



# Hazard Mitigation Plan

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Adams County, Pennsylvania

*Updated 2020*

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# **ADAMS COUNTY HAZARD MITIGATION PLAN**

**UPDATED 2020**

**FOR THE COUNTY JURISDICTION OF ADAMS COUNTY, PENNSYLVANIA AND THE  
MUNICIPAL JURISDICTIONS THEREIN**

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# ADAMS COUNTY HAZARD MITIGATION (2020 UPDATE)

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## **ADAMS COUNTY HAZARD MITIGATION PLAN (2020 UPDATE)**

### **EXECUTIVE SUMMARY**

The *Adams County Hazard Mitigation Plan of 2020* is an update to the *Adams County 2015 Hazard Mitigation Plan Update*. The Adams County Department of Emergency Services (ACDES) updated the plan utilizing a planning committee with representatives from the local governments, private businesses, and community organizations throughout 2019 and 2020. The first version of this plan is from 2005.

This plan considers all the jurisdictions – county, boroughs, and townships – within the geographical boundaries of Adams County, Pennsylvania, and is therefore considered a multi-jurisdictional plan. The plan has been prepared in accordance with federal requirements outlined in the Disaster Mitigation Act of 2000 (DMA, 2K) which requires counties to formulate a hazard mitigation plan in order to be eligible for mitigation funds made available by the Federal Emergency Management Agency (FEMA). Section 322 of the Robert T. Stafford Act requires that all states and local jurisdictions develop and submit mitigation plans designed to meet the criteria outlined in 44 CFR Parts 201 and 206. This plan has been approved by the committee who developed it, the Pennsylvania Emergency Management Agency, and the Federal Emergency Management Agency.

Procedurally, the ACDES convened a planning committee five times and a “historical/cultural subcommittee” once. These meetings were information-sharing as well as content-generation events. The county’s consultant ran the meetings and compiled minutes to document decisions made. Though there was no attendance at a public meeting scheduled during the update, there was substantial public participation through an online survey. One hundred fifty (150) individuals completed the survey. The public felt most concerned about “Tornado & Wind Storm” and “Transportation Accident,” with 73 and 71 respondents reporting feeling concerned or very concerned about those hazards. Seventy (70) respondents were either concerned or very concerned about hazardous materials releases. Respondents were least concerned with earthquakes and dam failures.

When asked about mitigation actions they have undertaken in the past, 117 respondents (88%) reported maintaining trees on their property, 67% had repaired or replaced their roof, and 56% had cleared underbrush. They also showed support for planting trees to promote a cooler micro-climate (72% or 102 individuals), and burying power lines to provide for uninterrupted power during severe weather (64% or 90 individuals). The least amount of support was shown



for buying out properties, relocating homes, and elevating structures prone to flooding (11% or 16 individuals).

Individuals were given an opportunity to comment on locations throughout the county where hazard incidents have occurred. Four individuals chose to identify hazard locations. One location was Mount Joy, at the intersection of S. Peelman-Klinger Road, King Road, and Hoffman Home Road. The other three locations were in Fairfield Borough: one at the intersection of Main Street and Carrolls Tract Road, one on a property along Third Street, and one along Main Street.

Though there were minor changes throughout the plan, the major changes to the 2020 version were minimal. The committee added one hazard, landslide, bringing the total hazards in the plan to 18. Section 4.4 summarizes risk and vulnerability to the hazards in the plan. The following table presents that summary.

HAZARD RANKING RESULTS								
<i>Hazard</i>	<i>Frequency</i>	<i>Response</i>	<i>Onset</i>	<i>Magnitude</i>	<i>Business</i>	<i>Human</i>	<i>Property</i>	<i>Ranking</i>
Nuclear Incidents	2	5	4	3	3	1	3	21
Flood, Flash Flood, Ice Jam	5	3	4	2	2	1	2	19
Winter Storm	5	3	1	4	2	1	1	17
Env. Haz.: Hazardous Materials Release	5	2	5	1	1	2	1	17
Invasive Species	2	1	1	3	4	2	3	16
Pandemic and Infectious Disease	5	3	1	1	2	3	1	16
Transportation Accidents	5	1	5	1	1	2	1	16
Hurricane, Tropical Storm, Nor'easter	2	3	1	5	1	1	2	15
Extreme Temperature	3	1	1	5	1	3	1	15
Wildfire	5	2	4	1	1	1	1	15
Tornado, Wind Storm	3	2	4	1	1	2	1	14
Terrorism	1	2	4	1	1	4	1	14
Drought	2	3	1	5	1	1	1	14



HAZARD RANKING RESULTS								
<i>Hazard</i>	<i>Frequency</i>	<i>Response</i>	<i>Onset</i>	<i>Magnitude</i>	<i>Business</i>	<i>Human</i>	<i>Property</i>	<i>Ranking</i>
Hailstorm	4	2	2	2	1	1	1	13
Dam Failure	1	3	3	1	1	2	1	12
Subsidence, Sinkhole	5	1	1	2	1	1	1	12
Earthquake	2	1	4	1	1	1	1	11
Landslide	1	2	1	1	1	1	1	8

The committee discussed and redefined the goals that this plan will strive to achieve through the implementation of hazard mitigation strategies or projects. The previous version of this plan identified four goals with associated objectives. The committee recognized those original goals contained similar wording and many focused on individual hazards. To better represent a cohesive effort, the committee generated a list of new goals, consolidated aspects of the 2015 goals into those new items, and used the new goals to guide actions across the entire plan update (rather than just project generation). The 2020 goals list is as follows.

- **Goal 1:** Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, communications, etc.) from all hazards that could impact the county.
- **Goal 2:** Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.
- **Goal 3:** Promote disaster resilience in future development through code enforcement.
- **Goal 4:** Reduce losses by facilitating a more efficient response to identified hazards.

Adams County’s committee also updated the plan maintenance process by requesting the Adams County Council of Governments (COG) to establish a standing hazard mitigation agenda item to allow for mitigation discussions at each COG meeting. This regular process ensures local officials capture lessons learned from actual incidents soon after they occur. Since hazard mitigation is not a topic that jurisdictional elected officials regularly encounter, the planning committee identified guideposts for the COG to consider annually. Those guideposts are as follows.

- **Year 1:** Ensure countywide adoption of the plan
- **Year 2:** Focus on hazard identification and risk analysis; evaluate how well the plan predicted impacted areas
- **Year 3:** The ACDES will engage with the public via an online survey



- **Year 4:** Update project implementation
- **Year 5:** Coordinate the next formal update of the plan

This plan will serve as a vehicle for ensuring eligibility for hazard mitigation funding for participating jurisdictions throughout the next five years. Moving forward, the participatory processes set as a foundation in 2020 will enable a similarly-engaged process in 2025, and through annual plan review, perhaps result in a richer discussion of risk, vulnerability, and mitigation project status.



## 1.0 INTRODUCTION

This section presents an introduction to the hazard mitigation plan and defines the authority, scope, and purpose of the plan.

### 1.1 Background

Natural and human-caused disasters have resulted in injury and death, damaged and destroyed property, and disrupted business and government function across the Nation. To lessen the effects of a disaster, the Adams County Department of Emergency Services and the county's 34 municipalities participated in this planning process to identify hazards as well as potential actions to mitigate vulnerability to those hazards.

### 1.2 Purpose

Adams County and its preparedness partners updated this hazard mitigation plan for the purpose of:

- protecting life, safety, and property by reducing the potential for future damages and economic losses that result from natural and human-caused hazards;
- qualifying for grant funding in both the pre- and post-disaster environments;
- aiding in recovery and development following future disaster events;
- demonstrating a firm local commitment to hazard mitigation principles; and
- complying with state and federal legislative requirements for local hazard mitigation plans.

### 1.3 Scope

The *Adams County Hazard Mitigation Plan* complies with the Federal Emergency Management Agency (FEMA) and the Pennsylvania Emergency Management Agency (PEMA) guidelines for funding eligibility and technical assistance from state and federal hazard mitigation programs. Thus, it applies to the county and 33 of the 34 municipalities and serves as their official hazard mitigation plan. It addresses both natural and human-caused hazards significant to the county and its municipalities. The committee reviews the plan annually, and a complete plan update will take place, at minimum, every five years.



### 1.4 Authority and Reference

Authority for this plan originates from the following federal government sources.

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

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

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

The following guidelines and reference documents assisted preparation of this document.

<b>REFERENCED DOCUMENTS</b>		
<i>Document Type</i>	<i>Document Citation</i>	<i>How Incorporated into Plan</i>
<b>USDHS FEMA Resources</b>		
Technical Information	USDHS FEMA. (2001). <i>Understanding your risks: Identifying hazards and estimating losses, FEMA 386-2</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to support hazard profiling
Technical Information	USDHS FEMA. (2002). <i>Getting started: Building support for mitigation planning, FEMA 386-1</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to support planning committee formation
Technical Information	USDHS FEMA. (2003). <i>Bringing the plan to life, FEMA 386-4</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to support plan development and maintenance efforts
Technical Information	USDHS FEMA. (2003). <i>Developing the mitigation plan, FEMA 386-3</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to support mitigation action planning
Technical Information	USDHS FEMA. (2003). <i>Integrating manmade hazards into mitigation planning, FEMA 386-7</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to support the dam/levee, hazmat, and terrorism discussions
Technical Information	USDHS FEMA. (2005). <i>Integrating historic property and cultural resource considerations into hazard mitigation planning, FEMA 386-6</i> . Federal Government: Washington, D.C.	Used as general guidance for incorporating historical property and cultural protection



<b>REFERENCED DOCUMENTS</b>		
<i>Document Type</i>	<i>Document Citation</i>	<i>How Incorporated into Plan</i>
Technical Information	USDHS FEMA. (2006). <i>Multijurisdictional mitigation planning, FEMA 386-8</i> . Federal Government: Washington, DC.	Legacy resource used as guidance to inform ideas for involving all municipal jurisdictions
Technical Information	USDHS FEMA. (2007). <i>Using benefit-cost review in mitigation planning, FEMA 386-5</i> . Federal Government: Washington, DC.	Legacy resource used as general guidance for the action plan discussion
Technical Information	USDHS FEMA. (2008). <i>National fire incident reporting system 5.0: Complete reference guide</i> . Federal Government: Washington, DC.	Used as a resource to support an understanding of reported NFIRS data
Technical Information	USDHS FEMA. (2008). <i>Using the hazard mitigation plan to prepare successful mitigation projects, FEMA 386-9</i> . Federal Government: Washington, DC.	Used to support the action planning discussion
Technical Information	USDHS FEMA. (2011). <i>Local mitigation plan review guide</i> . Federal Government: Washington, DC.	Used the local mitigation plan review tool as a crosswalk for ensuring that the updated plan addressed all required elements
Technical Information	USDHS FEMA. (2013). <i>Hazard mitigation assistance unified guidance: Hazard Mitigation Grant Program, Pre-Disaster Mitigation Program, and Flood Mitigation Assistance Program</i> . Federal Government: Washington, DC.	Used as a resource when identifying potential funding sources for mitigation projects
Technical Information	USDHS FEMA. (2013). <i>Integrating hazard mitigation into local planning: Case studies and tools for community officials</i> . Federal Government: Washington, D.C.	Used as general guidance on existing plan integration for hazard mitigation
Technical Information	USDHS FEMA. (2013). <i>Local mitigation planning handbook</i> . Federal Government: Washington, D.C.	Used as general guidance on revised mitigation planning process
Technical Information	USDHS FEMA. (2013) <i>Mitigation ideas: A resource for reducing risk to natural hazards</i> . Federal Government: Washington, DC	Used as general guidance for stakeholders and jurisdictions on mitigation ideas
Technical Information	USDHS FEMA. (2014). <i>Plan integration guide</i> . Federal Government: Washington, DC.	Used as a resource for documenting plan integration
Technical Information	USDHS FEMA. (2016). <i>National mitigation framework</i> . Federal Government: Washington, DC	Used as general guidance on mitigation planning.
<b>PEMA Resources</b>		
Technical Information	PEMA. (2013). <i>Commonwealth of Pennsylvania's all-hazard mitigation planning: Standard operating guide</i> . State Government: Harrisburg, PA.	Used as additional guidance on materials to include in the plan, historical hazard sources, and plan outline recommendations
Plan	PEMA. (2018). <i>Commonwealth of Pennsylvania: 2018 state hazard mitigation plan</i> . State Government: Harrisburg, PA.	Used to ensure consistency, to document state hazard rankings, etc.
Informational Brief	PEMA. (2019). <i>PDM/FMA planning grant fiscal brief, 13 May 2019</i> . State Government: Harrisburg, PA.	Used as a resource for supporting grant administration
Technical Information	Pennsylvania Governor's Center for Local Government Services. (2010). <i>Flood plain management regulations: Adopted pursuant to the P.A. Floodplain Management Act (Act 166 of 1978)</i> , 5 <sup>th</sup> Ed. State Government: Harrisburg, PA.	Used as a supplementary resource for NFIP discussions in the flooding profile
<b>Miscellaneous Resources</b>		
Technical Information	NFPA. (2016). <i>Standard on disaster/emergency management and business continuity programs, NFPA 1600</i> . Quincy, MA.	Used as a general guideline to ensure comprehensive planning process



<b>REFERENCED DOCUMENTS</b>		
<i>Document Type</i>	<i>Document Citation</i>	<i>How Incorporated into Plan</i>
Assessment	USDA Natural Resources Conservation Service. (n.d.). <i>Soil survey of Adams County, Pennsylvania</i> . Federal Government: Washington, DC.	Used to support consideration of subsidence and other geologic hazards
Technical Information	USEPA. (2018). <i>Storm smart cities: Integrating green infrastructure into local hazard mitigation plans</i> . Federal Government: Philadelphia, PA.	Outlines ways low-impact development and green infrastructure can support mitigation planning

Planners utilized many other sources in the completion of this update. Sources specific to hazard profiles appear as citations in those profiles and in Appendix A: Bibliography.



## 2.0 COMMUNITY PROFILE

This section discusses the geography, environment, and other community demographics. It provides a general description of Adams County.

### 2.1 Geography and Environment

Adams County is in south-central Pennsylvania, bordered by Cumberland County to the north, York County to the north and east, Franklin County to the west, and Carroll and Frederick Counties in Maryland to the south. The county has a land area of 518.67 square miles, making it 45<sup>th</sup> out of Pennsylvania's 67 counties (in size). The suburbs of Washington, D.C., and Baltimore, Maryland, are within an hour's drive.

The county sits on the eastern side of the Appalachian Mountains. The general geography of Adams County includes a portion of the Blue Ridge Mountains occupying the county's western boundary, with the county's fruit belt<sup>1</sup> situated along their foothills. A broad valley in the center of the county contains the Borough of Gettysburg and the Gettysburg National Military Park. Significant portions of South Mountain on the west and Pigeon Hills on the east are forests.

Two major watersheds divide Adams County (nearly equally). One half of the county drains northeast to the Susquehanna River by the Conewago Creek and its tributaries. The other half drains south and west into the Potomac River by the Monocacy River and its tributaries.

- The **Susquehanna River** watershed is the second-largest watershed east of the Mississippi River, behind the Ohio River Basin. The Susquehanna River drains 27,500 square miles of land, including large parts of Pennsylvania, Maryland, and New York. This watershed covers the northeast portion of Adams County, running diagonally from the northwest corner to the southeast corner of the county. Major tributaries in the county include Conewago Creek (west) and Mountain Creek.
- The **Potomac River** watershed covers the southwest portion of Adams County. It covers a total of 14,670 square miles, 1,584 of which are in Pennsylvania. Tributaries to the Potomac Watershed that flow through the county include Antietam Creek, the Monocacy River, and Conococheague Creek.

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<sup>1</sup> The Historic South Mountain Fruit Belt is an area of deep, well-drained, gravelly soil on the southeastern slopes of South Mountain in western Adams County. These 20,000 acres are prime areas for fruit production (destinationgettysburg.com, 2020).



Adams County consists of two eco-region types. The first is the Piedmont Plateau, which includes uplands, low hills, fertile valleys, and well-drained soils. The plateau is one of the leading agricultural areas of the state, with Adams County leading the region in the production of apples. Figure 2.1-1 shows the general topography as well as the rivers of Adams County, while Figure 2.1-2 shows the county's watersheds.



Figure 2.1-1

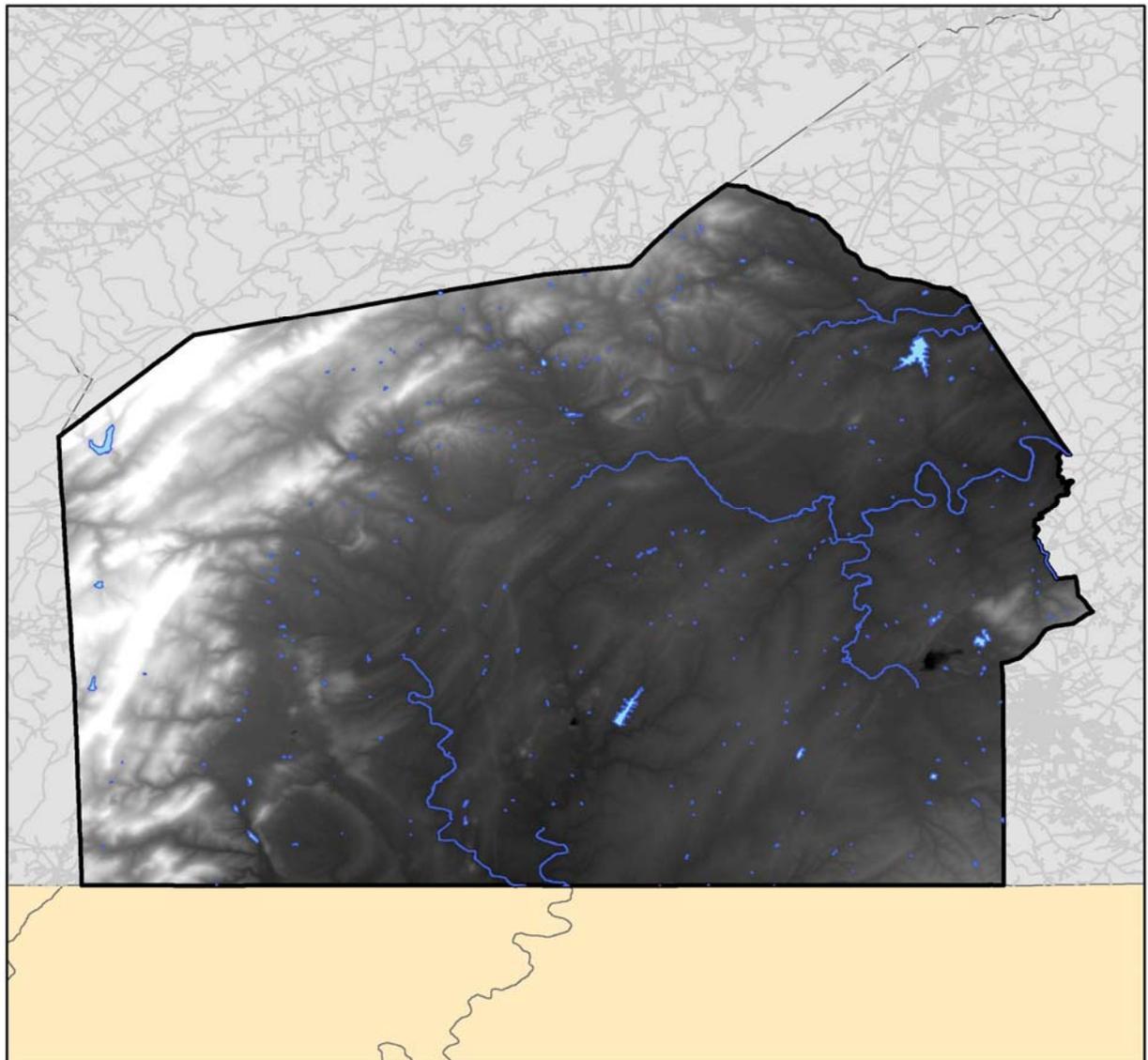
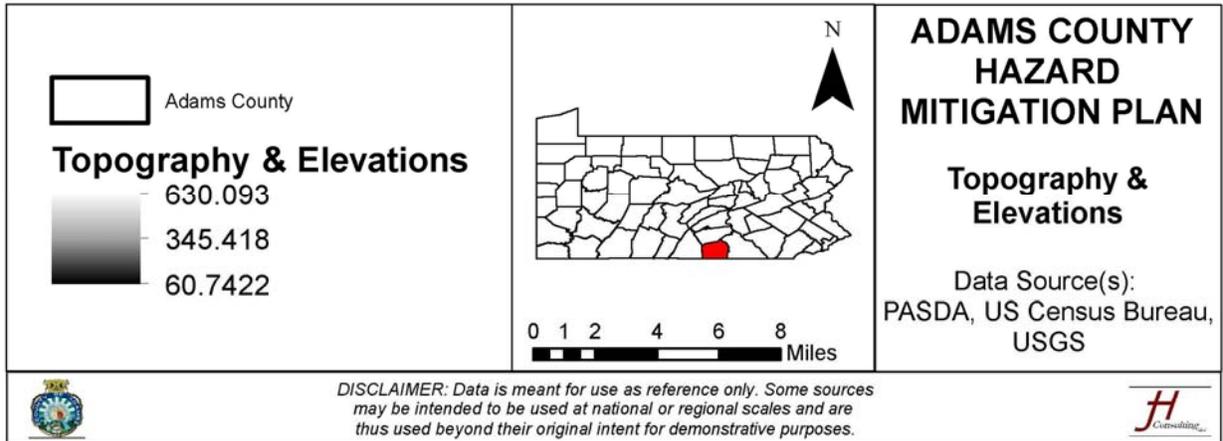
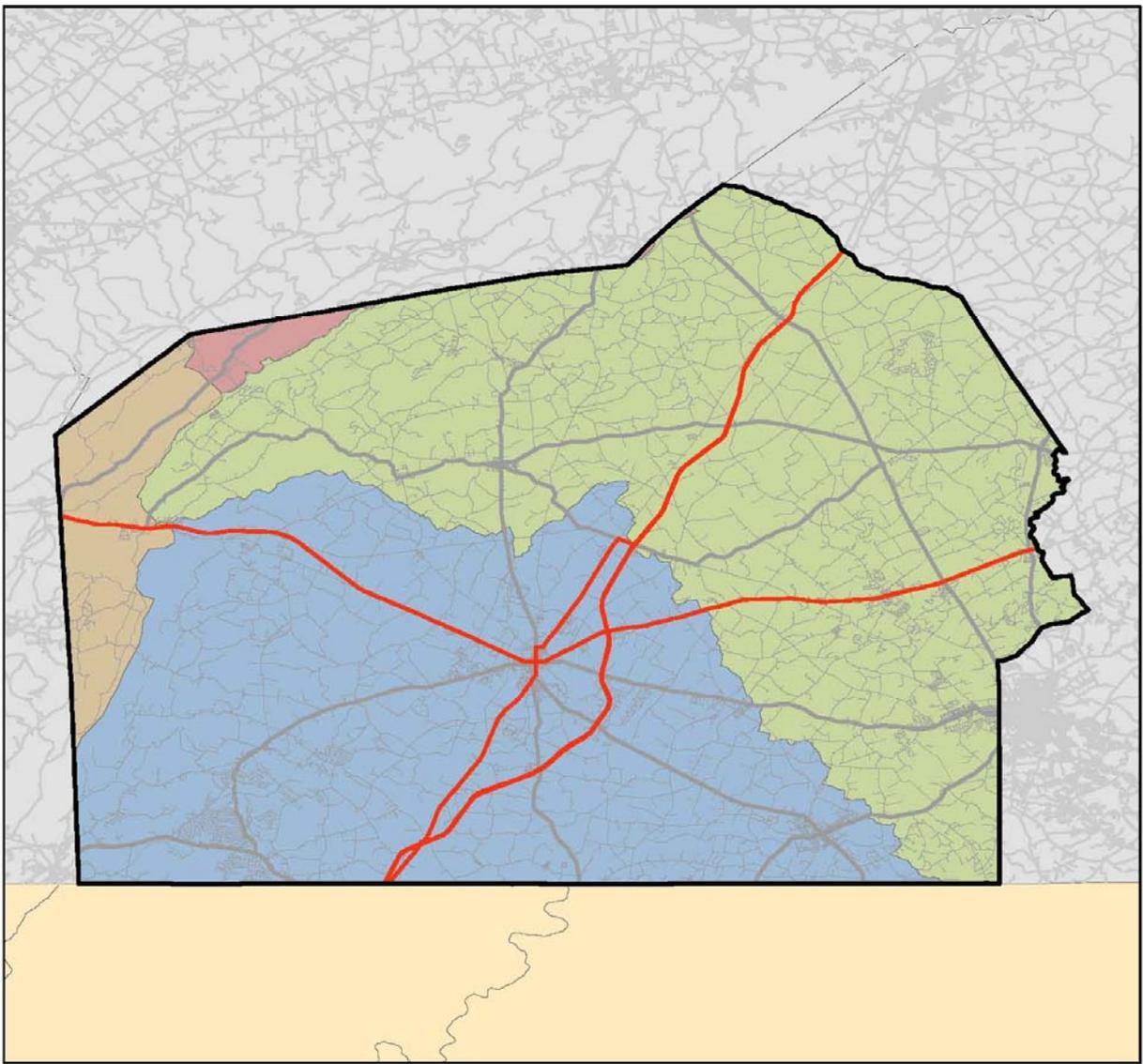
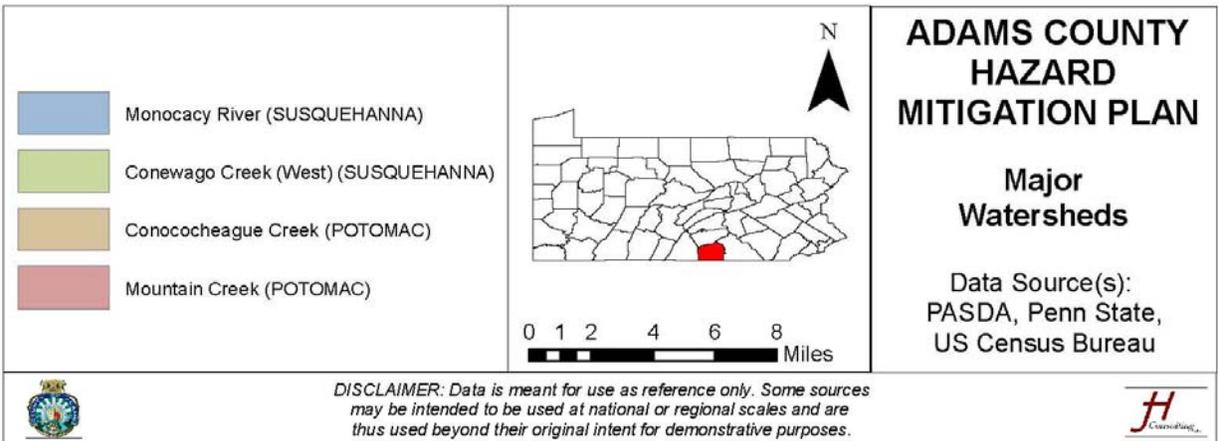


Figure 2.1-2



## **2.2 Community Facts**

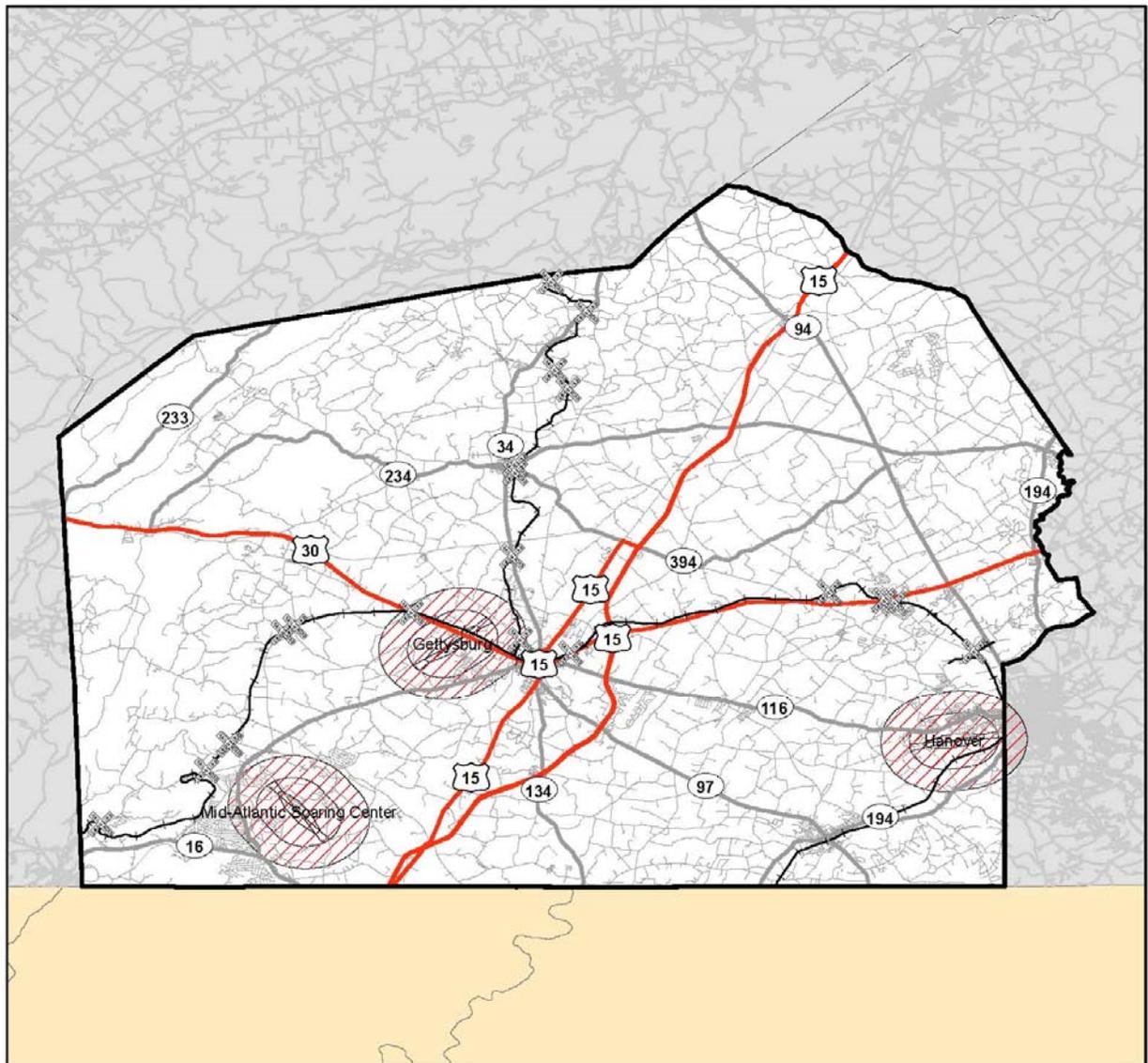
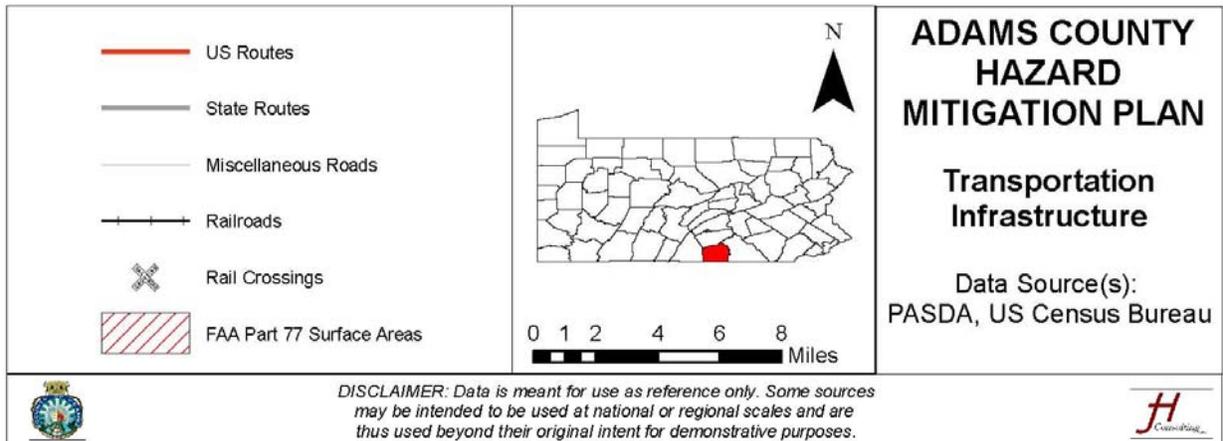
Adams County includes 21 townships and 13 boroughs. Gettysburg is the largest municipality by population, followed by Conewago Township. The county was settled in a “spokes and wheel” pattern around Gettysburg, which is still evident. Many of the county’s mid-19<sup>th</sup>-century roadway patterns remain intact, with thirteen historic roadways converging near Gettysburg.

### **2.2.1 Transportation**

The transportation infrastructure today includes US Route 15 running north-south and US Route 30 running east-west. Significant Pennsylvania state routes include SR 16, SR 93, SR 97, SR 116, and SR 234, all of which converge in or around Gettysburg. Additionally, CSX Transportation operates rail lines in Adams County. These lines, like the highway network, converge near Gettysburg.



Figure 2.2.1-1



### 2.2.2 Economy

Adams County has a diverse employment sector. Total employment in the county is currently 53,900, with an unemployment rate of 2.8%. The largest areas of employment by volume are *manufacturing* (with total employment of 7,444 and wages averaging \$49,543 per year) and *health care and social assistance* (with total employment of 4,988 and wages averaging \$45,366) (PA Dept. Labor and Industry). The top employers in Adams County are Gettysburg College, Knouse Foods Cooperative Inc., Hain Pure Protein Corporation, The Gettysburg Hospital, Federal Government, The Brethren Home Community, PCA Corrugated and Display LLC, Adams County, Conewago Valley School District, and Wellspan Medical Group. Table 2.2.2-1 below gives an overview of industry statistics.

**Table 2.2.2-1**

<b>ADAMS COUNTY INDUSTRY SECTORS BY ESTABLISHMENTS AND EMPLOYEES, 2018</b>		
<i>Industry Sector</i>	<i>Establishments</i>	<i>Employees</i>
Agriculture, Forestry, Fishing, and Hunting	97	1,673
Mining, Quarrying, and Oil & Gas	5	250
Utilities	14	N/D
Construction	221	1,604
Manufacturing	132	7,444
Wholesale Trade	67	322
Retail Trade	318	3,610
Transportation and Warehousing	84	1,443
Information	18	263
Finance and Insurance	78	556
Real Estate and Rental and Leasing	50	167
Professional and Technical Services	147	649
Management for Companies and Enterprises	15	290
Administrative and Waste Services	86	841
Educational Services	57	N/D
Health Care and Social Assistance	254	4,988
Arts, Entertainment, and Recreation	52	685
Accommodation and Food Services	222	4,195
Other Services (Except Public Administration)	201	1,151
Public Administration	66	1,389

With a location both along the Pennsylvania-Maryland border and within close proximity of Baltimore and the National Capital Region, Adams County's employment is more varied than in other areas of Pennsylvania. The Adams Economic Alliance reports that 15,901 people both live and work in Adams County, while 29,952 county residents work outside of the county. An estimated 13,465 individuals living elsewhere work in Adams County (Adams Economic Alliance,



2018). The Top 5 employers in Adams County are Knouse Foods, Gettysburg College, Hain Pure Protein Corp., The Wellspan Gettysburg Hospital, and the federal government (respectively) (Adams Economic Alliance, 2018).

Agriculture is another major player in the Adams County economy. Adams County ranks first in Pennsylvania (and sixth in the United States) for apple production. Adams County is first in the state for the value of sales of horses and fruit and second in the state for the number of turkeys (<https://adamsalliance.org/incentives-resources/adams-county-profile/>). In fact, Hanover Shoe Farms “is the largest Standardbred breeding horse farm in the World” (Adams Economic Alliance). The Adams Economic Alliance reports a \$570 million economic impact from the fruit belt.

### 2.2.2.1 Tourism

Each year, millions of tourists visit Adams County, contributing greatly to the local economy. The county is home to several tourist, cultural, recreational, and environmental attractions, which draw 3.7 million visitors annually. Adams County is home to one of the country’s greatest assets, historical Gettysburg. While Gettysburg has been the home of an annual Civil War battle re-enactment, that event now occurs on a less regular basis. It remains to be seen how this new schedule affects visitors.

The preceding paragraph does not adequately describe the impact of tourism in Adams County, though. According to Gettysburg Tourism Works, visitors to the county inject \$725.9 million into the local economy through direct spending. An additional \$130 million in tax revenue through lodging, amusement, fuel, and sales taxes. Gettysburg Tourism Works cited a 2017 study by Tourism Economics and the Pennsylvania Department of Community and Economic Development, where tourism-related spending in Adams County was as follows.

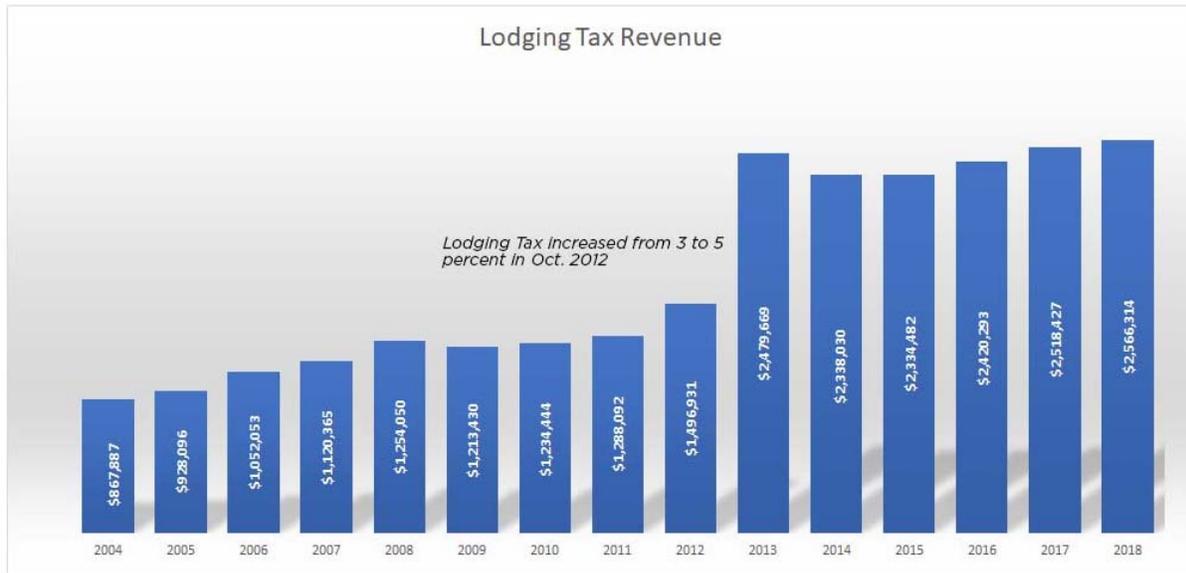
- **Lodging:** \$97.6 million (see Figure 2.2.2.1-1 below)
- **Food and Beverage:** \$148.4 million
- **Shopping:** \$130.1 million
- **Recreation:** \$174.6 million
- **Transportation:** \$175.2 million<sup>2</sup>

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<sup>2</sup> Source of Dollar Figures & Lodging Tax Graphic: <https://www.gettysburgtourismworks.com/impact-of-tourism-in-adams-county.html#:~:text=The%20impact%20of%20tourism%20in%20adams%20county&text=Take%20the%20%24725.9%20million%20that,the%20spending%20of%20our%20visitors.&text=A%20study%20by%20Tourism%20Economic,s,the%2067%20counties%20in%20Pennsylvania.>



Figure 2.2.2.1-1



Further, the tourism industry provides local governments with secondary tax revenue, and Gettysburg Tourism Works notes that five of the top seven property tax owners in Gettysburg Borough (and two of the top five in Adams County) are tourism businesses. State economic research suggests that tourism supports 5,200 employees in Adams County ([gettysburgtourismworks.com](http://gettysburgtourismworks.com)). The Gettysburg Area Chamber of Commerce cites an even higher employment number at 7,850 jobs supported by tourism. Further, tourism touches employment in other sectors not traditionally associated with hospitality (e.g., contractors who support hotels, museums, and restaurants). It is thus apparent that tourism supports establishments in numerous categories (as per Table 2.2.2-1 above).

### 2.2.3 Medical Access

Wellspan is the primary hospital system in Adams County, and it operates Wellspan Gettysburg Hospital, a 73 staffed bed facility in Gettysburg. There are 0.7 hospital beds per 1,000 people in Adams County, which is lower than the Pennsylvania average of 2.5 beds per 1,000 people.

### 2.2.4 Utilities

Utilities include public water, wastewater, natural gas, and electricity services. According to the *Adams County, Pennsylvania Water Supply and Wellhead Protection Plan* (ACOPD, 2002), 36 community water systems provide water to the county's residents. All of the systems operate



their own sources of supply, as well as treatment and distribution facilities. The Hanover Municipal Waterworks is a public system headquartered in York County that provides water service to Adams County residents in McSherrystown Borough and nearly all of Conewago Township. There is also a private water system associated with Fort Detrick; it maintains a classified status and will not feature in this narrative. Approximately 101 public wells source water throughout Adams County.

MetEd (First Energy) and the Adams Electric Cooperative provide electricity. Columbia Gas and UGI Utilities provide natural gas services. Several municipal public works departments offer wastewater collection and treatment. The Adams County Municipal Solid Waste Management Plan (2019 update) lists the following 21 wastewater treatment facilities:

- Abbottstown-Paradis Joint Authority,
- Arendtsville Municipal Authority,
- Berwick Township Municipal Authority,
- Biglerville Borough Authority,
- Bonneauville Borough Municipal Authority,
- Cumberland Township Authority-North,
- Cumberland Township Authority-South,
- East Berlin Area Joint Authority,
- Fairfield Municipal Authority,
- Gettysburg Municipal Authority (GMA),
- Hanover Borough WWTP-Conewago,
- Lake Meade Municipal Authority,
- Littlestown Borough Authority
- New Oxford Municipal Authority,
- Orrtanna,
- Possum Valley Municipal Authority,
- Reading Township Municipal Authority,
- Tyrone Township,
- White Run Municipal Authority, and
- York Springs Municipal Authority.

### **2.3 Population and Demographics**

Population and demographic data provides baseline information for assessing the potential magnitude of hazards and can support trend analysis in potentially vulnerable populations. Adams County's population has grown steadily since the 1950s. Table 2.3-1 shows the population change in Adams County since the 1950 census.



**Table 2.3-1**

ADAMS COUNTY POPULATION TRENDS, 1950-2018								
<i>Year</i>	1950	1960	1970	1980	1990	2000	2010	2018
<i>Population</i>	44,197	51,906	56,937	68,292	78,274	91,292	101,407	102,811

Source: U.S. Census Bureau

The demographic makeup of Adams County appears in Table 2.3-2.

**Table 2.3-2**

ADAMS COUNTY DEMOGRAPHICS SUMMARY	
<i>Demographic Data Point</i>	<i>Population</i>
White	93,849
Black/African American	1,469
American Indian and Alaskan Native	52
Asian	727
Two or More Races	2,269
Hispanic or Latino	6,891
Veterans	7,967
Foreign-born Persons	4,081
Median Household Income	62,661
Persons in Poverty	8.8%

Source: U.S. Census Bureau

Table 2.3.3 and 2.3.4 depict the demographic breakdown of Adams County by municipality.



