to maintain their relationship with First Energy/West Penn Power to perform this action. 2021: Saltlick Township reports that West Penn Power and LHTC Broadband continue to retain a contractor to trim vegetation and maintain the area around utilities lines. Uniontown City continues to maintain their relationship with First Energy/West Penn Power. These entities retain a contractor to			X	

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Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		trim vegetation and maintain the area around power lines. 2022: Uniontown City recorded First Energy/West Penn Power retains a contractor to trim vegetation from around power lines. Generally, their public safety liaison with whom we have an established relationship advises when and where this is taking place. We then share the information to city public safety agencies via email and the public via social media.				
Fayette County	2.2.7: Establish a Countywide team of Law Enforcement Officers trained and equipped to respond to civil disturbances and terrorism.	2018: Fayette County is working with the Fayette County Drug Task Force to complete this action and recognizes funding and time for training as obstacles. 2020: Fayette County is still working on implementing this action. The County reports that they are assessing how best to implement this action. 2022: Fayette County noted the attempt is still ongoing, and the need is there. Funding and sponsorship are both issues that are preventing completion.			X	
Fayette County, Uniontown City	2.2.8: Implement a building hardening program for critical facilities and infrastructure to protect against terrorism.	2018: Uniontown City held a full-scale exercise involving police, fire, and EMS partners. The City has found that not all facilities are willing to accept assistance. Fayette County had the Department of Homeland Security survey at least one County-owned property. The Action remains ongoing. 2020: Fayette County continues to work with the FBI, State Police and other partners to provide guidance and resources. Uniontown City continues to assist with exercises and emergency planning for critical facilities. 2021: Uniontown City continues to assist with exercises and emergency planning for critical facilities, though exercises have been restricted because of social distancing during the pandemic. 2022: Uniontown City continues to be available to assist facilities with the emergency plans and exercises. With			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		COVID and in person meetings being restricted, the City hasn't had the opportunity to participate in any exercises. It has assembled some information for a service organization in the City at their request but have not been able to re-connect with them. Fayette County will continue to support this Action.				
Brownsville Borough, Fayette County, Uniontown City	2.2.9: Upgrade fire protection systems to meet NFPA standards. Projects may include purchase of mobile booster pumps to increase pressure for fire protection.	2018: Uniontown City received an AFG grant for a new fire engine and replaced the fire department's breathing apparatus. The Fire Department also achieved an improvised ISO rating in 2017. 2020: Brownsville Borough reports that this Action is ongoing. Fayette County continues to support local municipalities in upgrading fire protection systems. Uniontown City continues to upgrade fire protection systems. A new class A engine was received in December 2019 via an AFG grant. 2021: Uniontown City continues to upgrade fire protection systems. Another new class A engine was ordered via an AFG grant. Additional grant money will be used to upgrade radio equipment. 2022: Fayette County will continue to support this Action. Uniontown City noted apparatus, equipment upgrades, and manpower are needed in both the career and volunteer ranks. Another class A engine has been ordered via a second AFG grant. Additional grant money this year earmarked for upgrades in radio equipment has been approved. The class A engine was delivered in the Spring of 2022. One career firefighter was hired by the City in late 2021 to replace the retiring Chief. An initiative is being undertaken to create a set of departmental SOPs/SOGs covering career and all three volunteer companies within the city fire service.			X	
Fayette County, Brownsville Borough, Uniontown City	2.2.10: Identify and monitor transportation routes of	2018: Uniontown City's Fire department members have completed their hazmat operations recertifications for the most part. The fire and police departments, EMS, and			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
	hazardous materials. Train Municipal police and fire departments on placard identification.	Fayette County EMA participated in an exercise with Columbia Gas in 2017. The City sees a need for more equipment and sees opportunity for cross-training with police and EMS. Fayette County completed a seminar presenting commodity flow study and trained 1st responders in hazmat identification and response. At least 250 personnel trained during this period. 2020: Brownsville Borough continues to train police and fire departments on hazard placard identification. Fayette County reports that this Action is ongoing. Commodity flow studies were completed in 2017 and 2019 and the County offers HazMat training continually each year. Uniontown City continues to train police and fire departments on hazmat principles. 2021: Uniontown City continues to make hazmat awareness training available to all city departments. The City reports that fire personnel are trained to an operational level and many have achieved technical certifications through the EPA and Fayette county HMRT. 2022: Fayette County will complete the commodity flow in August. This still done every three to five years with the last completed in 2017. Uniontown City Hazmat awareness level training remains available to all City departments. Fire personnel are trained to the operations level, and several members possess technician level certificates through the EPA and Fayette County HMRT. The Fayette County HMRT remains the designated certified hazmat team for the City. The EMA director maintains copies of SARA facility plans as per statute. At present we have no voluntary reporters. Gas meters were upgraded in the fire department within the last year.				
Fayette County, Brownsville Borough, South Union Township, Uniontown City	2.2.11: Fully utilize resources available to help identify impacts and	2020: Brownsville Borough continues to explore resources and identify impacts of gas extraction. Fayette County continues to provide support and resources to	X		X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
	consequences of Marcellus Shale natural gas and extraction operations.	municipalities for this action. Uniontown City has withdrawn this action. 2022: Fayette County will continue to support this Action.				
Fayette County	2.2.12: Ensure that emergency responders in the County are able to respond in the event of an emergency, especially where life safety is a major concern. Rural areas of the County can pose a major threat to patient access during this time.	2018: Uniontown City has withdrawn this Action. Fayette County states the Action is ongoing. 2020: Fayette County reports that this action is ongoing. 2022: Fayette County noted they will continue to address rural areas. They have completed lists of ATU/UTU capabilities for fire department and EMS use.	X		X	
Connellsville Township	2.2.13: Become proactive with road crew, Fire Department, EMA, and Township supervisors during severe winter weather warnings.	2022: Connellsville Township deferred the Action.		X		
Perryopolis Borough	2.3.1: Excavate area around historical site of Washington's Mill, raise building, and add drainage repair.	Perryopolis Borough did not provide an update.		X		
Franklin Township	2.3.2: Reconstruct bridge at Crabapple Road and Crabapple Lane.	2022: Franklin Township deferred the Action but noted plans for development were complete. Funding has prevented the project to stabilize the bridge and place culvert systems.		X		

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Franklin Township	2.3.3: Floodproof Redstone Creek in Smock.	2022: Franklin Township deferred the Action. Annual inspections and manual clean-up after storms to prevent the creek from flooding have been performed. The Township is unable to build or purchase anything commercial due to lack of funding.		X		
Fayette County	2.4.1: Encourage Municipal offices to review regulations pertaining to their jurisdiction to make sure that adequate zoning regulations are in place to reduce future development in high-hazard areas in their jurisdiction. Planning department to review Subdivision and Land Development Ordinance.	2020: Fayette County reports that this Action is ongoing, and they continue to encourage all municipalities to review pertinent regulations. 2022: Fayette County reports that this Action is ongoing.			X	
Bullskin Township, Franklin Township, Georges Township, Menallen Township, Nicholson Township, North Union Township, Redstone Township, South Connellsville Borough, Springfield Township, Springhill Township, Uniontown City, Wharton Township	2.4.2: Review all Emergency Action Plans for dams.	2018: Uniontown City has withdrawn this Action. North Union Township has withdrawn this Action as they do not have any dams. 2020: Bullskin Township deferred this action. Redstone Township continues to review all EAPs for dams annually. 2022: This Action has been moved to Goal 5, Objective 5.1. Bullskin and Nicholson Township canceled this Action. Franklin Township does an annual review plus a five-year review of the EOP for dams in the Township. Virgin Run Lake Dam is the only dam in the Township. The lakes for the other dams have dried up, and those dams are decommissioned. Georges Township	X		X	

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COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		noted ongoing. Wharton Township will continue to review the EAP for all dams.				
Fayette County	2.4.3: Planning Department and applicable Municipal offices to review their Comprehensive Plans to ensure that designated growth areas are not in high-hazard areas identified in this Plan.	2020: Fayette County reports that this Action has occurred annually each of the last three years and continues to occur. 2022: Fayette County reports that this Action has continued annually since 2017.			X	
Fayette County	2.4.4: Continually collect both anecdotal and quantitative information on past and future hazard occurrences, including monetary and non-monetary damages/losses.	2020: Fayette County reports that this Action is ongoing, and that the County utilizes the IDR and damage assessment process to track hazard occurrences. 2022: Fayette County reports that this Action is ongoing.			X	
Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, Menallen Township, Newell Borough, Nicholson Township, North Union Township, Ohiopyle Borough, Perry Township, Perryopolis Borough, Redstone Township, South Connellsville Borough, Springhill Township, Uniontown City,	2.4.5: Review Statewide Uniform Construction Code to ensure enforcement.	2018: Newell Borough declared the Action is ongoing. Uniontown City engineers keep up to date on code changes. The City is currently preparing to vote on the latest Statewide Uniform Construction Code revisions. North Union Township states that the Action is ongoing and still relevant; K2 Engineering is updating the Code book and will continue conducting this Action. 2020: Brownsville Borough continues to ensure enforcement of the UCC. Bullskin Township has deferred this action. Fayette County reports that they continue to review the UCC to ensure compliance. Newell Borough continues to ensure enforcement of the UCC. North Union Township has withdrawn this action. Redstone Township continues to contract K2 Engineering to ensure that the UCC is enforced. Uniontown City also continues to contract K2 Engineering. The firm continues to keep	X	X	X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Upper Tyrone Township, Washington Township, Wharton Township		abreast of changes to the code. Upper Tyrone Township completed a review of the UCC and continues to work with Planning and Zoning code enforcement officer to ensure enforcement. 2021: Uniontown City continues to contract K2 Engineering. The firm continues to keep abreast of changes to the code. Upper Tyrone Township continues to review all permits to ensure compliance with the code and storm sewer ordinance. Wharton Township continues to contract McMillan Engineering to administer and enforce the UCC. The Township is frequently in contact with McMillan regarding any UCC amendments or changes. 2022: Fayette County will continue to support the Action. Bullskin, Upper Tyrone, and Georges Townships and Newell and Everson Boroughs have removed the Action. Franklin Township works with the county UCC Department for enforcement, but the Township continues review of all construction being conducted in the Township and if the correct permits are being obtained. Uniontown City noted K2 Engineering continues this role, and this is noted in the EOP. Wharton Township noted this year it issued both residential and commercial building permits. Point Marion Borough deferred the Action.				
Fayette County	2.4.6: Encourage applicable Municipal offices to review their Capital Improvement Plans to ensure that programmed infrastructure improvements are not in high-hazard areas.	2020: Fayette County reports that this Action is ongoing, and that they continue to stress the importance of this action through land use ordinance updates. 2022: Fayette County reports that this Action is ongoing.			X	

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COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Brownsville Borough, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Jefferson Township, Lower Tyrone Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson, Township, North Union Township, Perry Township, Perryopolis Borough, Redstone Township, Saltlick Township, South Union Township, Springhill Township, Stewart Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	2.5.1: Applicable municipalities to review and update their floodplain ordinances to be sure that they are in full compliance with NFIP.	2018: Bullskin Township is working with PEMA to keep in compliance. German Township completed this action by passing a new ordinance to meet FEMA criteria. FEMA approved this ordinance in March 2017. Newell Borough reviewed and updated its floodplain ordinance in June 2017. Saltlick Township reviewed and updated its floodplain ordinance. Uniontown City is reviewing new maps for related ordinances. North Union Township states the action is ongoing and continues to update maps. 2020: Brownsville Borough continues to review and update their ordinances to ensure compliance. Bullskin Township continues to work with PEMA to remain in compliance. Masontown Borough continues to enforce Ordinance D-3-4-25-17 and reports no revisions since its adoptions and enactment in 2017. Newell Borough updated its floodplain ordinance in June of 2017. North Union Township continues to review and update ordinances to ensure that they are in compliance. Redstone Township reports that the Township has recently adopted the latest ordinance and is compliant with NFIP. Saltlick Township reports that the flood plain ordinance has been updated and is in compliance with the NFIP. Uniontown City continues to contract K2 Engineering to ensure that local ordinances remain in compliance with NFIP. Upper Tyrone Township completed a review of floodplain ordinances and reports that they are following the NFIP. 2021: German Township continues to contract McMillan Engineering to ensure that local ordinances remain in compliance with NFIP. The Township meets regularly with the firm to discuss any changes. Jefferson Township passed a new ordinance that meets FEMA criteria and was approved by FEMA in March 2017. Saltlick Township has updated the Township's floodplain ordinance. Stewart Township adopted a flood plain ordinance			X	

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			CANCELED	DEFERRED	ONGOING	COMPLETED
		in 2017. Uniontown City continues to contract K2 Engineering to ensure that local ordinances remain in compliance with NFIP. Wharton Township adopted a floodplain management ordinance. 2022: Franklin Township noted the supervisors annually review the floodplains according to mapping. Georges Township adopted the statewide model in 2017 and will update the ordinance as required. Jefferson, Nicholson, and South Union Townships, Uniontown City, and Newell Borough noted the Action as ongoing. Wharton Township noted engineering assists in compliance with the floodplain ordinance and as amended. Property owners are required to meet the ordinance for new construction. Upper Tyrone Township noted the Action is completed with the engineering consultants. Everson Borough and North Union Township removed the Action. Point Marion Borough deferred the Action.				
Fayette County	2.5.2: Work with the eleven municipalities that administer their own floodplain regulations to determine whether they have freeboard requirements, restrict hospitals, jails, and nursing homes in the floodplain, and/or restrict the storage of hazardous chemicals in the floodplain and update this HMP to reflect this.	2020: Fayette County continues to support municipalities that administer their own floodplain regulations. 2022: Fayette County continues to support municipalities that administer their own floodplain regulations.			X	

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COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette County	2.5.3: For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training sessions with the County and the municipalities on the NFIP requirements.	2018: Fayette County states the action is ongoing. 2020: Fayette County reports that this action is ongoing but acknowledges that COVID 19 and other projects have delayed recent training sessions. 2022: Fayette County is looking for programs to set up but deferred the Action due to progress.		X		
Fayette County, Brownsville Borough, Connellsville City, Perryopolis Borough, Connellsville Township, Henry Clay Township, Menallen Township, Stewart Township, South Union Township, Uniontown City, and Wharton Township	2.5.4: For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training for Insurance Companies on the NFIP.	2018: Uniontown City does not offer formal training but does off resources to citizens through social media. Public interest has been an obstacle for the City. Fayette County states the Action is ongoing. 2020: Brownsville Borough reports that this action is ongoing. Uniontown City continues to share information regarding the NFIP with stakeholders through social media and maintains an excellent working relationship with the county EMA. 2021: Uniontown City continues to share information regarding the NFIP with stakeholders through social media and maintains an excellent working relationship with the County EMA. 2022: Fayette County is looking for training to offer and deferred the Action. Uniontown City continues to be ready to assist the County and state partners with anything they might require. Information is also continually shared through social media. Connellsville Township deferred the Action. South Union Township canceled the Action. Wharton Township deferred the Action but noted training should be scheduled and needs to include Municipal officials, Township engineers, building inspectors, and real estate agents. The Township is unsure who is responsible for the Action.	X	X	X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette County	2.5.5: For Fayette County EMA to arrange with PEMA/FEMA/DC ED to conduct training on the Community Rating System (CRS) with municipalities.	2018: Fayette County states the Action is ongoing. 2022: Fayette County states the Action is ongoing.			X	
Fayette County	2.6.1: Continue to review Hazard Mitigation Questionnaires and post-disaster reviews submitted by municipalities.	2018: Fayette County states the Action is ongoing. 2020: Fayette County continues to review Hazard Mitigation Questionnaires and post disaster reviews submitted by municipalities. 2022: Fayette County states the Action is ongoing.			X	
Fayette County	2.6.2: Continue to produce and submit Hazard Mitigation Project Opportunity Forms for high-hazard structures/areas (especially post-disaster).	2020: Fayette County reports that this Action is ongoing and that the County continues to support municipalities with this effort. 2022: Fayette County reports that this Action is ongoing.			X	
GOAL 3	Evaluate existing shelters to determine adequacy for current and future populations.					
Fayette County	3.1.1: To work with the American Red Cross towards upgrading all shelter resources. Also any new shelters that the Red Cross may establish in the future. This will include shelters in all areas of Fayette County.	2020: Fayette County reports that this action is ongoing and that they continue to encourage municipalities to engage with the Red Cross. 2022: Fayette County reports that this action is ongoing and that they continue to encourage municipalities to engage with the Red Cross.			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes

COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette County	3.2.1: Hold an annual work session with Fayette County Red Cross and Fayette County EMA to share information about local shelters. Information to include: the site of each shelter, how many people it can house and feed, if it has back-up power available on site, completed site survey forms and types of resources that they have or that they need. This will benefit all areas of Fayette County in the event of the need to open shelters.	2018: Fayette County states the Action is ongoing. 2020: Fayette County reports that this Action is ongoing. They County continues to offer a session during their quarterly EMA trainings. 2022: Fayette County continues to meet annually.			X	
Fayette County	3.2.2: Establish a committee representative of all areas of the County that will include vets, pet store owners, the Humane Society, animal shelters, the Extension Service, and other interested parties to work on animal-specific evacuation and sheltering needs.	2018: Fayette County states the Action is ongoing and being conducted by Fayette CART. 2020: Fayette County reports that this action is ongoing and that the CART has been exceptional at handling this Action. 2022: Fayette County reports that this action is ongoing and that the CART has been exceptional at handling this Action.			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
Fayette County	3.2.3: Fayette County Emergency Management Coordinator to develop and deliver information to all County residents, through community group and/or publications, information on how to shelter in place, and when it is appreciated to do so.	2018: Fayette County conducts one program per month and is distributing information on social media. 2020: Fayette County continues to provide these resources to residents. 2022: Fayette County holds numerous workshops and public education events. The pandemic did limit face-to-face contact for two years.			X	
Saltlick Township, Uniontown City	3.3.1: Set up an emergency shelter.	2018: Saltlick Township has approached two local churches to assess their interest in being shelter locations. Both churches were interested but no progress has been made recently. The Township is now considering the use of an elementary school in an adjacent township. Uniontown City has made no progress but continues to reach out for venues and personnel. The City recognizes a lack of qualifying locations and a lack of volunteers to become certified shelter personnel as obstacles. The City plans to partner with the Red Cross and others to identify shelter venues in the region. 2020: Saltlick Township reports that they have partnered with Springfield Township to utilize the elementary school as a shelter. It has removed the Action. Uniontown City continues to work with the Red Cross and Fayette County Community Action Agency to upgrade shelters. 2021: Uniontown City reports that this action is ongoing, but progress has been slow due to COVID-19 restrictions. 2022: Uniontown City noted no progress, although the City will continue to work and meet with our VOAD and Red Cross partners on new approaches and concepts		X	X	X