**Table 2.3-3**

ADAMS COUNTY MUNICIPAL DEMOGRAPHICS, 2017							
<i>Municipality</i>	<i>Population Estimates (2017)</i>	<i>White</i>	<i>Black or African American</i>	<i>American Indian and Alaskan Native</i>	<i>Asian</i>	<i>Two or More Races</i>	<i>Hispanic or Latino</i>
Adams County	101,589	93,849	1,469	52	727	2,269	6,891
Abbottstown	952	913	0	0	7	3	110
Arendtsville	847	543	20	3	0	6	297
Bendersville	746	564	35	0	0	15	163
Biglerville	1,154	951	8	3	8	33	288
Bonneauville	2,119	1,870	31	0	129	77	50
Carroll Valley	3,894	3,748	0	0	14	104	285
East Berlin	1,559	1,479	21	7	5	36	23
Fairfield	538	509	8	0	4	17	3
Gettysburg	7,627	6,226	439	11	176	342	867
Littlestown	4,439	4,107	47	0	0	149	146
McSherrystown	3,044	2,828	0	0	49	46	121
New Oxford	2,142	1,513	99	7	19	161	595
York Springs	797	399	0	0	0	13	456
Berwick	2,191	2,034	30	0	6	16	139
Butler	2,577	2,336	10	0	0	50	387
Conewago	7,116	6,757	33	0	54	172	215
Cumberland	6,187	5,462	175	0	43	223	437
Franklin	4,883	4,838	16	0	0	3	103
Freedom	815	805	4	0	4	0	5
Germany	2,702	2,674	0	0	0	28	9
Hamilton	2,534	2,522	0	0	0	9	23
Hamiltonban	2,095	1,930	32	0	17	93	93
Highland	920	897	12	0	0	9	26
Huntington	2,362	2,223	20	0	52	45	102
Latimore	2,589	2,464	54	0	0	52	62
Liberty	1,326	1,271	11	15	0	29	6
Menallen	3,528	3,424	16	0	46	28	336
Mount Joy	3,684	3,414	93	0	13	77	151
Mount Pleasant	4,677	4,431	110	0	13	123	127
Oxford	5,527	5,344	110	0	0	73	100
Reading	5,781	5,714	0	0	22	0	403
Straban	4,938	4,533	24	6	37	163	415
Tyrone	2,141	1,991	11	0	5	35	303
Union	5,781	5,714	0	0	22	0	403



Table 2.3.4

ADAMS COUNTY MUNICIPAL DEMOGRAPHICS, CONT.							
<i>Jurisdiction</i>	<i>Veterans</i>	<i>Foreign-born persons</i>	<i>Housing units (2017)</i>	<i>Median Household Income (in 2017)</i>	<i>Persons in poverty</i>	<i>Population per square mile</i>	<i>Land area in square miles (2017)</i>
Adams County	7,967	4,081	41,819	62,661	8.8%	195.5	518.67
Abbottstown	50	53	347	60,192	10.3%	1730.9	0.55
Arendtsville	69	112	298	58,393	19.5%	1045.7	0.81
Bendersville	43	62	261	68,958	13.7%	1657.7	0.45
Biglerville	101	171	481	55,313	9.3%	1775.3	0.65
Bonneauville	163	97	794	49,782	10.7%	2184.5	0.97
Carroll Valley	504	93	1,626	82,153	1.1%	711.8	5.47
East Berlin	86	39	654	60,288	6.6%	2165.3	0.72
Fairfield	60	0	277	54,750	16.9%	707.9	0.76
Gettysburg	272	404	2,488	37,274	25.9%	4,587.6	1.66
Littlestown	328	184	1,976	57,809	8.0%	2959.3	1.50
McSherrystown	141	79	1,449	39,934	6.4%	5968.6	0.51
New Oxford	96	229	854	38,882	20.8%	3454.8	0.62
York Springs	18	266	263	53,750	31.0%	3795.2	0.21
Berwick	221	105	1,006	61,544	11.7%	674.2	3.25
Butler	192	189	1,058	64,333	12.4%	107.1	24.06
Conewago	563	195	2,938	64,794	5.9%	680.9	10.45
Cumberland	586	401	2,634	66,317	11.4%	184.1	33.6
Franklin	508	3	2,364	67,878	5.4%	71.3	68.48
Freedom	87	9	371	78,281	5.2%	58.1	14.02
Germany	184	28	1,020	70,909	3.3%	347.7	10.91
Hamilton	156	32	1,036	77,880	4.9%	185.6	13.65
Hamiltonban	179	78	955	64,653	11.2%	53.3	39.28
Highland	83	7	424	74,107	6.4%	75.4	12.2
Huntington	155	131	966	61,131	10.4%	94.0	25.12
Latimore	145	0	1,085	74,976	7.9%	120.4	21.5
Liberty	142	21	542	74,583	3.2%	83.9	16.23
Menallen	211	253	1,387	71,688	6.5%	82.4	42.82
Mount Joy	397	85	1,640	74,381	0.7%	140.5	26.23
Mount Pleasant	478	40	2,028	65,694	3.2%	152.9	30.58
Oxford	534	69	2,354	57,813	6.6%	568.0	9.73
Reading	335	249	2,330	74,051	5.1%	215.7	26.8
Straban	462	185	1,810	62,907	11.1%	143.3	34.46
Tyrone	147	158	868	51,500	20.3%	99.3	21.56
Union	335	249	2,330	74,051	5.1%	328.8	17.58

Compared to other areas in the region, Adams County is rural, and residents are proud of that image (Penn State Extension, n.d.). During the planning meetings guiding the 2020 mitigation plan update, the steering committee noted a desire to maintain the rural nature of the county. Adams County markets itself as rural, and the Penn State Extension published a leaflet about “life in Adams County” celebrating the country feel of the county’s communities.



## 2.4 Land Use and Development

This section examines the land use of Adams County, and it considers areas identified for future residential, commercial, and industrial development.

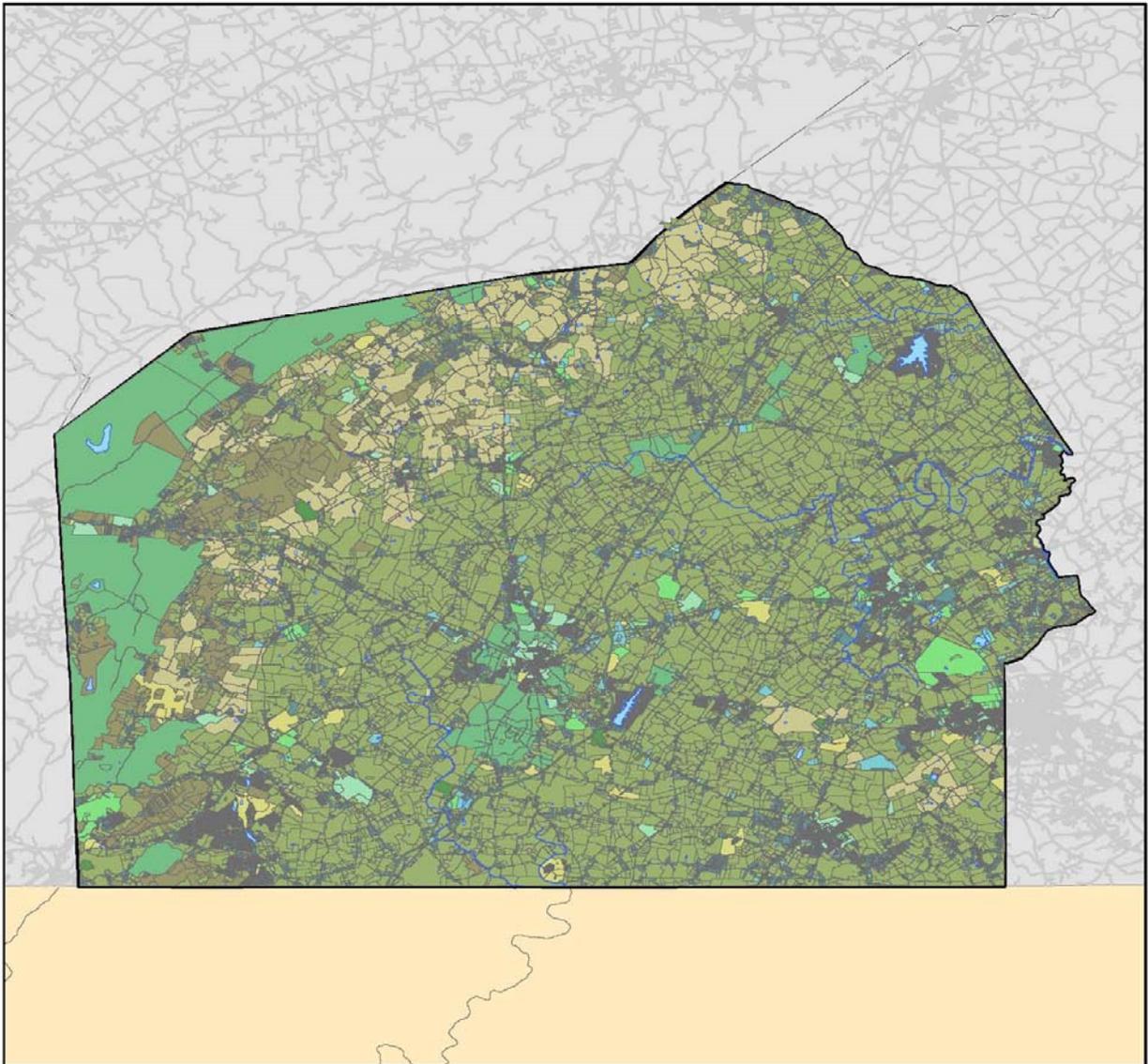
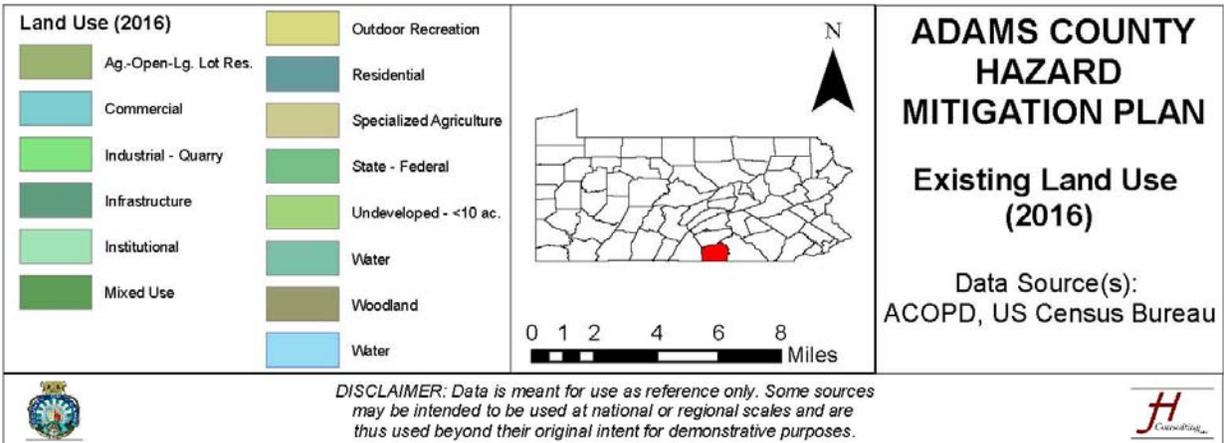
### 2.4.1 Land Cover/Climate

Adams County has a continental-type climate, predominantly influenced by air from the west and north. The climate is seasonal, with wet, stormy springs, warm summers, colorful falls, and cold, snowy winters. Due to its proximity to the Atlantic Ocean, coastal storms sometimes affect the local weather. The average temperature high for Adams County is 40°F in January and 86°F in July, for an average high temperature of 63°F. The county receives an average of 43.11 inches of precipitation as rainfall throughout the year, as well as 22 inches of snowfall (with most occurring from December to February).

Most land in the county is undeveloped agricultural, resource conservation, very low-density residential, or park space, with some permanent open space and preservation areas. Even with a consistently increasing population, Adams County remains rural and is designated as such by The Center for Rural Pennsylvania. Figure 2.4.1-1 graphically depicts the land cover of Adams County. (NOTE: Dark gray areas in Figure 2.4.1-1 are building footprints and represent areas of dense construction.)



Figure 2.4.1-1

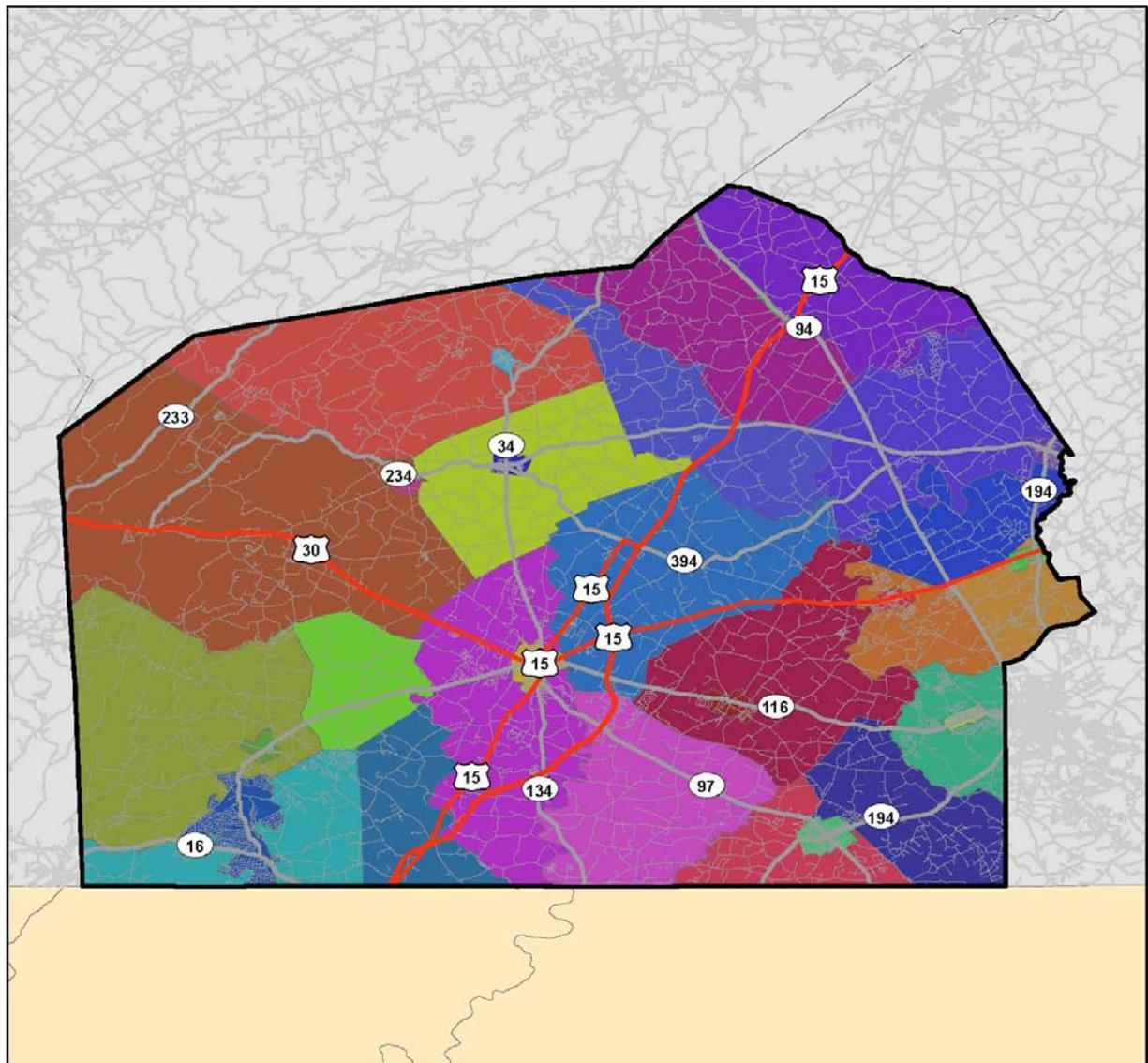
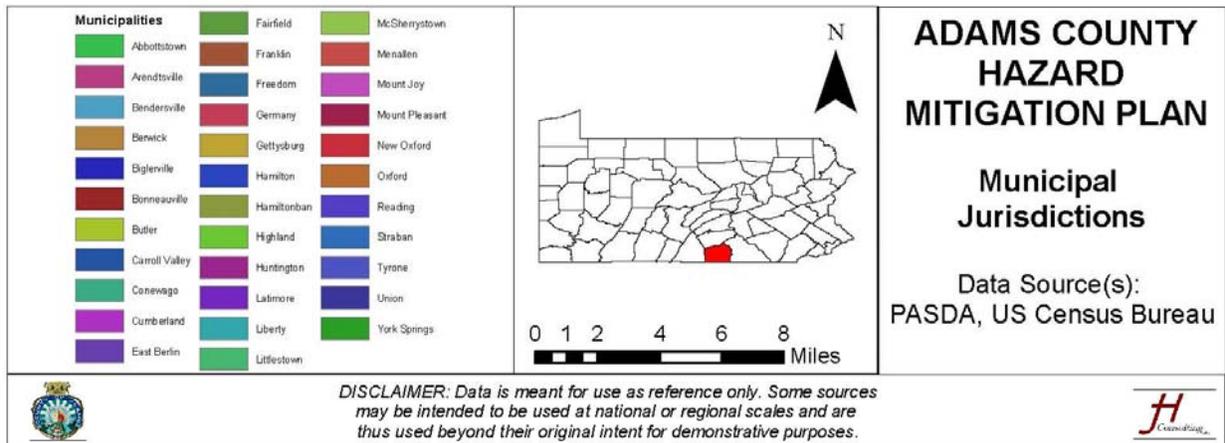


### 2.4.2 Municipalities

This section provides demographic and other general details for each of the participating municipalities. Figure 2.4.2-1 shows the location of municipalities.



Figure 2.4.2-1



### Abbottstown Borough

The Borough of Abbottstown lies on Adams County's eastern border with York County. The borough has a land area of 0.55 square miles, intersected by US 30 and SR 194. The Conewago School District, one private school, two local charter schools, and fourteen cyber charter schools serve the borough.

According to the Census, Abbottstown had a 2017 population of 952 and a land area of 0.55 square miles. It had a population density of 1,730.9 people per square mile and 347 housing units. Residents of the borough had an estimated median household income of \$60,192.

### Arendtsville Borough

The Borough of Arendtsville is in the northwestern portion of Adams County, just west of Butler Township. The borough is served by the Upper Adams School District, with Arendtsville Elementary School being the only school inside the borough limits. Residents may also choose two local public charter schools and any of the Commonwealth's 14 public cyber charter schools. SR 234 is the major highway serving the area.

Arendtsville Borough had an estimated 2017 population of 847 and a land area of 0.81 square miles. The population density of the borough was 1,045.7 people per square mile. Residents of Arendtsville had a median household income of \$58,393.

### Bendersville Borough

The Borough of Bendersville is in the northern portion of Adams County, just north of Biglerville. The Upper Adams School District also serves Bendersville, which provides kindergarten through 12<sup>th</sup> grade. Residents of Bendersville may also choose two local public charter schools and any of the Commonwealth's 14 public cyber charter schools. No major highways serve the area, and transportation in the borough is limited.

According to the Census, Bendersville had a 2017 population of 746 and a land area of 0.45 square miles. Its population density was 1,657.7 people per square mile. There are 261 housing units in the borough, and residents report a median household income of \$68,958.

### Biglerville Borough

The Borough of Biglerville is also in northern Adams County, south of Bendersville. The Upper Adams School District provides public schools to Biglerville, or residents may also choose one of two private schools, two local public charter schools, and any of the Commonwealth's 14 public cyber charter schools. Major roadways serving the borough include US 15 and US 30.



Biglerville had a 2017 population of 1,154 and a land area of 0.65 square miles. The borough had a population density of 1,775.3 people per square mile. There are 481 housing units in Biglerville, and residents have a median household income of \$55,313.

#### Bonneauville Borough

The Borough of Bonneauville sits in the southeastern portion of central Adams County. The borough can be accessed by SR 116. The Upper Adams School District also serves Bonneauville, as do two local and 14 cyber charter schools.

According to the Census, Bonneauville had a 2017 population of 2,119. The borough has a land area of 0.97 square miles and a population density of 2,184.5 people per square mile. The borough contains 794 housing units, and in 2017 residents reported a median household income of \$49,782.

#### Carroll Valley Borough

Carroll Valley Borough is in southern Adams County, bordering Liberty Township and the Maryland State Line. SR 16 and SR 116 provide roadway access to the borough. The Fairfield Area School District provides kindergarten through 12<sup>th</sup> grade. Carroll Valley parents can also choose from two local charter schools and the Commonwealth's 14 online charter schools.

According to the 2017 Census estimates, Carroll Valley had a population of 3,894. It has a land area of 5.47 square miles, making it the largest municipality in the county by land area. Carroll Valley's population density was 711.8 people per square mile. There are 1,626 housing units in the borough; residents have a median household income of \$82,153, which is the highest in the county.

#### East Berlin Borough

The Borough of East Berlin is located in eastern Adams County, on the border between Adams and York counties. Routes 194 and 234 are the main highways providing access to the area. The Bermudian Springs School District serves East Berlin.

The population of East Berlin was 1,559 in 2017, according to the U.S. Census Bureau. The land area is 0.72 square miles, and the population density is 2,165.3 people per square mile. The borough contains 654 housing units, and their median household income is \$60,288.

#### Fairfield Borough



Fairfield Borough is in southwestern Adams County, surrounded Hamiltonban Township. SR 116, which crosses the county diagonally, also transects the borough. The Fairfield Area School District serves the borough, and parents can also choose either of the two local charter schools and any of the Commonwealth's 14 online charter schools.

According to the Census, Fairfield had a 2017 population of 538 and a land area of 0.76 square miles. Its population density was 707.9 people per square mile. The borough includes 277 housing units, and residents have a median household income of \$54,750.

### Gettysburg Borough

The Borough of Gettysburg is in central Adams County. The Gettysburg Area School District provides public education for grades kindergarten through 12. Residents can also choose to enroll students in one of the five private schools, two local public charter schools, or 14 online charter schools. There is also one post-secondary education institution in Gettysburg: Gettysburg College.

U.S. 30 and SR 116, as well as a vast network of locally-maintained roads, provide transportation access to and through the borough. Many roadways are laid out according to the borough's "spoke-and-wheel" design. Gettysburg is home to several sites of historical, cultural, and economic value.

The Borough of Gettysburg had a 2017 population of 7,627. Its land area is 1.66 square miles, and the population density was 4,594.6 people per square mile. The borough has a total of 2,488 housing units and a median household income of \$37,274. Gettysburg has the largest population of any municipality in Adams County, as well as the lowest median household income.

### Littlestown Borough

The Borough of Littlestown is in southeastern Adams County, near but not adjacent to the Maryland border. The Littlestown Area School District, one private school, two local charter schools, and fourteen online charter schools serve the area. Major roadways include SR 194 and 97.

According to the U.S. Census Bureau, Littlestown had a 2017 population of 4,439 and a land area of 1.50 square miles. Its population density was 2,959.3 people per square mile. The borough contains 1,976 housing units, and residents' median household income is \$57,809.

### McSherrystown Borough



McSherrystown Borough lies in the eastern part of Adams County, near the border with York County. The Conewago School District serves the borough; parents can also choose for their students to attend one of two private schools, two local charter schools, or the Commonwealth's 14 online charter schools. Highways serving the borough include SR 116.

The borough has an estimated population of 3,044 (2017), and a land area of 0.51 square miles. The population density was 5,968.6 people per square mile, making it the most densely populated municipality in Adams County. There are 1,449 housing units in McSherrystown, and the median household income is \$39,394.

### New Oxford Borough

The Borough of New Oxford is in eastern Adams County. It is served by the Conewago School District, as well as one private school, two local charter schools, and 14 Commonwealth cyber charter schools. US 30 provides transportation through the borough. The borough also contains several large manufacturing plants. New Oxford had a population of 2,142 (2017). The borough has a land area of 0.62 square miles and a population density of 3,454.8 people per square mile. The median household income for New Oxford is \$38,882, and there are 854 housing units.

### York Springs Borough

The Borough of York Springs is in northeastern Adams County. Students in York Springs attend schools in the Bermudian Springs School District. U.S. 15 and SR 30 provide roadway access to the borough. According to the Census, York Springs had a population of 797 and a land area of 0.21 square miles. York Springs is the smallest municipality in the county in terms of land area. Its population density was 3,795.2 people per square mile. The borough has a total of 263 housing units and a median household income of \$53,750.

### Berwick Township

Berwick Township is in the eastern portion of Adams County along the Susquehanna River. The Berwick Area School District, which operates six public schools, serves the township. In addition to public schools, there are three private schools in the township. US 11 provides highway access to the township.

Berwick had a 2017 population of 2,191 and a land area of 3.25 square miles. Its population density was 674.2 people per square mile. The township has 1,006 housing units, and residents' median household income is \$61,544.



### Butler Township

Butler Township is north of Gettysburg. The Borough of Biglerville is in Butler Township. Butler students attend schools operated by the Upper Adams School District. Residents are also able to choose from two local charter schools and the Commonwealth's online charter schools. Roadway transportation in the township includes SR 34 and SR 234.

Butler had a 2017 population of 2,577 and a land area of 24.06 square miles. The township's population density was 107.1 people per square mile. The township contains 1,058 housing units, and the median household income is \$64,330.

### Conewago Township

Conewago Township is in eastern Adams County along the York County border. The township surrounds the Borough of McSherrystown. The Conewago School District, as well as two local and 14 online charter schools, serve the area. SR 94 and SR 194 provide highway access to the area, and Hanover Airport provides air travel.

The Township of Conewago had a 2017 population of 7,116 and a land area of 10.45 square miles, making its population density 680.9 people per square mile. There are 2,938 housing units in the township, and the median household income is \$64,794.

### Cumberland Township

Cumberland Township is in the southern portion of Adams County, surrounding Gettysburg on three sides and bordering Maryland to the south. The Gettysburg Area School District and charter schools serve the township. Harrisburg Area Community College's Gettysburg Campus also sits in Cumberland Township. Highway access to the township is provided by U.S. Routes 15 and 30 and state routes 116 and 134.

According to the U.S. Census Bureau, the population of Cumberland Township was 6,187 in 2017. The land area of the township is 33.6 square miles, and the population density was 184.1 people per square mile. There are 2,634 housing units in the township, and the median household income is \$66,317.



### Franklin Township

The Township of Franklin is in the northeastern corner of Adams County, bordering Franklin and Cumberland Counties. Students attend Gettysburg Area School District schools as well as local and online charter schools. Residents also have access to the nearby Harrisonburg Area Community College's Gettysburg Campus. US 30 and state routes 233 and 234 provide highway access throughout the township.

In 2017, the population of Franklin Township was 4,883, and it had a land area of 68.48 square miles. Franklin Township is the largest municipality in Adams County by land area. The population density of the township was 71.3 people per square mile. There are 2,364 housing units in the jurisdiction, and the median household income is \$67,878.

### Freedom Township

Freedom Township is located in southern Adams County, bordering Maryland. The school district serving the township is the Gettysburg Area School District. Parents can also choose from the charter schools mentioned elsewhere. US 15 provides highway transportation to the area. In 2017, the total population of Freedom Township was 815, and its land area was 14.02 square miles. The population density for the township was 58.1. There are 371 housing units in the area, and residents have a median household income of \$78,281.

### Germany Township

Germany Township lies along the Maryland line, bordering Littlestown. Littlestown Area School District provides public education to the township, and parents can also choose from two local and fourteen cyber charter schools. Highway access consists of SR 97 and SR 194.

According to the Census (2017), the population of Germany Township was 2,702, and the land area is 10.91 square miles. The population density was 347.7 people per square mile. There are 1,020 housing units in the township, and the median household income is \$70,909.

### Hamilton Township

Hamilton Township is in eastern Adams County, adjacent to both Abbottstown and New Oxford. The eastern border of Hamilton is York County, Pennsylvania. US 30 travels along the southern border of Hamilton Township, and state routes 94 and 194 also intersect the township. The Conewago Valley School District, along with two local and 14 cyber charter schools, provide public education to the area. Hamilton had a 2017 population of 2,534, and a land area of 13.65 square miles. The population density of the township was 185.6 people per square mile, and



1,036 housing units are in the township. The median household income of Hamilton Township residents is \$77,880.

#### Hamiltonban Township

The Township of Hamiltonban is in eastern Adams County, bordering Franklin County, Liberty Township, and Carroll Valley Borough, and encompassing Fairfield Borough. The Fairfield Area School District and the available charter schools serve the township. Transportation within the township is limited; SR 16 traverses the southernmost region of the township.

According to the Census, the total population of Hamiltonban Township was 2,095 in 2017, and its land area is 39.28 square miles. The population density of the area was 53.3 people per square mile. The township contains 955 total housing units, and residents have a median household income of \$64,653.

#### Highland Township

Highland Township formed in 1863 from parts of Hamiltonban, Cumberland, and Franklin Townships. The Gettysburg Area School District, two local charter schools, and 14 Commonwealth cyber charter schools provide education services to area residents. SR 116 is the major highway serving the township.

Highland Township had a 2017 population of 920 and a land area of 12.2 square miles. Its population density was 75.4 people per square mile. The township has 424 housing units, and residents' median household income is \$74,107.

#### Huntington Township

The Township of Huntington is in northern Adams County, bordering Cumberland County. The Bermudian Springs School District and the available charter schools serve Huntington Township. US 15 provides highway access through the township, and SR 94 closely follows the border with Latimore Township.

Huntington had a 2017 population of 2,362 and a land area of 25.12 square miles. It is a sparsely populated area, with a population density of 94.0 people per square mile. The median household income of residents is \$61,131, and there are 966 housing units in the area.



### Latimore Township

The Township of Latimore is in the northeastern corner of Adams County, bordering York County. U.S. 15 and SR 94 provide highway access to the township. Bermudian Springs School District, two local charter schools, and 14 online charter schools provide education services to the area.

According to the Census, Latimore had a 2017 population of 2,589. Its land area is 21.5 square miles, and population density was 120.4 people per square mile. There are 1,085 housing units in the township, and residents have a median household income of \$74,976.

### Liberty Township

Liberty Township borders Maryland to the south and Franklin County to the west. The Fairfield Area School District, along with charter schools, provide education services to the area. Highway access to the township is limited, with SR 16 closely following the border of the township. The township had a 2017 population of 1,362, and a land area of 16.23 square miles. Liberty's population density was 83.9 people per square mile. There are 542 housing units in the township, and residents have a median household income of \$74,583.

### Menallen Township

The Township of Menallen is in northern Adams County, bordering Cumberland County. The Borough of Bendersville is within the borders of the township. Educational institutions include the Upper Adams School District and the charter schools serving Adams County. Highway transportation in the area is limited, with no major roadways located in the township.

According to the U.S. Census Bureau, Menallen Township had a 2017 population of 3,528 and a land area of 42.82 square miles. Menallen's population density was 82.4 people per square mile. There are 1,387 housing units located in the township, and residents have a median household income of \$71,688.

### Mount Joy Township

The Township of Mount Joy is in south-central Adams County, bordering Maryland. Two public school districts serve the township: residents from the western areas of Mount Joy attend schools in the Gettysburg Area School District, while residents from the eastern areas attend schools in the Littlestown Area School District. Residents can also choose from the charter schools serving the county. SR 97 provides highway access to the township.



According to the Census Bureau, Mount Joy has a population of 3,684 (2017) and a land area of 26.23 square miles. Its population density was 140.5 people per square mile. There are 1,640 housing units in the township, and its residents have a median household income of \$74,381.

#### Mount Pleasant Township

Mount Pleasant is just west of Gettysburg. The Borough of Bonneauville lies within Mount Pleasant Township's municipal boundaries. The Conewago Valley School District, Gettysburg Area School District, the Littlestown Area School District, and available charter schools serve Mount Pleasant. US 30 traverses the northern portion of the township.

The Township of Mount Pleasant had a 2017 population of 4,677 and a land area of 30.58 square miles. Its population density was 152.9 people per square mile. There are 2,028 housing units in the township, and residents have a median household income of \$65,694.

#### Oxford Township

Oxford Township is in eastern Adams County, surrounding New Oxford Borough. The Conewago Valley School District and the available charter schools serve the township. US 30 provides highway access to the area, and SR 94 follows the township's eastern border. According to the Census Bureau, Oxford had a 2017 population of 5,527 and a land area of 9.73 square miles. Its population density was 568.0 people per square mile. Within the township, there are 2,354 housing units, and residents have a median household income of \$57,813.

#### Reading Township

The Township of Reading is in northeastern Adams County, south of Huntington Township. SR 94 provides roadway access to the area. The Bermudian Springs School District and several charter schools provide education services to the township. Reading has a population of 5,781 (2017), and a total land area of 26.8 square miles. Its population density was 215.7 people per square mile. There are 2,330 housing units in Reading, and residents have a median household income of \$74,051.

#### Straban Township

Straban Township is in central Adams County, adjacent to the eastern border of Gettysburg. U.S. routes 15 and 30 and SR 394 provide highway access to the township. The



Gettysburg Area School District and the Conewago Valley School District provide educational services to Straban Township, in addition to the available charter schools.

According to the Census Bureau, Straban had a 2017 population of 4,938 and a land area of 34.46 square miles, making its population density 143.3 people per square mile. There are approximately 1,810 housing units in the township, and residents have a median household income of \$62,907.

#### Tyrone Township

The Township of Tyrone is in northern Adams County, bordering Cumberland County. US 15 provides highway access to the southern portion of the township, but the northern portion is isolated from major roadways. The Bermudian Springs School District and charter schools provide educational opportunities.

Tyrone had a 2017 population of 2,141 and a land area of 21.56 square miles. Its population density was 99.3 people per square mile. The median household income in the township is \$51,500, and there are 868 housing units in the area.

#### Union Township

Union Township is in the southeastern corner of Adams County. The Littlestown Area School District provides education services to the township in addition to the available charter schools. State routes 116 and 194 provide highway access to the township.

According to the Census, Union had a 2017 population of 5,781 and a land area of 17.58 square miles. Its population density was 328.8 people per square mile, and there are 1,235 housing units in the township. Residents have a median household income of \$74,051.

#### 2.4.3 Historical & Cultural Resources

Adams County is home to numerous historical and cultural resources. The most obvious of those is the Gettysburg National Battlefield, but the area's history is much richer than a single site or event. Local officials, such as those working the National Park Service in the area, note that Adams County's history is "not all 1863," there are a wide array of historical assets in the area. The settlement patterns of the early United States play a role in the area's character, as does the extensive agricultural presence (e.g., Historic South Mountain Fruit Belt). As another example, the Eisenhower National Historic Site preserves the home and farm of President Eisenhower. The site is almost 700 acres in size, and it is not nearly as well known as the Civil



War assets in the area. The most recent *Adams County, Pennsylvania Comprehensive Plan* (ACOPD, 1990) summarizes the historical landscape as follows.<sup>3</sup>

Adams County is rich in existing historic resources. Over the past two-and-one-half centuries, since its initial European settlement in the 1730s, Adams County has experienced change as a gradual development and evolution of existing institutions, economic conditions, and way of life. As a consequence, the historic character of the county's landscape has remained strong. From the standpoint of historical significance, Adams County is predominantly a nineteenth-century agricultural landscape. By far, the predominant historic resource type is the nineteenth-century farmstead. Other historic resource types - mills, schoolhouses, churches, blacksmith shops, etc. - tend to be related to the peak development of the late-nineteenth-century farm economy in the region.

In general, the historic integrity of these resources and this landscape remains strong. The physical condition of individual resources, however, varies widely. While some historic residential and farm-related buildings, for instance, are well-maintained, a number have been unsympathetically renovated at the expense of their historic integrity. Many other historically-significant farmsteads within the county are rundown, but retain their historic integrity. Historic buildings which have been in continuous use, such as churches, have generally been well-maintained and tend to be in the best overall condition. Building types that are no longer an active part of county life, such as the blacksmith shops, early schools, and mills, have either changed use or have faced neglect and have tended to disappear.

In general, historic resources in Adams County are under-appreciated and taken for granted by the population and by local government. While a few outstanding historic resources are well-recognized and featured within the county, there is little recognition of the significance of the large number of "ordinary" historic resources to the social and economic history of the county and, most important, to the character of the landscape.

The present challenge is to increase awareness of the importance of these "ordinary" historic resources within the county and to develop the policies and procedures to ensure their protection. As the county continues to develop, the landscape's strong historic character can be recognized as a framework to be preserved, reinforced, and enhanced, so that the qualities and resources which give Adams County its personality are not lost.

The Adams County Office of Planning & Development classifies historical resources as follows: (a) residences and farm buildings, (b) historic villages, (c) churches, schools, mills, inns, and other resources, and (d) roads. Studies indicate that the primary period of property division in the county was the 1700s, and it was established by the late 1700s. The county road network, which still largely exists today, developed between approximately 1740 and 1830, as did the pattern of historic villages. The built environment of residences, barns, outbuildings, mills, churches, schools, etc. was well-established by 1860 (ACOPD, 1990).

<sup>3</sup> The comprehensive plan includes a detailed narrative of existing historical assets (pp. 2-5-1 through 2-5-21) as well as a historic and landscape resources conservation plan (pp. 3-7-1 through 3-7-11).



In 1990, Adams County was home to 185 archeological sites, two of which (Getty Tavern and Owings Mass House) were historic and the remainder pre-historic. Local enthusiasts have largely recorded these sites (with some estimates as high as 75% through the early 1980s). Most sites since the mid-1980s have been professional investigations. The comprehensive plan notes the most significant prehistorical archeological site as Snaggy Ridge in the South Mountain area. It was an important regional source of rhyolite for points, and investigations have identified quarry pits, work areas, and rock shelters. Most archeological sites in the Gettysburg Plain are along stream corridors. Approximately 40 sites have been identified along the Conewago Creek, 12 along the South Conewago, 10 along Plum Creek, eight along Marsh Creek, and six on Opossum Creek (ACOPD, 1990).

Of course, the Battle of Gettysburg cannot be understated in terms of its historical significance to Adams County, Pennsylvania, and the Nation. The Gettysburg National Military Park is the primary historical “site” associated with the battle, though the park includes numerous features. The mission of the park is to preserve the nineteenth-century landscape in which the battle took place. The battle took place over an area much larger than the military park, and the Adams County Office of Planning and Development points attention to the engagements at Hunterstown and Fairfield, two other areas in Adams County with designated historic districts.

Interestingly, Adams County only has 34 entries on the National Register of Historic Places (see Table 2.4.3-1 below).

**Table 2.4.3-1**

<b>ADAMS COUNTY NATIONAL REGISTER LISTINGS</b>				
<i>Property Name</i>	<i>Date Listed</i>	<i>Community</i>	<i>Location</i>	<i>Significance</i>
Abbott, John, House	2/22/1980	Abbottstown	E. King St.	Local
Pond Mill Bridge	6/22/1988	Bermudian	LR 01009 over Bermudian Creek	State
Thomas Brothers Store	8/15/2008	Biglerville	4 S. Main St.	Local
Carbaugh Run Rhyolite Quarry Site (36AD30)	1/15/1986	Cashtown	Address Restricted	Local
Horner House and Barn	5/24/2007	Cumberland Township	20 Horner Rd.	N/A
East Berlin Historic District	9/30/1985	East Berlin	Portions of King, Harrisburg and Abbottstown St.	Local
<b>Summary Description from National Register Filing:</b> East Berlin, a borough located in Adams County is situated in a bend of the Conewago Creek near the point where it leaves Adams County at the York County border. The nominated area includes most of King Street (the main street) and parts of Locust, Abbottstown and Harrisburg Streets. East Berlin was established in 1764 and contains a mix of commercial and residential buildings plus out buildings dating from the third quarter of the 18th to the early 20th century. The district is characterized by a concentration of 18th century log and stone dwellings which retain important interior and exterior architectural features of their age. There are also a significant number of brick and frame structures of the late 19 <sup>th</sup> century with Queen Anne and Italianate detailing. In East Berlin, there is a distinct type of late 19th century window trim consisting of a wide architrave with an arched top and modified crossettes. The district has only a few scattered noncontributing elements, nine out of a total of 186 properties.				



ADAMS COUNTY NATIONAL REGISTER LISTINGS				
<i>Property Name</i>	<i>Date Listed</i>	<i>Community</i>	<i>Location</i>	<i>Significance</i>
Fairfield Historic District	5/18/2000	Fairfield	Roughly bounded by Landis Dr., Steelman St., Wortz Dr., and NW border Fairfield Borough	Local
<p><b>Summary Description from National Register Filing:</b> The Fairfield Historic District is located on State Route 116 in southeastern Adams County. Nestled at the base of Jacks Mountain, part of the Blue Ridge, South Mountain range, Fairfield sits on the edge of a fertile limestone valley where apple orchards and fields of wheat and corn continue to dominate the landscape. The Daniel Musselman Farm, comprising the northeast corner of the historic district, maintains this agricultural context as an operating farm. Middle Creek runs through the pasture fields of the Musselman farm, where a Confederate hospital was located in 1863, and is crossed by State Route 116 approaching Fairfield from the east. The Landis Farm forming part of the northern boundary of the Fairfield Historic District, further emphasizes the rural character of the district. Both farms are included within the current boundaries of the Fairfield Borough. The town of Fairfield is laid out in a main street/cross street pattern, each block being one lot deep, terminating along the back alleys. The historic boundaries of Fairfield as defined by the 1872 Atlas of Adams County, constitutes much of the proposed historic district. Additional development along York St. (now Main St.) in the last quarter of the 19th century extends northeast to the nearby Musselman Farm, all of which is also included within the Fairfield Historic District. The district includes 117 contributing buildings, one contributing site (Confederate hospital) and 2 contributing structures (silos). Of the 166 buildings, site and structures counted within the Fairfield Historic District, less than one third, 46 buildings, are listed as non-contributing to the historic landscape. Out of the 46 non-contributing buildings, only 12 are dwellings or commercial structures, and only nine of these modern intrusions front onto Main Street. The remaining 32 non-contributing buildings are listed as sheds or garages which are primarily located to the rear of the historic buildings and lots.</p>				
Fairfield Inn	4/2/1973	Fairfield	Main St.	State
Middlekauff, Jacob and Juliana, House	1/17/2017	Franklin Township	530 Flohrs Church Rd.	Local
Pleasant Grove School	9/4/2012	Germantown	4084 Baltimore Pike (Mt. Joy Township)	Local
Adams County Courthouse	10/1/1974	Gettysburg	Baltimore and W. Middle Streets	Local
Black Horse Tavern	3/30/1978	Gettysburg	W of Gettysburg on PA 116	Local
Dobbin House	3/26/1973	Gettysburg	89 Steinwehr Ave.	National



ADAMS COUNTY NATIONAL REGISTER LISTINGS				
Property Name	Date Listed	Community	Location	Significance
Eisenhower National Historic Site	11/27/1967	Gettysburg	200 Eisenhower Farm Lane	National
<p><b>Summary Description from National Register Filing:</b> The majority of the Eisenhower National Historic Site consists of three adjoining farms, located in the fertile piedmont of south central Pennsylvania. Farming has been practiced continuously on these farms since the mid-eighteenth century. All three of these farms were associated with Dwight D. Eisenhower during his presidency (1953-1961) and his subsequent retirement (1961-1969). The core of the site includes the main Eisenhower Farm (Farm #1), purchased by the General and his wife Mamie Doud Eisenhower in 1951. In 1954 and 1955, Eisenhower friend W. Alton Jones purchased adjoining farms on the north (Farm #3) and on the south (Farm #2) of the Eisenhower farm in order to provide privacy and to increase the agricultural potential through a farm partnership. Together, these almost 500 acres of farm land constitute the Eisenhower-related resources of the Eisenhower National Historic Site. The site also includes the Clem Redding Farm and a portion of the George Smith Farm. The inclusion of these two properties within the boundaries of Eisenhower National Historic Site brings the total acreage for the Site to 693 acres. Contributing to the essence of that landscape are natural and manmade features, the farmsteads, buildings and smaller scale elements such as plantings, fences, roads and walkways, and other definers of the landscape's character, such as circulation networks and the mix of natural and man-made vegetation patterns. These characteristics are described below for each of the component properties.</p> <p>The Eisenhowers were directly associated only with Farms #1, #2, and #3. The Eisenhower NHS, however, acquired additional adjoining properties in the 1970s and 1980s for protective buffers. These later purchases, known as the Clem Redding Farm and the George Smith Farm, have no historic association with the Eisenhower Farms. They are included in the site boundary to protect the views to the south and west.</p> <p>The site includes 38 contributing buildings, ten contributing sites, 71 contributing structures, and zero contributing objects. The museum collection is identified as significant due to its direct association with the Eisenhowers and the site. Included within the counted contributing sites are the important landscape features and small scale elements that contribute to the significance of the site but which are not counted as individual contributing resources. Among these features are the field patterns, the roads and road traces, the fencing, the formal landscape components, and the natural vegetative patterns on the three farms. The large scale features and many small scale features associated with the western view to the Clem Redding Farm, the eastern view to the Emmitsburg Road, and the southern view to the George Smith Farm from the Eisenhower farms are also significant contributing landscape features. These features and elements are listed and described as an integral part of the landscapes but, although contributing in a significant way to the integrity of the site, are not counted as separate contributing resources. The component properties historically associated with the Eisenhower National Historic Site are described individually below.</p> <p>The evolution of the site during its association with Dwight D. Eisenhower culminated in 1967 when Farm #1—the Eisenhower Farm—was transferred to the ownership of the National Park Service at the behest of the former president. The two adjoining farms associated with the Eisenhower Farms operations had reached a plateau of development in 1962, when Eisenhower's partner W. Alton Jones was killed in a plane crash. These two farms were also transferred to the National Park Service through a donation by the W. Alton Jones Foundation and in September 1962 became part of the Gettysburg National Military Park because of their association with the Civil War battle (1-3 July 1863). The General terminated his show cattle farming operations with the dispersal of his herd in 1966 and thus, very few other changes were made on the three farms between that time and his death in 1969.</p> <p>The overall terrain of the three adjoining Eisenhower farms is rolling, typical of this portion of Adams County. The ridgelines on the farms generally follow a north-south orientation with pastures and croplands interspersed on the slopes of the ridges. The three farms are also arranged in a north-south orientation, with the former Bernard Redding Farm (Farm #3) occupying the northernmost position. This farm is separated from the Eisenhower Farm (Farm #1) by the state-maintained Millerstown Road. In the center of the farms is the property legally and personally associated with General Eisenhower, extending from the Millerstown Road southward to a branch of Willoughby Run. This intermittent stream has historically and naturally separated this farm from its southern neighbor, the former Earl Brandon Farm (Farm #2). The eastern boundaries of both Farms #1 and #3 are formed along historic woodlands now part of the Gettysburg National Military Park. The western boundaries of all three farms run along township roads (Red Rock Road and Black Horse Tavern Road).</p>				
Gettysburg Armory	4/18/1990	Gettysburg	315 W. Confederate Ave.	State