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
		in sheltering as well as identifying possible locations. The City is approaching this on a regional basis more so than a municipal basis. The County EMA and VOAD are very engaged in the process. Fayette County has added this Action.				
GOAL 4	Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.					
Fayette County	4.1.1: Work with the DEP, conservation agencies, park and recreation organizations, wildlife groups, and other appropriate agencies to collect information of the number and location of natural resource areas throughout the County.	2020: Fayette County reports that this Action is ongoing and that they continue to encourage stakeholders to update this information. 2022: Fayette County continues to track these resources.			X	
Fayette County	4.1.2: Continue to use and improve GIS capability to identify and prioritize hazards and critical infrastructure for mitigation.	2020: Fayette County reports that this Action is ongoing. 2022: Fayette County has canceled this Action. The Action is constantly being improved.	X			
Fayette County	4.1.3: Regularly and within 30 days of a disaster event, hold meetings with property owners to identify high-risk properties in the County and to	2020: Fayette County reports that is Action is ongoing and is accomplished as a part of the County's damage assessment program. 2022: Fayette County reports that is Action is ongoing.			X	

Table 6.1-2 Review Summary of the 2017 Mitigation Actions and Progress Updates and Successes						
COMMUNITY	ACTION	COMMENTS/ PROGRESS	STATUS			
			CANCELED	DEFERRED	ONGOING	COMPLETED
	determine potential participation in future acquisition and relocation projects.					
Fayette County	4.2.1: Planning Department to continue the development of the Countywide Stormwater Management Plan within the next five years.	2020: Fayette County reports that this action is ongoing, although they have not received an update from the Planning Commission recently. 2022: Fayette County noted this Action as completed.				X
Fayette County	4.2.2: County to work with the DEP, conservation agencies, and others to research avenues for restoring degraded natural resources and open space to improve their flood control functions.	2020: Fayette County reports that this Action is ongoing. 2022: Fayette County reports that this Action is ongoing.			X	

6.2. MITIGATION GOALS AND OBJECTIVES

Hazard mitigation goals and objectives for the 2017 Plan were annually reviewed and developed via the updated Risk Assessment, Capability Assessment, and Mitigation Action Progress forms. The 2022 Plan's goals and objectives were finalized during a meeting on June 22, 2022. This review also included the addition of a fifth goal and two objectives:

- **Goal 5:** "Reduce the risks posed by the potential failure of HHPDs within the County."
 - **Objective 5.1:** Maintain Emergency Action Plans for all HHPDs.
 - **Objective 5.2:** Collect and continually improve GIS data and records of dams in the County.

Table 6.2-1 lists the mitigation goals and objectives. There are five goals and 14 objectives.

Table 6.2-1 2022 Mitigation Strategy and Goals	
GOAL 1	Promote hazard mitigation as a public value that ensures safer, more sustainable communities.
Objective 1.1	Ensure community members have an understanding of the concept of hazard mitigation and be able to identify ways that they can mitigate hazards in the home as well as prepare for hazards outside the home.
Objective 1.2	Review the existing Fayette County EOP and update where necessary based on the recommendations of the Fayette County Hazard Mitigation Plan.
GOAL 2	Reduce possibility of damage and loss to existing community assets including addressable structures, critical facilities, and infrastructure for all hazards that affect Fayette County.
Objective 2.1	Using proven techniques, continually and jointly work with municipalities to identify new and existing areas that are subjective to constant repetitive flooding and work to combat this problem.
Objective 2.2	Assist municipalities and emergency responders with providing essential services to the communities.
Objective 2.3	Focus mitigation efforts on structural projects that permanently protect property and reduce long-term losses.
Objective 2.4	Reduce flood damage by continuing to evaluate high-hazard areas and directing new development away from high-hazard areas.
Objective 2.5	Improve the enforcement of existing floodplain regulations.
Objective 2.6	Research possible mitigation projects and continually compile State and Federal best practices.
GOAL 3	Evaluate existing shelters to determine adequacy for current and future populations.
Objective 3.1	Ensure sufficient sheltering exists to meet the needs of the County's municipalities.
Objective 3.2	Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and Fayette County EMA.
Objective 3.3	Ensure sufficient shelter space exists to meet the needs of each Municipality.
GOAL 4	Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.
Objective 4.1	Protect Fayette County's natural resources through the implementation of cost-effective and technically feasible mitigation projects.
GOAL 5	Reduce the risks posed by the potential failure of HHPDs within the County.
Objective 5.1	Maintain Emergency Action Plans for all HHPDs.
Objective 5.2	Collect and continually improve GIS data and records of dams in the County.

6.3. IDENTIFICATION AND ANALYSIS OF MITIGATION TECHNIQUES

The mitigation strategy in the updated Hazard Vulnerability Assessment and Mitigation Plan Update should include analysis of a comprehensive range of specific techniques or actions. FEMA, through the March 2013 Local Mitigation Handbook, and PEMA, through the 2020 SOG, identify four categories of hazard mitigation techniques.

- **Local Plans and Regulations:** Government authorities, policies, or codes that influence the way land and buildings are developed and built. Examples include, but are not

limited to, comprehensive plans, subdivision regulations, building codes and enforcement, and NFIP and CRS.

- **Structure and Infrastructure:** Modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability. Examples include, but are not limited to, acquisition and elevation of structures in flood prone areas, utility undergrounding, structural retrofits, floodwalls and retaining walls, detention and retention structures, and culverts.
- **Natural Systems Protection:** Actions that minimize damage and losses and preserve or restore the functions of natural systems. Examples include, but are not limited to, sediment and erosion control, stream corridor restoration, forest management, conservation easements, and wetland restoration and preservation.
- **Education and Awareness:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate the hazards and may also include participation in national programs. Examples include, but are not limited to, radio or television spots, websites with maps and information, provide information and training, NFIP outreach, StormReady, and Firewise Communities.

The HMPT reviewed the four types of mitigation techniques and examples of actions at the Risk Assessment and Mitigation Solutions Workshop. Table 6.3-1 provides a matrix identifying the mitigation techniques used for each hazard in the County. The specific actions associated with these techniques are included in Table 6.4-1.

Table 6.3-1 2022 Techniques Used for All Fayette County Hazards				
HAZARD (IN ORDER OF RISK FACTOR RANKING)	MITIGATION ACTION TECHNIQUE			
	LOCAL PLANNING AND REGULATIONS	STRUCTURE AND INFRASTRUCTURE PROJECTS	NATURAL SYSTEMS PROTECTION	EDUCATION AND AWARENESS PROGRAMS
Flood, Flash Flood, Ice Jam	X	X	X	X
Extreme Temperature	X	X		X
Opioid Addiction Response	X	X		X
Winter Storm	X	X		X
Wildfire	X	X		X
Environmental Hazards	X	X		X
Tornado, Windstorm	X	X		X
Conventional Oil and Gas Wells	X	X		X
Unconventional Oil & Gas Wells	X	X		X
Drought	X	X		X
Pandemic and Infectious Disease	X	X		X
Transportation Incidents	X	X		X
Utility Interruption	X	X		X

HAZARD (IN ORDER OF RISK FACTOR RANKING)	MITIGATION ACTION TECHNIQUE			
	LOCAL PLANNING AND REGULATIONS	STRUCTURE AND INFRASTRUCTURE PROJECTS	NATURAL SYSTEMS PROTECTION	EDUCATION AND AWARENESS PROGRAMS
Subsidence, Sinkhole	X	X		X
Hailstorm	X	X		X
Dam Failure	X	X		X
Drowning	X	X		X
Radon Exposure	X	X		X
Terrorism	X	X		X
Landslide	X	X		X
Urban Fire and Explosion	X	X		X
Building or Structure Collapse	X	X		X
Disorientation	X	X		X
Civil Disturbance	X	X		X

6.4. MITIGATION STRATEGY

A kick-off meeting for the 2022 Fayette County Hazard Mitigation Plan Update was held on March 16, 2022 to develop a framework for the plan. The goals and objectives were presented during this meeting. During the Risk Assessment and Mitigation Solutions Workshop on June 15, 2020, Mitigation Techniques were discussed using FEMA's Mitigation Ideas document. During the workshop, municipalities were provided their Mitigation Action Progress Report Form which listed their actions and projects from the 2017 HMP and/or the annual updates in 2018, 2020, and 2021 for review and update as described in Section 6.1. Actions that have been deferred or ongoing have been carried over to the 2022 Action Plan and are again proposed for implementation.