ADAMS COUNTY NATIONAL REGISTER LISTINGS				
Property Name	Date Listed	Community	Location	Significance
Gettysburg National Military Park	10/15/1966	Gettysburg	Gettysburg National Military Park	National
<p><b>Summary Description from National Register Filing:</b> Gettysburg National Military Park and the Soldiers' National Cemetery are located in the environs of Gettysburg. The Gettysburg battlefield covered an area of about 22 square miles; the national military park comprises nine square miles of that total area. The park is composed of two major battlefield areas located to the north and south of the town of Gettysburg, surrounding, but not including the town itself East Cavalry Field is located three miles east of Gettysburg. The section of the park located south of the borough includes the Soldiers' National Cemetery, the present visitor center, and the cyclorama center. There are other non-contiguous features that are included within the boundary of the park. These include: Jones Battalion Avenue, the Washington Street garage, the First Shot Marker, Coster Avenue, the Wills House, Neal Avenue, and Seminary Ridge Avenue. When Gettysburg National Military Park was originally listed in the National Register on 10/15/1966, the acreage of the park was 3,865 acres. In 1990, Congress expanded the legislated boundary of the park (P.L. 101-377) to its current 5,989 acres. Gettysburg National Military Park is included in and surround by a larger Gettysburg Battlefield Historic District, which was listed in the National Register in 1975.</p> <p>The park embraces most of the significant terrain features that influenced the outcome of the July 1863 battle, most notably Little Round Top, Seminary Ridge, Cemetery Ridge, Cemetery Hill and Culp's Hill. In addition to these well-known landmarks, the terrain features include most of the farm fields, hilltops and ridges, woodlots, woodlands, and orchard sites in which occurred battle action and significant troop movement and massing. Traversing through the park are many of the avenues of approach used by the contending armies, including public roads and farm lanes. At the end of many of these farm lanes are agricultural building complexes, composed of vernacular houses, barns, and outbuildings of frame, brick and stone construction. These buildings were surrounded at the time of the battle by a tracery of varying fencing styles, enclosing fields, meadows and pastures. Generally the area south and east of the borough contained the majority of the roadways and circulation corridors. It is also the area of the park where the Union defenders entrenched while the Confederates attacked for the majority of the three-day battle.</p> <p>Commemoration activities began immediately after the battle and led to the establishment of the Soldiers' National Cemetery and a seminal private-public movement for preservation of significant Union defensive positions and structures. The cemetery became part of a larger national cemetery system in 1872 and was administered by the U.S. War Department (1872-1934). The design and construction of the cemetery occurred prior to its transfer to the Federal Government. The acquisition of battle terrain features, buildings, avenue corridors, and monument plots began under the auspices of the Gettysburg Battlefield Memorial Association, whose efforts at preservation and commemoration of the battle on the site itself led to the creation of the national military park in 1895. A system of designed avenues, markers, and site furniture introduced a formal commemorative corridor atop the battle terrain. Elements of park design common to other formal (non-military) parks of the period were utilized to make it apparent that order was being imposed on the battlefield landscape. The park retains almost all of the original terrain and large-scale features that characterized the battlefield and commemorative landscapes. The contributing resources of the park include 135 buildings, 112 sites, 1,205 structures, and one significant object (The Gettysburg Panorama painting).</p>				
Lutheran Theological Seminary-Old Dorm	5/3/1974	Gettysburg	Seminary Ridge, Lutheran Theological Seminary campus	State
Pennsylvania Hall, Gettysburg College	3/16/1972	Gettysburg	Gettysburg College campus	National
Sauck's Covered Bridge	8/25/1980	Gettysburg	SW of Gettysburg on T 326, Cumberland/Freedom Townships	State
Sheads House	12/8/1976	Gettysburg	331 Buford Ave.	Local
Spangler--Benner Farm	10/29/1992	Gettysburg	230 Benner Rd., Mt. Joy Township	Local
Wirts House	1/22/1992	Gettysburg	798 Schrivvers Corner Rd. (PA 394), Straban Township	Local
Gettysburg Battlefield Historic District	3/19/1975	Gettysburg and vicinity	Town of Gettysburg and its environs	National
<p><b>Summary Description from National Register Filing:</b> The boundaries of the Gettysburg Battlefield Historic District are as shown on the U.S.G.S. Quadrangles for Gettysburg and Fairfield. This area includes the proposed 3,800 acres of the Gettysburg National Military Park, an estimated 1,200 acres of the Borough of Gettysburg, the proposed 1,600 acres of Eisenhower National Historic Site, and an estimated 3,100 acres of Cumberland, Straban, and Mount Joy Townships, other than the Gettysburg National Military Park and Eisenhower National Historic Site. An estimated 9,600 acres comprise the primary battle action area of the Battle of Gettysburg, July 1, 2, and 3, 1863. In addition, there are 1,300 acres of East Cavalry Field in Mount Pleasant and Straban Townships where the cavalry battle of July 3, 1863, took place. The Park's present land holdings of 3,153 acres (June 1973), as well as the other communities, are composed of several definitive areas.</p>				



<b>ADAMS COUNTY NATIONAL REGISTER LISTINGS</b>				
<i>Property Name</i>	<i>Date Listed</i>	<i>Community</i>	<i>Location</i>	<i>Significance</i>
Bridge in Cumberland Township	6/22/1988	Greenmount	LR 01002 over Marsh Creek	State
Conewago Chapel	1/29/1975	Hanover	3 mi. NW of Hanover, Conewago Township	Local
Heikes Covered Bridge	8/25/1980	Heidlersburg	N of Heidlersburg on T 5857, Tyrone/Huntington Townships	State
Great Conewago Presbyterian Church	12/27/1974	Hunterstown	Church Rd., Straban Township	Local
Hunterstown Historic District	5/15/1979	Hunterstown	PA 394 and Granite Station Rd.	Local
<p><b>Summary Description from National Register Filing:</b> The Hunterstown Historical District encompasses most of the small town of Hunterstown, which is located in Straban Township, along Beaver Dam Creek on Rt. 394 and Granite Station Road. In this town of 53 main structures, 49 lie within the original perimeters of the town, originally platted by the town's founder, David Hunter, in 1749 or 1750, when the town was known as Woodstock. It has also been known as Straban Center and was renamed Hunterstown in 1800. Many of the buildings present today are present on the 1858 and 1872 maps but most have been altered.</p>				
Jacks Mountain Covered Bridge	8/25/1980	Iron Springs	SW of Fairfield on LR 01053, Hamiltonban Township	State
Cline's Church of the United Brethren in Christ	8/22/2002	Menallen	Cline's Church Rd., 0.5 mi. S of PA 34	Local
Rock Creek--White Run Union Hospital Complex	5/18/2000	Mount Joy	Baltimore Pike, Goulden Rd. and White Church Rd.	Local
<p><b>Summary Description from National Register Filing:</b> The Rock Creek/White Run Union Hospital Complex is located southeast of Gettysburg along Rock Creek, White Run and various tributaries. The nominated area is mostly pasture, cropland and woods with clusters of farm buildings. This rural historic landscape consists of 13 contiguous properties, with mostly open farmland, eight farmsteads, and White's Church that served as hospitals for the 1st, 2nd, 3rd, 5th, 6th and 12th corps, Army of the Potomac, during the weeks immediately following the Battle of Gettysburg. The district boundaries follow current property lines, natural features and political boundaries. In general, the boundaries follow property lines north of the Baltimore Pike to low Dutch Road, US Route 15, Rock Creek, Littles Run. The 13 hospital sites are clustered in a compact ring within these boundaries. While there are additional significant Union hospital sites near the battlefield, they are scattered and separated from this cluster and from one another by some distance. The Rock Creek Hospital cluster is unified by its location, confined by Rock Creek and its tributaries and proximity to Baltimore Pike. In the heart of the district, Whites Run and Rock Creek converge. The district includes 11 contributing buildings, 13 contributing hospital sites, and 28 non-contributing buildings (newer residential infill). The open historic cultural landscape is the dominant feature of the district. It retains integrity of location, setting, materials, feeling and association and illustrates the reasons why this area was particularly attractive as a hospital location, and thus accommodated so many of the wounded. Within this landscape may be numerous potential archaeological sites associated with the hospitals, such as amputation sites, food preparation areas, patient wards, staff wards, refuse disposal areas, latrines and burial sites both for full human burials or for disposal of amputated body parts. Finally, the district also contains some modern elements, mostly mid and late 20th century housing. The nominated area contains approximately 550 acres. Most of the farmsteads retain buildings from the battle era, but changes have occurred, some as a direct result of battle damage.</p>				
John's Burnt Mill Bridge	12/16/1974	New Oxford	SW of New Oxford on T 428	Local
Lower Marsh Creek Presbyterian Church	10/15/1980	Orrtanna	SE of Orrtanna on LR 01002, Highland Township	Local
Zeigler, John, Farm House	5/7/1992	York Springs	1281 Mountain Rd., Latimore Township	Local

The register listing is slightly misleading. For instance, areas like the East Berlin and Fairfield Historic Districts appear as two entries on the list, yet these areas consist of numerous individual structures. The East Berlin Historic District itself includes 177 contributing buildings in the central business district of the borough and the surrounding residential areas. The shaded rows in the table above highlight historically-significant areas, to include (where available) the number of structures associated with each. The register also does not include the many intangible



cultural assets in the area. Assets that are a part of the landscape and involve the historical feeling of the area of key to the quality of life and unique aspects of the area.

The Adams County Historical Society's collection includes over one million photographs, documents, and other historical artifacts. Deed records, architectural drawings of buildings, etc. all appear in the society's protected/preserved assets. Local officials have recently begun the lengthy process of upgrading document storage capabilities, analyzing which assets can be stored off-site, etc. As noted elsewhere in this community profile, residents are proud of the community and their heritage, and cultural resource officers with the Park Service report their being an appetite to invest in cultural resources and historic preservation. However, local officials should consider channeling this interest for strategic asset protection. Strategic protection includes initiatives such as prioritizing assets to allow for maximum use of available funding and energy on high-profile and high-priority cultural assets. Ideally, efforts of this nature would occur at the community level; they are most meaningful when residents of an area act as stakeholders and can have a voice in the preservation of their community.

Severe weather can have a damaging effect on historical and cultural assets. For example, when the remnants of Hurricane Agnes hit the Adams County area in 1972, many covered bridges were damaged and never replaced. There is concern locally about assets that are damaged beyond repair and unable to be replaced. During the 2020 update, participating members of the historical and cultural resources subcommittee noted recent changes in weather patterns (as well as the seemingly more erratic and violent nature of storms). In the early 1980s, for instance, the area experienced few microbursts and other similar weather events annually, perhaps as many as four per year. These types of incidents appear much more frequent now. Further, as noted in Table 2.4.3-1, many districts include natural features such as landscapes, road and structure layouts, etc. that are historically significant. Significant natural hazard events may alter the landscapes.

In nearby Ellicott City, Maryland, severe floods occurred in a very short time period, causing significant damage in the downtown area. The National Park Service then published the *Guidelines on Flood Adaptation for Rehabilitation Historic Buildings* to provide guidelines on how to adapt historic buildings to be more resilient to flooding risk while maintaining their historic character. These guidelines may be of use to local officials in Adams County. When hazard-related damage occurs, local stakeholders note a three-step process for restoration of historical assets. Initial decisions are based on health and safety criteria, and the second effort is to stabilize the structure (i.e., prevent further damage). Often, restoration stops at the second step. The third and final step represents a full-scale fix.



The historical-cultural subcommittee identified the following project in support of the discussion above about prioritizing historical and cultural assets for preservation and protection efforts.

**Action:** Consider the formation of a committee that works with community-specific groups in the prioritization of their historical resources. Involve the State Historic Preservation Officer (SHPO) in the process to vet strategies and to help set the criteria.

## 2.5 Data Sources and Limitations

This hazard mitigation plan relies on various data sources. Adams County recognizes that environmental changes, time passage, new editions/revisions, and even the publishing of new data that contradicts previous best practices can render this data inaccurate. The planning committee and the county's consultant made efforts to validate the data used in this report. For example, when possible, planners avoided citing websites like Wikipedia, and instead cited the original source material.

Various government agency and non-government agency sources provided additional information used to complete the risk assessment. A full reference list appears in Appendix A. As an example, to assess risk and vulnerability, the consultant gathered data on past occurrences of damaging hazard events. For historic occurrences, the National Centers for Environmental Information (NCEI), a division of the National Oceanic and Atmospheric Administration (NOAA), provided information. NCEI compiles information on hazard events from the National Weather Service into a "Storm Events Database," which documents "the occurrence of storms and other significant weather phenomena having such intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce." It is important to note that a) historic event data are not always the best predictors of future vulnerability, and b) in some cases, the NWS utilizes first-hand accounts from local officials, which may be influenced by factors beyond the core weather event. The consultant has noted that searches by the same criteria may yield different results, as NOAA frequently updates the records informing the NCEI database.

The Adams County Office of Planning and Development provided parcel data, structure data, transportation layers, jurisdictional boundaries, waterways, and watershed boundaries. Where local data were unavailable, the county's consultant obtained GIS datasets from the Pennsylvania Spatial Data Access (PASDA) website, the U.S. Census Bureau TIGER data website, etc. In some cases (e.g., drought severity mapping layers based on climate areas), the consultant created datasets. PASDA is the official public access geospatial information clearinghouse for the Commonwealth of Pennsylvania. Pennsylvania State University developed PASDA as a service to the citizens, governments, and businesses of the Commonwealth. It is a



cooperative project of the Governor's Office of Administration, Office of Information Technology, Geospatial Technologies Office and the Penn State Institute of Energy and the Environment of the Pennsylvania State University. The flood hazard area data used in this plan is dated February 2009, per FEMA's *Community Status Book* (<https://www.fema.gov/cis/PA.html>) and the Adams County Office of Planning and Development. Significantly, all data presented in GIS formats is for reference only. Differences in scales, data collection/attribution methodologies, etc. by those agencies from which the consultant collected data may lead to inconsistencies, inaccurate geographic overlaps, etc.

HAZUS-MH is a risk-assessment tool for analyzing potential losses from floods, hurricane winds, and earthquakes. In HAZUS-MH, current scientific and engineering knowledge, coupled with GIS technology, produces estimates of hazard-related damage before a disaster occurs. HAZUS is a valuable tool (and, in some ways, it is an industry standard in emergency management), but it is a planning tool. Actual data maintained by local sources may yield more accurate results. Loss estimates for floods and earthquakes using HAZUS software appear in the appropriate hazard profile. Adams County officials may consider Level II and Level III HAZUS-MH analyses, which can use higher resolution or engineering data to produce more accurate results.



### 3.0 PLANNING PROCESS

§ 201.6(b)	[The planning process shall include]: 1) an opportunity for the public to comment on the plan during the drafting stage and prior to plan approval, 2) an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, and agencies that have the authority to regulate development, as well as businesses, academia, and other private and non-profit interests to be involved in the planning process, and 3) the review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
§ 201.6(c)(1)	Documentation of the planning process used to develop the plan, including how it was prepared, who was involved in the process, and how the public was involved.

Adams County developed this plan per Part 201.6 of Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000. Several resources assisted in the development of this plan, including the U.S. Department of Homeland Security/Federal Emergency Management Agency's (FEMA) *Local Mitigation Planning Handbook* (FEMA, 2013), the *Commonwealth of Pennsylvania's All-Hazard Mitigation Planning Standard Operating Guide* (PEMA, 2013), the governing regulations in the Code of Federal Regulations (CFR), etc.

#### 3.1 Update Process and Participation Summary

The Adams County Department of Emergency Services (ACDES) served as the coordinating agency for this update. Before scheduling planning meetings, ACDES recruited participation from the 34 municipalities in the county. Thirty-three (33) of those jurisdictions provided letters of agreement to participate in the update. Latimore Township participated in the update, but came on board later in the process. ACDES also headed interactions with a consultant, JH Consulting, LLC of Buckhannon, West Virginia, throughout the update, and served as the entity that distributed meeting invitations, copies of meeting minutes, etc.

This update formally began in April 2019. The consultant's role was to coordinate data collection and analysis, regularly interface with the participating jurisdictions, lead planning meetings, support public outreach, and document the planning process.

##### 3.1.1 Changes in Participation/Committee Composition

Adams County utilized a steering committee approach to the 2015 update, with a small team of members that liaised with other stakeholders and jurisdictional representatives. For this update, ACDES convened a planning committee comprised of jurisdictional representatives and stakeholders. This approach resulted in a large committee, but it more easily assured



jurisdictional participation. This update also included the formation of a “historical/cultural subcommittee” that provided additional information on the cultural resources in the area.

The consultant coordinated with the Adams County Office of Planning and Development to distribute an online survey to support extended public involvement. The consultant hosted several risk and vulnerability-centric questions via Survey Monkey. The office of planning and development linked the Survey Monkey collector to its public map viewer, thus offering citizens the opportunity to place a point on an interactive map to indicate areas of hazard occurrences.

### 3.1.2 Changes in Formatting/Plan Organization

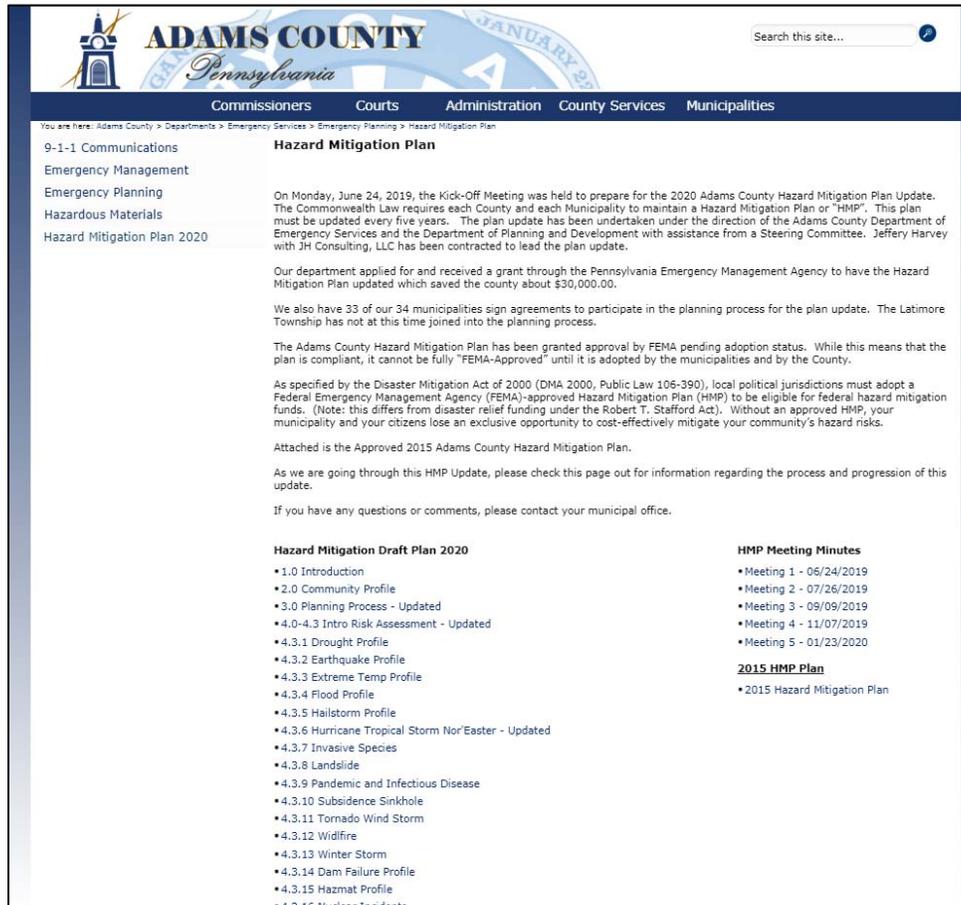
Though there were changes in trivial matters (e.g., font size and style) between this update and the 2015 version, the overall organization of the plan remains largely the same. This consistency is due to conformance with PEMA’s mitigation planning standard operating guide. The committee added one hazard, landslide, bringing the total hazards in the plan to 18. Of those 18, 13 are natural hazards, and six are human-caused hazards. The committee also updated the goals listing and reformatted the presentation of mitigation projects (see Sections 6.2 and 6.4).

### 3.1.3 Planning Data Collection Tools

The consultant provided many tools to assist with committee participation. Those tools consisted of worksheets used at planning meetings, surveys to document jurisdictional capabilities, etc. Adams County, like many communities, continues to integrate technology into processes such as this one. This integration includes the use of the office of planning and development’s public map view and Survey Monkey for public surveying, as mentioned above. Additionally, the consultant held one web conference during the update (though the size of the planning committee made communicating via the web difficult). Additionally, the ACDES posted draft versions of the plan files on its website to enable easy access for draft review (<http://www.adamscounty.us/Dept/EMS/EmergencyPlanning/Pages/HazardMitigationPlan.aspx>). Figure 3.1.3-1 is a screen capture of posted draft materials.



Figure 3.1.3-1



Specific process updates about each section of the mitigation plan are in Sections 4.1, 5.1, 6.1, and 7.1.

### 3.2 The Planning Team

As a multi-jurisdictional plan, the 2020 update included significant municipal participation on the planning committee. Table 3.2-1 identifies the formal planning committee that oversaw the update.



**Table 3.2-1**

<b>PLANNING COMMITTEE</b>			
<i>Jurisdiction</i>	<i>Representative(s)</i>	<i>Jurisdiction</i>	<i>Representative(s)</i>
Abbottstown Borough	David Bolton, Borough Manager	GASD	John Lewis
AC Office of Planning & Development	Bicky Redman, Environmental Planner	Germany Township	Jack Ketterman
ACDES	Don Schmitt, ACS	Gettysburg Borough	Charles Gable
ACDES	Tom Leedy	Gettysburg Borough Police	R.W. Glenny
ACDES	Tammy Kunkel	Gettysburg Wellspan	George Steckert
ACDES	Warren Bladen	Hamiltonban Township	Bob Gordon
ACS	Perry Wood	Irishtown Fire Company	Pete Dupree
Adams County Planning	Sherri Clayton	Menallen Township	Kenneth Wolf
Adams County Tax Services	Daryl Crum	Mt. Joy Township	Sherri Moyer
Arendtsville Borough	Ken Shafer, Council Member	NAREMA (Biglerville, Butler, Franklin, Menallen, & Tyrone)	Kevin Biesecker
Arendtsville Borough	Fred Prean	NPS	Joe Lachowski
Berwick Township	Tom Danner	Oxford Township	Verna Jean Feeser, EMC
Biglerville Borough	Sandi Vazquez	PSP - Gettysburg	James Flanagan
Bonneauville Borough	Mike Shanebrook, Council President	Reading Township	Garry Wilt, PC Assistant
Carroll Valley Borough	Gayle Marthers, Assistant Borough Manager	Reading Township	Gary Bullock, EMC
Codes and Police Abbottstown	James Graham	Red Cross	Allen White
Conewago Township	Barb Krebs, Manager	Union Township	John Aldridge
County of Adams	Paula Neiman, Chief Clerk	Upper Adams School District	Nate Becker
Cumberland Township Police	Don Boehs	Upper Adams School District	Patrick Sullivan
Fairfield Borough	Susan Wagle, Secretary/Treasurer	Upper Adams School District	Bob Jackson, Supervisor
Franklin Township	Susan Plank		

### 3.3 Meetings and Documentation

Adams County Department of Emergency Services sponsored the following meetings during the update process. Agendas, sign-in sheets, and minutes are included in Appendix C.

#### Meeting 1 (June 24, 2019)

The Adams County Planning Committee met for the first time on Monday, June 24, 2019, at the ACDES. The consultant facilitated discussions, which consisted of a brief introduction to hazard mitigation, an overview of the update and review process, municipal responsibilities, and opportunities for public involvement. The primary objective of the meeting was to establish goals for the hazard mitigation plan update, which were revised from the 2015 *Adams County Hazard Mitigation Plan*. The consultant gave a brief overview of mitigation, the mitigation plan, the plan update process, and a general timeframe for the update. The



consultant then gave committee members a copy of the previous plan's mitigation goals, which focused on each hazard identified in the plan. The committee reviewed each goal and decided to revise the existing goals to address a variety of hazards. The final agenda item for Meeting 1 was to consider opportunities for public involvement in the update process. The committee recognizes several additional strategies to reach the public, including an online survey.

#### Meeting 2 (July 26, 2019)

The second planning committee meeting was held on Friday, July 26, 2019, via teleconference to discuss goals and hazards. During this meeting, the committee reviewed the four goals from Meeting 1 and approved them as written. The next agenda item was to review the list of hazards to include in this update of the plan. Currently, there are 18 hazards listed: drought, earthquake, extreme temperature, flood (includes flash flood and ice jam), hailstorm, hurricane (includes tropical storm and nor'easter), invasive species, landslide/erosion, pandemic and infectious disease, subsidence and sinkhole, tornado and windstorm, dam failure, hazardous materials release, nuclear incident, terrorism, and transportation accident. To close the meeting, the consultant provided an overview of online surveys to support participation in the plan update. The committee suggested reconsidering some demographic questions (age, education, etc.). The consultant distributed the surveys to the committee for additional comments.

#### Meeting 3 (September 9, 2019)

The planning committee met for the third time in the process to update its hazard mitigation plan on Monday, September 9, 2019, to finalize the included hazards and review the public hazard mitigation survey. The consultant asked the committee to recall their past experiences with each of the profiled hazards to contextualize hazard events in Adams County. The second agenda item was to finalize the public hazard mitigation survey. The committee suggested minor edits to the previous survey. The final agenda item was to review the mitigation goals and introduce objectives. Committee members received a copy of the mitigation goals created and documented in Meetings 1 and 2. The consultant explained how these objectives should align with the mitigation goals, and ultimately with mitigation projects.

#### Meeting 4 (November 7, 2019)

The Adams County planning committee met for the fourth time on Thursday, November 7, 2019. This meeting served to review the goals finalized in Meeting 2 and introduce objectives.



The consultant gave the committee an overview of the structure of goals, objectives, and projects. After the discussion, committee members formulated six general objectives. To facilitate conversation regarding projects, the consultant asked committee members, particularly municipal representatives, to spend time before the next meeting to recall projects their community has completed in recent years or plans to implement within the next few years. The final agenda item for Meeting 4 was to introduce project prioritization criteria. The consultant provided the committee with a list of criteria that have been used successfully in past hazard mitigation plan updates and align with FEMA guidelines. Using a worksheet, each committee member ranked the criteria on a scale from one to ten, with one being the highest priority. Following the meeting, the consultant used the completed worksheets to calculate the average score for each criterion. The criterion with an average score closest to one ranked as the highest priority, and the criterion with the average score closest to ten ranked as the lowest priority.

#### *Historical & Cultural Subcommittee Meeting (January 16, 2020)*

The consultant and members of the historical and cultural subcommittee met via web conference on January 16, 2020. During this session, attendees discussed the nature of the historical and cultural assets in the area. The highlights of the discussion included a recognition of the many structures that could reside in a historical district (even though the “district” only yields one entry on the National Registry of Historic Places). Attendees also stressed the importance of including information on the newly-designated Fruit Belt Historic District as well as the Eisenhower National Historic Site.

Attendees also discussed mitigation efforts for cultural resources. The prevailing theme of the discussion was that awareness and planning issues may need to be addressed before developing intermittent structural protection measures. These planning efforts could include community-level prioritization of assets, cooperation with other stakeholders such as the State Historic Preservation Officer (SHPO), etc.

#### *Meeting 5 (January 23, 2020)*

The full Adams County hazard mitigation planning committee met for the fifth time on Thursday, January 23, 2020. This committee meeting doubled as a public meeting. The public session began at 2:30 p.m. (per the published advertisement), and as such, the committee tended to new business within the first hour and reserved the final portion of the meeting for draft review and discussion. Committee business included four primary items: (a) a



historical/cultural resources subcommittee meeting, (b) public survey results, (c) the plan maintenance process, and (d) punch-list items for plan completion.

### 3.4 Public and Stakeholder Participation

Various stakeholders, such as adjacent jurisdictions, non-profit organizations, federal, state, and county agencies, also provided input into the planning process. Some of these stakeholders served on the planning committee; others did not. However, all of them provided key information that contributed to the success of the update.

**Table 3.4-1**

<b>STAKEHOLDER PARTICIPATION</b>	
<i>Organization</i>	<i>How Involved</i>
<b>Local and County Government</b>	
Adams County Department of Emergency Services	<ul style="list-style-type: none"> <li>• Served as the coordinating agency for the plan update.</li> <li>• Served as a member of the planning committee.</li> <li>• Coordinated meeting scheduling and invitations.</li> <li>• Provided access to the county's commodity flow study.</li> <li>• Personnel completed hazards worksheets.</li> <li>• Provided information on mitigation projects.</li> <li>• Provided input on historical and cultural resources.</li> </ul>
Adams County Office of Planning & Development	<ul style="list-style-type: none"> <li>• Served as a member of the planning committee.</li> <li>• Provided GIS mapping data to the consultant.</li> <li>• Provided access to the county's comprehensive plan.</li> <li>• Provided information on mitigation projects.</li> <li>• Provided input on historical and cultural resources.</li> </ul>
Carroll County (MD) Emergency Management (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>
Cumberland County Dept. of Public Safety (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>
Franklin County Dept. of Emergency Services (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>
Frederick County Division of Emergency Management (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>
Gettysburg Area School District	<ul style="list-style-type: none"> <li>• Served as a member of the planning committee.</li> </ul>
Irishtown Fire Company	<ul style="list-style-type: none"> <li>• Served as a member of the planning committee.</li> </ul>
Upper Adams School District	<ul style="list-style-type: none"> <li>• Served as a member of the planning committee.</li> </ul>
Washington County Dept. of Emergency Services (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>
York County Dept. of Emergency Services (Neighboring Jurisdiction)	<ul style="list-style-type: none"> <li>• Adams County submitted a letter requesting a review of a draft of the county's updated plan.</li> </ul>



STAKEHOLDER PARTICIPATION	
<i>Organization</i>	<i>How Involved</i>
<b>State Government</b>	
Pennsylvania Emergency Management Agency	<ul style="list-style-type: none"> <li>Published the state's standard operating guideline governing the completion of mitigation plans.</li> <li>Provided RL and SRL data for Adams County.</li> <li>Adams County submitted a copy of the completed plan for review.</li> </ul>
Pennsylvania State Police	<ul style="list-style-type: none"> <li>Served as a member of the planning committee.</li> <li>Provided input on a hazards worksheet.</li> </ul>
<b>Federal Government</b>	
National Park Service	<ul style="list-style-type: none"> <li>Served as a member of the planning committee.</li> <li>Provided input on a hazards worksheet.</li> <li>Provided input on historical and cultural resources.</li> </ul>
<b>Non-Profit Organizations</b>	
American Red Cross	<ul style="list-style-type: none"> <li>Served as a member of the planning committee.</li> </ul>
<b>Higher Education</b>	
Pennsylvania State University	<ul style="list-style-type: none"> <li>Provided GIS data via the PASDA database.</li> </ul>
<b>Private Sector</b>	
Gettysburg Wellspan	<ul style="list-style-type: none"> <li>Served as a member of the planning committee.</li> </ul>
JH Consulting, LLC	<ul style="list-style-type: none"> <li>Coordinated the plan update with the ACDES.</li> </ul>

In an attempt to further public participation in the planning process, the planning committee directed the consultant to develop and administer a survey for residents. The consultant, in conjunction with the Adams County Office of Planning and Development, hosted the survey. The survey launched on Tuesday, November 12, 2019, and sought information from residents on their perceptions of hazards and vulnerabilities and targeted comments on potential mitigation actions.

In total, 150 individuals completed the survey. The public felt most concerned about “Tornado & Wind Storm” and “Transportation Accident,” with 73 and 71 respondents reporting feeling concerned or very concerned about those hazards. Seventy (70) respondents were either concerned or very concerned about hazardous materials releases. Respondents were least concerned with earthquakes and dam failures.

When asked about mitigation actions they have undertaken in the past, 117 respondents (88%) reported maintaining trees on their property, 67% had repaired or replaced their roof, and 56% had cleared underbrush. They also showed support for planting trees to promote a cooler micro-climate (72% or 102 individuals), and burying power lines to provide for uninterrupted power during severe weather (64% or 90 individuals). The least amount of support was shown for buying out properties, relocating homes, and elevating structures prone to flooding (11% or 16 individuals).



Individuals were given an opportunity to comment on locations throughout the county where hazard incidents have occurred. Four individuals chose to identify hazard locations. One location was Mount Joy, at the intersection of S. Peelman-Klinger Road, King Road, and Hoffman Home Road. The other three locations were in Fairfield Borough: one at the intersection of Main Street and Carrolls Tract Road, one on a property along Third Street, and one along Main Street.

### **3.5 Multi-Jurisdictional Planning**

Adams County updated this plan using a multi-jurisdictional approach. The county and stakeholders provided information that may not have been available through the municipalities. However, municipal participation was critical to the success of the process. Municipalities provided information on hazard events and mitigation projects specific to their jurisdictions. Municipal involvement is documented in Table 3.5-1 below. All 34 municipalities in Adams County participated in the planning process; thus, this plan serves as their official hazard mitigation plan for funding eligibility (per completion of the approval and adoption processes).



Table 3.5-1

MUNICIPAL INVOLVEMENT										
<i>Municipality</i>	Letter of Agreement	Attendance, Meeting 1	Attendance, Meeting 2	Attendance, Meeting 3	Attendance, Meeting 4	Attendance, Meeting 5	Risk Assessment Worksheet	Capability Survey Completion	Direct Contact (Consultant or ACDES)	New / Updated Projects
Abbottstown Borough	X	X	X	X	X	X	X	X	X	X
Arendtsville Borough	X	X	X	X		X		X	X	X
Bendersville Borough	X									
Biglerville Borough	X	X	X			X		X	X	X
Bonneauville Borough	X	X	X	X	X	X	X	X	X	
Carroll Valley Borough	X	X	X		X			X	X	
East Berlin Borough	X							X	X	
Fairfield Borough	X	X		X	X	X	X	X	X	X
Gettysburg Borough	X	X						X		X
Littlestown Borough	X								X	
McSherrystown Borough	X									
New Oxford Borough	X								X	
York Springs Borough	X									
Berwick Township	X	X	X	X	X		X		X	X
Butler Township	X		X						X	
Conewago Township	X	X	X	X	X	X		X	X	X
Cumberland Township	X							X		
Franklin Township	X		X	X	X	X	X	X	X	X
Freedom Township	X							X	X	
Germany Township	X	X		X	X	X		X		
Hamilton Township	X							X		
Hamiltonban Township	X	X	X	X	X	X				
Highland Township	X									
Huntington Township	X									
Liberty Township	X					X				
Menallen Township	X	X	X	X		X	X		X	X
Mount Joy Township	X	X	X	X	X	X	X	X	X	
Mount Pleasant Township	X								X	
Oxford Township	X	X	X	X	X	X	X	X		
Reading Township	X	X	X	X			X			
Straban Township	X							X		
Tyrone Township	X		X						X	
Union Township	X						X			



## 4.0 RISK ASSESSMENT

A risk assessment analyzes “the potential for damage, loss, or other impacts created by the interaction of hazards with community assets” (FEMA, 2013). This risk assessment section contains information on identified hazards that threaten Adams County and the surrounding region and the vulnerability of the area as it relates to the county’s assets.

### 4.1 Update Process Summary

Earlier versions of this plan recognized that hazards and vulnerabilities have the potential to grow as the county grows. In 2005, Adams County profiled the following hazards:

- flooding,
- tornadoes and windstorms,
- other severe weather,
- fires
- hazardous materials releases,
- nuclear incidents, and
- terrorism.

In the 2010 update, the county updated the names of most hazards in the original mitigation plan and the organization of the profiles to match PEMA guidance. The 2010 update also saw the addition of drought, dam failure, earthquakes, subsidence, and hailstorms. Planners again updated the hazard list to match Commonwealth guidance in 2015 and added extreme temperatures, invasive species, hurricane, tropical storm, Nor’easter, pandemic and infectious disease, and transportation accidents to the plan.

The planning committee utilized the list of hazards from the 2015 version as its starting point for the 2020 risk assessment. Hazard names and definitions remain consistent with those listed in the PEMA standard operating guideline, and the committee opted to add one hazard: landslide. The committee included this hazard because of the recognition that not all geologic hazards stem from subsidence or sinkholes; further, the committee wanted to capture concerns about erosion in a profile. The addition of landslide brings the total number of hazard profiles to 18 (13 natural and six human-caused).

Committee members evaluated each hazard with a hazards worksheet that asked for perceptions of risks from the identified hazards as well as whether committee members felt



impacts from those hazards have increased, decreased, or remained constant for their jurisdictions. The county's consultant utilized this data, as well as information gleaned from the public participation survey, to inform updated profiles for each hazard. The county's consultant also integrated social vulnerability data, where appropriate, into the profiles.

Each profile contains a standard vulnerability assessment in which the county ranked the hazards per seven criteria: frequency, response, onset, magnitude, business impacts, human impacts, and potential property damage. These rankings yielded an overall vulnerability "score" that enabled a ranked list (see Section 4.4). Additionally, where applicable, the county's consultant utilized scholarly research and other reference materials (cited appropriately throughout) to estimate losses from each hazard (and these estimates and their methodologies are unique to the hazards).

## 4.2 Hazards Identification

§201.6(c)(2)(i)

[The risk assessment shall include a] description of the...location and extent of all-natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.

Pennsylvania's disaster history helps provide direction on the identification of hazards and their significance, both at the state and local level. PEMA maintains a historical log of all disasters that have occurred in the Commonwealth dating back to 1955. An analysis of the past occurrences of each hazard is the first step toward predicting the future susceptibility to that hazard. By noting the hazards of the past, Adams County and its municipalities will be able to better understand and prepare for future natural and human-caused disasters.

### 4.2.1 Table of Presidential Disaster Declarations

Under the Stafford Act, two forms of presidential action 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 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) times a set per capita indicator. When reviewing a state request for major disaster assistance, figures of \$1.39 per capita for states and \$3.50 per capita for counties is used as an indicator that the disaster is of a size that it might warrant federal assistance. Using those figures, damages exceeding \$17,656,306.81 in Pennsylvania, or \$354,924.50 in Adams County would warrant a Presidential Disaster Declaration.

Table 4.2.1-1 displays the Presidential Disaster Declarations that have affected Adams County from 1955 to 2019.

**Table 4.2.1-1**

<b>LIST OF DISASTER DECLARATIONS, ADAMS COUNTY</b>			
<i>Declaration</i>	<i>Name</i>	<i>Incident Period</i>	<i>Declaration Declared</i>
DR-4506	PA Covid-19	01/20/2020-Present	03/30/2020
EM-3441	PA Covid-19	01/20/2020-Present	03/13/2020
DR-4374	MD Severe Storms and Flooding (Adams was contiguous county)	05/15/2018-05/19/2018	06/25/2018
DR-4267	PA Severe Winter Storm and Snowstorm	01/22/2016-01/23/2016	03/23/2016
EM-3356	PA Hurricane Sandy	10/26/2012-11/08/2012	10/29/2012
DR-4030	PA Tropical Storm Lee	09/03/2011-10/15/2011	09/12/2011
EM-3340	PA Remnants of Tropical Storm Lee	09/03/2011-10/15/2011	09/08/2011
DR-1898	PA Severe Winter Storms and Snowstorms	02/05/2010-02/11/2010	04/16/2010
DR-1649	PA Severe Storms, Flooding, and Mudslides	06/23/2006-07/10/2006	06/30/2006
EM-3235	PA Hurricane Katrina Evacuation	08/29/2005-10/01/2005	09/10/2005
EM-3180	PA Snowstorm	02/14/2003-02/19/2003	03/14/2003
DR-1120	PA Flooding	06/12/1996-06/19/1996	06/18/1996
DR-1093	PA Flooding	01/19/1996-02/01/1996	01/21/1996
DR-1085	PA Blizzard	01/06/1996-01/12/1996	01/13/1996
DR-1015	PA Winter Storm, Severe Storm	01/04/1994-02/25/1994	03/10/1994
EM-3105	PA Severe Snowfall and Winter Storm	03/13/1993-03/17/1993	03/16/1993
DR-523	PA Severe Storms, Flooding	10/20/1976	10/20/1976
DR-485	PA Severe Storms, Heavy Rains, and Flooding	09/26/1975	09/26/1975
DR-340	PA Tropical Storm Agnes	06/23/1972	06/23/1972

**4.2.2 Summary of Hazards**

The following table lists the hazards considered by the remainder of this risk assessment.



<b>HAZARDS IDENTIFICATION</b>	
<i>Hazard</i>	<i>Description</i>
<b>Natural Hazards</b>	
Drought	Drought is a natural climatic condition which occurs in virtually all climates, the consequence of a natural reduction in the amount of precipitation experienced over a long period, usually a season or more in length.
Earthquake	An earthquake is the motion or trembling of the ground produced by sudden displacement of rock, usually within the upper 10-20 miles of the Earth's crust.
Extreme Temperature	Extreme cold temperatures drop well below what is considered normal for an area during the winter months and often accompany winter storm events. Extreme heat can be described as temperatures that hover 10°F or more above the average high temperature for a region during the summer months.
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 hazards in Pennsylvania
Hailstorm	Precipitation in the form of small balls or lumps, usually consisting of concentric layers of clear ice and compact snow.
Hurricane, Tropical Storm, Nor'easter	Hurricanes, tropical storms, and Nor'easters are any closed circulation developing around a low-pressure center.
Invasive Species	Invasive species are organisms that are not indigenous to the ecosystem under consideration and whose introduction causes or is likely to cause economic or environmental harm or harm to human health.
Landslide/Erosion	A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation reacting to the force of gravity. Erosion is the gradual destruction or diminution of something.
Pandemic and Infectious Disease	A pandemic occurs when infection from a new strain of a certain disease, to which most humans have no immunity, substantially exceeds the number of expected cases over a given period. Such a disease may or may not be transferable between humans and animals.
Subsidence, Sinkhole	Sinkholes are underground voids caused by water passing through naturally-occurring fractures in water-soluble bedrock.
Tornado, Windstorm	Tornadoes are violent windstorms characterized by a twisting funnel-shaped cloud extending to the ground. Windstorms can occur during severe thunderstorms, winter storms, coastal storms, or tornados.
Wildfire	Wildfires are raging, uncontrolled fires that spread rapidly through vegetative fuels, exposing and possibly consuming structures.
Winter Storm	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation, and can range from moderate snowfall or ice events to blizzards that last for several days.
<b>Technological Hazards</b>	
Dam Failure	Dams are barriers preventing the flow of water or loose solid materials. Dam failure can occur with little warning, and cause loss of life and property, environmental damage, and loss of purpose of the dam (e.g., water supply, hydropower, etc.).
Environmental Hazards: Hazardous Materials Release	A hazardous materials release can contaminate air, water, and soils, possibly resulting in death and/or injuries.
Nuclear Incident	Nuclear incidents refer to events involving the release of significant levels of radioactivity or exposure of workers or the general public to radiation.
<b>Human-Caused Hazards</b>	
Terrorism	Terrorism refers to the use of force against persons or property with the intent to intimidate or coerce, and includes threats, assassination, kidnapping, hijacking, bombings or bomb threats, cyber-attacks, and use of chemical, biological, nuclear, and radiological weapons.



HAZARDS IDENTIFICATION	
<i>Hazard</i>	<i>Description</i>
Transportation Accident	Transportation accidents can result from any form of air, rail, water, or road travel, and can cause regional impacts such as hazardous materials releases or disruption in critical supply/access routes.

### 4.3 Hazard Profiles

The following profiles detail each hazard considered by this plan, which includes discussion on how the hazard impacts the area. Within each profile, research and historical data inform the following elements.

- **Hazard Overview:** Defines the hazard and presents a summary table of the hazard.
- **Location and Extent:** Identifies the physical places in the county that are vulnerable to the hazard and the severity of a hazard in a given location.

§201.6(c)(2)(i)	A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
-----------------	--

- **Range and Magnitude:** Describes impacts on different topics such as health, the environment, or infrastructure that may result from the hazard as well as specific populations that may be vulnerable.

§201.6(c)(2)(ii)	A description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. All plans approved after October 1, 2008, must also address NFIP-insured structures that have been repetitively damaged by floods.
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- **Past Occurrences:** Summarizes significant past events related to the hazard.

§201.6(c)(2)(i)	A description of the type, location, and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future hazard events.
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- **Future Occurrences:** Describes the probability of future occurrence of the hazard under consideration.

§201.6(c)(2)(ii)(A)	The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.
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- **Vulnerability Assessment:** Outlines the methods used for loss amounts (of deaths, injury, and property damage depending on available information) and estimates based on historical information and vulnerable populations, structures, and infrastructure. Also, details methods for calculating the probability and severity of each hazard.

§201.6 (c)(2)(ii)(B)	An estimate of the potential dollar losses to vulnerable structures identified in paragraph (c)(2)(ii)(A) of this section and a description of the methodology used to prepare the estimate.
§201.6(c)(2)(iii)	For multi-jurisdictional plans, the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

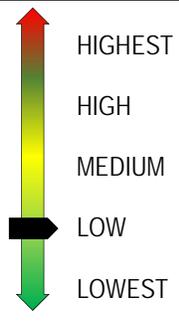
The following sections provide more detail on the hazards identified above. Hazard profiles appear in the following order.