In addition, participants were given Mitigation Action Forms to provide any new actions or projects to be included in the plan update. Eight additional mitigation actions were proposed by Fayette County, Belle Vernon Borough, Connellsville Township, Everson Borough, Jefferson Township, and Markleysburg Borough. These Actions are: 1.1.4; 1.1.5; 1.1.7' 1.2.2; 2.1.7; 2.1.8; 2.2.14; 2.3.4; 2.6.3; 3.1.2; 3.1.3; 3.1.4; 4.1.3; and 5.1.2. Hazards and techniques covered under the added Actions include:

- Developing an education and outreach program on hazard information and mitigation to children and adults in Everson Borough;
- Provide municipalities with grant writing and administration training through Fayette County and the Fayette County Planning, Zoning, & Community Development Department;
- Developing an emergency response service and warning system in Everson Borough;

- Installing a generator system for the Everson Borough Fire Station to be a safe center during natural disasters;
- Mapping areas of mine subsidence in Connellsville Township;
- Creating a stormwater management plan for Belle Vernon Borough;
- Addressing and documenting areas with drainage issues and areas with potential issues in GIS;
- Acquiring a backup generator for the Township fallout shelter in Jefferson Township;
- Develop a master list of public facilities and shelters with backup generators;
- Distributing flyers about harmful effects of littering such as ponding on State roads and storm drains, water going into basements, harm to animal habitats, and problems to private property owners;
- Working with local municipalities, led by the County, to collect data to identify structures on slopes 15% or steeper;
- Working with local building permitting, led by the County, to collect thorough details on structure condition, material, and age;
- Working with municipalities, led by the County, to collect GIS data and records on all dams, including HHPDs
- Continuing to work with the Chamber of Commerce, led by the County, to administer vaccines; and
- Overall improve the County's database to better assess vulnerabilities of all hazards.

Mitigation Action forms were also posted to the Fayette County EMA website and sent out via email (or post if requested). Meeting participants who were not affiliated with a municipality were provided with New Mitigation Action Forms to include new mitigation actions in the 2022 plan if they so wished.

The final list of mitigation actions is contained in Table 6.3-1. This table provides an overview of the strategy that will be utilized to implement each of the proposed mitigation actions. For each action listed in Table 6.4-1, the associated strategy identifies the agency or job title that will be responsible for initiating the work and potential sources of funding for the work. Each strategy also indicates a timeframe for when the action will happen.

Table 6.4-1 2022 Mitigation Strategy	
GOAL 1: Promote hazard mitigation as a public value that ensures safer, more sustainable communities.	
OBJECTIVE 1.1: Ensure community members have an understanding of the concept of hazard mitigation and be able to identify ways that they can mitigation hazards in the home as well as prepare for hazards outside of the home.	
COMMUNITY: Fayette County, Brownsville Borough, Uniontown City	ACTION 1.1.1: Integrate hazard mitigation into the Community Response Preparedness program being presented in the County.
Mitigation Technique:	Education and Awareness Programs

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Table 6.4-1 2022 Mitigation Strategy	
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Opioid Addiction Response; Radon Exposure; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA, Brownsville Borough EMA, Brownsville Township EMA, Uniontown City EMA
Implementation Schedule:	Continue with Current Program Schedule
Funding Source:	Staff Time
COMMUNITY: Fayette County, Brownsville Borough, Uniontown City	ACTION 1.1.2: Make information available to community members via the EMA website, utilizing links as well as to other sites offering mitigation information.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Opioid Addiction Response; Radon Exposure; Opioid Addiction Response; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA, Brownsville Borough EMA, Uniontown City EMA
Implementation Schedule:	Started in 2012 and Updated Monthly
Funding Source:	Staff Time
COMMUNITY: Franklin Township	ACTION 1.1.3: Enforce stricter driveway ordinances to prevent water runoff into roadways.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Franklin Township
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Everson Borough	ACTION 1.1.4: Create an outreach program to distribute and educate adults and children on hazard information and mitigation.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	All-Hazards
Lead Agency/Department:	Everson Borough

Table 6.4-1 2022 Mitigation Strategy	
Implementation Schedule:	2027
Funding Source:	Staff Time
COMMUNITY: Connellsville Township	ACTION 1.1.5: Identify and address mine subsidence in the Township.
Mitigation Technique:	Local Plans and Regulations, Education and Awareness Programs
Hazard(s) Addressed:	Subsidence, Sinkhole
Lead Agency/Department:	Markleysburg Borough - work with the Mine Safety Health Administration in identifying areas of mine subsidence. Hire interns to work with our contracted Engineer to do GIS mapping.
Implementation Schedule:	Two to three years
Funding Source:	Intern Program, Grants; \$25,000 for GIS Mapping
COMMUNITY: Fayette County	ACTION 1.1.6: Work with the Chamber of Commerce to administer vaccines to the public.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Pandemic and Infectious Disease
Lead Agency/Department:	Fayette County
Implementation Schedule:	Ongoing
Funding Source:	Internal
COMMUNITY: Fayette County EMA, and Fayette County Planning, Zoning, & Community Development Department	ACTION 1.1.7: Provide proactive outreach and training by Fayette County EMA and Fayette County Planning, Zoning, & Community Development Department to educate municipalities and current municipal grant writers and administration on HMP grant opportunities.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Fayette County, Fayette County EMA, and Fayette County Planning, Zoning, & Community Development Department
Implementation Schedule:	This will occur annually and also during the annual HMP updates and five-year update.
Funding Source:	Staff Time
OBJECTIVE 1.2: Review the existing Fayette County EOP and update where necessary based on the recommendations of the Fayette County Hazard Mitigation Plan.	
COMMUNITY: Fayette County	ACTION 1.2.1: Review and update all annexes of the Fayette County Emergency Operations Plan. Include participation from all municipalities in update process.

Table 6.4-1 2022 Mitigation Strategy	
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Opioid Addiction Response; Radon Exposure; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Started in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 1.2.2: Collect data to assess the County's vulnerability to all hazards, and integrate the information into the EOP.
Mitigation Technique:	Local Planning and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Fayette County
Implementation Schedule:	Five to 10 Years
Funding Source:	Staff Time
GOAL 2: Reduce possibility of damage and loss to existing community assets including addressable structures, critical facilities, and infrastructure for all hazards that affect Fayette County.	
OBJECTIVE 2.1: Using proven techniques, continually and jointly work with municipalities to identify new and existing areas that are subjective to constant repetitive flooding and work to combat this problem.	
COMMUNITY: Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Everson Borough, Fairchance Borough, Fayette City Borough, Franklin Township, Georges Township, German Township, Lower Tyrone Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson, Township, North Union Township, Perry Township, Perryopolis Borough, Redstone Township, Saltlick Township, Springhill Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	ACTION 2.1.1: Repair areas that are damaged due to poor drainage and runoff conditions. Utilize riprap and rebuild these areas with better technology.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities

Table 6.4-1 2022 Mitigation Strategy	
Implementation Schedule:	Ongoing
Funding Source:	PDM, HMGP Programs
COMMUNITY: Fayette County, , Brownsville Borough, Brownsville Township, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Masontown Borough, Menallen Township, Nicholson Township, North Union Township, Perry Township, Redstone Township, Saltlick Township, Springhill Township, Uniontown City, Upper Tyrone Township, Vanderbilt Borough, Washington Township, Wharton Township	ACTION 2.1.2: Clean debris from the banks and beds of creeks that constantly flood and evaluate the possibility of installing flood control measures on these areas.
Mitigation Technique:	Natural Resource Protection
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	PDM, HMGP Programs
COMMUNITY: Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Everson Borough, Fairchance Borough, Fayette City Borough, Georges Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, Perry Township, Perryopolis Borough, Point Marion Borough, Redstone Township, South Connellsville Borough, Springhill Township, Uniontown City, Vandrrbilt BoroughWharton Township	ACTION 2.1.3: Maximize use of FEMA HMA grant and other programs to support all-hazard mitigation as well as acquisition/demolition, elevation, foundation stabilization, and relocation of hazard-prone residences along with stabilizing foundations, and/or flood-proofing of non-residential structures.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Building Collapse; Landslide; Subsidence/ Sinkhole
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	PDM, HMGP Programs, Staff Time

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Fayette County, Brownsville Borough, Brownsville Township, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Jefferson Township, Lower Tyrone Township, Luzerne Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson Township, North Union Township, Perry Township, Perryopolis Borough, Saltlick Township, South Union Township, Springhill Township, Stewart Township, Uniontown City, Upper Tyrone Township, Washington Township, Vanderbilt Borough, Wharton Township	ACTION 2.1.4: Potentially replace existing infrastructure that is continuously a problem in certain areas. This may include the storm sewer system, bridges, roadways, and culvert systems.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	PDM, HMGP Programs
COMMUNITY: Luzerne Township	ACTION 2.1.5: Repair drainage system failure due to sediment, debris or excessive water flow causing deterioration or manmade reinforcements at Pastime Gardens/Narrows Road.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Luzerne Township, PennDOT
Implementation Schedule:	Six Months to One Year
Funding Source:	PEMA, FEMA, PennDOT
COMMUNITY: Fayette County	ACTION 2.1.6: Obtain data annually from FEMA and PEMA to ensure the most up-to-date repetitive loss information on properties in the County and in the municipalities to plan future mitigation activities.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in Fall 2011 and is Ongoing
Funding Source:	PDM Program

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Belle Vernon Borough	ACTION: 2.1.7: Create a Borough-wide Stormwater Management Plan.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flooding, Flash Flood, Ice Jam; Landslide; Sinkholes
Lead Agency/Department:	Belle Vernon Borough, Local Contractors
Implementation Schedule:	The Borough map out its existing storm sewer system, inspecting the system vial and the means of manual and remote / CCTV inspections to document problem areas and rank a priority list of projects. It will then outline a multi-year action plan for the remediation of defects found. Creation and implementation of Plan to stat in the fall of 2022 with completion of the plan in 2023.
Funding Source:	Internal Funding and State LSA Grant Funding; \$50,000
COMMUNITY: Connellsville Township	ACTION: 2.1.8: Address and document in GIS areas that are known to have drainage issues and new areas as well.
Mitigation Technique:	Local Planning and Regulations, Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Connellsville Township, Widmer Engineering, Interns
Implementation Schedule:	Five to 10 Years
Funding Source:	Intern Program, Grants
OBJECTIVE 2.2: Assist municipalities and emergency responders with providing essential services to the communities.	
COMMUNITY: Fayette County, Brownsville Borough	ACTION 2.2.1: Make snow routes available in certain municipalities where limited resources are available for snow removal.
Mitigation Technique:	Local Planning and Regulations, Structure and Infrastructure Projects
Hazard(s) Addressed:	Winter Storm
Lead Agency/Department:	Fayette County EMA, Brownsville Borough EMA
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Fayette County, Brownsville Borough, Bullskin Township, Connellsville City, Dunbar Borough, Fairchance Borough, Franklin Township, Georges Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson, Township, Perry Township, Perryopolis Borough, Redstone Township, Smithfield Borough, South Connellsville Borough, Springhill Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	ACTION 2.2.2: Annually update this Plan's list of 'critical facilities' as guided by PEMA that could be affected by each identified hazard.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Radon Exposure; Opioid Addiction Response; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.2.3: Ensure that the municipalities have contingency plans in place for instances where the resources become overtaxed and additional help is needed.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Opioid Addiction Response; Radon Exposure; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA, municipalities
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Brownsville Borough, Jefferson Township, North Union Township	ACTION 2.2.4: Conduct an engineering study to assess the incidence of landslide undermining existing roadways.

Table 6.4-1 2022 Mitigation Strategy	
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Winter Storm; Landslide; Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities, PennDOT
Implementation Schedule:	Ongoing - Jefferson Township completed study in 2018 and noted a plan for a potential additional study in 2022
Funding Source:	PDM, HMGP Programs
COMMUNITY: Brownsville Borough, Jefferson Township	ACTION 2.2.5: Conduct an engineering study for cross benches and key ways cut into hill sides to prevent landslides onto roadways.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Winter Storm; Landslide; Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities, PennDOT
Implementation Schedule:	Ongoing - Jefferson Township completed engineer plans for crosscuts and backfill, but they are seeking a grant for \$700,000.
Funding Source:	PDM, HMGP Programs
COMMUNITY: Brownsville Borough, Saltlick Township, Uniontown City	ACTION 2.2.6: Trim vegetation over utility lines to reduce utility interruptions resulting from storms.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Utility Interruption; Winter Storm; Tornado, Windstorm
Lead Agency/Department:	Utility Companies
Implementation Schedule:	Ongoing
Funding Source:	Contracts
COMMUNITY: Fayette County	ACTION 2.2.7: Establish a Countywide team of Law Enforcement Officers trained and equipped to respond to civil disturbances and terrorism.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Civil Disturbance, Terrorism
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County, Uniontown City	ACTION 2.2.8: Implement a building hardening program for critical facilities and infrastructure to protect against terrorism.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Civil Disturbance, Terrorism
Lead Agency/Department:	Municipalities

Table 6.4-1 2022 Mitigation Strategy	
Implementation Schedule:	Ongoing
Funding Source:	PDM Program
COMMUNITY: Brownsville Borough, Fayette County, Uniontown City	ACTION 2.2.9: Upgrade fire protection systems to meet NFPA standards. Projects may include purchase of mobile booster pumps to increase pressure for fire protection.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Urban Fire and Explosion
Lead Agency/Department:	Municipalities
Implementation Schedule:	Began in 2015 and Ongoing
Funding Source:	General Funding
COMMUNITY: Fayette County, Brownsville Borough, Uniontown City	ACTION 2.2.10: Identify and monitor transportation routes of hazardous materials. Train Municipal police and fire departments on placard identification.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Transportation Incidents, Environmental Hazards
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County, Brownsville Borough, South Union Township	ACTION 2.2.11: Fully utilize resources available to help identify impacts and consequences of Marcellus Shale natural gas and extraction operations.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Environmental Hazards
Lead Agency/Department:	Fayette County Planning Commission, Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.2.12: Ensure that emergency responders in the County are able to respond in the event of an emergency, especially where life safety is a major concern. Rural areas of the County can pose a major threat to patient access during this time.
Mitigation Technique:	Local Planning and Regulations, Structure and Infrastructure Projects

Table 6.4-1 2022 Mitigation Strategy	
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Extreme Temperature; Winter Storm; Wildfire; Environmental Hazards; Drought; Pandemic and Infectious Disease; Transportation Incidents; Utility Interruption; Tornado, Windstorm; Subsidence, Sinkhole; Hailstorm; Dam Failure; Drowning; Opioid Addiction Response; Radon Exposure; Terrorism; Landslide; Urban Fire and Explosion; Building or Structure Collapse; Disorientation; Civil Disturbance; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA, Municipalities
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Connellsville Township	ACTION 2.2.13: Become proactive with road crew, Fire Department, EMA, and Township supervisors during severe winter weather warnings.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Winter Storm; Hailstorm
Lead Agency/Department:	Connellsville Township Officials including Road and Fire Departments and EMA
Implementation Schedule:	Begin in January 2017 and Ongoing
Funding Source:	Township, County, State, and Federal Funding
COMMUNITY: Everson Borough	ACTION 2.2.14: Develop an emergency response service and warning system.
Mitigation Technique:	Structure and Infrastructure Projects, Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Everson Borough
Implementation Schedule:	Unknown
Funding Source:	Grants
OBJECTIVE 2.3: Focus mitigation efforts on structural projects that permanently protect property and reduce long-term losses.	
COMMUNITY: Perryopolis Borough	ACTION 2.3.1: Excavate area around historical site of Washington's Mill, raise building, and add drainage repair.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Building or Structure Collapse
Lead Agency/Department:	Perryopolis Parks and Recreation Authority
Implementation Schedule:	Two to Three Years
Funding Source:	FEMA/PEMA; Approximately \$210,000

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Franklin Township	ACTON 2.3.2: Reconstruct bridge at Crabapple Road and Crabapple Lane.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Building or Structure Collapse
Lead Agency/Department:	Franklin Township, Fayette County
Implementation Schedule:	Three Years
Funding Source:	PEMA, FEMA, PennDOT, Grants
COMMUNITY: Franklin Township	ACTION 2.3.3: Floodproof Redstone Creek in Smock.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Franklin Township
Implementation Schedule:	One Year
Funding Source:	PEMA, FEMA, Grants
COMMUNITY: Fayette County	ACTION 2.3.4: Collect data to identify all structures vulnerable to landslides (located on slopes 15% or steeper).
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Landslides
Lead Agency/Department:	Fayette County EMA working with local building permitting
Implementation Schedule:	Five Years (2027)
Funding Source:	Staff Time
OBJECTIVE 2.4: Reduce flood damage by continuing to evaluate high-hazard areas and directing new development away from high-hazard areas.	
COMMUNITY: Fayette County	ACTION 2.4.1: Encourage Municipal offices to review regulations pertaining to their jurisdiction to make sure that adequate zoning regulations are in place to reduce future development in high-hazard areas in their jurisdiction. Planning department to review Subdivision and Land Development Ordinance.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Dam Failure; Flood, Flash Flood, Ice Jam; Subsidence, Sinkhole; Wildfire
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Fayette County	ACTION 2.4.2: Planning Department and applicable Municipal offices to review their Comprehensive Plans to ensure that designated growth areas are not in high-hazard areas identified in this Plan.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Pandemic and Infectious Disease; Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm
Lead Agency/Department:	Fayette County Planning Commission and Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.4.3: Continually collect both anecdotal and quantitative information on past and future hazard occurrences, including monetary and non-monetary damages/losses.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Pandemic and Infectious Disease; Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire or Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County Planning Commission, Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County, Brownsville Borough, Connellsville City, Dunbar Borough, Everson Borough, Fairchance Borough, Franklin Township, Georges Township, Menallen Township, Nicholson, Township, Ohiopyle Borough, Perry Township, Perryopolis Borough, Redstone Township, South Connellsville Borough, Springhill Township, Uniontown City, Washington Township, Wharton Township	ACTION 2.4.4: Review Statewide Uniform Construction Code to ensure enforcement.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Hailstorm; Tornado, Windstorm; Urban Fire
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing

Table 6.4-1 2022 Mitigation Strategy	
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.4.5: Encourage applicable Municipal offices to review their Capital Improvement Plans to ensure that programmed infrastructure improvements are not in high-hazard areas.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam; Wildfire; Environmental Hazards
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
OBJECTIVE 2.5: Improve the enforcement of existing floodplain regulations.	
COMMUNITY: Brownsville Borough, Bullskin Township, Connellsville City, Dawson Borough, Dunbar Borough, Fairchance Borough, Franklin Township, Georges Township, German Township, Jefferson Township, Lower Tyrone Township, Masontown Borough, Menallen Township, Newell Borough, Nicholson, Township, Perry Township, Perryopolis Borough, Redstone Township, Saltlick Township, South Union Township, Springhill Township, Stewart Township, Uniontown City, Upper Tyrone Township, Washington Township, Wharton Township	ACTION 2.5.1: Applicable municipalities to review and update their floodplain ordinances to be sure that they are in full compliance with NFIP.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities
Implementation Schedule:	Completed in Spring 2012 but Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.5.2: Work with the 11 municipalities that administer their own floodplain regulations to determine whether they have freeboard requirements, restrict hospitals, jails, and nursing homes in the floodplain, and/or restrict the storage of hazardous chemicals in the floodplain and update this HMP to reflect this.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County Planning Commission