- 4.3.1 Drought
- 4.3.2 Earthquake
- 4.3.3 Extreme Temperature
- 4.3.4 Flood, Flash Flood, Ice Jam
- 4.3.5 Hailstorm
- 4.3.6 Hurricane, Tropical Storm, Nor'easter
- 4.3.7 Invasive Species
- 4.3.8 Landslide
- 4.3.9 Pandemic and Infectious Disease
- 4.3.10 Subsidence, Sinkhole
- 4.3.11 Tornado, Wind Storm
- 4.3.12 Wildfire
- 4.3.13 Winter Storm
- 4.3.14 Dam Failure
- 4.3.15 Environmental Hazards: Hazardous Materials Releases
- 4.3.16 Nuclear Incidents
- 4.3.17 Terrorism
- 4.3.18 Transportation Accidents



## 4.0 RISK ASSESSMENT

### 4.3.1 Drought

	HIGHEST	Drought is a natural climatic condition which occurs in virtually all climates, the consequence of a natural reduction in the amount of precipitation experienced over a long period, usually a season or more in length.			
	HIGH	Period of Occurrence:	Droughts can occur at any point in time.	Hazard Index Ranking:	14-Low
	MEDIUM	Warning Time:	12-24 Hours	State Risk Ranking:	2.0-Medium
	LOW	Type of Hazard:	Natural	Disaster Declarations:	DR-206 (Pennsylvania Water Shortage, 1965)
LOWEST					

“Drought” is a period of abnormally dry weather, which persists long enough to produce a serious hydrological imbalance. Drought is a term used in relation to who or what is affected by the lack of moisture. Drought can be a result of multiple causes, including global weather patterns that produce persistent, upper-level high-pressure systems with warm, dry air, resulting in less precipitation. Droughts develop slowly; typically, they are already underway when officially identified. There are several types of droughts (Sears, 2017, p. 138).

- **Meteorological Drought:** Differences from the streamflow precipitation amounts. Because not every area receives the same amount of rainfall, a drought in one place might not be considered a drought in another.
- **Agricultural Drought:** Moisture deficiency seriously injurious to crops, livestock, or other agricultural commodities. Parched crops may wither and die. Pastures may become insufficient to support livestock. The effects of agricultural droughts are difficult to measure because many variables may impact production during the same growing season.
- **Hydrological Drought:** Reduction in groundwater, lake and reservoir levels, depletion of soil moisture, and a lowering of the groundwater table. Consequently, there is a decrease in groundwater discharge to streams and lakes. Prolonged hydrological drought will affect the water supply.
- **Socioeconomic Drought:** A lack of water that begins to affect people's daily lives.



Precipitation falls in uneven patterns across the country; the amount of precipitation at a particular location varies from year to year, but over years, the average amount is fairly constant. The amount of rain and snow also varies with the seasons. Even if the total amount of rainfall for a year is about average, rainfall shortages can occur during a period when moisture is critically necessary for plant growth, such as in the early summer. When little or no rain falls, soils can dry out, and plants can die. When rainfall is less than normal for several weeks, months, or years the flow of streams and rivers declines, water levels in lakes and reservoirs fall, and the depth to water in wells increases. If dry weather persists and water-supply problems develop, the dry period can become a drought (USGS, n.d.).

This hazard is of particular concern in Pennsylvania due to the presence of farms as well as water-dependent industries and recreation areas across the Commonwealth. A prolonged drought could severely impact these sectors of the local economy, as well as residents who depend on wells for drinking water and other personal uses (PEMA, 2018).

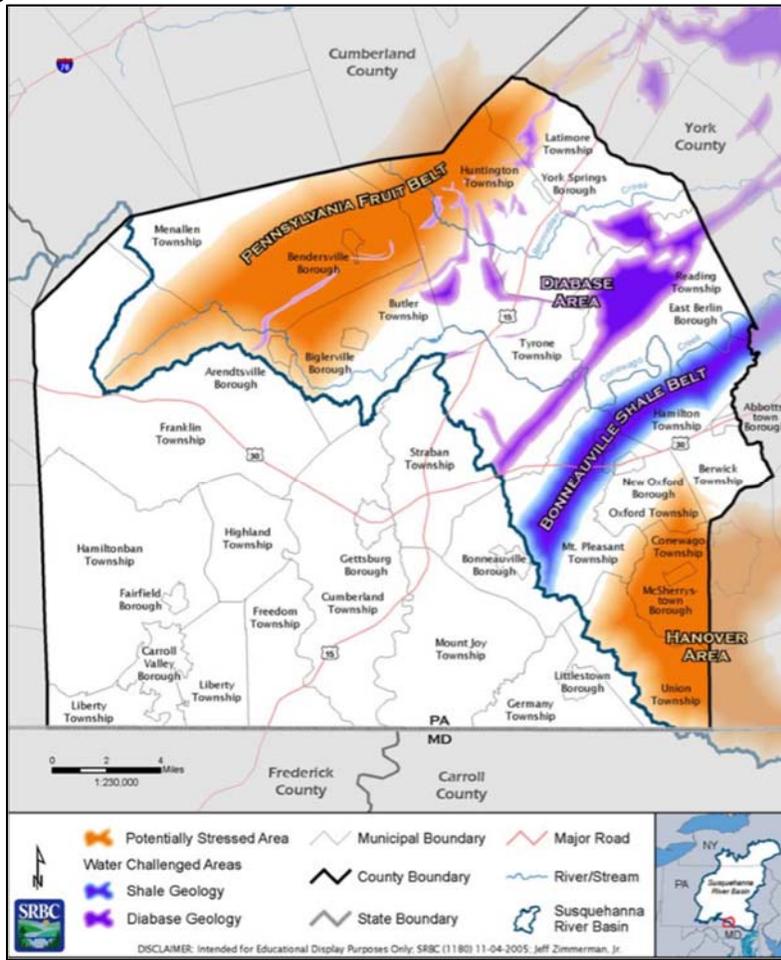
#### 4.3.1.1 Location and Extent

Droughts are often regional phenomena, so they typically impact all communities in an area relatively uniformly. Drought often occurs across several jurisdictions, with large areas of the state or region experiencing the effects of the drought at the same time. The geographic extent of drought can range from localized areas of Pennsylvania to the entire Mid-Atlantic region.

Though drought can occur in all areas of Adams County, some areas are more susceptible than others. In Adams County, the Pennsylvania Fruit Belt and the southeastern Hanover area are at a higher risk of adverse effects. These areas lack the water resources necessary for public and industrial water use. Affected areas include all or portions of Bendersville Borough, Biglerville Borough, McSherrystown Borough, Butler Township, Conewago Township, Huntington Township, and Union Township. Figure 4.3.1.1-1 below highlights the areas of Adams County most likely to experience adverse effects due to drought.



Figure 4.3.1.1-1



Droughts are typically measured using the Palmer Drought Severity Index (PDSI). The PDSI is used to indicate prolonged and abnormal moisture deficiencies or excesses and is an important climatological tool for evaluating the scope and severity of periods of abnormally dry or wet weather (National Weather Service, 2005). Table 4.3.1.1-1 details the PDSI.

Table 4.3.1.1-1

PALMER DROUGHT SEVERITY INDEX	
<i>Palmer Value</i>	<i>Drought Condition</i>
4.0+	Extremely Moist
3.0 to 3.9	Very Moist
2.0 to 2.9	Unusually Moist
-1.9 to 1.9	Near Normal
-2.0 to -2.9	Moderate Drought
-3.0 to -3.9	Severe Drought
-4.0 or less	Extreme Drought



In addition to the PDSI, the Crop Moisture Index (CMI) calculates the change in moisture available from week to week, which gives a short-term status of agricultural moisture (National Weather Service, 2005). Table 4.3.1.1- below describes the Crop Moisture Index.

**Table 4.3.1.1-2**

CROP MOISTURE INDEX	
<i>Crop Moisture Index Value</i>	<i>Drought Condition</i>
3.0 and up	Excessively Wet
2.0 to 2.9	Wet
1.0 to 1.9	Moist
-0.9 to 0.9	Slightly Dry/ Favorable Moist
-1.0 to -1.9	Abnormally Dry
-2.0 to -2.9	Excessively Dry
-3.0 or less	Severely Dry

In addition to the above severity scales, the National Drought Mitigation Center has developed the U.S. Drought Monitor. The Drought Monitor is a map that is updated weekly using data from the previous week to show areas of the U.S. that are in a drought. Table 4.3.1.1-3 lists the U.S. Drought Monitor classifications of drought.

**Table 4.3.1.1-3**

U.S. DROUGHT MONITOR CLASSIFICATION			
<i>Category</i>	<i>Description</i>	<i>Possible Impacts</i>	<i>Palmer Drought Severity Index</i>
D0	Abnormally Dry	Going into drought: <ul style="list-style-type: none"> <li>• Short-term dryness slowing planting, growth of crops or pastures</li> </ul> Coming out of drought <ul style="list-style-type: none"> <li>• Some lingering water deficits</li> <li>• Pastures or crops not fully recovered</li> </ul>	-1.0 to -1.9
D1	Moderate Drought	<ul style="list-style-type: none"> <li>• Some damage to crops, pastures</li> <li>• Streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>• Voluntary water-use restrictions requested</li> </ul>	-2.0 to -2.9
D2	Severe Drought	<ul style="list-style-type: none"> <li>• Crop or pasture losses likely</li> <li>• Water shortages common</li> <li>• Water restrictions imposed</li> </ul>	-3.0 to -3.9
D3	Extreme Drought	<ul style="list-style-type: none"> <li>• Major crop/pasture losses</li> <li>• Widespread shortages or restrictions</li> </ul>	-4.0 to -4.9
D4	Exceptional Drought	<ul style="list-style-type: none"> <li>• Exceptional and widespread crop/pasture losses</li> <li>• Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>	-5.0 or less

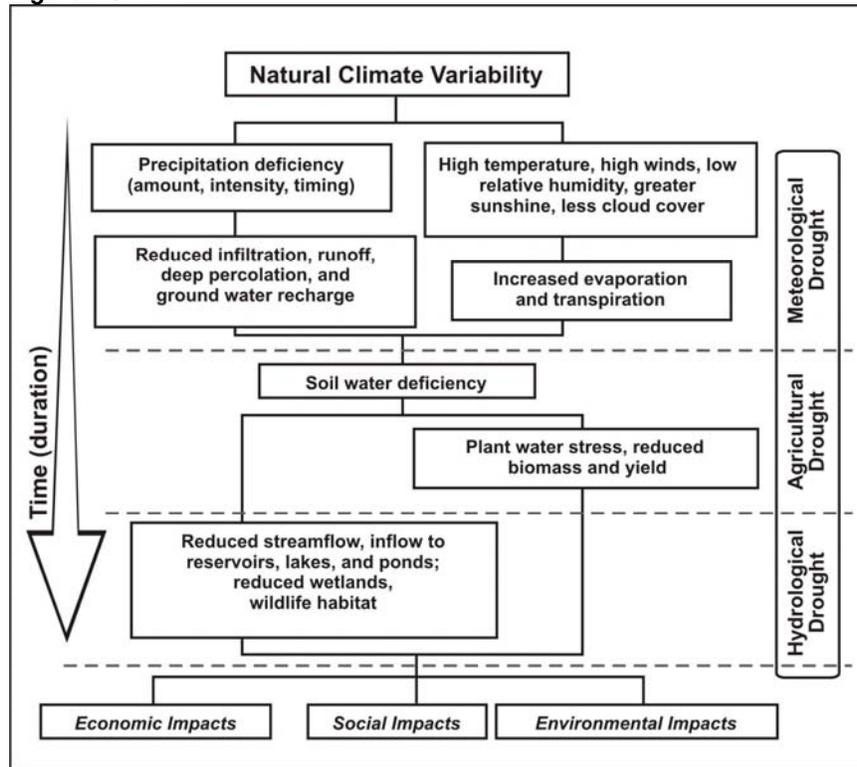


4.3.1.2 Range of Magnitude

Droughts are the second most likely disasters to come with a multi-billion dollar economic effect, with the average billion-dollar drought costing \$9.5 billion (NOAA, 2019). This estimate takes into consideration physical damage to structures and material assets, time element losses, vehicles and boats, offshore energy platforms, agricultural assets (crops, livestock, timber), and disaster restoration costs. The effects of a drought can vary depending on the duration, severity, location, and month they occur. Even short-term droughts, when coupled with extreme temperatures, can be devastating.

As droughts progress, they typically progress through four stages: meteorological drought, agricultural drought, hydrological drought, and socioeconomic drought (see above). Figure 4.3.1.2-1 below shows these phases and their contributors.

Figure 4.3.1.2-1



According to the phases of drought figure above, droughts progress from meteorological to agricultural, then to hydrological. Meteorological droughts include periods of high temperature and wind, low humidity, and low cloud cover. These conditions, over time, cause a deficiency of soil water. Soil water deficiency is a characteristic trait of agricultural drought. In the presence of the meteorological conditions listed above, plants become water-stressed, and crop yields



suffer. Continued moisture deficiency eventually leads to hydrologic drought, characterized by reduced streamflow, reservoir levels, and wetlands. This level of drought leads to economic, environmental, and social impacts.

The economic impacts of drought are primarily related to agriculture and water utilities. Farmers lost income when drought decreases or destroys their crops, increasing the amount of water and feed for livestock, and when they need to expend resources on irrigating otherwise self-sufficient fields. Additionally, water companies may need to add water supplies or increase their usage of current water supplies.

Droughts affect the environment in many ways. Wildlife habitats, particularly wetlands, can be damaged or eliminated during drought. Decreased water supply for wildlife can lead to migration or disease in wild animals. Periods of drought also affect soil quality. Social impacts of drought include health issues related to water availability and quality, threats to public safety due to increased forest fire risk, reduced incomes, and fewer recreational activities. Populations most impacted by the social effects of drought include those who work in the agricultural sector and those that primarily rely on well-water.

According to the U.S. Drought Monitor, there are possible impacts from each level of drought, which appear in the graphic below.

D0 Abnormally Dry	<p><i>Going into drought:</i></p> <ul style="list-style-type: none"> <li>• short-term dryness slowing planting, growth of crops or pastures</li> </ul> <p><i>Coming out of drought:</i></p> <ul style="list-style-type: none"> <li>• some lingering water deficits</li> <li>• pastures or crops not fully recovered</li> </ul>
D1 Moderate Drought	<ul style="list-style-type: none"> <li>• Some damage to crops, pastures streams, reservoirs, or wells low, some water shortages developing or imminent</li> <li>• Voluntary water-use restrictions requested</li> </ul>
D2 Severe Drought	<ul style="list-style-type: none"> <li>• Crop or pasture losses likely</li> <li>• Water shortages common</li> <li>• Water restrictions imposed</li> </ul>
D3 Extreme Drought	<ul style="list-style-type: none"> <li>• Major crop/pasture losses Widespread water shortages or restrictions</li> </ul>
D4 Exceptional Drought	<ul style="list-style-type: none"> <li>• Exceptional and widespread crop/pasture losses</li> <li>• Shortages of water in reservoirs, streams, and wells creating water emergencies</li> </ul>

Table 4.3.1.2-1 below gives the number of wells in each municipality in Adams County via data collected by the Pennsylvania Groundwater Information System (PaGWIS). It is important to note that PaGWIS relies on voluntary data submission. Therefore it is not a complete list of all wells in the county.



**Table 4.3.1.2-1**

ADAMS COUNTY WELLS BY MUNICIPALITY					
<i>Municipality</i>	<i>Wells</i>	<i>Total Population</i>	<i>Municipality</i>	<i>Wells</i>	<i>Total Population</i>
Abbottstown	15	952	Franklin	983	4,883
Arendtsville	9	847	Freedom	983	815
Bendersville	3	746	Germany	463	2,702
Biglerville	29	1,154	Hamilton	399	2,534
Bonneauville	12	2,119	Hamiltonban	353	2,095
Carroll Valley	362	3,894	Highland	186	920
East Berlin	17	1,559	Huntington	413	2,362
Fairfield	17	538	Latimore	404	2,589
Gettysburg	154	7,627	Liberty	267	1,326
Littlestown	64	4,439	Menallen	659	3,528
McSherrystown	0	3,044	Mount Joy	339	3,684
New Oxford	37	2,142	Mount Pleasant	354	4,677
York Springs	5	797	Oxford	360	5,527
Berwick	323	2,191	Reading	402	5,781
Butler	479	2,577	Straban	480	4,938
Conewago	166	7,116	Tyrone	408	2,141
Cumberland	528	6,187	Union	297	5,781

**4.3.1.3 Past Occurrence**

According to the NCEI database, there have been four instances of drought in Adams County, none of which caused any injuries, deaths, or damages to property or crops. Table 4.3.1.3-1 below lists the recorded droughts in Adams County.

**Table 4.3.1.3-1**

DROUGHT OCCURRENCES IN ADAMS COUNTY		
<i>Date</i>	<i>Property Damage</i>	<i>Crop Damage</i>
10/31/1997	\$0.00	\$0.00
12/15/1998	\$0.00	\$0.00
07/01/1999	\$0.00	\$0.00
08/01/1999	\$0.00	\$0.00

There have been four additional instances of droughts that were declared disasters by the Governor of Pennsylvania (but not recorded in the NCEI database) in 1955, 1995, 1999, and 2002. In 1991, another drought led to Adams County residents receiving Small Business Loan Funds.

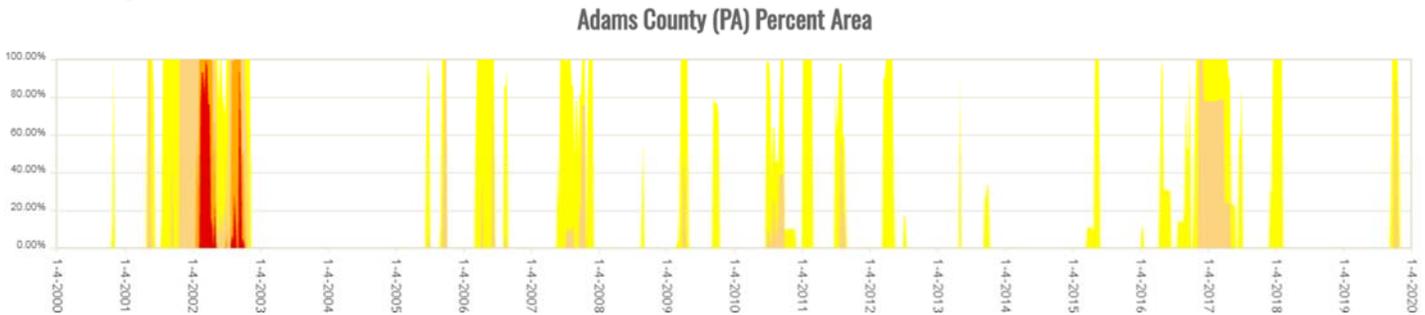
The above tables and narratives do not provide data on crop losses, though drought-related agricultural impacts seem plausible. Adams County received a USDA Secretarial Designation in 2016 for drought impacts running between May and December of that year (USDA FSA, n.d.). Aggregated 2016 data from EWG's *Farm Subsidies Database* is available,



and it covers at least \$4165 for the drought incident, \$4141 for a freeze and frost incident, and other potential small claims. However, seven Adams County farmers received \$94,859 worth of disaster assistance program benefits in 2016 for one or both of these events. Of that total, \$91,096 were under the miscellaneous category, which consists of the crop disaster, quality losses, and non-insured assistance programs, and the remaining \$3,763 was under the “Livestock Disaster/Emergency” category, which includes the livestock compensation and livestock emergency assistance programs (EWG, n.d.).

The U.S. Drought Monitor, kept by the University of Nebraska-Lincoln, provides more detailed information about drought since 2000. Figure 4.3.1.3-2 below is a graphical representation of the time and severity of droughts presented in Adams County between 2000 and 2019.

**Figure 4.3.1.3-2**

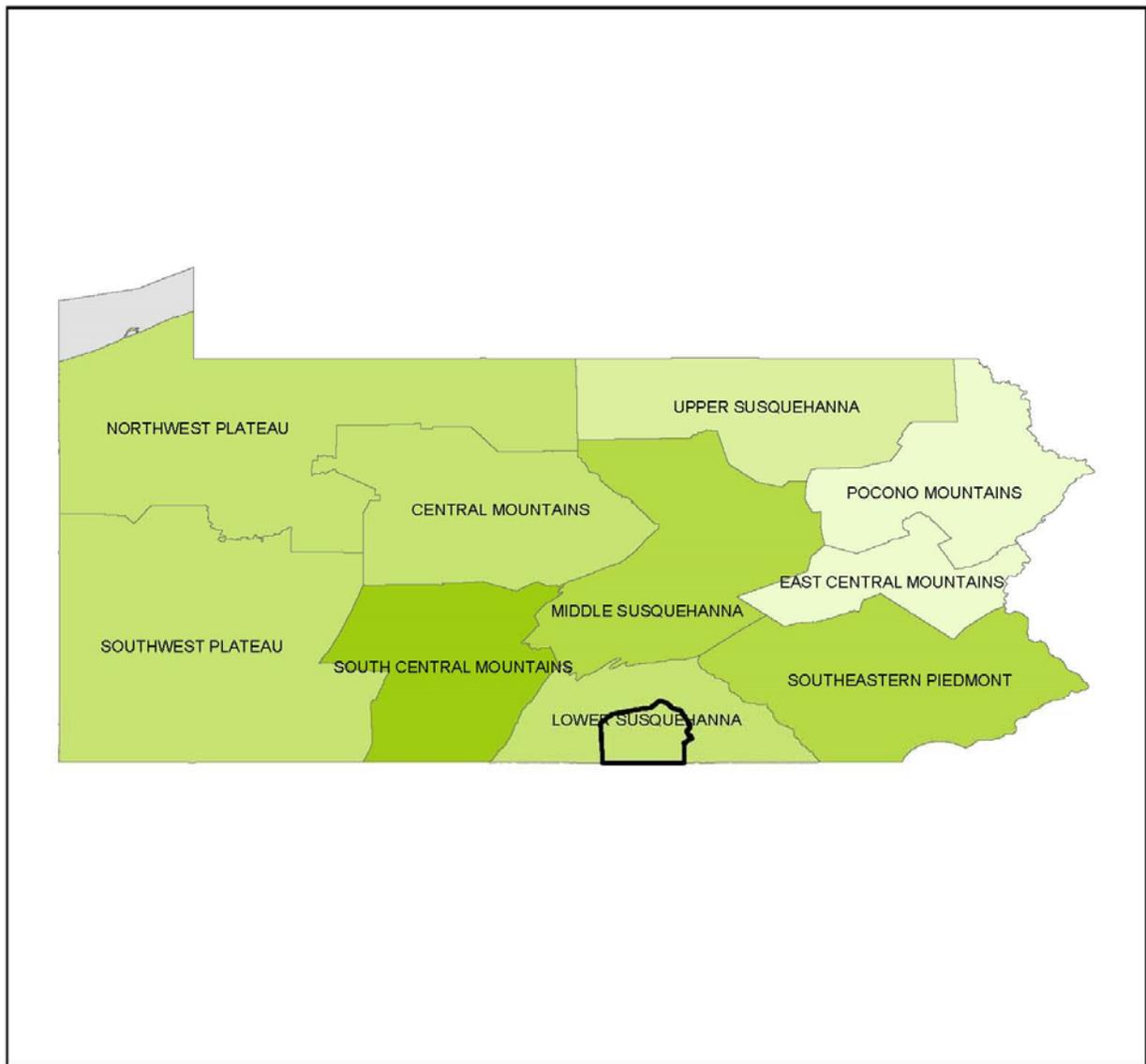
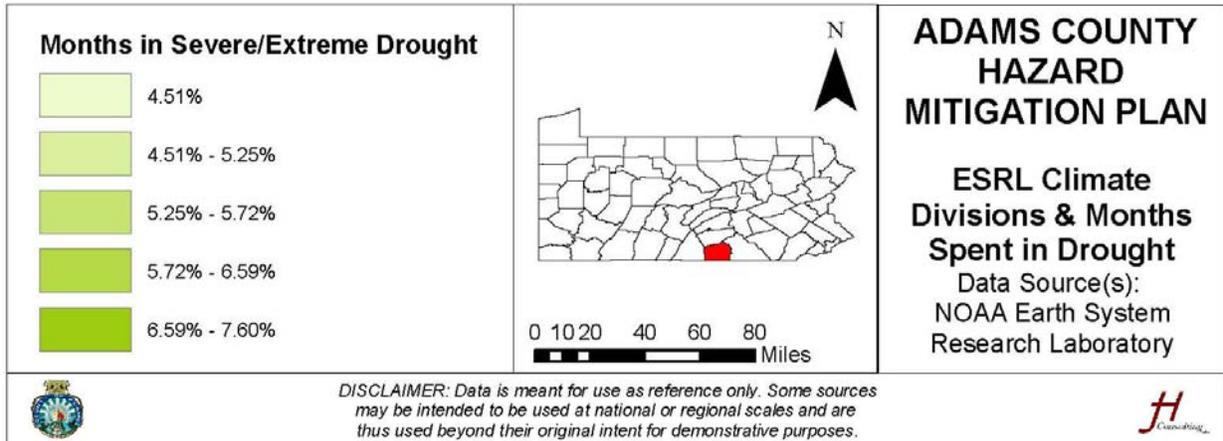


**4.3.1.4 Future Occurrence**

Though it is difficult to anticipate exactly where drought conditions will occur in the future, Adams County can estimate the chances of experiencing drought conditions generally. NOAA’s Earth System Research Laboratory (ESRL) has divided the U.S. into “climate divisions.” ESRL further maintains data for each of these areas, including the historical Palmer Drought Severity Index (PDSI) values for all months between 1895 and 2018. Adams County’s climate division, Lower Susquehanna, experienced drought conditions (i.e., incipient, mild, moderate, severe, or extreme drought per the PDSI) in 42.74% of the months between 1895 and 2018. The region experienced severe or extreme drought conditions (defined per the PDSI values in the table above) during 5.72% of the months (i.e., 85 out of 1,488 months). The following map displays this information graphically and compares it to the remainder of Pennsylvania.



Figure 4.3.1.4-1

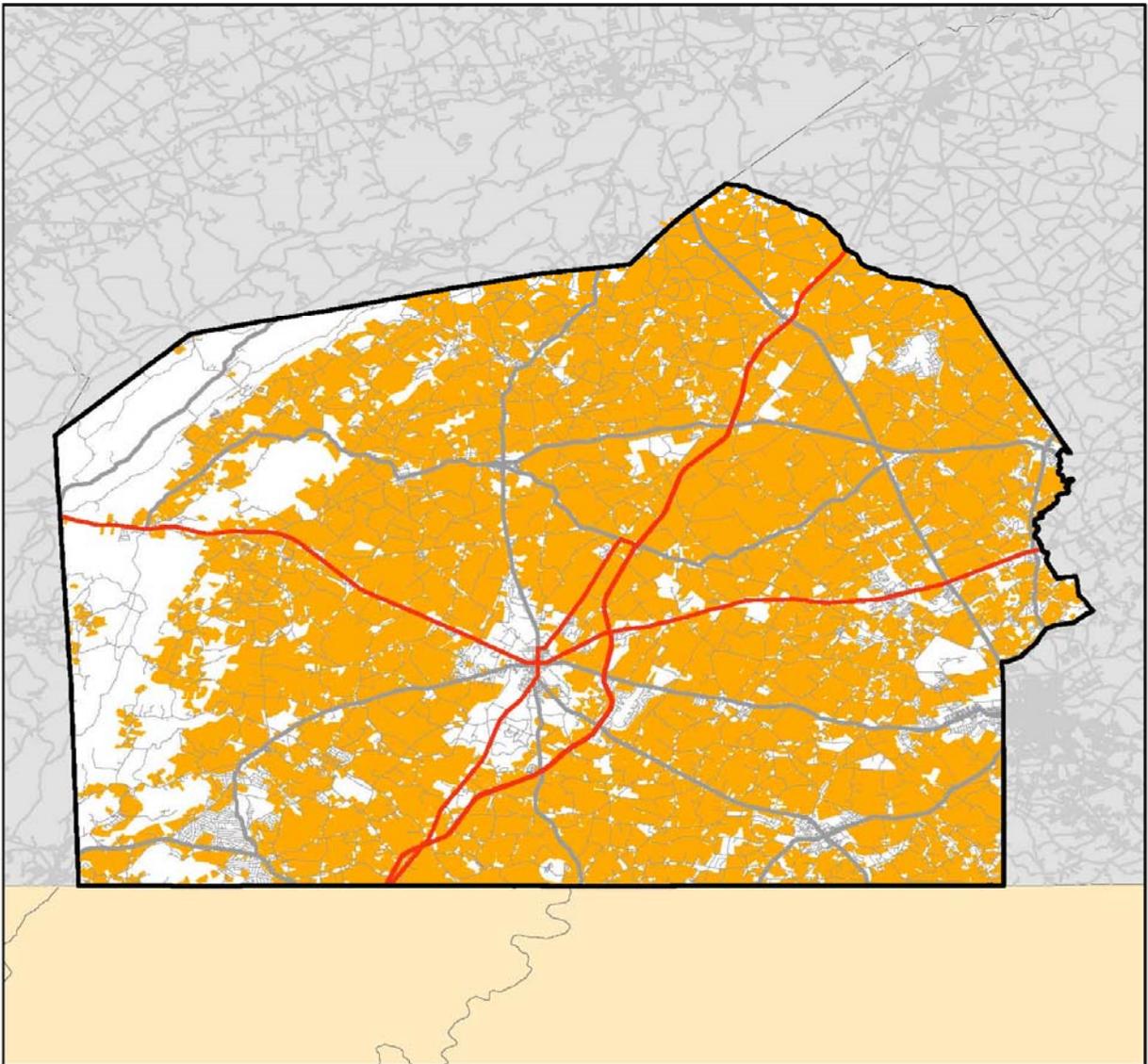
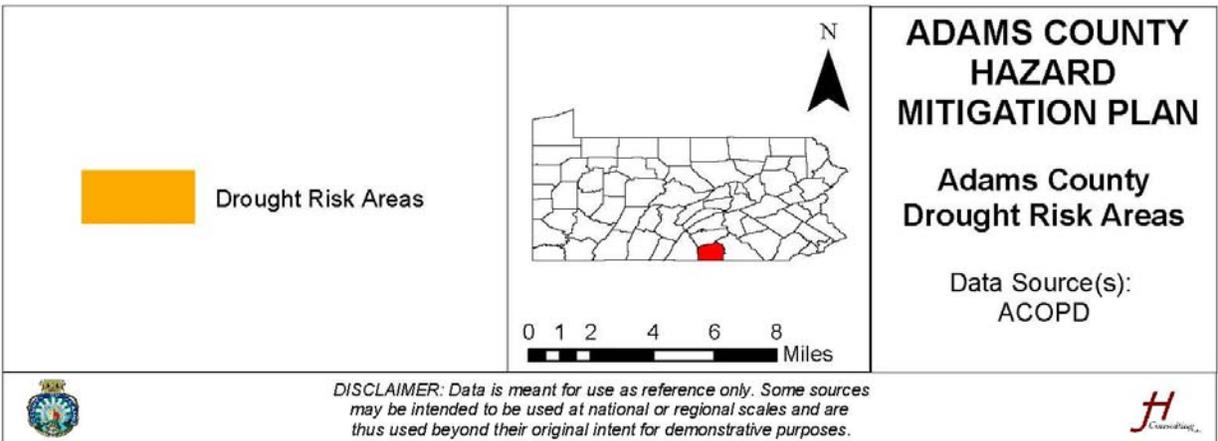


Future droughts in Adams County have the potential to cause widespread socioeconomic damages. A severe, prolonged drought can cause compromised quality and quantity of potable water, compromised food and nutrition, diminished living conditions, recreational risks, and increased disease incidence (CDC, 2010). The effects of social vulnerability are exacerbated by drought, which is a concern for Huntington and Tyrone Townships. These municipalities are located in potentially water-stressed areas and are ranked by the CDC as some of the most socially vulnerable (CDC, 2016).

Droughts also have the potential to harm Adams County's economy. The Fruit Belt is particularly vulnerable to drought due to its location in a potentially water-stressed area. The Adams County Fruit Belt includes 65% of the tree fruit acreage in Pennsylvania and is the leading producer of apples (and peaches) in Pennsylvania (Adams County Office of Planning and Development, 2016). The Fruit Belt contributes \$5.8 million to Adams County's economy and is expected to increase over the next ten years. Figure 4.3.1.4-2 depicts drought-prone areas in Adams County.



Figure 4.3.1.4-2



**4.3.1.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from drought. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.1.5-1 presents the results of that survey regarding a drought.

**Table 4.3.1.5-1**

PUBLIC SENTIMENT, DROUGHT – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Drought	31 (21.23%)	74 (50.68%)	34 (23.29%)	7 (4.79%)	146
In the past ten years, do you remember this hazard occurring in your community?				68 (46.58%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (141 responses)				37 (26.24%)	INCREASE
				95 (67.38%)	NO CHANGE
				9 (6.38%)	DECREASE

The Fruit Belt is the most drought vulnerable area in Adams County. Because of its location in a water-stressed area and its social vulnerability implications, it would bear the greatest burden of drought. Table 4.3.1.5-2 below further describes Adams County's vulnerability to drought.

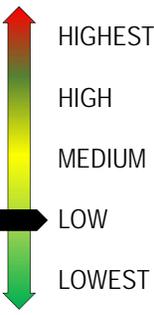
**Table 4.3.1.5-2**

DROUGHT VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	2	Low	There have been four drought events since 1997, for an average of 0.18 events per year.
Response	3	1 Week	Droughts are typically long-lasting events that require a prolonged response.
Onset	1	Over 24 hours	Droughts are prolonged events, and conditions gradually progress for weeks or months.
Magnitude	5	N/A	A drought would affect the entire region, including surrounding counties and states. Each area of Adams County would be affected.
Business	1	Less than 24 hours	Droughts will most heavily affect the agricultural industry in Adams County. The overall economy would be slightly affected but still operational.
Human	1	Minimum	Typically, there are no casualties attributed to drought. Past drought events have not caused any injuries or deaths.
Property	1	Less than 10%	Personal property loss due to drought is typically minimal.
<b>Total</b>	<b>14</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.2 Earthquake

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	An earthquake is a movement or shaking of earth's tectonic plates.			
	Period of Occurrence:	Earthquakes can occur at any time	Hazard Index Ranking:	11-Low
	Warning Time	Less than 12 hours	State Hazard Ranking:	1.9-Low
	Type of Hazard:	Natural	Disaster Declarations:	N/A

Earth is composed of four major layers: the inner core (innermost layer), outer core, mantle, and crust (outermost layer). Many tectonic plates that are slowly moving, sliding past, and bumping into one another are the primary components of the crust layer. The edges of these tectonic plates are called fault lines, which is where most earthquakes originate. The rough edges of the tectonic plates become lodged against each other; when the plate has moved enough, the edges become dislodged, causing an earthquake. The epicenter of the earthquake is the location directly above the ruptured fault.

An earthquake is the motion or trembling of the ground produced by sudden displacement of rock, usually within the upper 10-20 miles of the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of underground caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons, and disrupt the social and economic functioning of the affected area. The failure and collapse of structures due to ground shaking, which is dependent upon amplitude and duration of the earthquake, has been the cause of most property damage due to earthquakes (FEMA, 1997).

#### 4.3.2.1 Location and Extent

Earthquake intensity ranges from “small to feel” and violent incidents that cause significant damage. The U.S. Geological Survey (USGS) uses the Modified Mercalli Intensity (MMI) scale to measure the intensity of earthquakes. The MMI scale characterizes the intensity



of an earthquake at a given location by the severity of ground shaking at that location and the effects of the shaking on people, human-made structures, and the landscape. Two other common ways to measure earthquakes include the Richter scale and peak ground acceleration (PGA).

- **Richter Scale:** The Richter scale, developed in 1935, measures the scale and severity of an earthquake. The magnitude of an earthquake can range between 0 and 10. The effects of an earthquake can extend far beyond the site of its occurrence.
- **Peak Ground Acceleration:** PGA is “the maximum ground acceleration that occurred during an earthquake at a location. PGA is equal to the amplitude of the largest absolute acceleration recorded on an accelerogram at a site during a particular earthquake” (Douglas, 2003).

Figure 4.3.2.1-1 below outlines the MMI scale and compares it to the Richter (magnitude) scale.



Figure 4.3.2.1-1

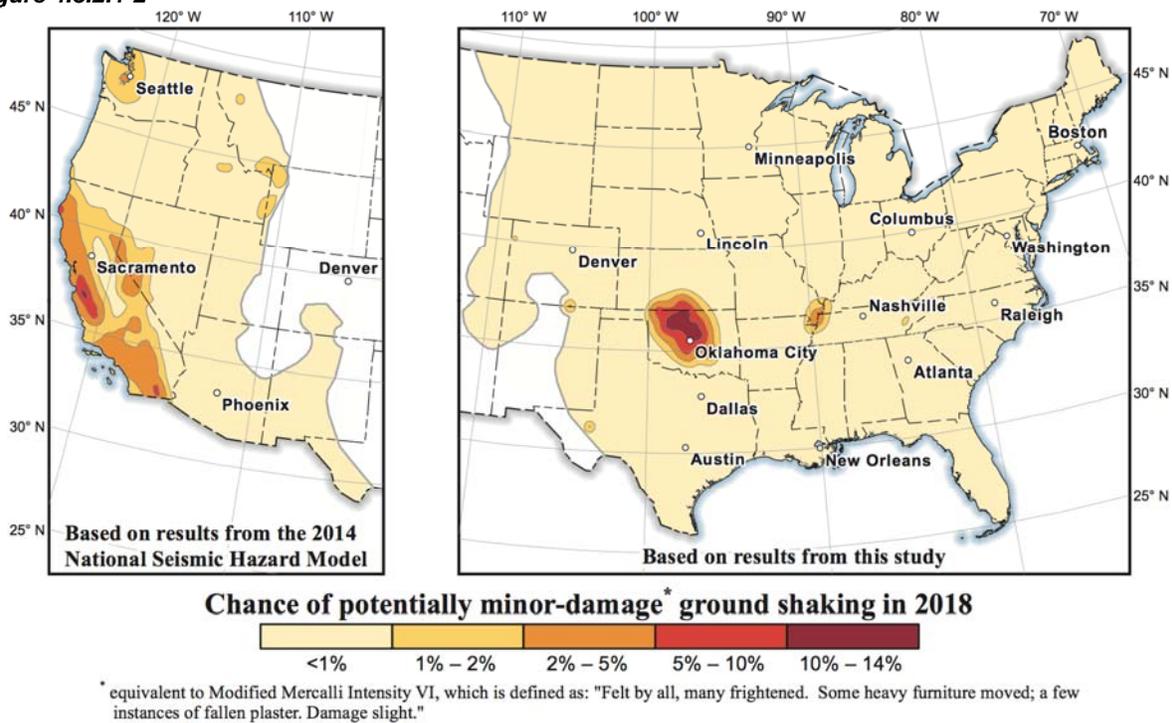
MODIFIED MERCALLI AND MAGNITUDE SCALE COMPARISON		
	<i>Modified Mercalli Scale</i>	<i>Magnitude Scale</i>
I	Felt by few people under especially favorable conditions.	1.5
II	Felt by few persons at rest, especially on upper floors of buildings.	2.0
III	Felt quite noticeably indoors, especially on upper floors of buildings. Many do not recognize it as an earthquake. Standing vehicles may rock slightly. Vibration feels like passing truck.	2.5
IV	During the day felt indoors by many, outdoors by few. At night some awakened. Dishes, windows, doors disturbed; walls make cracking sound. Sensation of a heavy truck striking building; standing vehicles rock noticeably.	3.0
V	Felt by nearly everyone; many awakened. Some dishes and windows broken. Unstable objects overturned.	3.5
VI	Felt by all; many frightened. Some heavy furniture moved; a few instances of fallen plaster or damaged chimneys. Damage slight.	4.0
VII	Damage negligible in buildings of good design and construction; slight to moderate in well-built ordinary structures; considerable in poorly built or badly designed structures; some chimneys broken. Noticed by vehicle drivers.	4.5
VIII	Damage slight in specially designed structures; considerable damage in ordinary substantial buildings with partial collapse; damage great in poorly built structures; fall of chimneys, factory stacks, columns, monuments, and walls. Heavy furniture overturned. Disturbs	5.0
IX	Damage considerable in specially designed structures; well-designed frame structures thrown out of plumb. Damage great in substantial buildings, with partial collapse. Buildings shifted off foundations. Underground pipes broken.	5.5
X	Some well-built wooden structures are destroyed; most masonry and frame structures with foundations destroyed; train rails bent.	6.0
XI	Few, if any, masonry structures remain standing. Bridges destroyed. Underground pipelines taken out of service. Train rails bent greatly.	6.5
XII	Damage total. Waves seen on ground surfaces. Lines of sight and level are distorted. Objects thrown into the air.	7.0

The area of greatest seismic activity in the United States is along the Pacific Coast, in the states of California and Alaska; however, as many as 40 states have moderate earthquake risk. On the East Coast, many residents remember the 2011 earthquake with an epicenter in Louisa County, Virginia. Many local officials on the East Coast are concerned with earthquake



risk emanating from the central United States. Generally, the number of earthquakes in the central U.S. has increased over the past decade (USGS, n.d.). From 1973 to 2008, there were approximately 25 earthquakes per year of magnitude three or larger. Since 2009, that number has increased to 362 per year. Earthquakes in the immediately surrounding region are typically small (less than 3.0 magnitude). The largest recorded earthquake with an epicenter in Pennsylvania was 4.6 in 1994. Figure 4.3.2.1-2 below is a map produced by the U.S. Geological Survey showing probable damage due to earthquakes.

Figure 4.3.2.1-2



As shown in the map above, the northeastern United States, and thus Adams County, has a less than 1% chance of experiencing minor property damage due to earthquakes.

#### 4.3.2.2 Range of Magnitude

Damage from earthquakes varies widely by magnitude. Earthquakes with a magnitude at or above 6.0 on the MMI scale can cause significant, widespread damage to buildings, utilities, and transportation infrastructure. The direct effects of earthquakes include, but are not limited to, shaking and ground rupture, landslides, fires, soil liquefaction, tsunamis, floods, and general property damage.

Cascading effects can include structural damage and utility and communication system



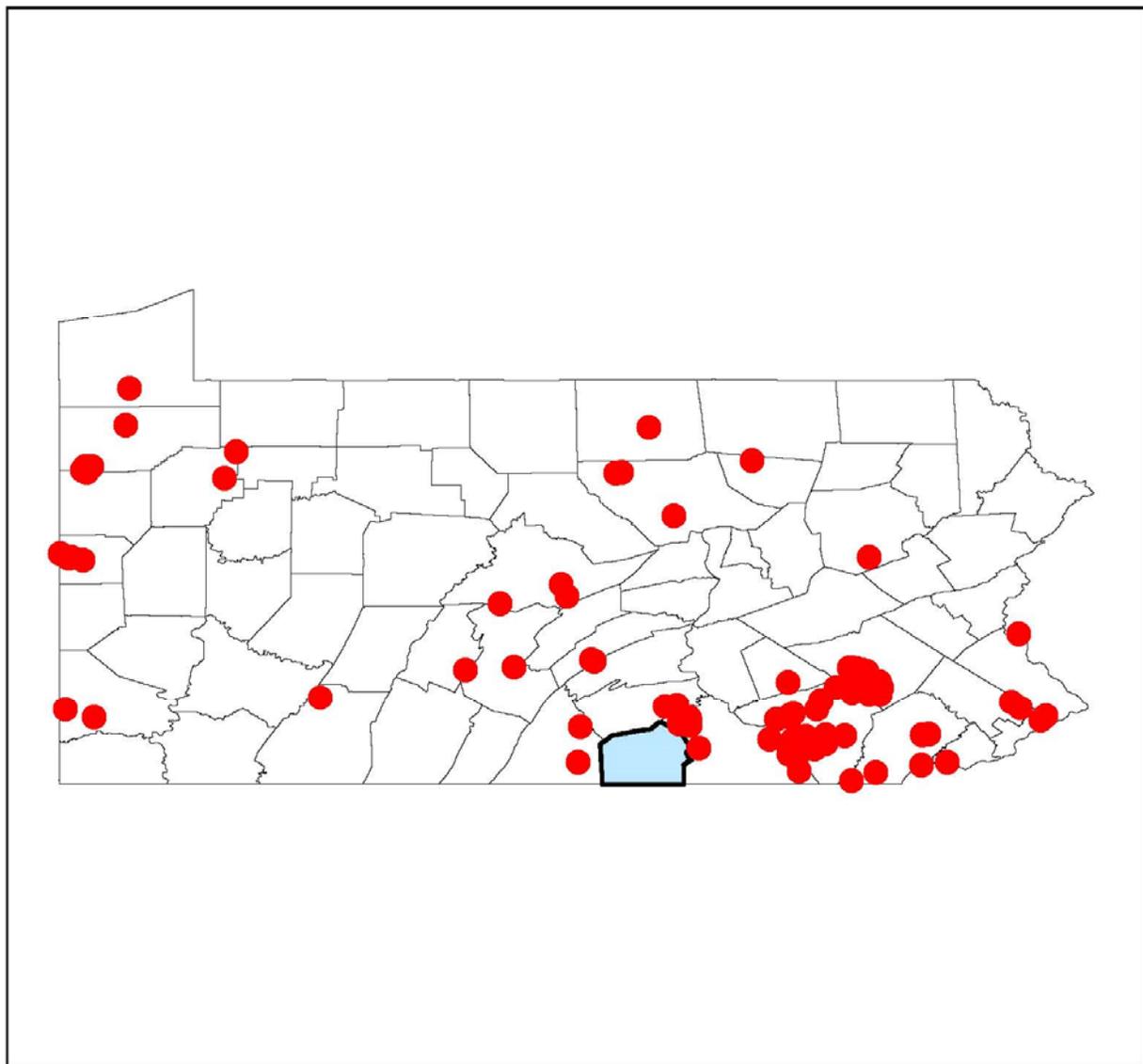
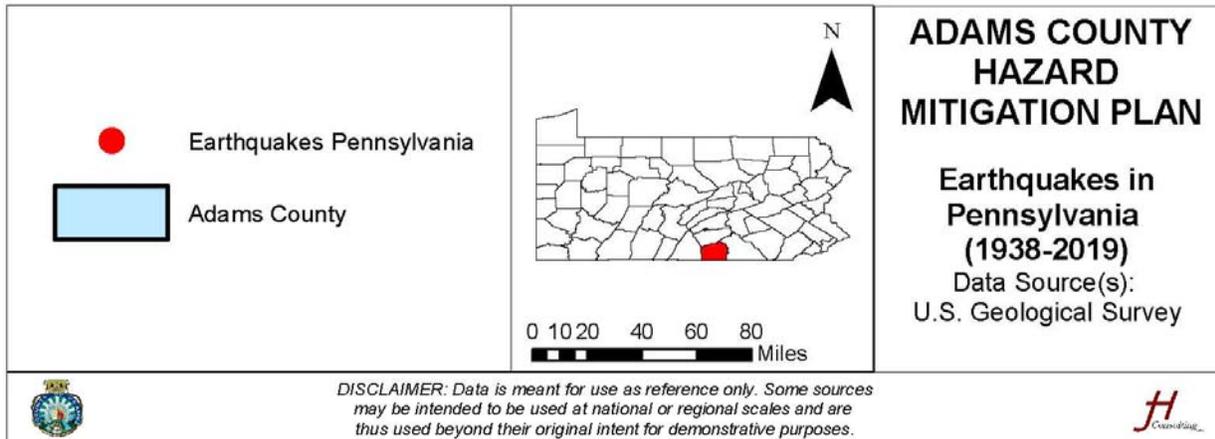
outages. The risk of fire also increases after an earthquake due to potentially-damaged gas pipelines and electrical lines. The greatest human risk during an earthquake is structure movement and collapse. Contents within structures may fall or fail and injure or kill the people inside.