Table 6.4-1 2022 Mitigation Strategy	
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.5.3: For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training sessions with the County and the municipalities on the NFIP requirements.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and held Annually
Funding Source:	Staff Time
COMMUNITY: Fayette County, Brownsville Borough, Uniontown City, Connellsville City, Perryopolis Borough, Ohio Pyle Borough, Connellsville Township, Henry Clay Township, Menallen Township, Stewart Township, Uniontown City, and Wharton Township	ACTION 2.5.4: For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training for Insurance Companies on the NFIP.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County EMA, Municipalities EMA
Implementation Schedule:	Began in 2012 and held Annually
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.5.5: For Fayette County EMA to arrange with PEMA/FEMA/DCED to conduct training on the Community Rating System (CRS) with municipalities.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and held Annually
Funding Source:	Staff Time
OBJECTIVE 2.6: Research possible mitigation projects and continually compile State and Federal best practices.	
COMMUNITY: Fayette County	ACTION 2.6.1: Continue to review Hazard Mitigation Questionnaires and post-disaster reviews submitted by municipalities.
Mitigation Technique:	Education and Awareness Programs

Table 6.4-1 2022 Mitigation Strategy	
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Lightning Strike; Pandemic and Infectious Disease; Opioid Addiction Response; Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.6.2: Continue to produce and submit Hazard Mitigation Project Opportunity Forms for high-hazard structures/areas (especially post-disaster).
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 2.6.3: Work with local building permitting and municipalities to collect structural details such as condition, material, and age.
Mitigation Technique:	Local Planning and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Radon Exposure; Tornado, Windstorm; Winter Storms; Building or Structure Collapse; Dam Failure; Urban Fire and Explosions
Lead Agency/Department:	Fayette County with Municipalities
Implementation Schedule:	Five Years
Funding Source:	Staff Time
COMMUNITY: Fayette County, Utility Providers, Municipalities	ACTION 2.6.4: Work with utility providers and municipalities to record utility interruption occurrences to identify areas requiring investment.
Mitigation Technique:	Local Planning and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Utility Interruption
Lead Agency/Department:	Fayette County with Municipalities and Utility Providers
Implementation Schedule:	Five Years
Funding Source:	Staff Time
GOAL 3: Evaluate existing shelters to determine adequacy for current and future populations.	
OBJECTIVE 3.1: Ensure sufficient sheltering exists to meet the needs of the County's municipalities.	

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Fayette County	ACTION 3.1.1: To work with the American Red Cross towards upgrading all shelter resources. Also any new shelters that the Red Cross may establish in the future. This will include shelters in all areas of Fayette County.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Drought; Jam; Hailstorm; Landslide; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Municipalities
Implementation Schedule:	By 2022
Funding Source:	PDM, HMGP Programs
COMMUNITY: Everson Borough	ACTION 3.1.2: Install a generator system for the Borough Fire Station to be a safe center during natural disasters.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Everson Borough
Implementation Schedule:	Three to Six Months
Funding Source:	Grants
COMMUNITY: Jefferson Township	ACTION 3.1.3: Acquire a backup generator for the Township fallout shelter.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	All Hazards
Lead Agency/Department:	Jefferson Township
Implementation Schedule:	Three to Six Months
Funding Source:	Grants
COMMUNITY: Fayette County	ACTION 3.1.4: Work with municipalities to develop a list of public facilities and shelters with backup generators during winter storms and other hazard occurrences.
Mitigation Technique:	Local Plans and Regulations; Education and Awareness Programs; Structure and Infrastructure Projects
Hazard(s) Addressed:	Winter Storm; All Hazards
Lead Agency/Department:	Fayette County with Municipalities
Implementation Schedule:	Five to 10 Years
Funding Source:	Staff Time

Table 6.4-1 2022 Mitigation Strategy	
OBJECTIVE 3.2: Establish a protocol for the sharing of annual shelter survey information between the local Red Cross chapter and Fayette County EMA.	
COMMUNITY: Fayette County	ACTION 3.2.1: Hold an annual work session with Fayette County Red Cross and Fayette County EMA to share information about local shelters. Information to include: the site of each shelter, how many people it can house and feed, if it has back-up power available on site, completed site survey forms and types of resources that they have or that they need. This will benefit all areas of Fayette County in the event of the need to open shelters.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Pandemic and Infectious Disease, Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 3.2.2: Establish a committee representative of all areas of the County that will include vets, pet store owners, the Humane Society, animal shelters, the Extension Service, and other interested parties to work on animal-specific evacuation and sheltering needs.
Mitigation Technique:	Education and Awareness Programs, Local Planning and Regulations
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Lightning Strike; Pandemic and Infectious Disease, Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
COMMUNITY: Fayette County	ACTION 3.2.3: Fayette County Emergency Management Coordinator to develop and deliver information to all County residents, through community group and/or publications, information on how to shelter in place, and when it is appreciated to do so.
Mitigation Technique:	Education and Awareness Programs, Local Planning and Regulations

Table 6.4-1 2022 Mitigation Strategy	
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Pandemic and Infectious Disease, Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County EMA
Implementation Schedule:	Began in 2012 and Ongoing Annually
Funding Source:	General Funding
OBJECTIVE 3.3: Ensure sufficient shelter space exists to meet the needs of each Municipality.	
COMMUNITY: Saltlick Township, Uniontown City, Fayette County	ACTION 3.3.1: Set up an emergency shelter.
Mitigation Technique:	Structure and Infrastructure Projects
Hazard(s) Addressed:	Drought; Extreme Temperature; Flood, Flash Flood, Ice Jam; Hailstorm; Landslide; Pandemic and Infectious Disease, Radon Exposure; Subsidence, Sinkhole; Tornado, Windstorm; Wildfire; Winter Storm; Building or Structure Collapse; Civil Disturbance; Dam Failure; Disorientation; Drowning; Environmental Hazards; Terrorism; Transportation Incidents; Urban Fire and Explosion; Utility Interruption; Conventional and Unconventional Gas and Wells
Lead Agency/Department:	Fayette County, Municipalities
Implementation Schedule:	By 2022
Funding Source:	PDM, HMGP Programs
GOAL 4: Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.	
OBJECTIVE 4.1: Protect Fayette County's natural resources through the implementation of cost-effective and technically feasible mitigation projects.	
COMMUNITY: Fayette County	ACTION 4.1.1: Work with the DEP, conservation agencies, park and recreation organizations, wildlife groups, and other appropriate agencies to collect information of the number and location of natural resource areas throughout the County.
Mitigation Technique:	Natural Systems Protection
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County Conservation Commission, Municipalities
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time

Table 6.4-1 2022 Mitigation Strategy	
COMMUNITY: Fayette County	ACTION 4.1.2: Regularly and within 30 days of a disaster event, hold meetings with property owners to identify high-risk properties in the County and to determine potential participation in future acquisition and relocation projects.
Mitigation Technique:	Education and Awareness Programs, Local Planning and Regulations
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Municipalities
Implementation Schedule:	Ongoing
Funding Source:	PDM, HMGP Programs
COMMUNITY: Markleysburg Borough	ACTION 4.1.3: Distribute flyers about harmful effects of littering such as ponding on State roads and storm drains, water going into basements, harm to animal habitats, and problematic to private property owners.
Mitigation Technique:	Education and Awareness Programs
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Markleysburg Borough
Implementation Schedule:	Five years
Funding Source:	Local Businesses; \$1,000
COMMUNITY: Fayette County	ACTION 4.2.1: County to work with the DEP, conservation agencies, and others to research avenues for restoring degraded natural resources and open space to improve their flood control functions.
Mitigation Technique:	Natural Systems Protection
Hazard(s) Addressed:	Flood, Flash Flood, Ice Jam
Lead Agency/Department:	Fayette County Conservation Commission, Municipalities
Implementation Schedule:	Began in 2012 and Ongoing
Funding Source:	Staff Time
GOAL 5: Reduce the risks posed by the potential failure of HHPDs within the County.	
OBJECTIVE 5.1: Maintain Emergency Action Plans for all HHPDs.	
COMMUNITY: Franklin Township, Georges Township, Menallen Township, Redstone Township, South Connellsville Borough, Springfield Township, Springhill Township, Wharton Township	ACTION 5.1.1: Review all Emergency Action Plans for dams.
Mitigation Technique:	Local Planning and Regulations
Hazard(s) Addressed:	Dam Failure
Lead Agency/Department:	Municipalities

Table 6.4-1 2022 Mitigation Strategy	
Implementation Schedule:	Ongoing
Funding Source:	Staff Time
OBJECTIVE 5.2: Collect and continually improve GIS data and records of dams in the County.	
COMMUNITY: Fayette County	ACTION 5.2.1: Work with municipalities to collect GIS data and records on all dams, including HHPDs.
Mitigation Technique:	Local Planning and Regulations; Education and Awareness Programs
Hazard(s) Addressed:	Dam Failure
Lead Agency/Department:	Municipalities
Implementation Schedule:	Five Years
Funding Source:	Staff Time

Table 6.4-1 lists **57 mitigation actions**, many of which will require substantial time commitments from staff at the County and local municipalities. While all these activities will be pursued over the next five years, the reality of limited time and resources requires the identification of the feasibility and priority level of mitigation actions. Prioritization allows the individuals and organizations involved to focus their energies and ensure progress on mitigation activities.

Evaluating mitigation actions involves judging each action against certain criteria to determine its feasibility and potential impact. Actions evaluated and prioritized by applying the Multi-Objective Mitigation Action Prioritization criteria. For each action, scores were 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 were assigned for each multi-objective mitigation action prioritization criterion where 1 is a low score and 3 is a high score. The Efficiency criterion, which considers the cost and effort of each action versus its overall vulnerability reduction benefit, is the most highly weighted criterion as part of the total prioritization score. Actions were prioritized using

the cumulative score assigned to each. Each mitigation action was then 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

Table 6.4-2 presents the cumulative results of the prioritization of mitigation actions.

Table 6.4-2 2022 Mitigation Action Prioritization							
MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
1.1.1	Integrate hazard mitigation into the Community Response Preparedness program being presented in the County.	2	2	2	2	2	2
1.1.2	Make information available to community members via the EMA website, utilizing links as well as to other sites offering mitigation information.	3	3	3	3	3	3
1.1.3	Enforce stricter driveway ordinances to prevent water runoff into roadways.	3	2	2	3	3	2.5
1.1.4	Create an outreach program to distribute and educate adults and children on hazard information and mitigation.	3	3	3	3	3	3
1.1.5	Identify & address mine subsidence in the Township.	3	3	1	2	2	2.3
1.1.6	Work with the Chamber of Commerce to administer vaccines to the public.	3	3	2	2	1	2.2

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
1.1.7	Provide proactive outreach and training by Fayette County EMA and Fayette County Planning, Zoning, & Community Development Department to educate municipalities and current municipal grant writers and administration on HMP grant opportunities.	3	3	3	3	3	3
1.2.1	Review and update all annexes of the Fayette County Emergency Operations Plan. Include participation from all municipalities in update process.	3	3	3	3	3	3
1.2.2	Collect data to assess the County's vulnerability to all hazards, and integrate the information into the EOP.	3	3	3	3	3	3
2.1.1	Repair areas that are damaged due to poor drainage and runoff conditions. Utilize riprap and rebuild these areas with better technology.	3	3	2	3	3	2.8
2.1.2	Clean debris from the banks and beds of creeks that constantly flood and evaluate the possibility of installing flood control measures on these areas.	3	3	2	3	3	2.8

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.1.3	Maximize use of FEMA HMA grant and other programs to support all-hazard mitigation as well as acquisition/demolition, elevation, foundation stabilization, and relocation of hazard-prone residences along with stabilizing foundations, and/or flood-proofing of non-residential structures.	3	3	3	3	3	3
2.1.4	Potentially replace existing infrastructure that is continuously a problem in certain areas. This may include the storm sewer system, bridges, roadways, and culvert systems.	3	3	3	3	3	3
2.1.5	Repair drainage system failure due to sediment, debris or excessive water flow causing deterioration of manmade reinforcements at Pastime Gardens/Narrows Road.	2	2	1	2	2	1.8
2.1.6	Obtain data annually from FEMA and PEMA to ensure the most up-to-date repetitive loss information on properties in the County and in the municipalities to plan future mitigation activities.	3	3	1	3	3	2.6
2.1.7	Create a Borough-wide Stormwater Management Plan.	3	3	2	3	3	2.8

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.18	Address and document in GIS areas that are known to have drainage issues and new areas as well.	3	3	1	2	2	2.3
2.2.1	Make snow routes available in certain municipalities where limited resources are available for snow removal.	2	3	1	2	2	2.1
2.2.2	Annually update this Plan's list of 'critical facilities' as guided by PEMA that could be affected by each identified hazard.	3	3	3	3	3	3
2.2.3	Ensure that the municipalities have contingency plans in place for instances where the resources become overtaxed and additional help is needed.	2	2	2	2	2	2
2.2.4	Conduct an engineering study to assess the incidence of landslide undermining existing roadways.	2	2	1	2	2	1.8
2.2.5	Conduct an engineering study for cross benches and key ways cut into hill sides to prevent landslides onto roadways.	2	2	1	2	2	1.8
2.2.6	Trim vegetation over utility lines to reduce utility interruptions resulting from storms.	3	2	2	3	3	2.5

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.2.7	Establish a Countywide team of Law Enforcement Officers trained and equipped to respond to civil disturbances and terrorism.	2	2	2	2	2	2
2.2.8	Implement a building hardening program for critical facilities and infrastructure to protect against terrorism.	3	3	1	2	2	2.3
2.2.9	Upgrade fire protection systems to meet NFPA standards. Projects may include purchase of mobile booster pumps to increase pressure for fire protection.	3	3	1	2	2	2.3
2.2.10	Identify and monitor transportation routes of hazardous materials. Train Municipal police and fire departments on placard identification.	2	2	1	2	2	1.8
2.2.11	Fully utilize resources available to help identify impacts and consequences of Marcellus Shale natural gas and extraction operations.	2	2	1	2	2	1.8

Table 6.4-2 2022 Mitigation Action Prioritization							
MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.2.12	Ensure that emergency responders in the County are able to respond in the event of an emergency, especially where life safety is a major concern. Rural areas of the County can pose a major threat to patient access during this time.	2	2	2	2	2	2
2.2.13	Become proactive with road crew, Fire Department, EMA, and Township supervisors during severe winter weather warnings.	3	3	3	3	3	3
2.2.14	Develop an emergency response service and warning system.	3	3	3	3	3	3
2.3.1	Excavate area around historical site of Washington's Mill, raise building, and add drainage repair.	2	2	1	2	2	1.8
2.3.2	Reconstruct bridge at Crabapple Road and Crabapple Lane.	3	3	3	3	3	3
2.3.3	Floodproof Redstone Creek in Smock.	3	3	3	3	3	3
2.3.4	Collect data to identify all structures vulnerable to landslides (located on slopes 15% or steeper.	2	3	3	2	3	2.6

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.4.1	Encourage Municipal offices to review regulations pertaining to their jurisdiction to make sure that adequate zoning regulations are in place to reduce future development in high-hazard areas in their jurisdiction. Planning department to review Subdivision and Land Development Ordinance.	3	3	2	3	3	2.8
2.4.2	Planning Department and applicable Municipal offices to review their Comprehensive Plans to ensure that designated growth areas are not in high-hazard areas identified in this Plan.	3	3	2	3	3	2.8
2.4.3	Continually collect both anecdotal and quantitative information on past and future hazard occurrences, including monetary and non-monetary damages/losses.	3	3	3	3	3	3
2.4.4	Review Statewide Uniform Construction Code to ensure enforcement.	3	3	2	3	3	2.8
2.4.5	Encourage applicable Municipal offices to review their Capital Improvement Plans to ensure that programmed infrastructure improvements are not in high-hazard areas.	3	3	2	3	3	2.8

Table 6.4-2 2022 Mitigation Action Prioritization							
MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.5.1	Applicable municipalities to review and update their floodplain ordinances to be sure that they are in full compliance with NFIP.	3	3	2	3	3	2.8
2.5.2	Work with the 11 municipalities that administer their own floodplain regulations to determine whether they have freeboard requirements, restrict hospitals, jails, and nursing homes in the floodplain, and/or restrict the storage of hazardous chemicals in the floodplain and update this HMP to reflect this.	3	3	2	3	3	2.8
2.5.3	For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training sessions with the County and the municipalities on the NFIP requirements.	3	3	2	3	3	2.8
2.5.4	For Fayette County EMA to arrange with PEMA/FEMA/DCED to hold training for Insurance Companies on the NFIP.	3	3	2	3	3	2.8
2.5.5	For Fayette County EMA to arrange with PEMA/FEMA/DCED to conduct training on the Community Rating System (CRS) with municipalities.	3	3	2	3	3	2.8

Table 6.4-2 2022 Mitigation Action Prioritization							
MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
2.6.1	Continue to review Hazard Mitigation Questionnaires and post-disaster reviews submitted by municipalities.	3	3	3	3	3	3
2.6.2	Continue to produce and submit Hazard Mitigation Project Opportunity Forms for high-hazard structures/areas (especially post-disaster).	3	3	2	3	3	2.8
2.6.3	Work with local building permitting and municipalities to collect structural details such as condition, material, and age.	3	3	3	3	3	3
2.6.4	Work with utility providers and municipalities to record utility interruption occurrences to identify areas requiring investment.	3	3	1	1	3	2.3
3.1.1	To work with the American Red Cross towards upgrading all shelter resources. Also any new shelters that the Red Cross may establish in the future. This will include shelters in all areas of Fayette County.	2	3	3	3	2	2.65
3.1.2	Install a generator system for the Borough Fire Station to be a safe center during natural disasters.	3	3	3	3	3	3
3.1.3	Acquire a backup generator for the Township fallout shelter.	3	3	3	3	3	3

Table 6.4-2 2022 Mitigation Action Prioritization							
MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
3.1.4	Work with municipalities to develop a list of public facilities with backup generators for sheltering during winter storms and other hazard occurrences.	3	3	3	3	3	3
3.2.1	Hold an annual work session with Fayette County Red Cross and Fayette County EMA to share information about local shelters. Information to include: the site of each shelter, how many people it can house and feed, if it has back-up power available on site, completed site survey forms and types of resources that they have or that they need. This will benefit all areas of Fayette County in the event of the need to open shelters.	2	3	3	3	2	2.65
3.2.2	Establish a committee representative of all areas of the County that will include vets, pet store owners, the Humane Society, animal shelters, the Extension Service, and other interested parties to work on animal-specific evacuation and sheltering needs.	3	3	3	3	3	3