#### 4.3.2.3 Past Occurrence

The USGS keeps records of all earthquakes reported in the United States. There have been 126 earthquakes in Pennsylvania since 1938 (USGS, n.d.), with an average magnitude of 2.0 on the Richter scale. There have been no earthquakes with epicenters in Adams County, but there have been 36 small (generally less than 3.0 magnitude) earthquakes in the surrounding Cumberland, Franklin, and York Counties (with the largest being a 3.05 magnitude event on June 3, 2010, in northwestern York County. Figure 4.3.2.3-1 shows the earthquakes with epicenters in Pennsylvania (1938-2019).



Figure 4.3.2.3-1



**4.3.2.4 Future Occurrence**

Because there are no major faults located near Pennsylvania, future earthquakes in Adams County will most likely be small in magnitude and cause minimal, if any, damage. A worst-case scenario would be an earthquake of 6.0 magnitude or greater occurring in or near Adams County. Such an event would cause widespread damage to structures, utility services (especially underground water and gas pipelines), and transportation infrastructure.

**4.3.2.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from an earthquake. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.2.5-1 presents the results of that survey regarding earthquakes.

**Table 4.3.2.5-1**

PUBLIC SENTIMENT, EARTHQUAKE – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Earthquake	86 (59.31%)	53 (36.55%)	6 (4.14%)	0 (0.00%)	145
In the past ten years, do you remember this hazard occurring in your community?				45 (30.82%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (140 responses)				29 (20.71%)	INCREASE
				110 (78.57%)	NO CHANGE
				1 (0.71%)	DECREASE

Nationally, earthquakes cause \$6.1 billion in damages each year. In Pennsylvania, there are fewer incidents than the national average, so this figure is much lower. According to the USGS, earthquakes cause less than \$1 million in damages in Adams County. Table 4.3.2.5-2 below describes the vulnerability of Adams County to earthquakes.



**Table 4.3.2.5-2**

<b>EARTHQUAKE VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	2	Low	There have been no earthquakes with epicenters in Adams County, and very few felt earthquakes in the area.
Response	1	Less than half a day	Earthquakes felt in Adams County are usually small and result in minimal damage. They do not require an extended response.
Onset	4	Less than 6 hours	Earthquakes can happen at any time and occur spontaneously.
Magnitude	1	Less than 10%	Earthquakes in Adams County have not caused significant damage, and affect less than 10% of land area
Business	1	Less than 24 hours	Damage from earthquakes is minimal and would not affect the county's economy.
Human	1	Minimum	Human impacts from earthquakes are minimal in Adams County. There are no recorded injuries or deaths attributed to earthquakes.
Property	1	Less than 10%	Property damage from earthquakes in Adams County has been minimal.
<b>Total</b>	<b>11</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.3 Extreme Temperatures

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	Extreme temperatures are those 10° F or more above the average high or below the average low for an area.	
	<b>Period of Occurrence:</b> June-September (Heat) December-February (Cold)	<b>Hazard Index Ranking:</b> 15-Low
	<b>Warning Time:</b> 12-24 Hours	<b>State Risk Ranking:</b> 2.3-Medium
	<b>Type of Hazard:</b> Natural	<b>Disaster Declarations:</b> N/A

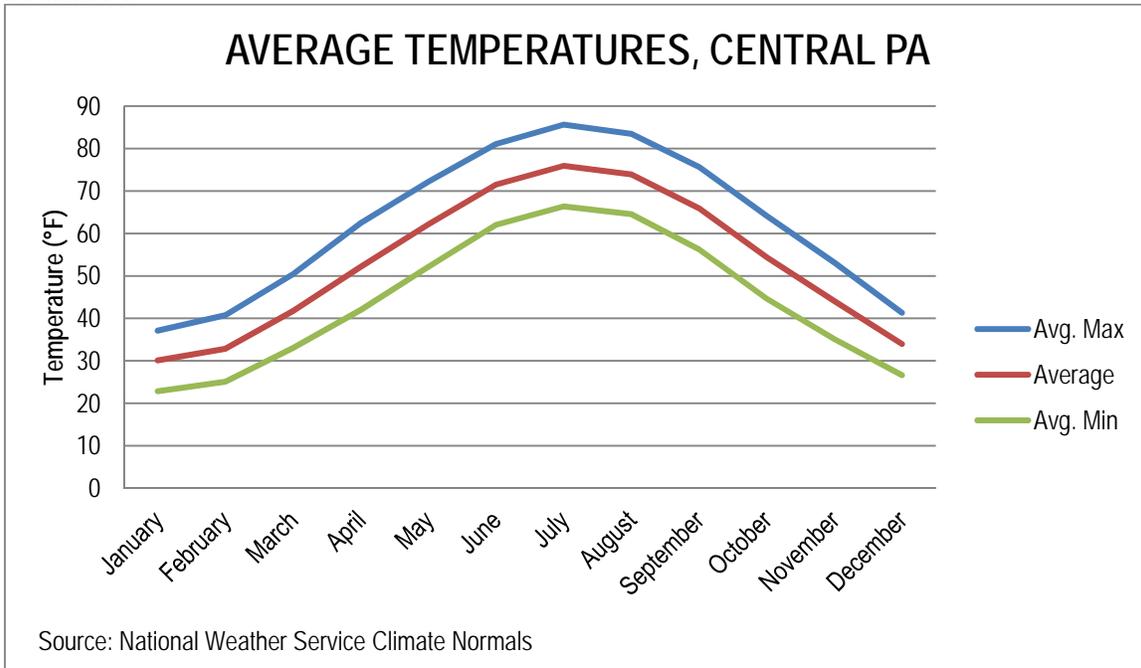
For the 2020 update, extreme temperatures include both heat and cold events. Extreme cold temperatures drop well below normal for an area (typically 10° F or more) during the winter months and often accompany winter storm events. Combined with high wind speeds, such temperatures in Pennsylvania can be life-threatening to those exposed for extended periods. Extreme heat includes temperatures that hover 10° F or more above the average high temperature for a region during the summer months. Extreme heat is responsible for more deaths in Pennsylvania than all other natural disasters combined (PEMA, 2013).

#### 4.3.3.1 Location and Extent

Temperatures vary widely over a year, but each season has an average temperature range. The National Oceanic and Atmospheric Administration (NOAA) generates monthly “normal” reports from its different stations. Figure 4.3.3.1-1 below shows the average minimum and maximum temperatures for central Pennsylvania.



Figure 4.3.3.1-1



As shown in the figure, temperatures are typically highest from June to August and lowest from November to February. *Extreme* temperatures are those 10 degrees above or below the high or low temperature. For example, extremely cold temperatures for Adams County would be below approximately 12° F in January, and above approximately 96° F in July would constitute an extremely hot temperature.

Extreme temperatures affect each jurisdiction in Adams County equally. Although the temperatures may vary slightly across the county, the average of the county’s temperatures and the extent of extremes are very similar. The National Weather Service, in collaboration with local partners, issues several heat-related products as conditions warrant. Descriptions of those products are in Table 4.3.3.1-2 below.

Table 4.3.3.1-2

NATIONAL WEATHER SERVICE TEMPERATURE-RELATED PRODUCTS	
<i>Product</i>	<i>Description</i>
Excessive Heat Warning	Issued within 12 hours of extremely dangerous heat conditions. Issued when the maximum heat index temperature is expected to be 105°F or higher for at least two days and night time air temperatures will not drop below 75°.
Excessive Heat Watch	Issued when conditions are favorable for an excessive heat event in the next 24 to 72 hours. Officials use a watch when the risk of a heatwave has increased, but its occurrence and timing is still uncertain.



NATIONAL WEATHER SERVICE TEMPERATURE-RELATED PRODUCTS	
<i>Product</i>	<i>Description</i>
Heat Advisory	Issued within 12 hours of the onset of extremely dangerous heat conditions. This Advisory is issued when the maximum heat index temperature is expected to be 100°F or higher for at least two days, and nighttime temperatures will not drop below 75°.
Excessive Heat Outlook	Issued when the potential exists for an excessive heat event in the next 3-7 days. It provides information to those who need considerable lead time to prepare for an event.
Frost Advisory	Issued when temperatures, winds, and sky cover are favorable for frost development. Frost advisories are most likely when temperatures are less than or equal to 36 degrees.
Freeze Watch	Freeze Watches are issued a few days ahead of a cold front in which temperatures are expected to be 29-32 degrees.
Freeze Warning	Freeze Warnings are issued when low temperatures are expected to be 29-32 degrees.
Hard Freeze Watch	Hard Freeze Watches are issued days ahead of a cold front in which temperatures are expected to be 28 degrees or less.
Hard Freeze Warning	Hard Freeze Warnings issued when temperatures are expected to be 28 degrees or less

#### 4.3.3.2 Range of Magnitude

Extreme temperatures tend to affect the population’s health rather than infrastructure. The extent of damage to infrastructure consists of broken pipes and cracks in the pavement due to expansion/contraction during extreme cold events and power outages during both extreme heat and cold events.

Extreme heat can impact health in a variety of ways. High temperatures can trigger a variety of heat stress conditions such as heat stroke, heat exhaustion, heat cramps, sunburn, and heat rash. These conditions are exacerbated by high relative humidity. High humidity reduces the ability of sweat to evaporate from the skin, reducing the body’s ability to cool itself. Prolonged exposure to heat can necessitate medical intervention; in extreme cases, prolonged exposure could cause death. Since 1999, 508 people have died of heat-related illnesses in Pennsylvania (CDC, 2019). The table below outlines the possible heat disorders for people in high-risk groups (i.e., children, elderly, etc.).

Table 4.3.3.2-1

HEAT RISKS	
<i>Heat Index</i>	<i>Possible Heat Disorders for People in High-Risk Groups</i>
80°F-90°F	Fatigue possible with prolonged exposure to physical activity
90°F -105°F	Sunstroke, heat cramps, or heat exhaustion possible with prolonged exposure and/or physical activity
105°F -130°F	Sunstroke, heat cramps, or heat exhaustion likely, and heatstroke possible with prolonged exposure and/or physical activity
130°F +	Heat/Sunstroke highly likely with continued exposure
Source: <a href="https://nws.weather.gov/blog/nwsdesmoines/2014/06/06/iowa-heat-awareness-day-june-5-2014-2/">https://nws.weather.gov/blog/nwsdesmoines/2014/06/06/iowa-heat-awareness-day-june-5-2014-2/</a>	



Like extreme heat, extreme cold temperatures can cause serious human impacts. When exposed to cold temperatures, the human body begins to lose heat faster than it can be produced. Prolonged exposure to such temperatures will use up the entirety of the body's stored energy, causing cold-related illnesses such as hypothermia, frostbite, trench foot, and chilblains (CDC, 2018).

Individuals most likely to experience the negative effects of extreme heat include those 65 years and older, children younger than two, and people with chronic diseases (CDC, 2018). These individuals should limit outdoor activity during the warmest parts of the day and wear appropriate clothing and sun protection. Those most susceptible to cold include older adults, children, people who remain outdoors for extended periods, and those who use alcohol or illicit drugs. These individuals, to the extent possible, should minimize time spent outdoors and dress in appropriate clothing that minimizes skin exposure to the cold. The following maps show concentrations of the elderly (i.e., 65 and over) as well as children (i.e., 18 and under) in Adams County.



Figure 4.3.3.2-2

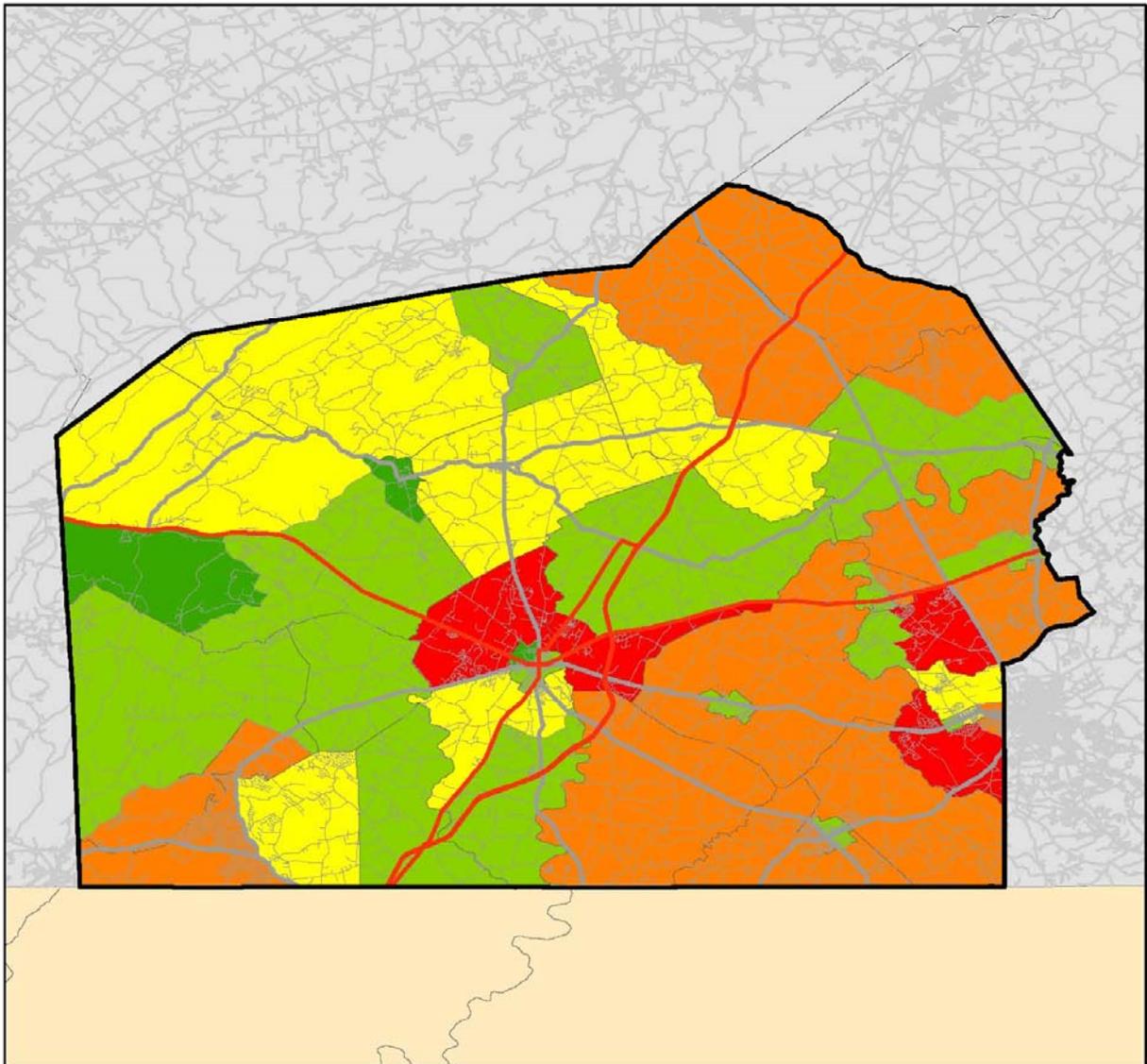
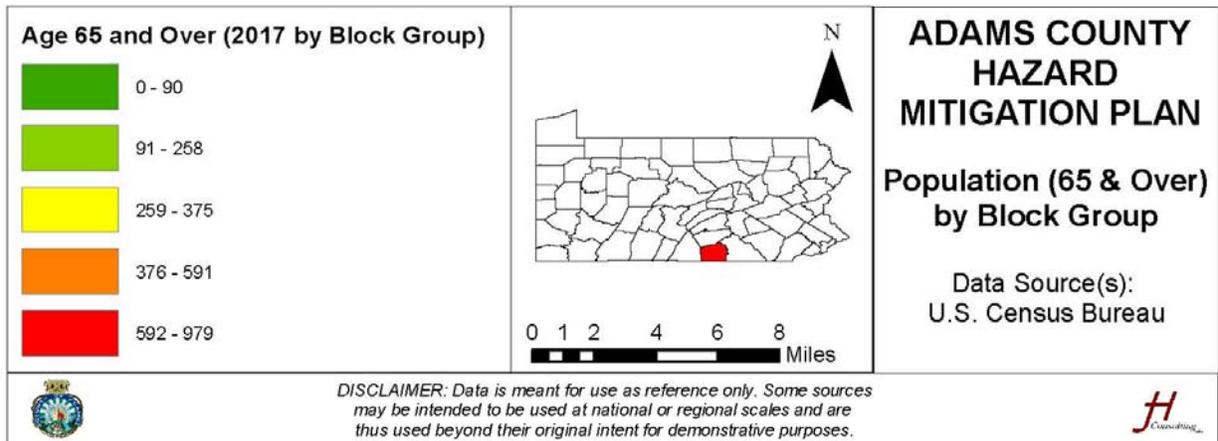
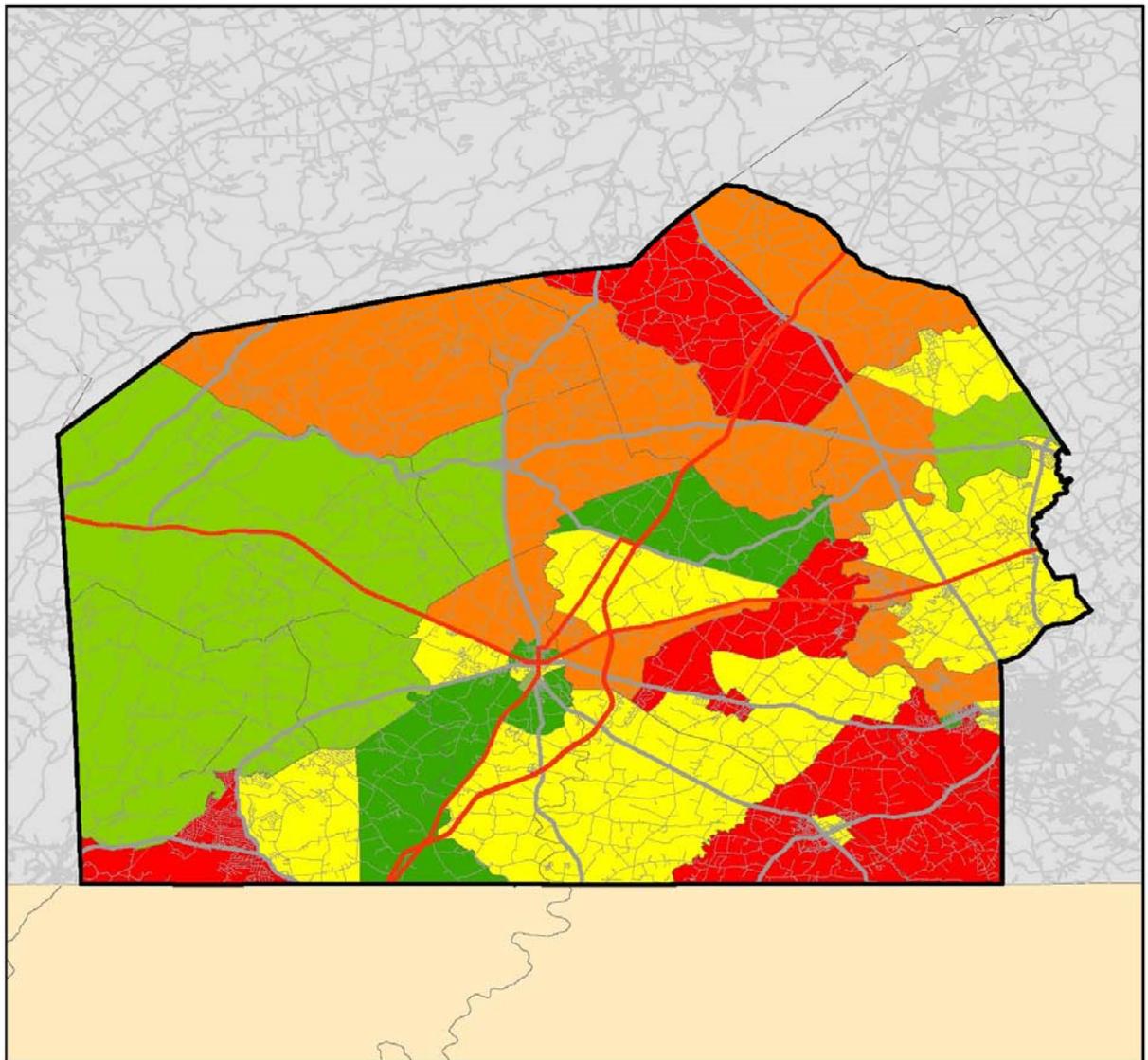
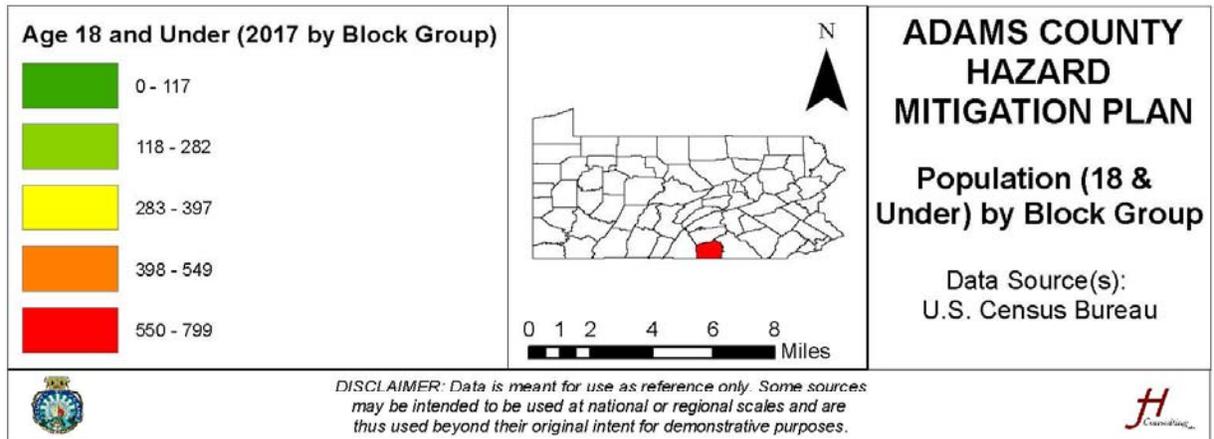


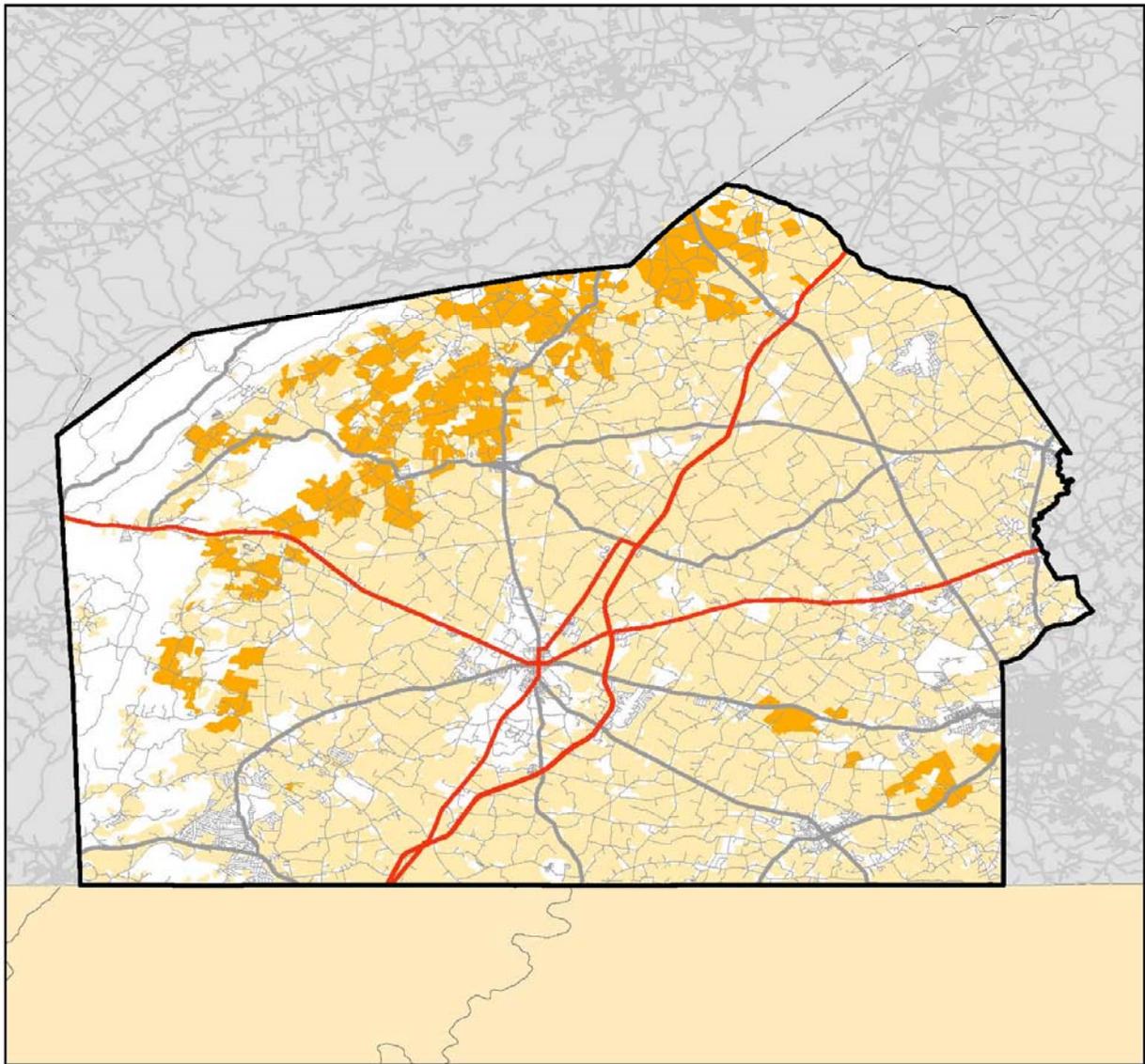
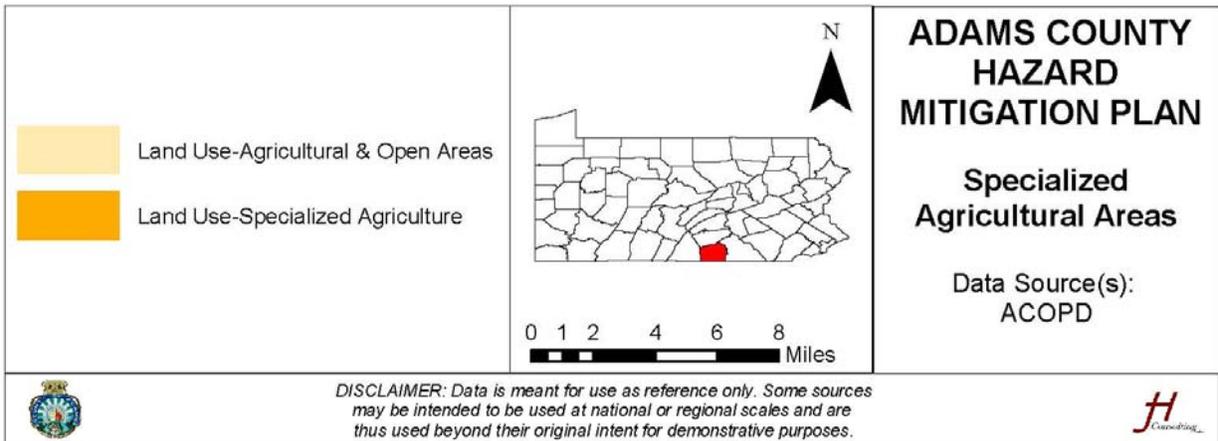
Figure 4.3.3.2-3



Adams County's agricultural industry is also susceptible to the effects of extreme heat and cold events, particularly if these events occur earlier or later in the year than expected. Fruit trees are particularly susceptible to cold weather; apple buds die at temperatures between -25 and -32 degrees Fahrenheit, while peach buds are even more sensitive to cold temperatures (Cornell, 2018). Figure 4.3.3.2-4 highlights the agricultural areas of Adams County, which would experience significant impacts of extreme temperatures.



Figure 4.3.3.2-4



**4.3.3.3 Past Occurrence**

The National Centers for Environmental Information's database keeps detailed records of past weather events. There have been ten incidences of extreme temperatures in Adams County since 1999. Table 4.3.3.3-1 describes these incidents.

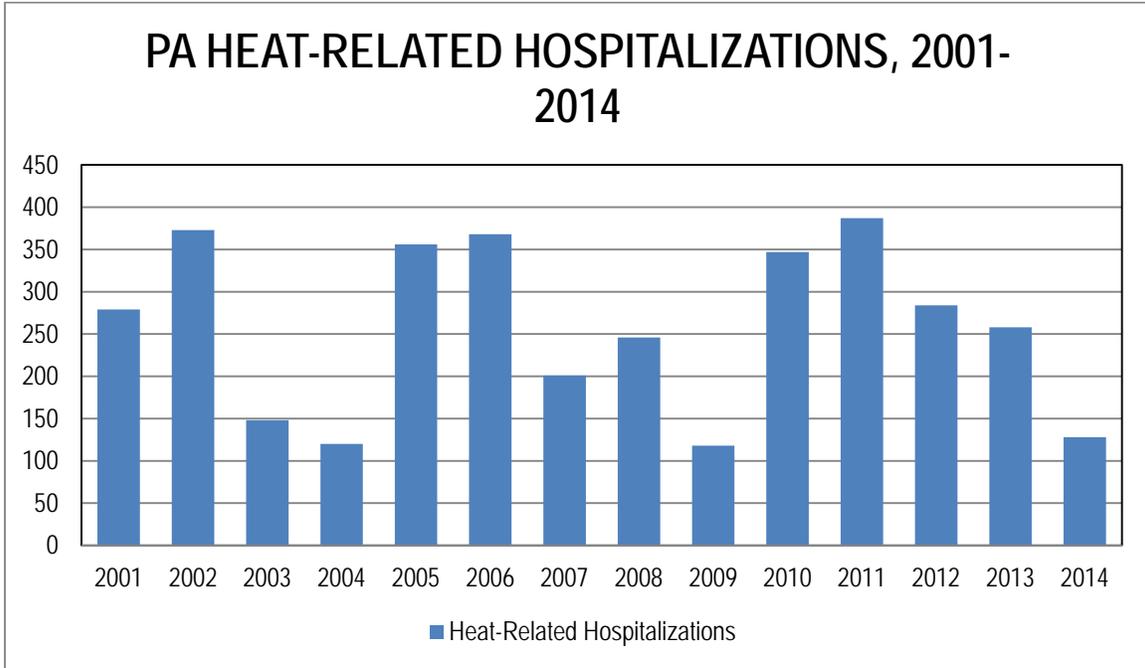
**Table 4.3.3.3-1**

EXTREME TEMPERATURE EVENTS IN ADAMS COUNTY, 1999-2019						
<i>Location</i>	<i>Date</i>	<i>Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (Zone)	7/5/1999	Heat	0	0	\$0.00	\$0.00
Adams (Zone)	7/17/2006	Heat	0	0	\$0.00	\$0.00
Adams (Zone)	7/18/2006	Heat	0	0	\$0.00	\$0.00
Adams (Zone)	7/31/2006	Heat	0	0	\$0.00	\$0.00
Adams (Zone)	8/1/2006	Heat	0	0	\$0.00	\$0.00
Adams (Zone)	2/5/2007	Extreme Cold/wind Chill	0	0	\$0.00	\$0.00
Adams (Zone)	7/21/2011	Excessive Heat	0	0	\$0.00	\$0.00
Adams (Zone)	2/15/2015	Extreme Cold/wind Chill	0	0	\$0.00	\$0.00
Adams (Zone)	7/25/2016	Excessive Heat	0	0	\$0.00	\$0.00
Adams (Zone)	7/2/2018	Excessive Heat	0	0	\$0.00	\$0.00
<b>TOTALS</b>			<b>0</b>	<b>0</b>	<b>\$0.00</b>	<b>\$0.00</b>

The Pennsylvania Department of Health maintains a database of hospital admissions for heat-related illnesses. Figure 4.3.3.3-2 below shows the number of heat-related hospitalizations in the state from 2001 to 2014. Years with a recorded extreme heat event (for example, 2006 and 2011) generally had more heat-related hospitalizations than years with no recorded heat event.



Figure 4.3.3.3-2



4.3.3.4 Future Occurrence

Adams County has experienced ten extreme temperature events in the past 20 years; thus, the county has approximately a 50% chance of experiencing an extreme temperature event on any given year. Extreme heat events will likely occur during summer months (June to September), and extreme cold events likely occur during winter months (December to February).

4.3.3.5 Vulnerability Assessment

This section summarizes the vulnerability to Adams County from extreme temperatures. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.3.5-1 presents the results of that survey regarding extreme temperature.



**Table 4.3.3.5-1**

PUBLIC SENTIMENT, EXTREME TEMPERATURE – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Extreme Temperature	48 (32.65%)	58 (39.46%)	32 (21.77%)	9 (6.12%)	147
In the past ten years, do you remember this hazard occurring in your community?				64 (43.84%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (142 responses)				71 (50.00%)	INCREASE
				68 (47.89%)	NO CHANGE
				3 (2.11%)	DECREASE

Table 4.3.3.5-2 summarizes Adams County’s vulnerability to extreme temperature events.



**Table 4.3.3.5-2**

<b>EXTREME TEMPERATURES VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	3	May or may not occur	There have been ten extreme temperature events in Adams County since 1999, for an average of 0.5 events per year. This suggests that there is approximately a 50% chance of an extreme temperature event occurring in any given year.
Response	1	Less than one day	Extreme temperatures would not require an elevated response.
Onset	1	Over 24 hours	Extreme temperature events develop over a few days or weeks and occur during the warmest and coolest months.
Magnitude	5	N/A	Extreme temperature events would affect the entire region, not just Adams County.
Business	1	Less than 24 hours	The county's economy would not typically be affected by extreme temperature events.
Human	3	Medium	Although no injuries or deaths occurred due to extreme temperatures in Adams County, extreme heat is responsible for more deaths in PA than all other natural hazards combined.
Property	1	Less than 10% of property	Extreme heat does not typically affect the property. Damages from the extreme cold would be minimal.
<b>Total</b>	<b>15</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.4 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 hazards in Pennsylvania	
	Period of Occurrence: Floods typically occur after prolonged periods of precipitation.	Hazard Index Ranking: 19-Medium
	Warning Time: 12-24 Hours	State Risk Ranking: 3.4-Highest
	Type of Hazard: Natural	Disaster Declarations: DR-485 DR-523 DR-1093 DR-1120 DR-1649 DR-3340 DR-4030 DR-4374 EM-3356

Flooding is the temporary condition of partial or complete inundation of normally dry land, and it is the most frequent and costly of all hazards in Pennsylvania. Flooding events are generally the result of excessive precipitation. Generally, flooding occurs when precipitation occurs over a given river basin for an extended period. Flash flooding is usually a result of heavy localized precipitation falling in a short period over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces. The severity of a flood event is dependent upon a combination of stream and river basin topography and physiography, hydrology, precipitation and weather patterns, present soil moisture conditions, the degree of vegetative clearing as well as the presence of impervious surfaces in and around flood-prone areas (PEMA, 2018).

Winter flooding can include ice jams which occur when warm temperatures and heavy rain cause snow to melt rapidly. Snowmelt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of a river. The ice layer often breaks into large chunks, which float downstream, piling up in narrow passages and near other obstructions such as bridges and dams. All forms of flooding can damage infrastructure (PEMA, 2018).

#### 4.3.4.1 Location and Extent

The depth of floodwaters and the probability of occurrence were used to describe floods



in the past. As such, “100-year flood,” “500-year flood,” and similar terminology, was used when describing floods. Unfortunately, the public logically assumed a flood that a “100-year” flood happens every 100 years or a “500-year” flood happens every 500 years. A better representation of flood risk is the percent chance of a flood happening in a given year. So, a 100-year flood is a flood level that has a 1% chance of occurring in any given year; a 500-year flood has a 0.5% chance of occurring in any given year, and so on.

When structures experience more than one loss due to flooding, they can become repetitive loss or severe repetitive loss properties. The Flood Mitigation Assistance (FMA) grant and the National Flood Insurance Program (NFIP) both track losses due to flooding. Each program defines repetitive loss and severe repetitive loss properties slightly differently. Table 4.3.4.1-1 provides both definitions of repetitive loss and severe repetitive loss properties.

**Table 4.3.4.1-1**

<b>REPETITIVE LOSS AND SEVERE REPETITIVE LOSS DEFINITIONS</b>		
<i>Program</i>	<i>Repetitive Loss</i>	<i>Severe Repetitive Loss</i>
Flood Mitigation Assistance (FMA) Grant	<i>A Repetitive Loss (RL) property is a structure covered by a contract for flood insurance made available under the NFIP that:</i> Has incurred flood-related damage on two occasions, in which the cost of the repair, on the average, equaled or exceeded 25% of the market value of the time of each such flood event; At the time of the second incidence of flood-related damage, the contract for flood insurance contains increased cost of compliance coverage.	(a) Is covered under a contract for flood insurance made available under the NFIP; and (b) Has incurred flood-related damage i. For which 4 or more separate claims payments (includes building and contents) have been made under flood insurance coverage with the amount of each such claim exceeding \$5,000, and with the cumulative amount of such claim's payments exceeding \$20,000, or ii. For which <u>at least 2 separate claims payments</u> (includes only building) have been made under such coverage, with the cumulative amount of such claims exceeding the market value of the insured structure.
National Flood Insurance Program (NFIP)	A Repetitive Loss (RL) property is any insurable building for which two or more claims of more than \$1,000 were paid by the National Flood Insurance Program (NFIP) within any rolling ten-year period since 1978.	A single-family property (consisting of 1 to 4 residences) that is covered under flood insurance by the NFIP and has incurred flood-related damage for which 4 or more separate claims payments have been paid under flood insurance coverage, with the amount of each claim payment exceeding \$5,000 and with a cumulative amount of such claims payments exceeding \$20,000; or for which at least 2 separate claims payments have been made with the cumulative amount of such claims exceeding the reported value of the property.

According to the Pennsylvania Emergency Management Agency, there are seven severe repetitive loss properties and thirty-five repetitive loss properties in Adams County. Tables 4.3.4.1-2 and 4.3.4.1-3 respectively list the municipality, losses, and payments associated with these properties.



**Table 4.3.4.1-2**

ADAMS COUNTY SEVERE REPETITIVE LOSS PROPERTIES							
<i>Community Name (Jurisdiction)</i>	<i>Occupancy</i>	<i>Zone</i>	<i>Losses</i>	<i>Building Payments</i>	<i>Contents Payments</i>	<i>Total Paid</i>	<i>Average Payment</i>
Reading Township	Single Family	A	3	\$89,166.78	\$14,917.80	\$104,084.58	\$34,694.86
Reading Township	Single Family	AE	5	\$71,957.54	\$26,106.63	\$98,064.17	\$19,612.83
Reading Township	Single Family	A12	4	\$110,815.32	\$14,805.53	\$125,620.85	\$31,405.21
Reading Township	Single Family	A12	6	\$86,561.93	\$12,913.26	\$99,475.19	\$16,579.20
Reading Township	Single Family	AE	4	\$74,403.66	\$0.00	\$74,403.66	\$18,600.92
Reading Township	Single Family	C	5	\$185,238.39	\$22,406.54	\$207,644.93	\$41,528.99
Reading Township	Single Family	A	6	\$168,743.83	\$22,940.33	\$191,684.16	\$31,947.36

**Table 4.3.4.1-3**

ADAMS COUNTY REPETITIVE LOSS PROPERTIES							
<i>Community Name (Jurisdiction)</i>	<i>Occupancy</i>	<i>Zone</i>	<i>Losses</i>	<i>Building Payments</i>	<i>Contents Payments</i>	<i>Total Paid</i>	<i>Average Payment</i>
Abbottstown Borough	Assmd Condo	AE	2	\$9,978.18	\$9,549.72	\$19,527.90	\$9,763.95
Butler Township	Single Family	X	7	\$37,427.80	\$11,602.24	\$49,030.04	\$7,004.29
Carroll Valley Borough	Single Family	AE	2	\$17,131.70	\$1,462.70	\$18,594.40	\$9,297.20
Cumberland Township	Single Family	C	3	\$37,000.00	\$6,627.04	\$43,627.04	\$14,542.35
Cumberland Township	Other Residential	X	2	\$52,794.01	\$0.00	\$52,794.01	\$26,397.01
East Berlin Borough	Single Family	B	2	\$19,996.70	\$944.55	\$20,941.25	\$10,470.63
East Berlin Borough	Single Family	EMG	2	\$2,141.20	\$2,242.90	\$4,384.10	\$2,192.05
Franklin Township	Single Family	A	2	\$29,261.39	\$0.00	\$29,261.39	\$14,630.70
Gettysburg Borough	Assmd Condo	B	3	\$285,812.73	\$0.00	\$285,812.73	\$95,270.91
Gettysburg Borough	Single Family	A04	2	\$34,577.87	\$10,000.00	\$44,577.87	\$22,288.94
Gettysburg Borough	2-4 Family	B	3	\$17,481.63	\$104.92	\$17,586.55	\$5,862.18
Hamilton Township	Single Family	A12	2	\$8,822.63	\$13,542.08	\$22,364.71	\$11,182.36
Hamilton Township	Single Family	A12	2	\$70,787.30	\$9,254.08	\$80,041.38	\$40,020.69
Hamilton Township	Single Family	X	2	\$35,393.37	\$19,845.00	\$55,238.37	\$27,619.19
Highland Township	Other-Non-residential	A	7	\$152,650.48	\$48,505.66	\$201,156.14	\$28,736.59



<b>ADAMS COUNTY REPETITIVE LOSS PROPERTIES</b>							
<i>Community Name (Jurisdiction)</i>	<i>Occupancy</i>	<i>Zone</i>	<i>Losses</i>	<i>Building Payments</i>	<i>Contents Payments</i>	<i>Total Paid</i>	<i>Average Payment</i>
Mount Pleasant Township	Single Family	AE	2	\$6,494.54	\$0.00	\$6,494.54	\$3,247.27
Oxford Township	2-4 Family	X	2	\$11,619.56	\$4,836.84	\$16,456.40	\$8,228.20
Reading Township	Single Family	C	2	\$9,710.58	\$41,154.67	\$50,865.25	\$25,432.63
Reading Township	Single Family	A	2	\$75,188.24	\$0.00	\$75,188.24	\$37,594.12
Reading Township	Single Family	A	3	\$89,166.78	\$14,917.80	\$104,084.58	\$34,694.86
Reading Township	Single Family	B	4	\$14,826.76	\$3,929.46	\$18,756.22	\$4,689.06
Reading Township	Single Family	AE	5	\$71,957.54	\$26,106.63	\$98,064.17	\$19,612.83
Reading Township	Single Family	A12	3	\$33,651.93	\$11,850.04	\$45,501.97	\$15,167.32
Reading Township	Single Family	A12	4	\$110,815.32	\$14,805.53	\$125,620.85	\$31,405.21
Reading Township	Single Family	A12	6	\$86,561.93	\$12,913.26	\$99,475.19	\$16,579.20
Reading Township	Single Family	A12	4	\$44,216.92	\$22,971.58	\$67,188.50	\$16,797.13
Reading Township	Single Family	AE	6	\$29,270.00	\$21,057.53	\$50,327.53	\$8,387.92
Reading Township	Single Family	A12	4	\$20,475.42	\$4,677.36	\$25,152.78	\$6,288.20
Reading Township	Single Family	AE	4	\$74,403.66	\$0.00	\$74,403.66	\$18,600.92
Reading Township	Single Family	C	5	\$25,840.96	\$12,656.48	\$38,497.44	\$7,699.49
Reading Township	Single Family	A12	5	\$84,913.58	\$1,069.91	\$85,983.49	\$17,196.70
Reading Township	Single Family	C	5	\$185,238.39	\$22,406.54	\$207,644.93	\$41,528.99
Reading Township	Single Family	A	6	\$168,743.83	\$22,940.33	\$191,684.16	\$31,947.36
Reading Township	Single Family	A12	3	\$19,807.52	\$7,760.52	\$27,568.04	\$9,189.35
Reading Township	Single Family	A	3	\$47,073.84	\$5,356.81	\$52,430.65	\$17,476.88

All of Adams County's severe repetitive loss properties and 18 (51%) repetitive loss properties are located in Reading Township.