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
3.2.3	Fayette County Emergency Management Coordinator to develop and deliver information to all County residents, through community group and/or publications, information on how to shelter in place, and when it is appreciated to do so.	2	3	3	3	2	2.65
3.3.1	Set up an emergency shelter.	3	3	3	3	3	3
4.1.1	Work with the DEP, conservation agencies, park and recreation organizations, wildlife groups, and other appropriate agencies to collect information of the number and location of natural resource areas throughout the County.	2	2	2	2	2	2
4.1.2	Regularly and within 30 days of a disaster event, hold meetings with property owners to identify high-risk properties in the County and to determine potential participation in future acquisition and relocation projects.	3	3	3	3	3	3

Table 6.4-2 2022 Mitigation Action Prioritization

MITIGATION ACTIONS		MULTI-OBJECTIVE MITIGATION ACTION PRIORITIZATION CRITERIA					
		LOW= 0-1.8 MEDIUM= 1.9-2.4 HIGH= 2.5-3					
NO.	NAME	EFFECTIVENESS	EFFICIENCY	MULTI-HAZARD MITIGATION	ADDRESSES HIGH RISK HAZARD	ADDRESSES CRITICAL COMMUNICATIONS/ CRITICAL INFRASTRUCTURE	TOTAL SCORE
4.1.3	Distribute flyers about harmful effects of littering such as ponding on State roads and storm drains, water going in basements, harm to animal habitats, and problematic to private property owners.	2	3	2	3	3	2.8
4.2.1	County to work with the DEP, conservation agencies, and others to research avenues for restoring degraded natural resources and open space to improve their flood control functions.	3	3	1	3	3	2.6
5.1.1	Review all Emergency Action Plans for dams.	3	3	2	3	3	2.8
5.2.1	Work with municipalities to collect GIS data and records on all dams, including HHPDs.	3	3	2	3	3	2.8

7. PLAN MAINTENANCE

7.1. UPDATE PROCESS SUMMARY

Once this Plan has received approval from PEMA and ultimately FEMA, the Plan will be adopted by the Fayette County and all participating jurisdictions. This HMPU is intended to be a 'living document'. Plan adoption, though important, is not considered the final step in the planning process but rather as a first step to 'realization'. The plan monitoring and maintenance schedule is a cycle of events that involve periodic review, adjustments, and improvement. This Chapter establishes a method to monitor how the Plan will be evaluated and maintained in the future.

7.2. MONITORING, EVALUATING, AND UPDATING THE PLAN

Hazard mitigation planning in Fayette County is the responsibility of all levels of government (i.e., County and local), as well as the citizens of the County. As listed in FEMA 386-4, the planning team (the Fayette County Hazard Mitigation Steering Committee) must continuously monitor and document the progress of the Plan's recommended actions. The Fayette County Hazard Mitigation Steering Committee (listed in Section 3.2), under the direction of the Fayette County Emergency Management Agency, will be responsible for maintaining this Multi-Jurisdictional HMP. The Steering Committee will meet annually and following each emergency declaration, with the purpose of reviewing the Plan. The Steering Committee will lead annual reviews of the HMP. Each year, the County will solicit new projects from the municipalities by sending out Project Opportunity Forms and informing the municipalities of the opportunity to update their mitigation measures.

Each review process will ensure that the Hazard Vulnerability Analysis and Risk Assessment reflect current conditions in the County and the municipalities, the Capability Assessment accurately reflects local circumstances, and the hazard mitigation strategies are updated based on the County's damage assessment reports and local mitigation project priorities. The Steering Committee will complete a Progress Report to evaluate the status and accuracy of the HMP and record the Steering Committee's findings. The Fayette County Emergency Management Agency will maintain a copy of these records.

As directed by FEMA 386-4, the Progress Report will include the following information: the hazard mitigation actions' objectives; who the lead and supporting agencies responsible for implementation are; how long the project should take, including a delineation of the various stages of work along with timelines (milestones should be included); whether the resources needed for implementation, funding, staff time, and technical assistance are available, or if other arrangements must be made to obtain them; the types of permits or approvals necessary to implement the action; details on the ways the actions will be accomplished within the organization, and whether the duties will be assigned to agency staff or contracted out; and the current status of the project, identifying any issues that may hinder implementation.

The HMP must be updated on a five-year cycle. This HMP will be updated and resubmitted to FEMA for approval within the five-year period. The monitoring, evaluating, and updating of

the Plan every five years will rely heavily on the outcomes of the annual Steering Committee meetings.

7.3. CONTINUED PUBLIC INVOLVEMENT

The Fayette County Emergency Management Agency will ensure that the HMP is posted and maintained on the County website and will continue to encourage public review and comment on the Plan through information posted to the website and public notices in the local newspaper.

The citizens of Fayette County are encouraged to submit their comments to elected officials and/or members of the Hazard Mitigation Steering Committee. To promote public participation, Fayette County welcomed comments on the HMP for a 30-day period. This offered the public the opportunity to share their comments and observations. All comments received were reviewed by the HMSC and incorporated into this Update or will be incorporated into the following update.

Fayette County will continue to reach out to municipalities via telephone, mail, and e-mail regarding mitigation projects, especially those municipalities that did not submit projects for inclusion in this HMP. Any additional Hazard Mitigation Project Opportunity Forms received during the life of this five-year HMP will be incorporated into the Plan as an interim, updated and included in the next five-year Plan update. The Fayette County EMA will continue to champion hazard mitigation planning with support from the County Commission, municipalities, and organizations and businesses within the communities

8. PLAN ADOPTION

The Plan was submitted to the Pennsylvania State Hazard Mitigation Planner on October 10, 2022.

This section of the plan includes copies of the local adoption resolutions passed by Fayette County and its municipal governments as well as a completed Local Mitigation Plan Review Crosswalk. Adoption resolution templates are provided to assist the County and municipal governments with recommended language for future adoption of the HMP. A completed Local Mitigation Plan Review Crosswalk can be found in **Appendix B**.

After the Plan was approved by PEMA, it was forwarded to FEMA for final review and approval. FEMA granted approval-pending adoption on **Month Day, Year**. Full approval from FEMA was received on **Monday Day, Year**. A copy of the adoption resolutions executed by Fayette County and the participating municipalities are included in this section.

**Fayette County Hazard Mitigation Plan
County Adoption Resolution**

Resolution No. _____

Fayette County, Pennsylvania

WHEREAS, the municipalities of Fayette County, Pennsylvania, are most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to the President a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, Fayette County acknowledges the requirement of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the Fayette County Hazard Mitigation Plan has been developed by the Fayette County Emergency Management Agency, in cooperation with other County departments, local municipal officials, and the citizens of Fayette County, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the Fayette County Hazard Mitigation Plan, and

WHEREAS, the Fayette County Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the County of Fayette that:

- The Fayette County Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the County, and
- The respective officials and agencies identified in the implementation strategy of the Fayette County Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this _____ day of _____, 2021

ATTEST:

FAYETTE COUNTY COMMISSIONERS

By _____

By _____

By _____

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Fayette County Hazard Mitigation Plan Municipal Adoption Resolution

Resolution No. _____

<Borough/Township of Municipality Name>, Fayette County, Pennsylvania

WHEREAS, the *<Borough/Township of Municipality Name>*, Fayette County, Pennsylvania, is most vulnerable to natural and human-made hazards which may result in loss of life and property, economic hardship, and threats to public health and safety, and

WHEREAS, Section 322 of the Disaster Mitigation Act of 2000 (DMA 2000) requires state and local governments to develop and submit for approval to the President a mitigation plan that outlines processes for identifying their respective natural hazards, risks, and vulnerabilities, and

WHEREAS, the *<Borough/Township of Municipality Name>* acknowledges the requirement of Section 322 of DMA 2000 to have an approved Hazard Mitigation Plan as a prerequisite to receiving post-disaster Hazard Mitigation Grant Program funds, and

WHEREAS, the Fayette County Hazard Mitigation Plan has been developed by the Fayette County Emergency Management Agency in cooperation with other County departments, and officials and citizens of *<Borough/Township of Municipality Name>*, and

WHEREAS, a public involvement process consistent with the requirements of DMA 2000 was conducted to develop the Fayette County Hazard Mitigation Plan, and

WHEREAS, the Fayette County Hazard Mitigation Plan recommends mitigation activities that will reduce losses to life and property affected by both natural and human-made hazards that face the County and its municipal governments,

NOW THEREFORE BE IT RESOLVED by the governing body for the *<Borough/Township of Municipality Name>*:

- The Fayette County Hazard Mitigation Plan is hereby adopted as the official Hazard Mitigation Plan of the *<Borough/Township>*, and
- The respective officials and agencies identified in the implementation strategy of the Fayette County Hazard Mitigation Plan are hereby directed to implement the recommended activities assigned to them.

ADOPTED, this _____ day of _____, 2021

ATTEST:

<BOROUGH/TOWNSHIP OF MUNICIPALITY NAME>

By _____

By _____

By _____

9. APPENDICES

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Appendix A: Bibliography

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