**4.3.4.2 Range of Magnitude**

Hazards associated with flooding can be primary, secondary, or tertiary. Typically, primary hazards are those that occur due to contact with water. Secondary effects are those



that occur because of flooding, such as the disruption of services, or health impacts. Tertiary effects are continued effects, such as the change in the position of river channels. Table 4.3.4.2-1 provides examples of each of these effects.

**Table 4.3.4.2-1**

<b>EFFECTS OF FLOODING</b>	
<i>Type</i>	<i>Description</i>
Primary Effects	<ul style="list-style-type: none"> <li>• With higher velocities, streams can transport larger particles as suspended load. Such large particles include not only rocks and sediment, but, during a flood, could include such large objects as automobiles, houses, and bridges.</li> <li>• Floodwaters can accomplish massive amounts of erosion. Such erosion can undermine bridge structures, levees, and buildings, causing their collapse.</li> <li>• Water entering human-built structures cause water damage. Even with minor flooding of homes, furniture is ruined, floors and walls are damaged, and anything that comes in contact with the water is likely to be damaged or lost. Flooding of automobiles usually results in damage that cannot easily be repaired.</li> <li>• The high velocity of floodwaters allows the water to carry more sediment as a suspended load. When the floodwaters retreat, velocity is generally much lower, and sediment is deposited. After the retreat of the floodwaters, everything is usually covered with a thick layer of stream deposited mud, including the interior of buildings.</li> <li>• Flooding of farmland usually results in crop loss. Livestock, pets, and other animals are often carried away and drown.</li> <li>• Humans that get caught in the high-velocity floodwaters can drown in the water.</li> <li>• Floodwaters can concentrate garbage, debris, and toxic pollutants that can cause the secondary effects of health hazards.</li> </ul>
Secondary Effects	<p><b>Disruption of services -</b></p> <ul style="list-style-type: none"> <li>• Drinking water supplies may become polluted, especially if sewerage treatment plants are flooded. This may result in disease and other health effects.</li> <li>• Gas and electrical service may be disrupted.</li> <li>• Transportation systems may be disrupted, resulting in shortages of food and clean-up supplies.</li> </ul>
Tertiary Effects	<ul style="list-style-type: none"> <li>• The location of river channels may change as the result of flooding, new channels develop, leaving the old channels dry.</li> <li>• Sediment deposited by flooding may destroy farmland (although silt deposited by floodwaters could also help to increase agricultural productivity).</li> <li>• Jobs may be lost due to the disruption of services, destruction of business, etc.</li> <li>• Insurance rates may increase.</li> <li>• Destruction of wildlife habitat.</li> </ul>
Source: <a href="https://www.tulane.edu/~sanelson/Natural_Disasters/floodhaz.htm">https://www.tulane.edu/~sanelson/Natural_Disasters/floodhaz.htm</a>	

**4.3.4.3 Past Occurrence**

The National Center for Environmental Information's Storm Event Database keeps records of severe weather events in the United States. Table 4.3.4.3-1 below describes the NCEI flood events in Adams County since 1996.



**Table 4.3.4.3-1**

FLOOD EVENTS IN ADAMS COUNTY, 1996-2019						
<i>Location</i>	<i>Date</i>	<i>Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (Zone)	1/19/1996	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	5/16/2003	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	12/11/2003	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	2/6/2004	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	9/17/2004	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	9/28/2004	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	3/28/2005	Flood	0	0	\$0.00	\$0.00
Adams (Zone)	4/2/2005	Flood	0	0	\$0.00	\$0.00
Countywide	6/28/2006	Flood	0	0	\$0.00	\$0.00
New Oxford	4/15/2007	Flood	0	0	\$0.00	\$0.00
Fountain Dale	3/5/2008	Flood	0	0	\$0.00	\$0.00
Orrtanna	1/25/2010	Flood	0	0	\$10,000.00	\$0.00
Fountain Dale	3/10/2011	Flood	0	0	\$0.00	\$0.00
Peach Glen	9/23/2011	Flood	0	0	\$0.00	\$0.00
Trust	10/29/2012	Flood	0	0	\$0.00	\$0.00
Trust	1/31/2013	Flood	0	0	\$0.00	\$0.00
Trust	10/10/2013	Flood	0	0	\$0.00	\$0.00
Trust	3/30/2014	Flood	0	0	\$0.00	\$0.00
Trust	4/30/2014	Flood	0	0	\$0.00	\$0.00
Trust	5/16/2014	Flood	0	0	\$0.00	\$0.00
Heidlersburg	7/22/2018	Flood	1	0	\$0.00	\$0.00
<b>TOTALS</b>			<b>1</b>	<b>0</b>	<b>\$10,000.00</b>	<b>\$0.00</b>

There have been 21 flood events in Adams County over the past 23 years. Of these floods, only one caused reported property damage, one caused a death, and none caused any reported crop damage. The average property damage due to flooding, based on NCEI data, is \$476 per event.

#### January 2010 Floods

In January of 2010, heavy rainfall between one and four inches produced widespread flooding across much of central Pennsylvania. Snow and ice melt contributed to enhanced runoff, especially across higher elevations. Between three and four inches of rain caused widespread flooding that occurred in Tom's Creek and Middle Creek in the Orrtanna area in Adams County. Officials closed over 75 roads due to flooding throughout the county. The most affected areas were along Conewago Creek, including Table Rock and East Berlin. This event caused 10,000 in property damage, making it the most significant flood in the county.

#### July 2018

On July 22, 2019, there were floods across southern Pennsylvania. After days of



downpours, flooding prompted water rescues from homes and vehicles in several areas and the closure of dozens of roads in the area. One person was reported missing during the flood; the Adams County Coroner told local news sources that they were swept away after exiting their vehicle in an attempt to walk to safety.

There have been 26 flash flood events in Adams County since 1996. Table 4.3.4.3-2 below details these flash flood events.

**Table 4.3.4.3-2**

FLASH FLOOD EVENTS IN ADAMS COUNTY, 1996-2019						
<i>Location</i>	<i>Date</i>	<i>Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Countywide	1/19/1996	Flash Flood	0	0	\$0.00	\$0.00
Gettysburg	6/18/1996	Flash Flood	0	0	\$0.00	\$0.00
Biglerville	6/20/1996	Flash Flood	0	0	\$0.00	\$0.00
Gettysburg	9/6/1996	Flash Flood	0	0	\$0.00	\$0.00
Countywide	12/13/1996	Flash Flood	0	0	\$0.00	\$0.00
North Portion	9/11/1997	Flash Flood	0	0	\$0.00	\$0.00
West Portion	11/7/1997	Flash Flood	0	0	\$0.00	\$0.00
Countywide	1/8/1998	Flash Flood	0	0	\$0.00	\$0.00
Countywide	3/21/1998	Flash Flood	0	0	\$0.00	\$0.00
Countywide	9/16/1999	Flash Flood	0	0	\$20,000.00	\$0.00
Biglerville	9/1/2000	Flash Flood	0	0	\$20,000.00	\$0.00
York Springs	6/21/2003	Flash Flood	0	0	\$0.00	\$0.00
Gettysburg	9/23/2003	Flash Flood	0	0	\$0.00	\$0.00
Biglerville	6/14/2004	Flash Flood	0	0	\$0.00	\$0.00
Heidlersberg	7/7/2005	Flash Flood	0	0	\$0.00	\$0.00
Bonneauville	8/7/2005	Flash Flood	0	0	\$0.00	\$0.00
Gettysburg	6/25/2006	Flash Flood	0	0	\$0.00	\$0.00
Countywide	6/27/2006	Flash Flood	1	0	\$0.00	\$0.00
Mummasburg	8/12/2010	Flash Flood	0	0	\$10,000.00	\$0.00
Wenksville	4/16/2011	Flash Flood	0	0	\$0.00	\$0.00
Arendtsville	4/28/2011	Flash Flood	0	0	\$0.00	\$0.00
East Berlin	9/11/2011	Flash Flood	0	0	\$64,000.00	\$0.00
Greenmount	9/23/2011	Flash Flood	0	0	\$0.00	\$0.00
Greenmount	9/27/2011	Flash Flood	0	0	\$0.00	\$0.00
Gettysburg	9/18/2012	Flash Flood	0	0	\$0.00	\$0.00
Biglerville	8/20/2015	Flash Flood	0	0	\$0.00	\$0.00
Littlestown	7/5/2019	Flash Flood	0	0	\$0.00	\$0.00
Whitehall	7/5/2019	Flash Flood	0	0	\$0.00	\$0.00
<b>TOTALS</b>			<b>1</b>	<b>0</b>	<b>\$114,000.00</b>	<b>\$0.00</b>

Of the 26 flash flood events in Adams County over the past 23 years, four have caused reported property damage, and none caused reported crop damage. The average property damage caused by flash floods is \$4,384 per event. The most significant event occurred in



September of 2011, caused by the remnants of Tropical Storm Lee.

#### September 2011

In September of 2011, the remnants of Tropical Storm Lee caused significant flood and flash flood activity near and to the east of the Susquehanna Valley. The storm caused between five and twelve inches of rainfall in areas of Adams County. Several roads were closed, and responders performed water rescues in the East Berlin region. Approximately 60 structures reported major damage, and 64 reported minor damage. This event caused \$63,850 in damage to public property and was the most significant flash flood event in Adams County.

#### October 2019

On October 31, 2019, flash flooding affected several counties in southern Pennsylvania. Multiple roads, including parts of Interstate 83, closed due to flooding, and vehicles could not navigate the floodwaters. During this event, runoff in Gettysburg left 2 feet of water in the basement of a historic home on Baltimore Street, and nearly 50,000 customers throughout Pennsylvania lost power during this rain.

The above tables and narratives do not provide data on crop losses, though local officials know of weather-related agricultural impacts. Adams County received three USDA Secretarial Designations in 2018 for excessive moisture, heavy rain, and flood/flash flood incidents, S4356, S4445, and S4465 (USDA FSA, n.d.). Aggregated 2018 data from EWG's *Farm Subsidies Database* reports that Adams County farmers received \$80,738 worth of disaster assistance program benefits in 2018. Of that total, \$74,066 were under the "Miscellaneous" category (which includes the crop disaster, quality losses, and non-insured assistance programs), and the remaining \$6,672 was under the "Livestock Disaster/Emergency" category (which consists of the livestock compensation and livestock emergency assistance programs) (EWG, n.d.).

#### 4.3.4.4 Future Occurrence

Floods can occur at any time but are most likely to occur from March to September. A potential worst-case flood scenario would be periods of heavy rain falling in areas already inundated with water, areas with inadequate stormwater management systems, and areas located near water sources (i.e., rivers, lakes, streams, and ponds). Areas located in a floodplain or floodway will likely be the most significantly impacted by future events.



**4.3.4.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from flooding. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.4.5-1 presents the results of that survey regarding flooding.

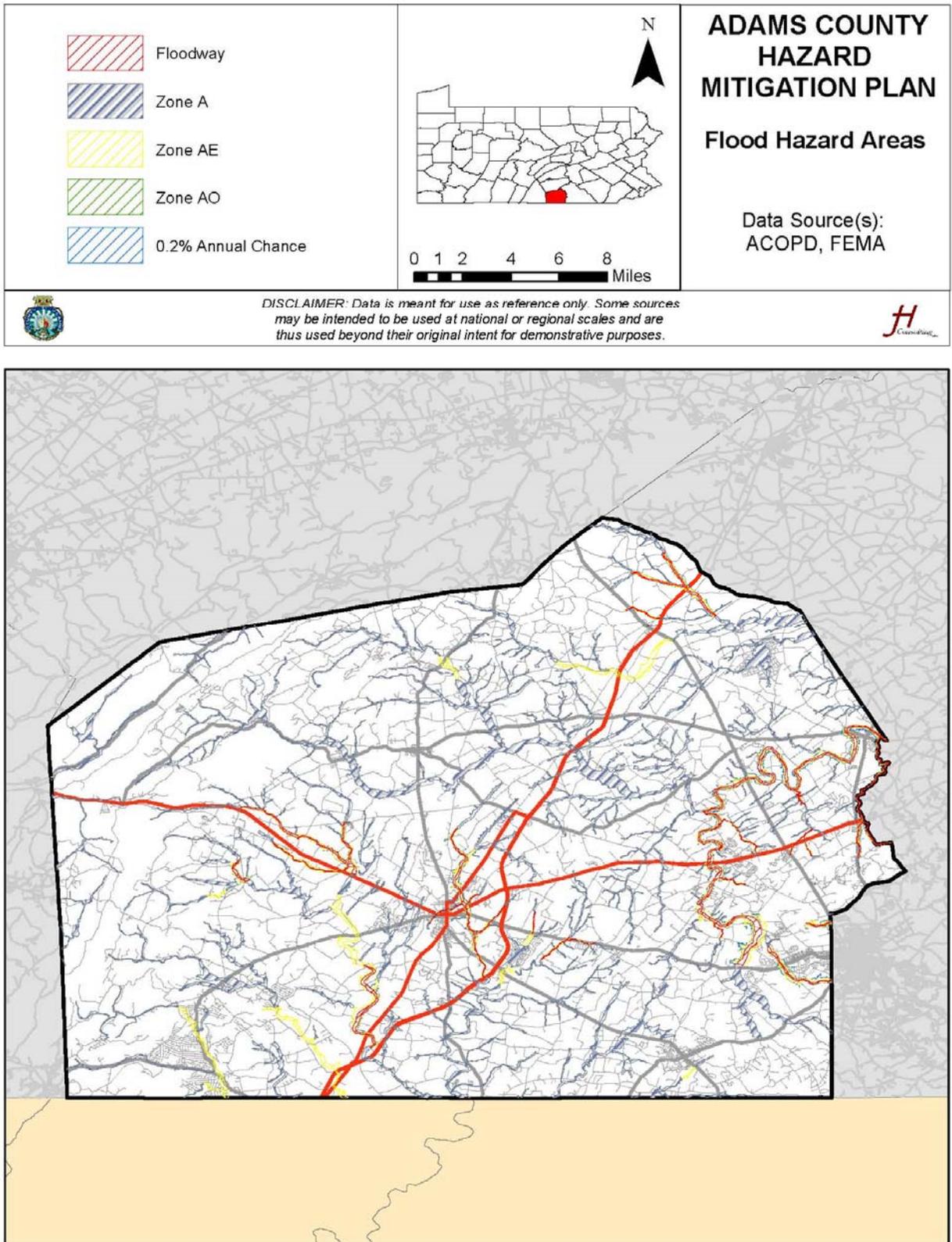
**Table 4.3.4.5-1**

PUBLIC SENTIMENT, FLOOD, FLASH FLOOD, ICE JAM – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Flood, Flash Flood, Ice Jam	43 (29.25%)	56 (38.10%)	33 (22.45%)	15 (10.20%)	147
In the past ten years, do you remember this hazard occurring in your community?				78 (53.42%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (139 responses)				60 (43.17%)	INCREASE
				77 (55.40%)	NO CHANGE
				2 (1.44%)	DECREASE

Given the presence of special flood hazard areas and the availability of building footprint data from the Adams County Office of Planning and Development, planners examined the structures that could see future flood impacts. Figure 4.3.4.5-2 shows the special flood hazard area at the county level. See Appendix D for flood maps at the municipal level (that also identify potentially-impacted critical facilities).



Figure 4.3.4.5-2



Based on past occurrences, Adams County can expect to experience at least one flood or flash flood event in any given year. Table 4.3.4.5-3 gives an overview of Adams County's vulnerability to flooding and flash flooding.

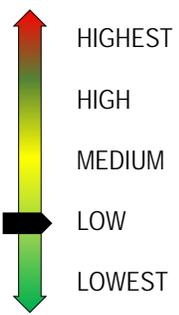
**Table 4.3.4.5-3**

<b>FLOOD, FLASH FLOOD, ICE JAM VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	5	Excessive	There have been 47 flood and flash flood events in Adams County in the past 23 years, for an average of 2 events per year.
Response	3	1 Week	Emergency response to flooding can last up to a week, with longer responses corresponding to more significant events.
Onset	4	Less than 6 hours	While storm and rain systems can be predicted multiple days in advance, but the extent of flooding in a given area cannot.
Magnitude	2	Limited	Weather systems can affect a large portion of the county. However, flooding typically only affects less than ¼ of the total land area at a time.
Business	2	1 Week	A significant flood event could impact the county's economy for up to a week while the affected jurisdiction recovers.
Human	1	Minimum	Flooding typically does not have significant human health impacts.
Property	2	10-25% of property affected	A single flooding incident, while significant, will typically affect between 10 and 25% of property in Adams County
<b>Total</b>	<b>19</b>	<b>Medium</b>	



## 4.0 RISK ASSESSMENT

### 4.3.5 Hailstorm

	Hailstorms occur when ice crystals form within a low-pressure front due to the rapid rise of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation in the form of balls or irregularly-shaped masses of ice greater than 0.75 inches in diameter (FEMA, 1997).			
	Period of Occurrence:	Hailstorms can occur at any time but are most prevalent from March-September	Hazard Index Ranking:	13-Low
	Warning Time	12-24 Hours	State Risk Ranking:	1.9-Low
	Type of Hazard:	Natural	Disaster Declarations:	N/A

Merriam Webster defines hail as precipitation in the form of small balls or lumps, usually consisting of concentric layers, of clear ice and compact snow. It forms when updrafts from thunderstorms are strong enough to carry water droplets upwards into temperatures low enough to freeze the droplets into balls of ice. When the thunderstorm's updraft subsides, or the hailstones grow too heavy for the draft to support, they fall to the ground and can cause damage.

#### 4.3.5.1 Location and Extent

Hailstorms are not limited to a particular area of Adams County, and forecast technology can predict neither their duration nor intensity. Because thunderstorm updrafts produce hail, seasons with a high frequency of thunderstorms have a higher potential for hailstorms to form. Warmer months (March-September) are more likely to produce thunderstorms, thus more likely to produce hail.

The TORRO Hailstorm Intensity Scale, outlined in Table 4.3.5.1-1 below, measures hailstorm intensity (Voss Law Firm, n.d.).



**Table 4.3.5.1-1**

<b>TORRO HAILSTORM INTENSITY SCALE</b>			
<i>TORRO Intensity</i>	<i>Intensity Category</i>	<i>Diameter (mm)</i>	<i>Typical Damage Impacts</i>
H0	Hard Hail	2	No Damage
H1	Potentially Damaging	5-15	Slight damage to plants, crops
H2	Significant	10-20	Significant damage to fruit, crops, vegetation
H3	Severe	20-30	Severe damage to fruit and crops, damage to glass and plastic structures, paint and wood scored
H4	Severe	25-40	Widespread glass damage, vehicle bodywork damage
H5	Destructive	30-50	Wholesale destruction of glass, damage to tiled roofs, significant risk of injuries
H6	Destructive	40-60	Bodywork of grounded aircraft dented, brick walls pitted
H7	Destructive	50-75	Severe roof damage, risk of serious injuries
H8	Destructive	60-90	Severe damage to aircraft bodywork
H9	Super Hailstorms	75-100	Extensive structural damage. Risk of severe or fatal injuries to persons caught in the open
H10	Super Hailstorms	>100	Extensive structural damage. Risk of severe or fatal injuries to persons caught in the open

**4.3.5.2 Range of Magnitude**

Hail is typically pea to marble-sized (H0-H3 on the TORRO scale), but significant thunderstorms can produce much larger hail. The largest hailstone measured in the U.S. was 7.9 inches (200 mm) in diameter from a thunderstorm in Vivian, South Dakota, in 2010. In Adams County, the largest recorded hailstones were 1.75 (44.45 mm) inches in diameter, which would be an H5-H6 storm on the TORRO Scale. Hail of this size occurred on several occasions:

- three times in 2008 in Fairfield, York Springs, and Heidlersburg;
- once in 2004 in Bonneauville;
- twice in 2000 in Bermudian and Littlestown; and
- once each in 1991, 1989, 1987, and 1980 at various locations in Adams County.

Extreme hailstorms can cause significant damage. One of the most significant impacts would be crop damage. Hailstorms typically occur from March to September, which is the primary growing season for most crops. Hail damage to crops can cause torn leaves, broken stalks, and plants stripped bare.

In addition to crop damage, hail can damage vehicles and structures. Vehicle damage includes dents and windshield/glass damage. Total costs for vehicle damages can be between \$2,500 and \$7,000 per vehicle, depending on the extent of the damage. Hail damage to structures includes cracked and broken shingles, bent roof vents and pipes, and broken windows.



**4.3.5.3 Past Occurrences**

According to the National Centers for Environmental Information, there were 42 hail events in Adams County between 1980 and 2019, causing \$15,000 in damages. Table 4.3.5.3-1 outlines these occurrences.

**Table 4.3.5.3-1**

HAIL EVENTS IN ADAMS COUNTY, 1980-2019					
<i>Location</i>	<i>Date</i>	<i>Time</i>	<i>Size</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams County	4/9/1980	18:30	1.75 in.	\$0.00	\$0.00
Adams County	5/12/1980	17:30	1.75 in.	\$0.00	\$0.00
Adams County	5/23/1987	12:40	1.75 in.	\$0.00	\$0.00
Adams County	5/23/1988	14:25	1.00 in.	\$0.00	\$0.00
Adams County	6/6/1989	14:45	1.75 in.	\$0.00	\$0.00
Adams County	5/13/1991	13:07	1.75 in.	\$0.00	\$0.00
Berlin	8/11/1993	17:50	0.75 in.	\$0.00	\$0.00
Fairfield	8/11/1993	18:40	1.75 in.	\$0.00	\$0.00
Bristol	6/29/1994	12:30	0.75 in.	\$0.00	\$0.00
Abbottstown	5/29/1995	15:33	0.75 in.	\$0.00	\$0.00
Biglerville	6/4/1996	15:00	0.75 in.	\$0.00	\$0.00
Heidlersburg	6/11/1996	13:00	N/A	\$0.00	\$0.00
Heidlersburg	6/11/1996	22:00	N/A	\$0.00	\$0.00
New Oxford	6/14/1996	18:07	0.75 in.	\$0.00	\$0.00
Gettysburg	6/24/1996	12:00	N/A	\$0.00	\$0.00
Biglerville	4/8/1998	14:38	0.75 in.	\$0.00	\$0.00
Zora	5/10/2000	13:58	0.75 in.	\$0.00	\$0.00
Bermudian	5/24/2000	13:20	1.75 in.	\$0.00	\$0.00
Littlestown	5/24/2000	14:20	1.75 in.	\$0.00	\$0.00
Fairfield	9/14/2000	19:30	0.75 in.	\$0.00	\$0.00
Fairfield	5/2/2002	14:43	0.75 in.	\$0.00	\$0.00
New Oxford	5/26/2002	15:20	1.25 in.	\$0.00	\$0.00
New Oxford	5/27/2002	20:10	1.00 in.	\$0.00	\$0.00
McSherrystown	6/19/2002	17:00	1.00 in.	\$0.00	\$0.00
Gettysburg	6/1/2004	12:29	0.88 in.	\$0.00	\$0.00
Bonneauville	8/19/2004	17:50	1.75 in.	\$0.00	\$0.00
New Oxford	8/7/2005	16:30	1.00 in.	\$0.00	\$0.00
Abbottstown	8/7/2005	16:35	1.00 in.	\$0.00	\$0.00
Cashtown	7/4/2006	12:20	0.75 in.	\$0.00	\$0.00
Bendersville	7/18/2006	15:50	0.75 in.	\$0.00	\$0.00
Fairfield	8/25/2007	16:55	0.88 in.	\$0.00	\$0.00
Gettysburg	6/10/2008	18:20	1.00 in.	\$0.00	\$0.00
Fairfield	6/23/2008	19:12	1.75 in.	\$0.00	\$0.00
York Springs	7/27/2008	11:35	1.75 in.	\$0.00	\$0.00
Heidlersburg	7/27/2008	11:45	1.75 in.	\$0.00	\$0.00
East Berlin	8/2/2008	13:10	0.75 in.	\$0.00	\$0.00
Cashtown	8/10/2008	13:35	1.00 in.	\$0.00	\$0.00
Gettysburg	6/9/2009	14:15	0.88 in.	\$0.00	\$0.00
McSherrystown	6/4/2010	18:40	1.00 in.	\$10,000.00	\$0.00
Guldens Station	8/18/2011	21:00	1.00 in.	\$0.00	\$0.00



HAIL EVENTS IN ADAMS COUNTY, 1980-2019					
Location	Date	Time	Size	Property Damage	Crop Damage
Trust	6/29/2012	3:20	0.88 in.	\$5,000.00	\$0.00
New Oxford	7/18/2012	14:15	1.0 in.	\$0.00	\$0.00
East Berlin	6/21/2016	7:02	1.00 in.	\$0.00	\$0.00
McSherrystown	2/25/2017	14:50	1.00 in.	\$0.00	\$0.00
Abbottstown	5/10/2018	16:23	1.00 in.	\$0.00	\$0.00
Gettysburg	5/15/2018	16:31	1.00 in.	\$0.00	\$0.00
Gettysburg	5/15/2018	16:40	1.00 in.	\$0.00	\$0.00
<b>TOTALS</b>				<b>\$15,000.00</b>	<b>\$0.00</b>

#### June 4, 2010

In June 2010, hail caused \$10,000 in property damage in Conewago Township and McSherrystown. Severe thunderstorms produced significant wind damage and hail with a one-inch diameter in the late afternoon and evening. The event caused extensive damage to an apartment complex in Conewago Township.

#### June 29, 2012

On June 29, 2012, hail caused \$5,000 in property damage. The event developed during a thunderstorm that produced nickel-sized hail and damaging winds across the southern portion of Pennsylvania.

#### May 10, 2018

In May 2018, a significant hailstorm caused serious damage to crops in northern Adams County. The hailstorm lasted approximately ten minutes and included H3 to H4 (quarter-sized) hail. Fruit growers in the area reported to the Gettysburg Times that hail caused damage to trees, leaves, branches, and fruit.

#### 4.3.5.4 Future Occurrence

Hailstorm events historically occur nearly annually in Adams County. Nationally, hailstorms are most likely to occur from March to September; however, in Adams County, all past events have occurred between April and August. A potential worst-case hailstorm scenario for the county would be a storm carrying hail larger than two inches (or an H5 on the TORRO Scale) over a regional area. A hailstorm of this magnitude would have a detrimental impact, particularly on farmland. Adams County is home to 1,146 farms (166,227 farm acres) and is the fifth leading producer of total crops in Pennsylvania. Adams County is Pennsylvania's leading producer of fruits, tree nuts, and berries.



**4.3.5.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from hail. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.5.5-1 presents the results of that survey regarding hailstorm.

**Table 4.3.5.5-1**

PUBLIC SENTIMENT, HAILSTORM – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Hailstorm	33 (22.60%)	77 (52.74%)	32 (21.92%)	4 (2.74%)	146
In the past ten years, do you remember this hazard occurring in your community?				50 (34.25%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (137 responses)				15 (10.95%)	INCREASE
				121 (88.32%)	NO CHANGE
				1 (0.73%)	DECREASE

Historically, in Adams County, hail has not caused significant damage. All of Adams County, including all critical infrastructure, is vulnerable to the effects of hail, and the economic impact of a severe and widespread hailstorm has the potential to be significant. Table 4.3.5.5-2 below further describes Adams County’s vulnerability to hail events.

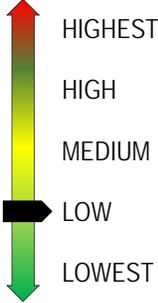
**Table 4.3.5.5-2**

HAILSTORM VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	4	High	There have been 42 hail events in Adams County in the past 39 years, for an average of 1.1 events per year.
Response	2	One day	Hailstorms do not require a prolonged response.
Onset	2	12-24 hours	Thunderstorms that produce hail are typically forecasted 12-24 hours before their onset.
Magnitude	2	Limited	Past hailstorms caused \$15,000 in reported damages (NCEI), for an average of \$357 per event.
Business	1	Less than 24 hours	Typical hailstorms in Adams County have not disrupted the county's economy.
Human	1	Minor	No are no reported injuries or deaths due to hail in Adams County.
Property	1	Less than 10%	Hailstorms in Adams County have been brief and localized. Less than 10% of the property is affected.
<b>Totals</b>	<b>13</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.6 Hurricane, Tropical Storm, Nor'easter

	Hurricanes, tropical storms, and Nor'easters are closed circulations developing around a low-pressure center.	
	Period of Occurrence: June-November	Hazard Index Ranking: 15-Low
	Warning Time: More than 24 hours	State Risk Ranking: 2.6-High
	Type of Hazard: Natural	Disaster Declarations: EM-3356 DR-4030 EM-3340 DR-3235 DR-340

Hurricanes, tropical storms, and nor'easters are “cyclones,” and as such are any closed circulation developing around a low-pressure center in which the winds rotate counter-clockwise (in the Northern Hemisphere) and whose diameter averages 10-30 miles across. While most of Pennsylvania does not suffer the devastating impacts cyclonic systems can have on coastal regions, many areas in the commonwealth are subject to the primary damaging forces associated with these storms, including high-level sustained winds, heavy precipitation, and tornadoes. The majority of hurricanes and tropical storms form in the Atlantic Ocean, Caribbean Sea, and the Gulf of Mexico during the official Atlantic hurricane season (June through November) (PEMA, 2018).

#### 4.3.6.1 Location and Extent

Coastal areas are the most adversely-impacted by tropical storm events. Because of Pennsylvania’s proximity to the coast, the state’s counties are at high risk for a hurricane, tropical storm, and Nor’easter events. Adams County, in particular, could be among the most heavily impacted counties in the state due to its southeastern location and a short distance to the ocean. The eastern-most point of Adams County is approximately 70 miles from the northern Chesapeake Bay, 95 miles from the Delaware Bay, and 152 miles from the Atlantic coast.

The Saffir-Simpson hurricane wind scale measures the wind speed of hurricanes and estimates potential property damage. Category 3 and above storms are “major” hurricanes due



to their potential for significant loss of life and property damage. Table 4.3.6.1-1 below outlines the Saffir-Simpson scale.

**Table 4.3.6.1-1**

<b>SAFFIR-SIMPSON HURRICANE WIND SCALE</b>		
<i>Category</i>	<i>Sustained Wind Speed</i>	<i>Damage</i>
1	74-95 mph 64-82 knots	Very dangerous winds will produce some damage. Well-constructed frame homes could have damage to roofs, shingles, vinyl siding, and gutters. Large branches of trees will snap, and shallowly rooted trees may topple. Extensive damage to power lines and poles likely will result in power outages that could last a few to several days.
2	96-110 mph 83-95 knots	Extremely dangerous winds will cause extensive damage. Well-constructed frame homes could sustain major roof and siding damage. Many shallowly rooted trees will be snapped or uprooted and block numerous roads. Near total power loss is expected with outages that could last from several days to weeks.
3 (Major)	111-129 mph 96-112 knots	Devastating damage will occur. Well-built framed homes may incur major damage or removal of roof decking and gable ends. Many trees will be snapped or uprooted, blocking numerous roads. Electricity and water will be unavailable for several days after the storm passes.
4 (Major)	130-156 mph 113-136 knots	Catastrophic damage will occur. Well-built frame homes can sustain severe damage with loss of most of the roof structure and/or some exterior walls. Most trees will be snapped or uprooted and power poles downed. Fallen trees and power poles will isolate residential areas. Power outages will last weeks to possibly months. Most of the area will be uninhabitable for weeks or months.
5 (Major)	157+ mph 137+ knots	Catastrophic damage will occur. A high percentage of framed homes will be destroyed, with total roof failure and wall collapse. Fallen trees and power poles will isolate residential areas. Power outages will last for weeks to possibly months. Most of the area will be uninhabitable for weeks or months.

Thunderstorms typically accompany hurricanes and tropical storms. Thunderstorms are rain-bearing storms that produce lightning, and often occur independently of a cyclone event. Even with Adams County’s relative proximity to the Atlantic Ocean, the types of events characterized by this profile most-readily present as thunderstorms (and most of those fall below the intensity measured by the Saffir-Simpson scale).

**4.3.6.2 Range of Magnitude**

Hurricanes and tropical storms produce a variety of negative effects, including flooding, storm surge, high wind, and tornadoes. Heavy rains are responsible for major flooding in areas where the storm initially strikes and can span hundreds of miles from where the storm originally made landfall. Large, slow-moving storms produce more rainfall than smaller, faster-moving storms.

High wind, thunderstorms, and tornadoes also accompany hurricane and tropical storm



events. As with heavy rain, larger storms and storms with higher wind speeds are more likely to produce tornadoes and wind damage.

#### 4.3.6.3 Past Occurrence

Cyclones have impacted Adams County several times in the past, including Hurricane Sandy and Tropical Storms Lee and Agnes.

#### Hurricane Sandy (2012)

Hurricane Sandy was the deadliest and most destructive hurricane of the 2012 Atlantic hurricane season and the second-costliest hurricane on record at the time. Sandy formed in the central Caribbean on October 22 and intensified into a hurricane as it moved north across Jamaica, Cuba, and the Bahamas. Sandy moved northeast of the United States until turning west toward the Mid-Atlantic coast on October 28. Sandy made landfall as a post-tropical cyclone near Brigantine, New Jersey, with 70-knot maximum sustained winds. Because of its massive size, Sandy drove a catastrophic storm surge into the New York and New Jersey coastlines.

The highest recorded storm-total rainfall amount obtained in Pennsylvania for the storm was 7.94 inches in Bedford County, west of Adams County. An unconfirmed report of 8.15 inches was reported at Hanover in York County (adjacent to Adams County). Heavy rain brought widespread flooding to Adams County. Road closures began near noon on October 29, with significant flooding by 3:00 p.m. Wind damage was also significant, with gusts measured between 60 and 65 mph, causing downed trees and utility wires, and closed roads.

#### Tropical Storm Lee (2011)

Tropical Storm Lee began in the Caribbean Sea during the last week of August 2011. Lee slowly moved northward toward the Louisiana coastline by September 3. After landfall, Lee progressed northward through the Southeast into the Mid-Atlantic region. Rain fell in the Mid-Atlantic over areas that had exceptionally wet summer (including rains from Hurricane Irene less than two weeks before). This led to flooding along the Susquehanna River in Pennsylvania.

Tropical Storm Lee significantly impacted Adams County. Widespread flooding caused over 40 road closures in Adams County, including US 15, US 30, and Route 94. Responders performed water rescues in the East Berlin area, and 124 structures reported damage. In Fairfield and Gettysburg, thunderstorm winds estimated at 60 mph knocked down numerous trees and utility wires.



Tropical Storm Agnes (1972)

Agnes was the first named storm of the 1972 Atlantic hurricane season. The storm formed as a tropical depression on June 14, over the Yucatan Peninsula. The storm moved northward and made landfall as a hurricane near Panama City, Florida, on June 19. It then moved north into Georgia and South Carolina before re-entering the Atlantic Ocean and making landfall again near New York City as a strong tropical storm. Agnes dropped between seven and ten inches of rain across the Mid-Atlantic region, with some areas experiencing up to 16 inches.

Historical Listing: Thunderstorms

Cyclone events can also cause an increase in thunderstorm activity. Adams County experiences thunderstorm events each year. There have been 232 thunderstorm wind and lightning events in Adams County since 1955, for an average of 3.6 events per annum. These events have caused one reported death, \$200 in crop damage, and \$1,059,500 in property damage.

**Table 4.3.6.2-1**

THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams County (Zone)	10/30/1955	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/11/1958	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/11/1958	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	9/28/1967	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/19/1969	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/27/1969	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/15/1970	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/15/1970	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/5/1973	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	9/4/1973	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/27/1978	Thunderstorm Wind	0	0	\$0.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams County (Zone)	8/1/1979	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/29/1980	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/10/1980	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/11/1980	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	9/17/1980	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/20/1981	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/21/1983	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/12/1985	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/30/1987	Thunderstorm Wind	1	0	\$0.00	\$0.00
Adams County (Zone)	9/17/1987	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	9/17/1987	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/11/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/6/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/6/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/6/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/15/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/15/1988	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	11/16/1989	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	11/20/1989	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	11/20/1989	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	5/10/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/8/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/8/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/18/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/18/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams County (Zone)	7/5/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/9/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/29/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/29/1990	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	4/9/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	4/9/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	5/6/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	5/6/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	7/7/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	11/22/1991	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	2/14/1992	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/24/1992	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	6/24/1992	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/28/1992	Thunderstorm Wind	0	0	\$0.00	\$0.00
Adams County (Zone)	8/28/1992	Thunderstorm Wind	0	0	\$0.00	\$0.00
New Oxford	8/11/1993	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	8/17/1993	Thunderstorm Wind	0	0	\$0.00	\$0.00
New Oxford	8/28/1993	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	9/2/1993	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	6/29/1994	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	7/6/1994	Thunderstorm Wind	0	0	\$500,000.00	\$0.00
New Oxford	4/9/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Aspers	6/11/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Hampton	7/6/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
East Berlin	7/10/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fairfield	7/16/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	10/5/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	11/11/1995	Thunderstorm Wind	0	0	\$0.00	\$0.00
Aspers	5/11/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/14/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/20/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/24/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Shippensburg	6/24/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	7/30/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Abbottstown	9/28/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Gettysburg	10/18/1996	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/18/1997	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	7/28/1997	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fountain Dale	5/29/1998	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	5/31/1998	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/16/1998	Thunderstorm Wind	0	0	\$0.00	\$0.00
Littlestown	3/3/1999	Thunderstorm Wind	0	0	\$35,000.00	\$0.00
Gettysburg	5/12/1999	Thunderstorm Wind	0	0	\$10,000.00	\$0.00
Gettysburg	5/13/2000	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Gettysburg	6/2/2000	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Biglerville	6/21/2000	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Gettysburg	6/25/2000	Lightning	0	0	\$30,000.00	\$0.00
Gettysburg	7/14/2000	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Countywide	3/13/2001	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
East Berlin	4/9/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/12/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/12/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/20/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
East Berlin	7/1/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fountain Dale	7/10/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	8/13/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Edgegrove	9/24/2001	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	4/14/2002	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
New Oxford	4/28/2002	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fairfield	5/2/2002	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/27/2002	Thunderstorm Wind	0	0	\$0.00	\$0.00
McSherrystown	9/27/2002	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	7/6/2003	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	7/21/2003	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	7/21/2003	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
East Berlin	7/21/2003	Thunderstorm Wind	0	0	\$10,000.00	\$0.00
Gettysburg	8/26/2003	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	5/7/2004	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/14/2004	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Gettysburg	6/17/2004	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	7/14/2004	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	8/19/2004	Thunderstorm Wind	0	0	\$0.00	\$0.00
Arendtsville	6/6/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/6/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	6/6/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fairfield	6/6/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	6/6/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
New Oxford	8/7/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Bonneauville	8/7/2005	Thunderstorm Wind	0	0	\$0.00	\$0.00
Biglerville	11/29/2005	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Biglerville	7/4/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	7/4/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	7/18/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	7/18/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
East Berlin	7/27/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	7/27/2006	Thunderstorm Wind	0	0	\$0.00	\$0.00
McKnightstown	6/8/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
McSherrystown	6/8/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
McKnightstown	6/13/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
Greenmount	6/13/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
New Oxford	8/3/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
McSherrystown	8/3/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
Fairfield	8/25/2007	Thunderstorm Wind	0	0	\$0.00	\$0.00
Arendtsville	6/23/2008	Thunderstorm Wind	0	0	\$2,500.00	\$0.00
Biglerville	6/23/2008	Thunderstorm Wind	0	0	\$2,500.00	\$0.00
East Berlin	7/27/2008	Thunderstorm Wind	0	0	\$0.00	\$0.00
East Berlin	8/2/2008	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	8/7/2008	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	8/10/2008	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
New Oxford	8/11/2009	Thunderstorm Wind	0	0	\$10,000.00	\$0.00
Table Rock	8/21/2009	Thunderstorm Wind	0	0	\$5,000.00	\$200.00
Biglerville	4/8/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Cashtown	5/14/2010	Thunderstorm Wind	0	0	\$0.00	\$0.00
New Oxford	5/27/2010	Thunderstorm Wind	0	0	\$ 5,000.00	\$0.00
Wenksville	6/4/2010	Thunderstorm Wind	0	0	\$ 5,000.00	\$0.00
McSherrystown	6/4/2010	Thunderstorm Wind	0	0	\$75,000.00	\$0.00
McSherrystown	6/4/2010	Thunderstorm Wind	0	0	\$50,000.00	\$0.00
Orrtanna	7/25/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Gardners	7/25/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Greenmount	8/16/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
York Springs	8/16/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Two Taverns	9/22/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
New Oxford	9/22/2010	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Abbottstown	4/16/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Biglerville	4/28/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Biglerville	4/28/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Bermudian	4/28/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Fairfield	5/26/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Fairfield	6/9/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Fairfield	9/14/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Gettysburg	9/14/2011	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Fairfield Airport	4/26/2012	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Bendersville	5/27/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
York Springs	7/5/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
McKnightstown	7/18/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Hampton	8/3/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Berlin Junction	8/3/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Round Top	9/1/2012	Thunderstorm Wind	0	0	\$0.00	\$0.00
Sells Station	9/1/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Round Top	9/7/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Fairfield Airport	9/8/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Bendersville	9/8/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
York Springs	9/8/2012	Thunderstorm Wind	0	0	\$5,000.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Berlin Junction	6/13/2013	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Orrtanna	6/25/2013	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Virginia Mills	6/25/2013	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Biglerville	6/28/2013	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
York Springs	6/30/2013	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Gettysburg	7/19/2013	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Iron Springs	9/12/2013	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Fairfield Airport	9/12/2013	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Granite Hill	11/1/2013	Thunderstorm Wind	0	0	\$0.00	\$0.00
Virginia Mills	11/18/2013	Thunderstorm Wind	0	0	\$0.00	\$0.00
Gettysburg	11/18/2013	Thunderstorm Wind	0	0	\$0.00	\$0.00
Brush Run	11/18/2013	Thunderstorm Wind	0	0	\$0.00	\$0.00
Virginia Mills	6/18/2014	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
McKnightstown	6/18/2014	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Bonneauville	6/18/2014	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
East Berlin	6/18/2014	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Fountain Dale	7/8/2014	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Orrtanna	7/8/2014	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Gettysburg	7/8/2014	Thunderstorm Wind	0	0	\$0.00	\$0.00
Virginia Mills	7/13/2014	Thunderstorm Wind	0	0	\$0.00	\$0.00
Granite Hill	7/13/2014	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Greenmount	7/13/2014	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Virginia Mills	9/2/2014	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Bendersville	9/2/2014	Thunderstorm Wind	0	0	\$500.00	\$0.00
Granite	5/27/2015	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Seven Stars	6/8/2015	Thunderstorm Wind	0	0	\$1,500.00	\$0.00
Littlestown	6/8/2015	Thunderstorm Wind	0	0	\$20,000.00	\$0.00
Arendtsville	6/20/2015	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Bendersville	6/20/2015	Thunderstorm Wind	0	0	\$500.00	\$0.00
Bridgeport	7/9/2015	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Gettysburg	8/4/2015	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Five Pts	9/4/2015	Thunderstorm Wind	0	0	\$8,000.00	\$0.00
Littlestown	10/9/2015	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Biglerville	6/5/2016	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Knoxlyn	6/21/2016	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Fairfield	7/25/2016	Thunderstorm Wind	0	0	\$6,000.00	\$0.00
Fairfield	8/16/2016	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Gettysburg	8/16/2016	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Irishtown	10/30/2016	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
Bendersville	6/19/2017	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Aspers	6/19/2017	Thunderstorm Wind	0	0	\$5,000.00	\$0.00
York Springs	6/19/2017	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Aspers	8/4/2017	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	8/4/2017	Thunderstorm Wind	0	0	\$0.00	\$0.00
York Springs	8/4/2017	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	9/5/2017	Thunderstorm Wind	0	0	\$0.00	\$0.00
Cashtown	9/5/2017	Thunderstorm Wind	0	0	\$0.00	\$0.00
Granite Hill	5/12/2018	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
East Berlin	5/15/2018	Thunderstorm Wind	0	0	\$4,000.00	\$0.00



THUNDERSTORM EVENTS IN ADAMS COUNTY, 1955-2019						
<i>Location</i>	<i>Date</i>	<i>Event Type</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Fairfield Airport	6/24/2018	Thunderstorm Wind	0	0	\$2,000.00	\$0.00
Fairfield Airport	6/24/2018	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
Bonneauville	8/17/2018	Thunderstorm Wind	0	0	\$8,000.00	\$0.00
Trust	5/19/2019	Thunderstorm Wind	0	0	\$8,000.00	\$0.00
McSherrystown	5/29/2019	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Fairfield Airport	6/2/2019	Thunderstorm Wind	0	0	\$1,000.00	\$0.00
New Oxford	6/29/2019	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Fairfield	6/29/2019	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Virginia Mills	6/29/2019	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Heintzleman	7/2/2019	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Two Taverns	7/2/2019	Thunderstorm Wind	0	0	\$4,000.00	\$0.00
Littlestown	7/2/2019	Thunderstorm Wind	0	0	\$0.00	\$0.00
Heidlersburg	7/21/2019	Thunderstorm Wind	0	0	\$3,000.00	\$0.00
Gettysburg	10/31/2019	Thunderstorm Wind	0	0	\$0.00	\$0.00
<b>TOTALS</b>			<b>1</b>	<b>0</b>	<b>\$1,059,500.00</b>	<b>\$200.00</b>

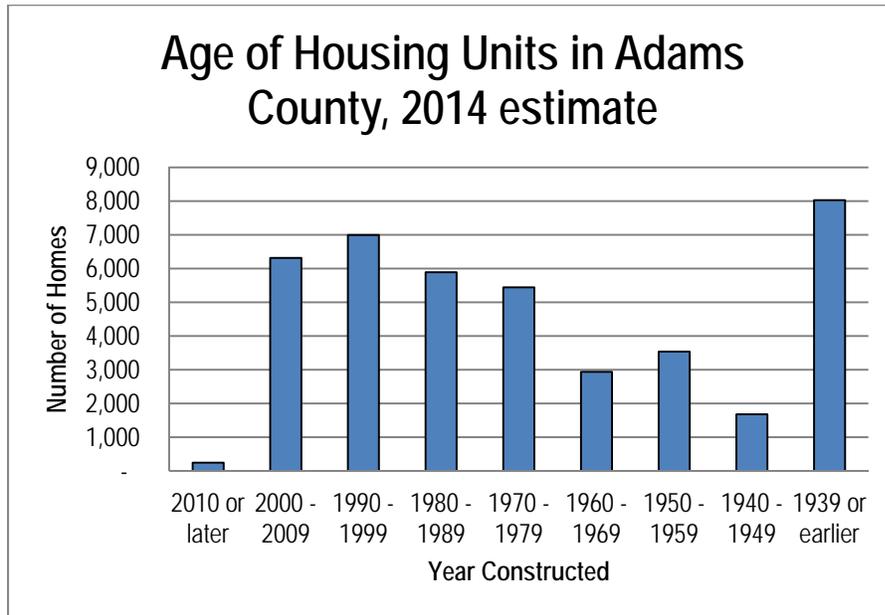
**4.3.6.4 Future Occurrence**

Future cyclone events in Adams County will likely involve damages similar to those experienced by past events. Generally, flooding and high wind accompany these types of storms and damages in Adams County would be the result of these effects.

Historic buildings are more susceptible to cyclone events than more recently-constructed structures. Adams County, and particularly Gettysburg, contains a high number of these historical structures. Figure 4.3.6.4-1 shows the number of homes in Adams County by year constructed.



Figure 4.3.6.4-1



**4.3.6.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from cyclone events. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.6.5-1 presents the results of that survey regarding cyclone events.

Table 4.3.6.5-1

PUBLIC SENTIMENT, HURRICANE, TROPICAL STORM, NOR'EASTER – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Hurricane, Tropical Storm, Nor'easter	23 (15.54%)	81 (54.73%)	31 (20.95%)	13 (8.78%)	148
In the past ten years, do you remember this hazard occurring in your community?				74 (50.68%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (141 responses)				40 (28.37%)	INCREASE
				98 (69.50%)	NO CHANGE
				3 (2.13%)	DECREASE

Table 4.3.6.5-2 describes Adams County's vulnerability to cyclone events.



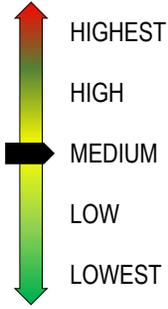
**Table 4.3.6.5-2**

<b>HURRICANE, TROPICAL STORM, NOR'EASTER VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	2	Low (Cyclone events only)	There have been three Atlantic cyclone events in the past 47 years, for an average of 0.06 events per year.  There have been 232 thunderstorm events since 1955, for an average of 3.6 events per year.
Response	3	1 Week	Coastal areas will require a more involved emergency response than Adams County. The county's response would involve a response to flooding and high wind events.
Onset	1	Over 24 hours	Cyclone events' paths can be generally mapped more than 24 hours before landfall.
Magnitude	5	N/A	All areas of the county would be affected by these events. Some areas will experience more negative effects than others, but overall
Business	1	Less than 24 hours	The effects of cyclone events are similar to those of flooding. The county economy would not be suspended in the event of these events.
Human	1	Minimum/Minor Injuries	Human impact due to hurricanes and tropical storms would involve very few if any, human impacts.
Property	2	10-25% of property affected	Cyclone events typically affect the entire county, but only a few areas sustain damages. Those areas more prone to flooding, and those near water sources such as streams and lakes are most likely to experience damages.
<b>Total</b>	<b>15</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.7 *Invasive Species*

	A species that is not native to a specific location and that has a tendency to spread to a degree believed to cause damage to the environment, human economy, or human health.	
	<b>Period of Occurrence:</b> Can occur at any time	<b>Hazard Index Ranking:</b> 16-Medium
	<b>Warning Time:</b> None	<b>State Risk Ranking:</b> 2.1-Medium
	<b>Type of Hazard:</b> Natural	<b>Disaster Declarations:</b> N/A

An invasive species is a species that is not indigenous to the ecosystem under consideration and whose introduction causes or is likely to harm the local economy, environment, or human health. These species can be any organism: plant, fish, invertebrate, mammal, bird, disease, or pathogen. Infestations may not necessarily impact human health but can create a nuisance or agricultural hardships by destroying crops, defoliating populations of native plant and tree species, or interfering with ecological systems (PEMA, 2018).

#### 4.3.7.1 *Location and Extent*

The Governor’s Invasive Species Council of Pennsylvania (PISC), the lead organization for invasive species threats at the Commonwealth level, recognizes two classes of invasive species: aquatic and terrestrial. Aquatic invasive species are non-native viruses, invertebrates, fish, and aquatic plants that threaten the diversity or abundance of native species, the ecological stability of the infested waters, human health and safety, or commercial, agricultural, or recreational activities dependent on such waters. The U.S. Fish and Wildlife Service notes that ships, boats, barges, aquaculture, aquatic recreation such as fishing, water gardening, seaplanes, connected waterways, etc. may spread aquatic invasive species (FWS, 2017). In Adams County, aquatic invasive species would most likely impact lakes.

Terrestrial invasive species include non-native arthropods, vascular plants, or pathogens that complete their life cycle on land. Their introduction is similar to that of aquatic invasive species in that it is likely to cause economic or environmental harm or harm to human health. It is simplistic to say that potential impact areas are “those on land” based on the definition.



Rather, heavily forested and agricultural areas may be more at risk to terrestrial invasive species.

**4.3.7.2 Range of Magnitude**

When enough individuals of a species are present to form a breeding population, they can become an invasive species. The range of environmental impacts varies widely. Aggressive species can reduce biodiversity by crowding out or actively harming native species. Secondary impacts of invasive species go beyond causing animal, plant, and human health and cause harm to and affect entire ecosystems, particularly those that affect forests. Forests in Pennsylvania protect watersheds, promote carbon absorption, stabilize slopes, and prevent soil erosion.

A potential worst-case scenario for Adams County would be a significant infestation of a species that affects agricultural communities, such as plum pox or gypsy moth. Both of these species target forests and agricultural ecosystems, which are integral to the county’s economy. In a recent study for Adams County, a consultant noted: “the ability to control or mitigate impacts, if not events, has increased substantially through research that has resulted in precision in dealing with these events” (The Chesapeake Group, 2016, p. 7). Through cooperation, farmers share information, provide assistance, etc. Without this collaboration, the viability of the fruit belt or other agricultural activities could be subject to heightened impacts from invasive species.

**4.3.7.3 Past Occurrence**

PISC has identified current and potential threats in Pennsylvania. Table 4.3.7.3-1 lists the aquatic invasive species in Pennsylvania.

**Table 4.3.7.3-1**

<b>PENNSYLVANIA AQUATIC INVASIVE SPECIES</b>	
Amphibians and Reptiles	Red-Eared Slider
	Yellow-Bellied Slider
Fishes, Diseases, Invertebrates	Northern Snakehead
	European Rudd
	Tubenose Goby
	Asian Carp
	Eurasian Ruffe
	Flathead Catfish
	Round Goby
	Sea Lamprey
West Nile Virus	



PENNSYLVANIA AQUATIC INVASIVE SPECIES	
Fishes, Diseases, Invertebrates (cont.)	Viral Hemorrhagic Septicemia
	Spring Viremia of Carp
	Quagga Mussel
	Zebra Mussel
	Asian Clam
	Rusty Crayfish
	Spiny Waterflea
	Fishhook Waterflea
Mammals and Birds	Nutria
	Mute Swans
	Canada Goose
Submerged Aquatic Plants	Wild Taro
	Hydrilla
	Curly Leaf Pondweed
	Alligator Weed
	Water Chestnut
	Eurasian Watermilfoil
	Giant Salvinia
	East Indian Hygrophila
	Limnophila Sessiliflora
	Carolina Fanwort
	Parrot Feather
	Brazilian Waterweed
	Water Spinach
	Didymo
	Hydrilla
Terrestrial Aquatic Plants	Narrow Leaved Cattail
	Japanese Hops
	Giant hogweed
	Japanese Knotweed
	Common Reed
	Purple Loosestrife
	Giant Knotweed
	Hybrid Cattail

The Pennsylvania Department of Conservation and Natural Resources has organized efforts to combat invasive aquatic species in the state by performing voluntary boat and trailer checks. Boats, motors, and trailers provide an attachment point for these species, and when attached, they can spread to multiple locations. The Pennsylvania Sea Grant is also promoting the control of invasive species in the state, specifically hydrilla (*Hydrilla verticillata*) and red-eared slider turtles.

The PISC has also identified current and potential terrestrial invasive species in Pennsylvania. Table 4.3.7.3-2 below lists these species.



Table 4.3.7.3-2

PENNSYLVANIA TERRESTRIAL INVASIVE SPECIES	
Human and Animal Pathogens	Avian Influenza
	Smallpox
	West Nile Virus
	Foot and Mouth Disease
	Botulism
	Plague
	Salmonellosis
	Brucellosis
	Anthrax
	Glanders
	Q Fever
	Chronic Wasting Disease
	Bovine Spongiform Encephalopathy
	Plant Pathogens
Dutch Elm Disease	
Sudden Oak Death	
Potato Wart	
White Pine Blister	
European Stone Fruit Yellows	
Plum Pox Virus	
Ralstonia Blight	
Ring Rot	
Birds	European Starling
	Monk Parakeet
	Pigeons
	House Sparrows
Insects and Other Invertebrates	Japanese Beetle
	Pine Shoot Beetle
	Emerald Ash Borer
	Exotic Bark Barer
	Asian Longhorned Beetle
	Siren Wood Wasp
	Spotted Lanternfly
	Gypsy Moth
	Brown Marmorated Stink Bug
	Hemlock Woolly Adelgid
	Elongate Hemlock Scale
	Beech Bark Scale
	Varroa Mite
	Tracheal Mite
	Non-Native Earthworms
	Potato Cyst Nematode
	Golden Nematode
Soybean Cyst Nematode	
Giant African Snail	
Mammals	Norway Rat
	House Mouse
	13-Lined Ground Squirrel
	Feral Swine
Vascular Plants	Tropical Soda Apple
	Beach Vitex



PENNSYLVANIA TERRESTRIAL INVASIVE SPECIES	
Vascular Plants (cont.)	Benghal Dayflower
	Rosary Pea
	Cagon Grass
	Kudzu
	Goatsure
	Multiflora Rose
	Johnsongrass
	Garlic Mustard
	Mile-A-Minute
	Canada Thistle
	Asiatic Bittersweet
	Japanese Knotweed
	Tree of Heaven
	Purple Loosestrife
	Japanese Hops
Common Reed	

Plum Pox Virus, 1999

In September of 1999, there was an outbreak of plum pox virus in Adams, Franklin, York, and Cumberland Counties. Eradication of the virus necessitated the destruction of more than 1,600 acres of commercial orchards and homeowner trees. This infestation resulted in a loss of \$50 million in crop damage, in addition to the loss of fruit production in the affected areas.

4.3.7.4 Future Occurrence

The probability of future occurrence for invasive species threats is increasing due to the trend toward a “global society” with frequent regional, nationwide, and international travel. Expanded global trade has created opportunities for organisms to be transported and to establish themselves in new countries and regions. Additionally, changing weather patterns may contribute to the establishment of nonnative species by shifting the climate to allow invasive species in previously inhospitable areas. Adams County, as a tourist destination, may see the introduction of invasive species from benign visitors.

The Chesapeake Group, in the local study cited above, concluded that the fruit belt in Adams County would remain healthy and viable for the foreseeable future and play a role in the region’s economy. As such, high-priority future vulnerability could be to those areas most involved in fruit-based agriculture.



**4.3.7.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from invasive species. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.7.5-1 presents the results of that survey regarding invasive species.

**Table 4.3.7.5-1**

<b>PUBLIC SENTIMENT, INVASIVE SPECIES – ADAMS COUNTY</b>					
<i>Hazard</i>	<i>Level of Concern</i>				<i>Total Responses</i>
	<i>Not at All</i>	<i>Somewhat</i>	<i>Concerned</i>	<i>Very</i>	
Invasive Species	17 (11.56%)	62 (42.18%)	41 (27.89%)	27 (18.37%)	147
In the past ten years, do you remember this hazard occurring in your community?				64 (41.78%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (142 responses)				69 (48.59%)	INCREASE
				69 (48.59%)	NO CHANGE
				4 (2.82%)	DECREASE

Table 4.3.7.5-2 below outlines Adams County’s vulnerability to invasive species.

**Table 4.3.7.5-2**

<b>INVASIVE SPECIES VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	2	Low	Significant infestation events are rare in Adams County, but there is one event on record.
Response	1	Less than one day	While devastating, an invasive species infestation would not likely require a response from traditional emergency personnel.
Onset	1	Over 24 hours	An invasive species infestation takes weeks or months to rise to a level that warrants a response.
Magnitude	3	25-50% of land area affected	Invasive species typically cover a significant portion of land, such as entire orchards, forests, or waterways.
Business	4	More than 30 days	Invasive species infestations can take time to develop. The time it takes each species to form an invasive colony varies by species.
Human	2	Low	Most invasive species do not cause human health impacts. Those that do appear in this plan as a pandemic or infectious disease outbreak.
Property	3	25-50% of land area affected	Invasive species typically do the most harm to agricultural property, such as crops.
<b>Total</b>	<b>16</b>	<b>Medium</b>	



## 4.0 RISK ASSESSMENT

### 4.3.8 Landslide

	A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation reacting to the force of gravity. Erosion is the gradual destruction or diminution of something.			
	<b>Period of Occurrence:</b>	Landslides can occur at any time	<b>Hazard Index Ranking:</b>	8-Lowest
	<b>Warning Time:</b>	Landslides can develop slowly over time, or suddenly	<b>State Risk Ranking:</b>	2.2-Medium
	<b>Type of Hazard:</b>	Natural	<b>Disaster Declarations:</b>	DR-1649

A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation reacting to the force of gravity. Landslides can be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snowmelt, steepening of slopes due to construction or erosion, earthquakes, and changes in groundwater levels. Mudflows, mudslides, rockfalls, rockslides, and rock topples are all forms of a landslide. Areas that are generally prone to landslide hazards include previous landslide areas, the bases of steep slopes, the bases of drainage channels, developed hillsides, and areas recently burned by forest and brush fires (PEMA, 2018).

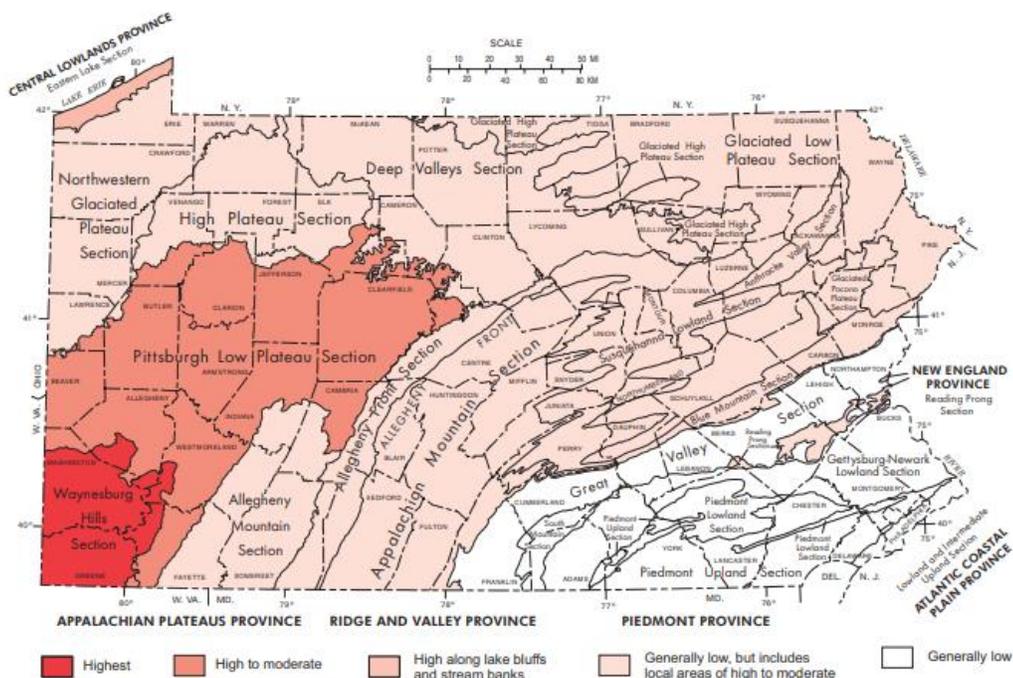
#### 4.3.8.1 Location and Extent

Pennsylvania’s Department of Conservation and Natural Resources (DCNR) classifies landslides by the type of material involved and the type of movement. Additional criteria include the rate of movement and the water content of the material, as these are commonly related.

Southwestern Pennsylvania has the highest concentration of landslides. The risk of landslide outside this area is low, and many occur in loose soil and on steep slopes. Bedrock landslides can occur where weak rock layers or fractures provide slip surfaces, such as roads that have sections cut from rock or soil. In Adams County, as well as other communities in eastern Pennsylvania, landslides may result from construction activities. Figure 4.3.8.1-1 shows the overall risk of landslide in Pennsylvania.



Figure 4.3.8.1-1



Soil erosion is the process by which the land’s surface is worn away by the action of wind, water, ice, and gravity (PADEP, 2012). Natural (or geologic) erosion has been occurring at a (typically) low rate since the earth’s formation and is the primary factor in the creation of the earth’s topography we recognize today. Water-generated erosion is the type of erosion that typically occurs fastest, and is most severe.

4.3.8.2 Range of Magnitude

Most landslides in Pennsylvania are moderate to slow-moving, and damage structures and property rather than people. Landslide events can damage transportation routes, utilities, and buildings, and pollute various waterways. By volume, sediment is the greatest pollutant to the surface waters of Pennsylvania (PADEP, 2012). Excessive sedimentation is associated with increased turbidity and reduced light penetration in water sources. Overall, this reduced the number and type of organisms present in the water. Large volumes of sediment also have the potential to fill lakes and reservoirs and clog stream channels.

In the United States, between 25 and 50 deaths each year result from landslides and debris flow. Health hazards associated with these events include: rapidly moving water and debris that can lead to trauma, broken utility lines that can result in injury or illness, and disrupted transportation ways that can endanger travelers and limit access to healthcare.



The Penn State Extension service defines three primary types of soil erosion in Pennsylvania: sheet erosion, rill erosion, and gully formation (2018). Sheet erosion is unlikely, but rill erosion and gully formation are prominent. Rill erosion occurs when the “concentrated flow” of runoff forms rivulets that carry soil off of a field. Gully formation occurs when high volume flow concentrates in an area. Anecdotally, Adams County’s planning committee sees rill erosion and gully formation when concentrated and intense rain falls over the area.

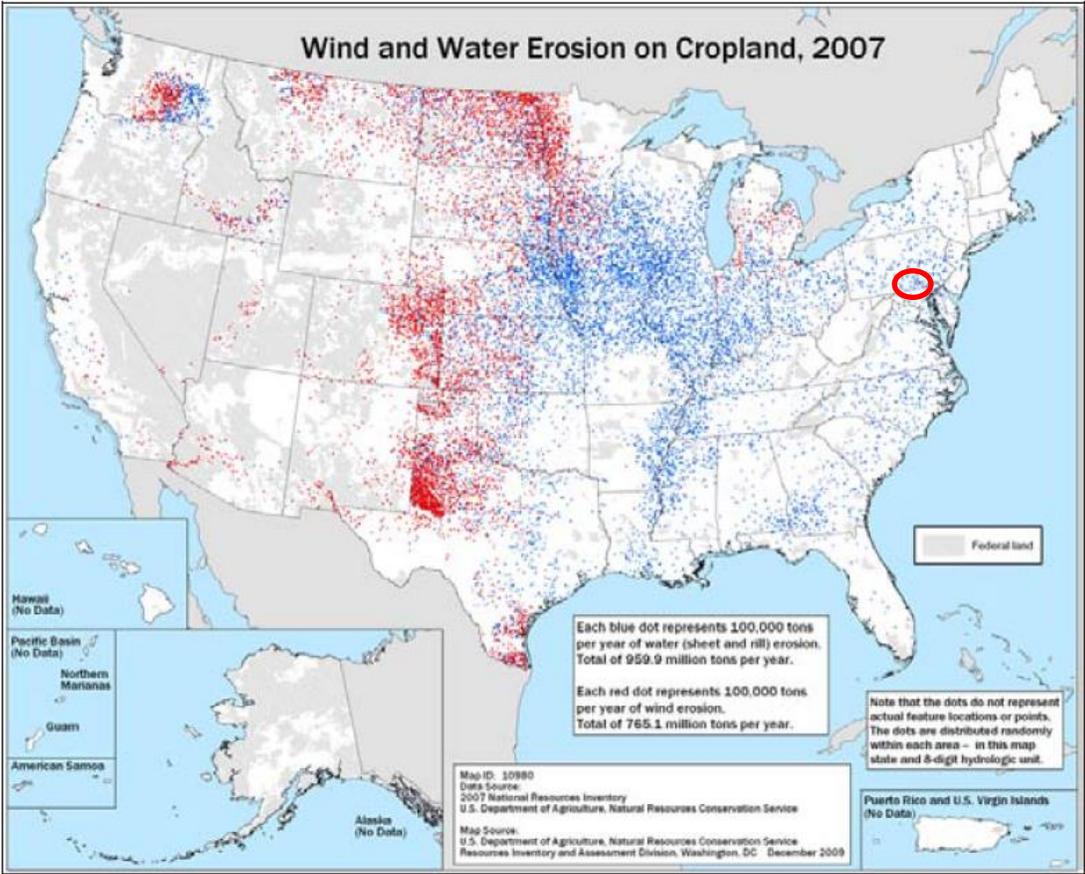
#### 4.3.8.3 Past Occurrence

The U.S. Geological Service maintains the U.S. Landslide Registry, a database of landslides in the United States. There are no noted landslides in Adams County. The nearest recorded landslides were in York and Cambria Counties. Adams County did receive a Public Assistance disaster declaration in 2006 (DR 1649). The declaration was for severe storms, flooding, and mudslides between June 23 and July 10, 2006. However, the impact of that series of events was largely flooding in Adams County.

The USDA’s Natural Resource Conservation Service compiled data on soil erosion of cropland in 2007. That report found that, between 1982 and 2007, soil erosion on cropland throughout the nation decreased by approximately 43% from 3.06 billion tons per annum to 1.73 billion tons (NRCS PA, 2007). The report included the following graphics. In each case, the red circle highlights the general Adams County region.



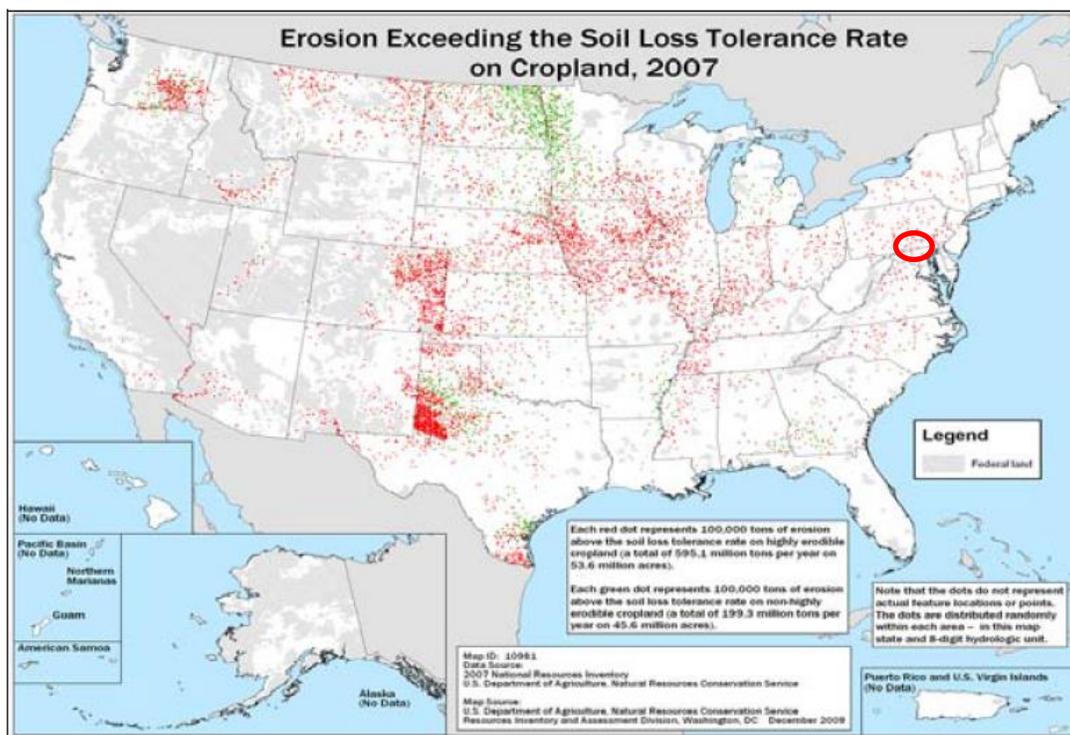
Figure 4.3.8.3-1



The Adams County region includes numerous “blue dots” indicating erosion. According to the report, blue dots represent instances of 100,000 tons of water erosion per year. Figure 4.3.8.3-2 shows instances of erosion that exceed the soil loss toleration rate on cropland. In this graphic, red dots represent 100,000 tons of erosion over the loss toleration rate, and there are red dots in the Adams County region.



Figure 4.3.8.3-2



Adams County faces another unique impact from erosion. PennLive reported that erosion was impacting the landscape at the Gettysburg National Military Park. Visitors from throughout the world visit the park annually, and human foot traffic has impacted the area. DeJesus (2017) writes, “Generations of visitors have in their exploration transformed the landscape from its natural state, carving the hillside with paths devoid of vegetation and eroded down to packed earth.” According to the article, the National Park Service is working to address the issue in several ways.

#### 4.3.8.4 Future Occurrence

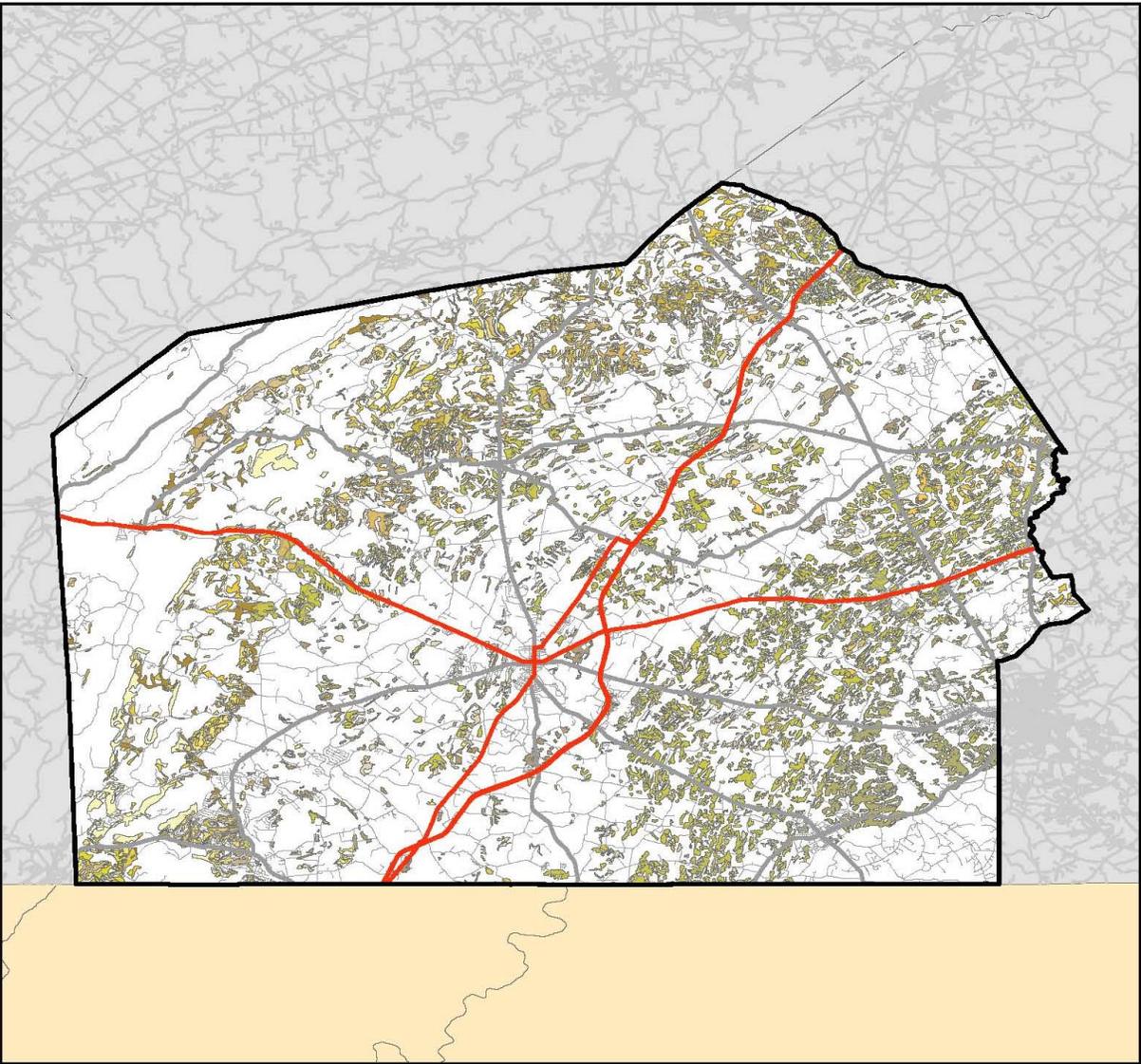
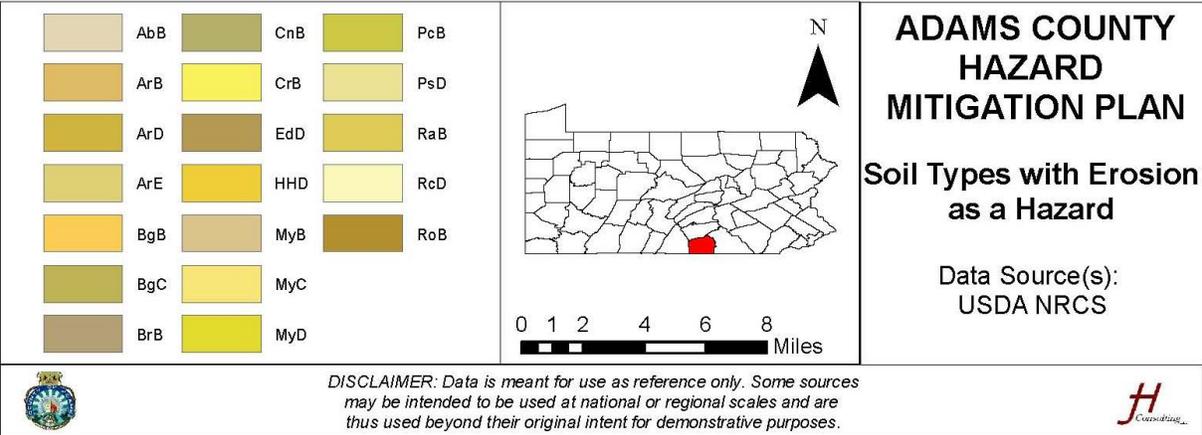
Land development is increasing the number of landslides and the economic effects of the few natural slides that occur. Major construction with large excavations and fills located in hilly areas creates an increased potential for landslides. Erosion may also occur in construction areas, but other instances occur following heavy rains, etc. In those instances, impacted areas are usually those along creeks and streams as well as low-lying dips or gullies leading off of elevated areas. The Adams County Conservation District supports and enforces erosion and sediment control efforts to minimize erosion (to the extent possible). Figure 4.3.8.4-1 is a map of Adams County that identifies soil types (Source: USGS). Generally, these soil types list erosion



as a major hazard. It is significant that many other soil types (not highlighted on the following figure) also list erosion as a hazard, but they note that planting grasses (or the presence of grasses as legumes) as a suitable means of controlling erosion.



Figure 4.3.8.4-1



4.3.8.5 Vulnerability Assessment

Table 4.3.8.5-1 shows Adams County’s vulnerability to landslides.

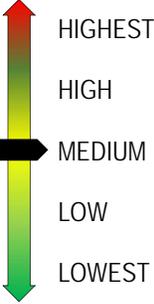
**Table 4.3.8.5-1**

<b>LANDSLIDE VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	1	None	There have been no recorded landslide events in Adams County.
Response	2	1 day	Response to a landslide event will be short. Landslides do not require an extended traditional emergency response.
Onset	1	Over 24 hours	Most landslides in Pennsylvania are slow-moving and occur over time.
Magnitude	1	Localized	Landslides are localized events. Unlike the weather, which affects entire regions, the land area affected by a landslide is concentrated.
Business	1	Less than 24 hours	A landslide in Adams County would not likely cause interruption on the county’s economy.
Human	1	Minimum	Landslides do not typically cause human health impacts. Their effects are limited to land and property.
Property	1	Less than 10% of property affected	Landslides do not affect significant amounts of property.
<b>Total</b>	<b>8</b>	<b>Lowest</b>	



## 4.0 RISK ASSESSMENT

### 4.3.9 Pandemic and Infectious Diseases

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	A pandemic occurs when infection from a new strain of a certain disease, to which most humans have no immunity, substantially exceeds the number of expected cases over a given period. Such a disease may or may not be transferable between humans and animals.	
	Period of Occurrence: Can occur at any time	Hazard Index Ranking: 16-Medium
	Warning Time: More than 24 hours	State Risk Ranking: 2.0-Medium
	Type of Hazard: Natural	Disaster Declarations: EM-3441 (Covid-19) DR-4506 (Covid-19)

In 2016, pandemic and infectious diseases accounted for three of the top ten causes of death worldwide. Microorganisms such as bacteria, viruses, fungi, or parasites, cause these diseases and pass directly or indirectly from one person to another (Baylor College of Medicine, n.d.). Humans can also become infected from an infected animal that harbors a pathogenic organism.

#### 4.3.9.1 Location and Extent

According to the Center for Disease Control and Prevention (CDC), there are three widely accepted “levels” of disease presence.

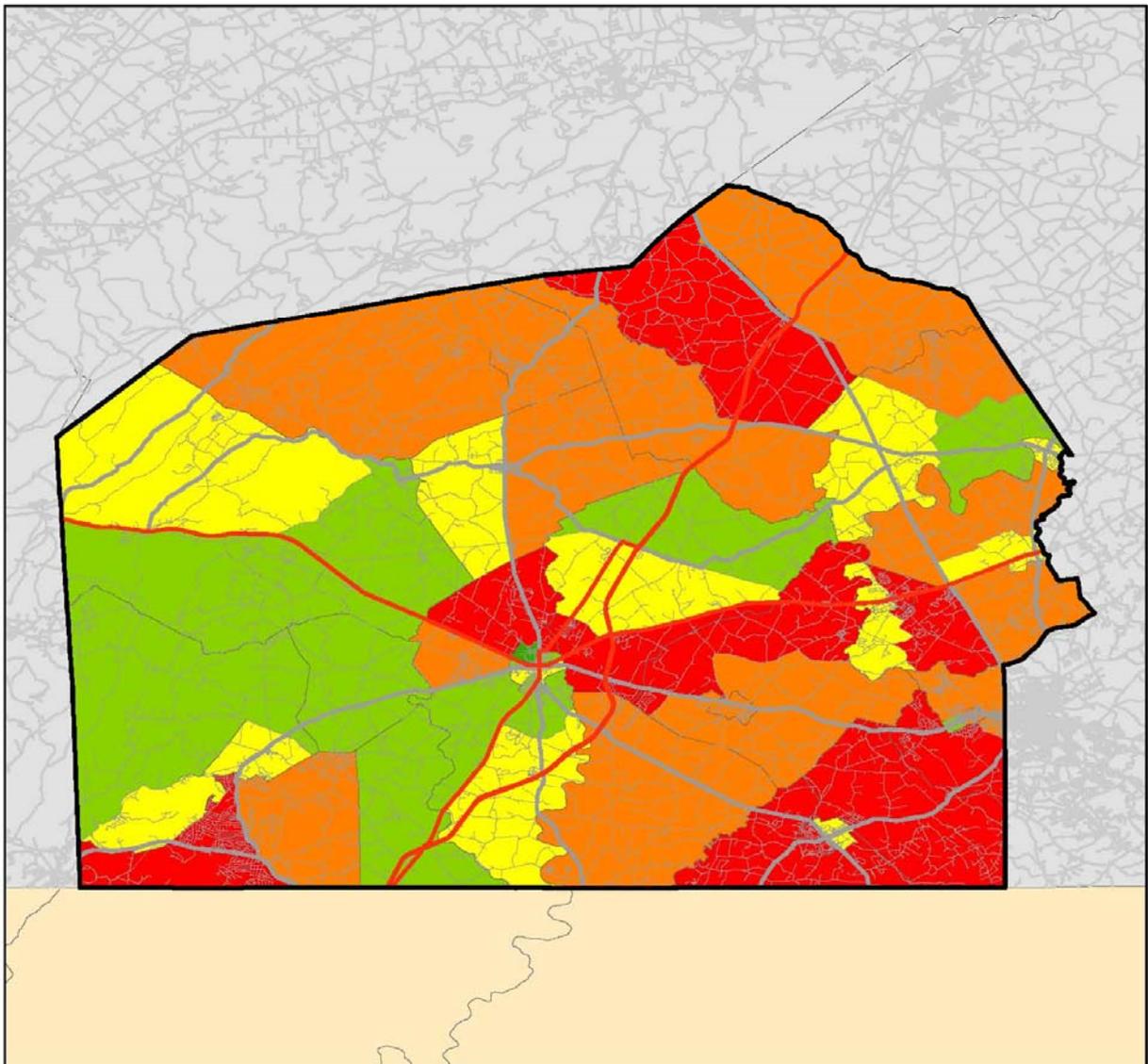
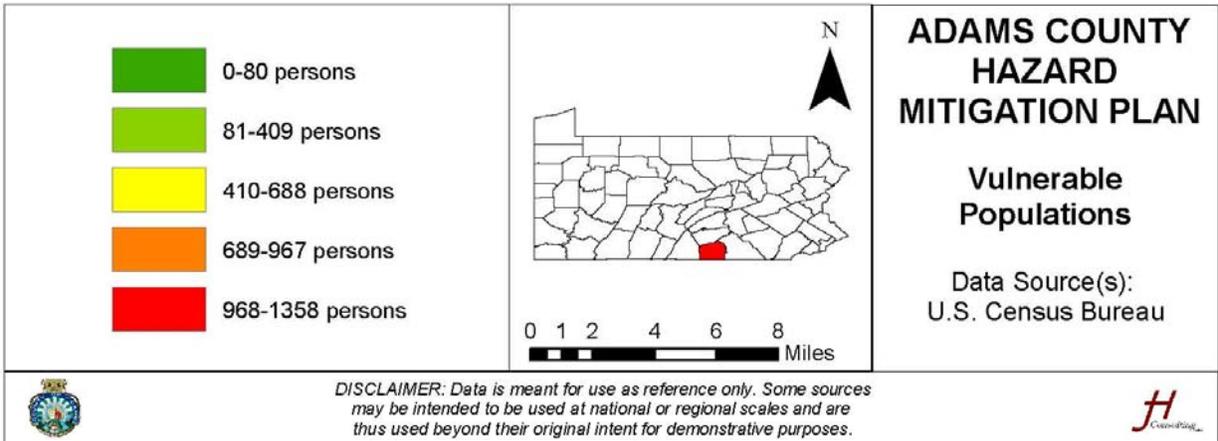
- **Endemic** refers to the baseline level of a particular disease in a population or area. This level is not necessarily the desired level, but the observed level.
- **Epidemic** refers to an increase in the number of cases of a disease above the usual level in that population or area. Epidemics may result from an increase of the disease’s virulence, presence of a disease in a new outbreak, enhanced disease transmission, increased susceptibility among exposed persons, or increased exposure to the disease-causing agent. Note that, while the term “epidemic” originally only included infectious diseases, some non-infectious health conditions (such as obesity and the opioid misuse) have reached epidemic status in the United States.
- **Pandemic** refers to an epidemic that has spread over several countries or continents, typically affecting a large number of people.



An epidemic or pandemic would affect all areas of Adams County, but certain subsections of the population would be more affected than others. Those most vulnerable are children, the elderly, and individuals with chronic illnesses. Figure 4.3.9.2-1 shows the distribution of age-related vulnerable populations (i.e., combined totals of those 18/under and 65/over).



Figure 4.3.9.2-1



**4.3.9.2 Range of Magnitude**

The extent of illness caused by a communicable or infectious disease depends on both the person infected and the pathogen infecting them. For example, the influenza virus usually circulates from November to March and affects up to 20% of Americans. Unlike seasonal influenza, pandemic strains of the flu virus are easily circulated and affect healthy individuals. Table 4.3.9.2-1 outlines the difference between seasonal and pandemic influenza.

**Table 4.3.9.2-1**

Seasonal Flu	Flu Pandemic
Outbreaks occur every year, usually in winter.	This occurs only rarely (only four times since 1918).
Caused by influenza viruses that are similar to those already affecting people.	Caused by a new influenza virus that people have not been exposed to before.
Healthy adults usually not at risk for serious complications.	Healthy adults may be at increased risk for serious complications.
Hospitals and healthcare providers can usually meet public needs.	Hospitals and healthcare providers may be overwhelmed and difficult to access.
The vaccine is available at the beginning of the flu season.	A vaccine would probably not be available in the early stages of a pandemic.
It causes an average of 36,000 deaths each year in the United States.	The number of deaths could be significantly higher. In the 1918 pandemic, approximately 675,000 people died in the United States.
Generally does not have a severe impact on daily life.	May have a severe impact on daily life, including widespread restrictions on travel, closings of schools and businesses, and cancellation of public events.

Pandemics are further exacerbated by the fact that healthcare resources can become scarce during an event. The number of cases and a reduced number of caregivers can overload jurisdictions or healthcare systems. Furthermore, preventative measures, such as vaccinations or prophylactic medication, may be in short supply or unavailable.

Fortunately, there are vaccines for several communicable diseases. Table 4.3.9.2-2 below shows vaccination rates among Adams County Kindergarteners and 7<sup>th</sup> graders for age-appropriate immunizations for school years 2015/2016, 2016/2017, 2017/2018, and 2018/2019. The 2018/2019 data also includes 12<sup>th</sup> graders.



Table 4.3.9.2-2

ADAMS COUNTY VACCINATION RATES, 2015-2019															
2018/2019 School Year															
Grade	Total Students Enrolled	DTaP/DTP/DT 4 Doses or More	Polio 4 Doses or More	MMR 2 Doses or More	HepB 3 Doses or More	Varicella Had Disease	Varicella 2 Doses	Tdap/ Td 1 Dose	MCV 1 Dose	MCV 2 Doses	Medical Exempt	Religious Exempt	Philosophical Exempt	Provisional Enrollment	Denied Admission
Kindergarten	1,100	1,073	1,076	1,076	1,076	1	1,072				3	8	12	18	-
Percent		97.5%	97.8%	97.8%	97.8%	0.1%	97.5%				0.3%	0.7%	1.1%	1.6%	
7th Grade	1,195	1,181	1,179	1,179	1,175	5	1,177	1,170	1,171		9	12	8	10	-
Percent		98.8%	98.7%	98.7%	98.3%	0.4%	98.5%	97.9%	98.0%		0.8%	1.0%	0.7%	0.8%	
12th Grade	1,260	1,256	1,252	1,255	1,258	50	1,203	1,252	15	1,229	11	10	10	1	-
Percent		99.7%	99.4%	99.6%	99.8%	4.0%	95.5%	99.4%	1.2%	97.5%	0.9%	0.8%	0.8%	0.1%	
Totals	3,555	3,510	3,507	3,510	3,509	56	3,452	2,422	1,186	1,229	23	30	30	29	-
Percent		98.7%	98.6%	98.7%	98.7%	1.6%	97.1%	98.65%	48.3%	97.5%	0.6%	0.8%	0.8%	0.8%	
Number of Schools Reporting		32													
2017/2018 School Year															
Grade	Total Students Enrolled	DTaP/DTP/DT 4 Doses or More	Polio 3 Doses or More	MMR 2 Doses or More	HepB 3 Doses or More	Varicella Had Disease	Varicella 2 Doses	Tdap/ Td 1 Dose	MCV 1 Dose	Medical Exempt	Religious Exempt	Philosophical Exempt	Provisional Enrollment	Denied Admission	
Kindergarten	884	854	850	856	862	5	853			8	10	11	15	-	
Percent		96.61%	96.15%	96.83%	97.51%	0.57%	96.49%	0.00%	0.00%	0.90%	1.13%	1.24%	1.70%		
7th Grade	1,157	1,127	1,126	1,127	1,129	19	1,123	1,120	1,121	14	18	9	8	-	
Percent		97.41%	97.32%	97.41%	97.58%	1.64%	97.06%	96.80%	96.89%	1.21%	1.56%	0.78%	0.69%		
Totals	2,041	1,981	1,976	1,983	1,991	24	1,976	1,120	1,121	22	28	20	23	-	
Percent		97.06%	96.82%	97.16%	97.55%	1.18%	96.82%	54.88%	54.92%	1.08%	1.37%	0.98%	1.13%		
Number of Schools Reporting		23													



**ADAMS COUNTY VACCINATION RATES, 2015-2019 (cont.)**

*2016/2017 School Year*

Grade	Total Students Enrolled	DTaP/DTP/DT 4 Doses	Polio 3 Doses	MMR 2 Doses	HepB 3 Doses	Varicella Had Disease	Varicella 2 Doses	Tdap/Td 1 Dose	MCV 1 Dose	Medical Exempt	Religious Exempt	Philosophical Exempt	Provisional Enrollment	Denied Admission
Kindergarten	1,348	1,271	1,306	1,255	1,303	9	1,238			12	4	24	106	-
Percent		94.29%	96.88%	93.10%	96.66%	0.67%	91.84%	0.00%	0.00%	0.89%	0.30%	1.78%	7.86%	
7th Grade	1,456	1,442	1,444	1,441	1,435	16	1,421	1,271	1,259	13	10	11	186	-
Percent		99.04%	99.18%	98.97%	98.56%	1.10%	97.60%	87.29%	86.47%	0.89%	0.69%	0.76%	12.77%	
Totals:	2,804	2,713	2,750	2,696	2,738	25	2,659	1,271	1,259	25	14	35	292	-
Percent		96.75%	98.07%	96.15%	97.65%	0.89%	94.83%	45.33%	44.90%	0.89%	0.50%	1.25%	10.41%	

Number of Schools Reporting | 25

*2015/2016 School Year*

Grade	Total Students Enrolled	DTaP/DTP/DT 4 Doses	Polio 3 Doses	MMR 2 Doses	HepB 3 Doses	Varicella Had Disease	Varicella 2 Doses	Tdap/Td 1 Dose	MCV 1 Dose	Medical Exempt	Religious Exempt	Philosophical Exempt	Provisional Enrollment	Denied Admission
Kindergarten	1,156	1,116	1,130	1,117	1,126	5	1,108			6	5	15	50	1
Percent		96.54%	97.75%	96.63%	97.40%	0.43%	95.85%	0.00%	0.00%	0.52%	0.43%	1.30%	4.33%	
7th Grade	1,143	1,135	1,139	1,136	1,129	16	1,123	1,038	1,028	6	11	6	112	-
Percent		99.30%	99.65%	99.39%	98.78%	1.40%	98.25%	90.81%	89.94%	0.52%	0.96%	0.52%	9.80%	
Totals	2,299	2,251	2,269	2,253	2,255	21	2,231	1,038	1,028	12	16	21	162	1
Percent		97.91%	98.70%	98.00%	98.09%	0.91%	97.04%	45.15%	44.72%	0.52%	0.70%	0.91%	7.05%	

Number of Schools Reporting | 25



As shown in the table above, most children in Adams County’s school system received a vaccine to protect them from applicable communicable diseases. In each year, the percent of children vaccinated against these agents is typically above 85%, which is typically sufficient to provide community (i.e., herd) immunity to those who are not vaccinated.

**4.3.9.3 Past Occurrence**

Table 4.3.9.3-1 lists the four most recent pandemic influenza events. The 1918 Spanish Influenza outbreak remains the worst-case pandemic on record, with the number of deaths dramatically decreasing with each event.

**Table 4.3.9.3-1**

PREVIOUS WORLDWIDE PANDEMIC EVENTS		
<i>Date</i>	<i>Pandemic Name/Subtype</i>	<i>Worldwide Deaths</i>
1918-1920	Spanish Flu / H1N1	50 million
1957-1958	Asian Flu / H2N2	1-3 million
1968-1969	Hong Kong Flu / H3N2	1 million
2009-2010	Swine Flu / A/H1N1	25,174
2020-Present	COVID-19	Final estimate unknown (at the time of writing)

**H1N1 Epidemic of 2009**

The most recent pandemic influenza event was the H1N1 (or swine flu) epidemic in 2009. The CDC monitored the spread of the disease on a near-daily basis. The H1N1 flu was relatively mild for most people, but the virus spread with unprecedented speed; more than 700 schools in the United States closed, and many hospitals quarantined infected individuals. The first pediatric death from the H1N1 flu in Pennsylvania occurred in Adams County in 2009, and approximately 70% of people hospitalized due to the H1N1 virus in the United States belonged to a high-risk group.

**COVID-19 Pandemic**

In the latter stages of the 2020 mitigation plan update, Adams County responded to the COVID-19 pandemic. The ACDES decided to not include specific details of that incident in this plan because the response was active upon the conclusion of the update. Details will likely feature more heavily in the next plan update.

The Pennsylvania Department of Health (PADoH) maintains county-specific records of the 74 state-specific reportable communicable diseases. Table 2.3.9.3-1 below outlines the



number of cases of these communicable in Adams County.

**Table 2.3.9.3-1**

COMMUNICABLE DISEASES IN ADAMS COUNTY, 2013-2017						
<i>Communicable Disease</i>	<i>2017 Count</i>	<i>2016 Count</i>	<i>2015 Count</i>	<i>2014 Count</i>	<i>2013 Count</i>	<i>Average</i>
Campylobacter	19	11	21	18	10	15.8
Chicken Pox (Varicella)	6	ND*	ND*	0	ND*	3
Cryptosporidiosis	7	8	ND*	ND*	ND*	7.5
Giardiasis	ND*	6	ND*	ND*	ND*	6
<i>Haemophilus influenzae</i>	ND*	ND*	0	ND*	ND*	0
Hepatitis A	0	0	0	0	0	0
Hepatitis B, Acute	0	0	0	ND*	0	0
Hepatitis B, Chronic	0	ND*	ND*	7	ND*	3.5
Lyme Disease	144	86	116	91	48	97
<i>Neisseria meningitidis</i>	0	0	0	0	0	0
Pertussis	ND*	5	ND*	0	0	1.67
Salmonellosis	16	17	23	18	14	17.6
Shiga toxin-producing <i>E. coli</i>	ND*	ND*	ND*	0	8	4
Shigellosis	0	ND*	ND*	ND*	ND*	0
Tuberculosis	0	0	ND*	ND*	0	0

\* Not displayed when the count is between 1 and 4 to avoid potential identification of individual cases  
Source: PA Dept. of Health, Bureau of Communicable Diseases

Of the diseases experienced in Adams County, there are vaccines for chickenpox, pertussis, and Hepatitis B. Because most children in Adams County received vaccinations, the number of cases of these diseases should not significantly increase.

**4.3.9.4 Future Occurrence**

Seasonal influenza activity peaks every winter, generally from December to February (CDC, 2018). Other communicable diseases that occur regularly in Adams County include campylobacter, chickenpox, cryptosporidiosis, giardiasis, chronic hepatitis B, Lyme disease, pertussis, salmonellosis, and Shiga toxin-producing *E. coli*.

The Mayo Clinic recommends several strategies for decreasing the risk of contracting an infection. These strategies include hand washing, getting recommended vaccinations, staying home when ill, preparing foods safely, practicing safe sex, traveling wisely, and not sharing personal items (Mayo Clinic, 2019).



4.3.9.5 Vulnerability Assessment

Table 4.3.9.5-1 below shows Adams County's vulnerability to a pandemic or infectious disease.

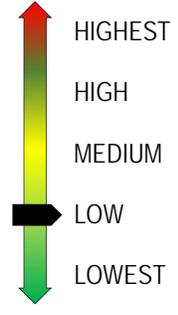
**Table 4.3.9.5-1**

PANDEMIC AND INFECTIOUS DISEASE RISK SUMMARY			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	5	Excessive	Adams County can expect a seasonal outbreak of infectious disease every year.
Response	3	Medium	Pandemic and infectious disease events occur over a longer period than other hazards and may require a prolonged response.
Onset	1	Over 24 hours	While one person can become ill in less than a day, the onset of a pandemic is slow and takes place over weeks or months.
Magnitude	1	Localized	A pandemic would affect less than 10% of land area in Adams County. Its impacts are limited to human health.
Business	2	1 Week	Pandemic events can cause a shortage in the workforce when employees are absent due to illness.
Human	3	Medium	By nature, pandemic and infectious diseases cause adverse human impacts. Depending on the extent of the pathogen, there may or may not be deaths associated with the event.
Property	1	Less than 10% of property affected	Pandemic events primarily affect human health, not property.
<b>Total</b>	<b>16</b>	<b>Medium</b>	



## 4.0 RISK ASSESSMENT

### 4.3.10 Subsidence, Sinkhole

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	Sinkholes are underground voids caused by water passing through naturally-occurring fractures in water-soluble bedrock.		
	Period of Occurrence:	Sinkholes can occur at any time	Hazard Index Ranking: 12-Low
	Warning Time:	Over 24 hours	State Risk Ranking: 1.7-Low
	Type of Hazard:	Natural	Disaster Declarations: N/A

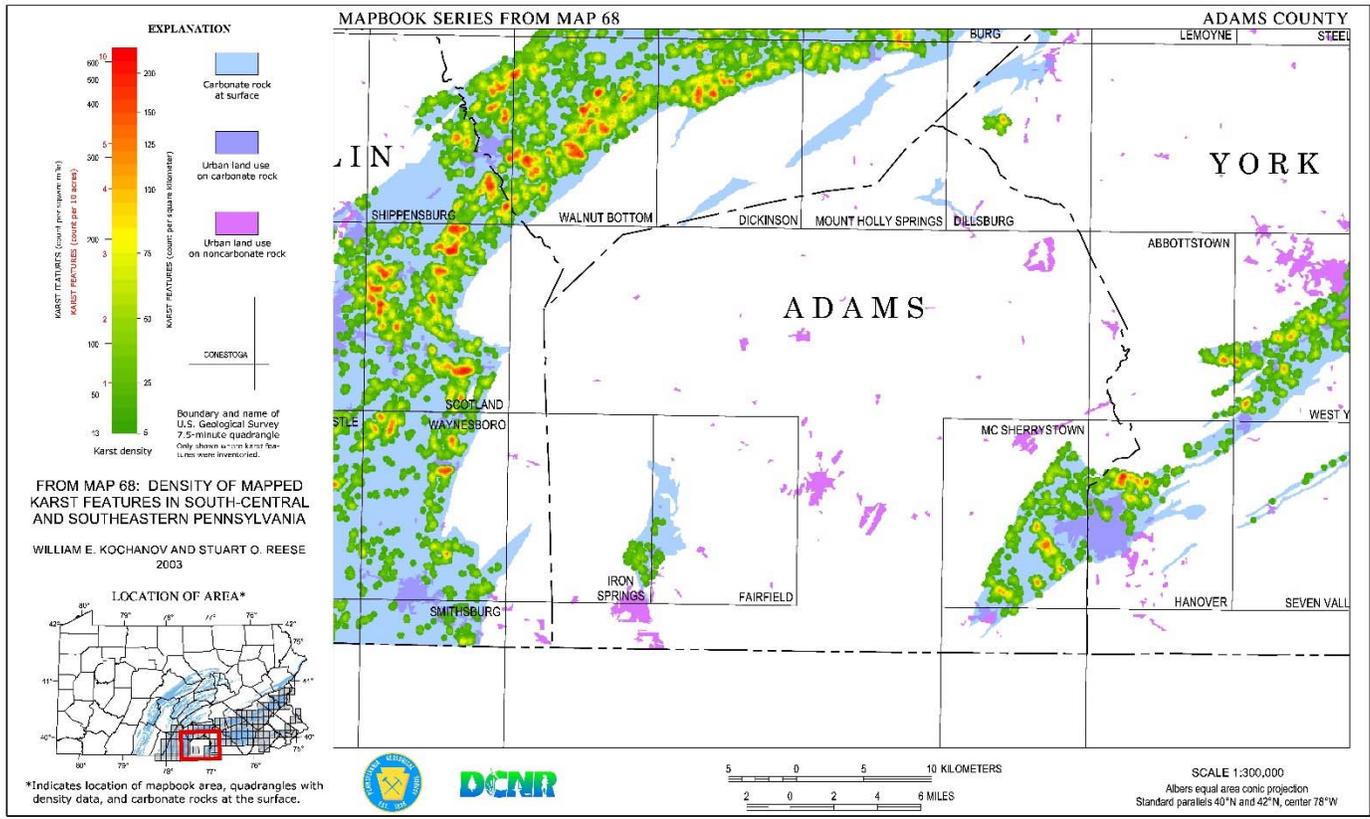
Subsidence is a natural geologic process that commonly occurs in areas with underlying limestone bedrock and other rock types that are soluble in water. Water passing through naturally-occurring fractures dissolves these materials and leaves underground voids. Eventually, overburden on top of the voids causes a collapse which can damage structures with low strain tolerances. This collapse can take place slowly over time or quickly in a single event. Karst topography describes a landscape that contains characteristic structures such as sinkholes, linear depressions, and caves. In addition to natural processes, human activity such as water, natural gas, and oil extraction can cause subsidence and sinkhole formations (PEMA, 2018).

#### 4.3.10.1 Location and Extent

Karst topography is a type of landscape where dissolving bedrock has created sinkholes, sinking streams, caves, and springs. Figure 4.3.10.1-1 shows karst topography in Adams County.



Figure 4.3.10.1-1



Sinkholes are common in areas with karst topography. As the rock dissolves, spaces and caverns can develop underground. The land above these spaces stays intact until the underground space gets too big for the land to support, at which time a sudden collapse of the land can occur.

While most sinkholes are naturally-occurring, some new sinkholes can be attributed to human land-use practices. Development can change the pattern of water drainage, and the weight of construction can trigger an underground collapse of supporting material. Additionally, pumping groundwater for irrigation or water supply and improper management of stormwater runoff can produce new sinkholes in sinkhole-prone areas.

**4.3.10.2 Range of Magnitude**

Sinkholes and areas of subsidence can vary in shape, proximity to development, and the period over which they occur. Events can result in minor elevation changes or deep, gaping holes in the earth’s surface. Events can cause significant damage in populated areas, particularly to underground utility systems, transportation systems, property, and structures.

There are a few measures that can reduce the overall vulnerability to subsidence and



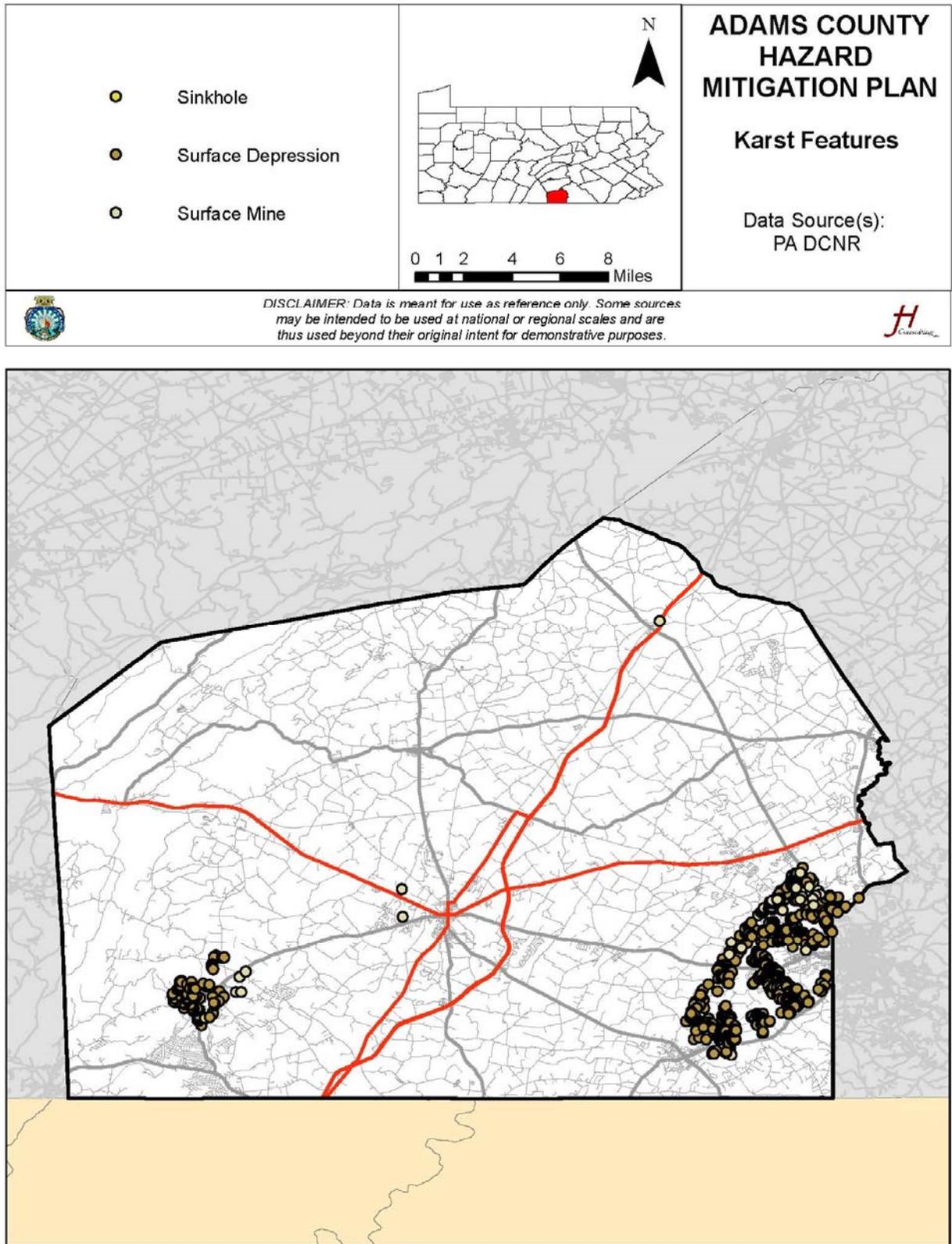
sinkholes. Municipal governments may determine guidelines for construction in high-subsidence areas. A community can reduce its vulnerability to subsidence or sinkholes by implementing solutions such as land use controls, insurance programs, subsidence-resistant designs, or in the case of mine-related subsidence, conduct selective support or mine filling. If a sinkhole occurs on private property, it is normally the responsibility of the property owner to initiate repairs. Homeowners' insurance often does not cover damages attributed to sinkholes. Since 1987, sinkhole insurance has been available within Pennsylvania and may serve to eliminate the financial burdens placed on the homeowner.

#### 4.3.10.3 Past Occurrence

The Pennsylvania Department of Conservation and Natural Resources conducted a partial inventory of Karst features throughout the Commonwealth. There are 31 identified sinkholes and 788 surface depressions throughout Adams County (PADCNR, 2016). Additionally, DCNR staff indicated that small sinkholes occur more frequently across the state, but cause limited damage. Figure 4.3.10.3-1 graphically depicts Karst features in Adams County.



Figure 4.3.10.3-1



4.3.10.4 Future Occurrence

Based on geologic conditions and past surface depressions, sinkholes and subsidence are possible in all areas of the county, but much more likely to occur in the following municipalities.

- Carroll Valley Borough
- Conewago Township
- Fairfield Borough
- Franklin Township
- Germany Township
- Hamiltonban Township
- Huntington Township
- Latimore Township
- Littlestown Township
- McSherrystown Borough
- Union Township
- York Springs Borough

Municipalities could minimize the potential for sinkhole development through proper maintenance and updating of water utility lines. Zoning laws can also regulate development within the high Karst areas.

4.3.10.5 Vulnerability Assessment

This section summarizes the vulnerability to Adams County from subsidence. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.10.5-1 presents the results of that survey regarding subsidence and sinkholes.

**Table 4.3.10.5-1**

PUBLIC SENTIMENT, SUBSIDENCE, SINKHOLE – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Subsidence, Sinkhole	54 (36.73%)	50 (34.01%)	35 (23.81%)	8 (5.44%)	147
In the past ten years, do you remember this hazard occurring in your community?				24 (16.44%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (137 responses)				26 (18.98%)	INCREASE
				107 (78.10%)	NO CHANGE
				4 (2.92%)	DECREASE



Table 4.3.10.5-2 shows Adams County's vulnerability to subsidence and sinkholes.

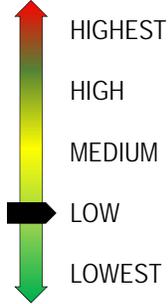
**Table 4.3.10.5-2**

<b>SUBSIDENCE, SINKHOLE VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	5	Excessive	There are 31 sinkholes and 788 surface depressions in Adams County.
Response	1	Less than half a day	Sinkholes typically do not require a traditional emergency response.
Onset	1	Over 24 hours	Areas of subsidence and sinkhole can develop slowly, over weeks.
Magnitude	2	Limited	Sinkholes are prevalent in Adams County. However, they affect less than 25% of the land area in the county.
Business	1	Less than 24 hours	Sinkholes typically do not impact the county's economic activity.
Human	1	Minimum	Sinkholes and subsidence do not usually cause human impacts. Damages are related primarily to land and property.
Property	1	Less than 10%	Sinkholes and subsidence affect small areas and do not affect more than 10% of property in the county.
<b>Total</b>	<b>12</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.11 Tornado, Wind Storm

	Tornadoes are violent windstorms characterized by a twisting funnel-shaped cloud extending to the ground. Wind storms can occur during severe thunderstorms, winter storms, coastal storms, or tornados.			
	Period of Occurrence:	Tornadoes can occur at any time but are most likely to occur during thunderstorms from March to September.	Hazard Index Ranking:	14-Low
	Warning Time:	Little to no warning time	State Risk Ranking:	2.2-Medium
	Type of Hazard:	Natural	Disaster Declarations:	N/A

A wind storm can occur during severe thunderstorms, winter storms, coastal storms, or tornadoes. Straight-line winds, such as a downburst, have the potential to cause wind gusts that exceed 100 miles per hour. Based on 40 years of tornado history and over 100 years of hurricane history, FEMA identifies western and central Pennsylvania as being more susceptible to higher winds than eastern Pennsylvania (FEMA, 1997). There are six types of severe wind: straight-line wind, downbursts, macrobursts, microbursts, gust fronts, and derechos.

- **Straight-line Wind:** A term used to define any thunderstorm wind that is not associated with rotation, and it mainly differentiates storm-associated winds from tornadic winds
- **Downburst:** The general term for all localized strong wind events caused by a strong downdraft within a thunderstorm
- **Macroburst:** An outward burst of strong winds at or near the surface with a diameter larger than 2.5 miles and occurs when a strong downdraft reaches the surface
- **Microburst:** A small, concentrated downburst that produces an outward burst of strong winds near the surface; microbursts are small and short-lived, with a diameter less than 2.5 miles and lasting only 5-10 minutes
- **Gust Front:** The leading edge of rain-cooled air that clashes with warmer thunderstorm inflow, characterized by a wind shift, temperature drop, and gusty winds ahead of a thunderstorm.
- **Derecho:** A widespread, long-lived wind storm associated with a band of rapidly moving showers or thunderstorms; a typical derecho consists of numerous microbursts and



downbursts. An event with wind speeds of at least 58 mph and a diameter of 240 miles can be classified as a derecho.

A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud extending to the ground. Tornadoes are most often generated by thunderstorm activity (but sometimes result from hurricanes or tropical storms) when cool, dry air intersects and overrides a layer of warm, moist air, forcing the warm air to rise rapidly. The damage caused by a tornado is a result of high wind velocities and wind-blown debris. According to the National Weather Service, tornado wind speeds can range between 30 to more than 300 miles per hour and are more likely to occur during the spring and early summer months (March through June) in the late afternoon and early evening. Most tornadoes are a few dozen yards wide and touch down briefly, but even small, short-lived tornadoes can inflict tremendous damage. Destruction ranges from minor to catastrophic depending on the intensity, size, and duration of the storm.

**4.3.11.1 Location and Extent**

The Beaufort Wind Scale, which was developed in 1805 by Sir Francis Beaufort, measures wind. It assigns force categories to winds based on its effects on either land or water. Table 4.3.11.1-1 below describes the Beaufort scale.

**Table 4.3.11.1-1**

<b>BEAUFORT WIND SCALE</b>				
<i>Force</i>	<i>Wind (Knots)</i>	<i>WMO Classification</i>	<i>Appearance of Wind Effects</i>	
			<i>On Water</i>	<i>On Land</i>
0	Less than 1	Calm	Sea surface smooth and mirror-like	Calm, smoke rises vertically
1	1-3	Light Air	Scaly ripples, no foam crests	Smoke drift indicates wind direction, still wind vanes
2	4-6	Light Breeze	Small wavelets, crests glassy, no breaking	Wind felt on face, leaves rustle, vanes begin to move
3	7-10	Gentle Breeze	Large wavelets, crests begin to break, scattered whitecaps	Leaves and small twigs constantly moving, light flags extended
4	11-16	Moderate Breeze	Small waves 1-4 ft. becoming longer, numerous whitecaps	Dust, leaves, and loose paper lifted, small tree branches move
5	17-21	Fresh Breeze	Moderate waves 4-8 ft. taking longer form, many whitecaps, some spray	Small trees in leaf begin to sway
6	22-27	Strong Breeze	Larger waves 8-13 ft., whitecaps common, more spray	Larger tree branches moving, whistling in wires
7	28-33	Near Gale	Sea heaps up, waves 13-19 ft., white foam streaks off breakers	Whole trees moving, resistance felt walking against the wind



BEAUFORT WIND SCALE				
Force	Wind (Knots)	WMO Classification	Appearance of Wind Effects	
			On Water	On Land
8	34-40	Gale	Moderately high (18-25 ft.) waves of greater length, edges of crests begin to break into spindrift, foam blown in streaks	Twigs broken off trees, generally impedes progress
9	41-47	Strong Gale	High waves (23-32 ft.), the sea begins to roll, dense streaks of foam, a spray may reduce visibility	Slight structural damage occurs, slate blows off roofs
10	48-55	Storm	Very high waves (29-41 ft.) with overhanging crests, sea white with densely blown foam, heavy rolling, lowered visibility	Seldom experienced on land, trees broken or uprooted, "considerable structural damage"
11	56-63	Violent Storm	Exceptionally high (37-52 ft.) waves, foam patches cover the sea, visibility more reduced	N/A
12	64+	Hurricane	Air filled with foam, waves over 45 ft., sea completely white with driving spray, visibility greatly reduced	N/A

FEMA's wind zone map classifies wind zones in the United States. As shown in Figure 4.3.11.1-2 below, Adams County is located in Zones II and III, indicating structures should be able to withstand wind speeds of 160 to 200 miles per hour or a 12 on the Beaufort scale.

Figure 4.3.11.1-2

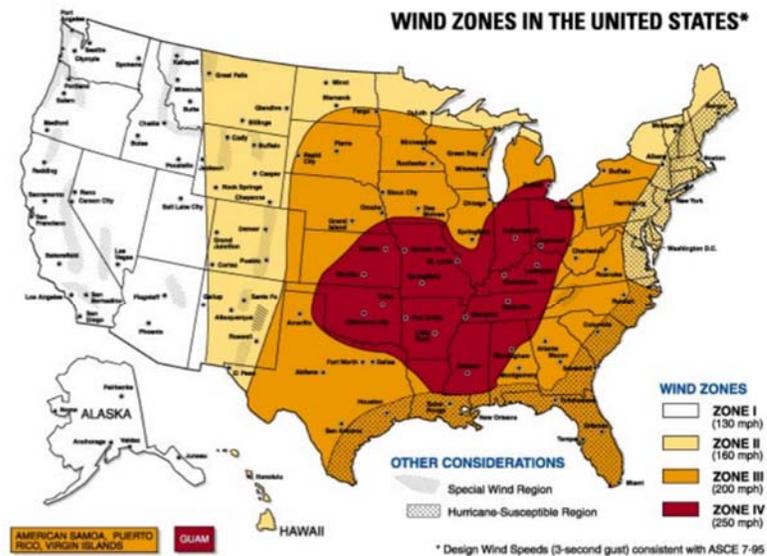


Figure 1.2 Wind zones in the United States



Tornadoes occur around the world, but the United States is a major hotspot, with an average of over 1,200 tornadoes each year. Canada, who experiences the second-most tornadoes, experiences approximately 100 tornadoes per year. States in the southern United States are more likely than the rest of the nation to experience tornado events. Even so, Pennsylvania experiences an average of 16 tornadoes per year.

Meteorological professionals measures tornadoes using the Enhanced Fujita (EF) scale, which became operational in 2007. The EF scale, adapted from the original Fujita scale, assigns ratings to tornadoes based on their wind speed and related damage. When tornado damage is surveyed, it is compared to a list of damage indicators and degrees of damage, which help estimate the range of wind speeds produced by the tornado. Table 4.3.11.1-3 below shows the EF scale categories and their respective wind speeds.

**Table 4.3.11.1-3**

EF SCALE		
<i>EF Rating</i>	<i>3 Second Gust (MPH)</i>	<i>Possible Damage</i>
0	65-85	Broken branches, shallow-rooted trees pushed over, some chimney damage
1	86-110	Surface damage to roofs, mobile homes pushed off foundation, moving vehicles pushed off the road
2	111-135	Frame houses have roof torn off, mobile homes completely destroyed, train boxcars overturned, large trees snapped or uprooted, smaller debris turned into missiles
3	136-165	Roofs completely tore off well-constructed buildings, along with some walls, majority of trees uprooted, trains overturned, vehicles lifted off the ground
4	166-200	Well-constructed houses are completely destroyed; structures with weak foundations blown away; vehicles could be thrown; large debris become flying missiles
5	Over 200	Most structures severely damaged or completely destroyed; vehicles can become flying missiles

**4.3.11.2 Range of Magnitude**

Wind and tornado events have the potential to cause significant damage to both residential and agricultural areas of Adams County. Residential areas of the county could experience structure damage, including lost roofing and siding, and broken garage doors. Mobile homes are especially at risk during wind events, as even anchored homes can be damaged with wind gusts over 80 miles per hour (69 knots). Figure 4.3.11.2-1 shows the general locations of mobile homes in Adams County.



Figure 4.3.11.2-1

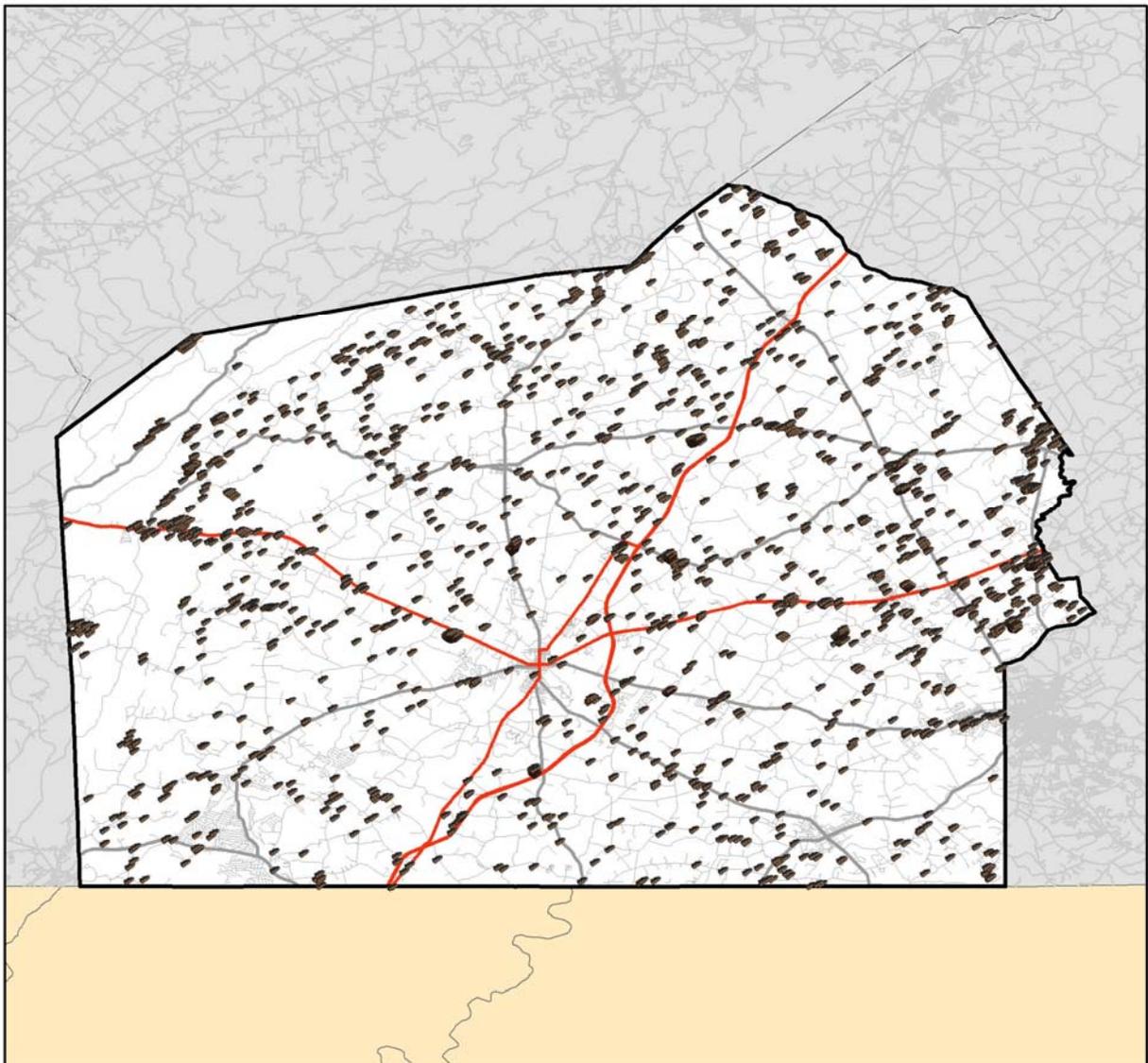
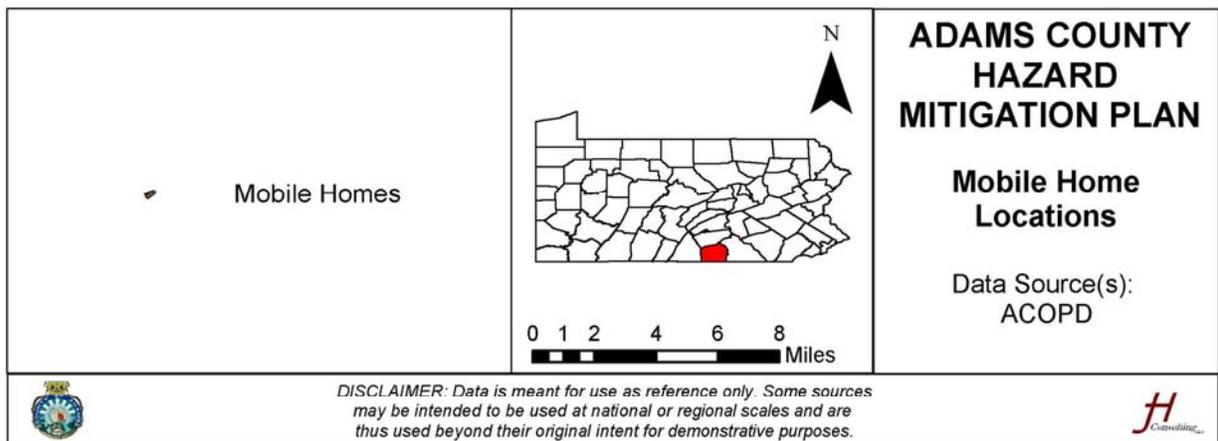
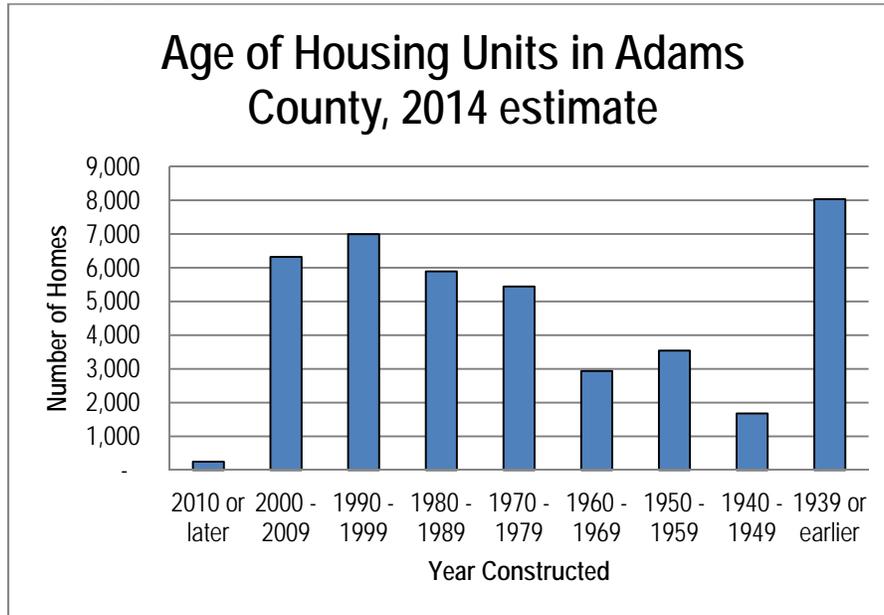


Figure 4.3.11.2-2 also appears in Section 4.3.6 (Hurricane, Tropical Storm, Nor'easter Hazard Profile), but it is relevant to the severe wind discussion. Structures built before 1950 are typically “pre-code” structures, meaning they may not be able to withstand the wind speeds that newer structures can withstand.

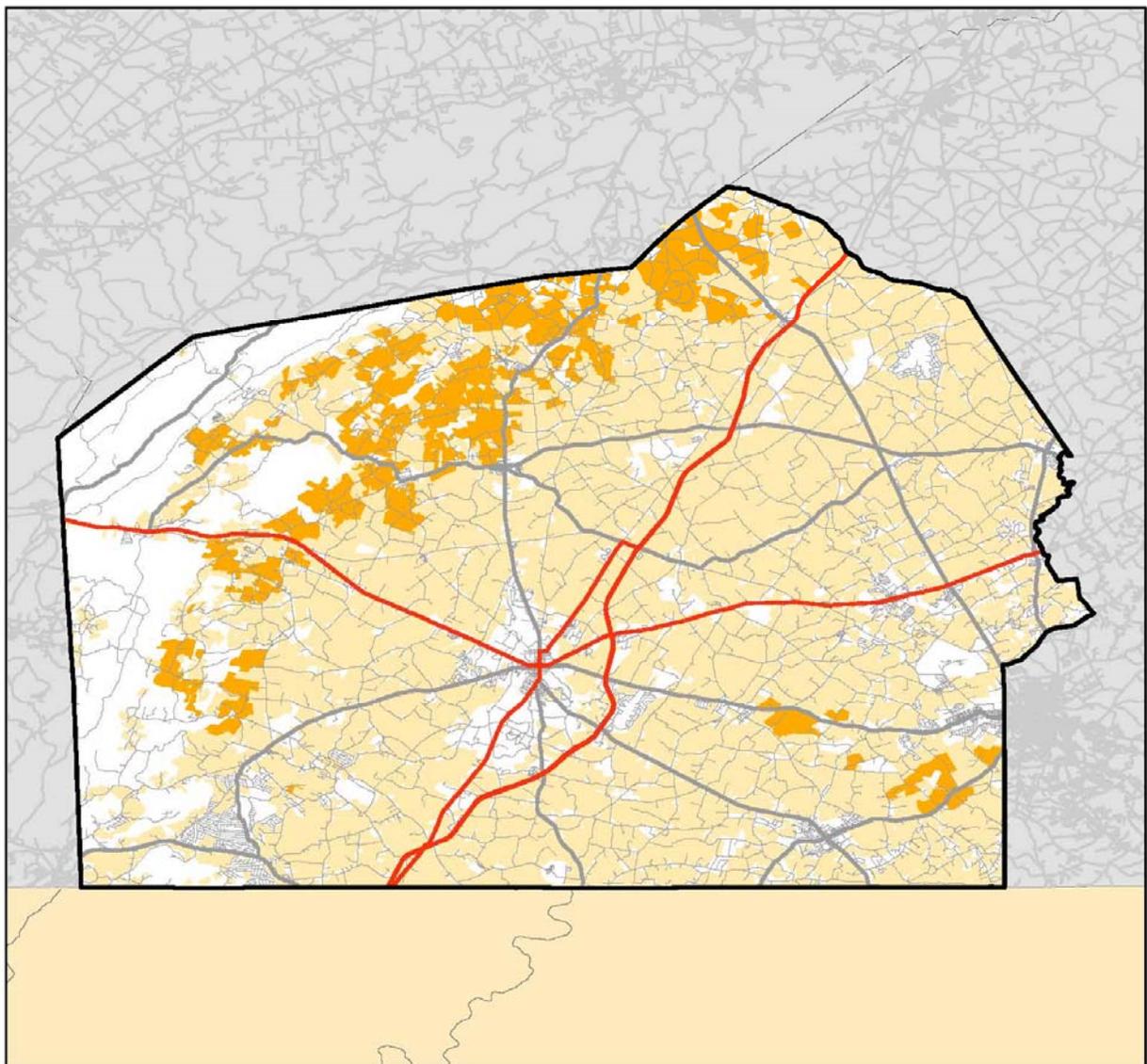
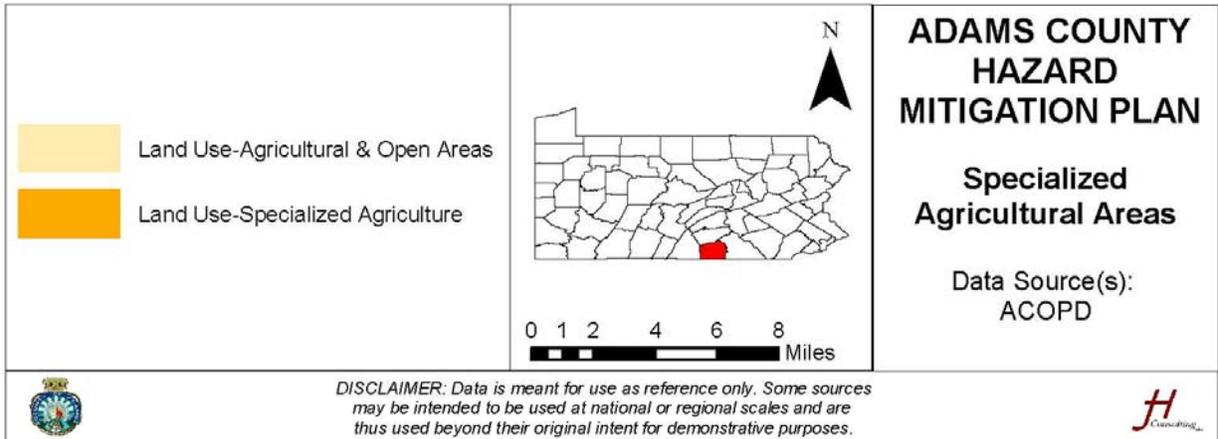
Figure 4.3.11.2-2



Agricultural communities in Adams County could also experience crop damage in addition to structural damage. Crop damage from wind and tornado events can include broken branches and plants, uprooted trees and plants, soil movement and erosion, and dispersal of seeds. As noted elsewhere in this plan, Figure 4.3.11.2-3 shows the areas with agriculture as the principal land use.



Figure 4.3.11.2-3



4.3.11.3 Past Occurrence

The National Center for Environmental Information's Storm Event Database contains information regarding past wind and tornado events (since 1950). Tables 4.3.11.3-1 and 4.3.11.3-2 list these events, along with their damages.

**Table 4.3.11.3-1**

WIND EVENTS, ADAMS COUNTY, 1950-2019									
<i>Location</i>	<i>Date</i>	<i>Time</i>	<i>Time Zone</i>	<i>Type</i>	<i>Magnitude</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (Zone)	9/16/1999	16:00	EST	High Wind	60 kts.	0	0	0.00K	0.00K
Adams (Zone)	9/29/1999	20:00	EST	High Wind	60 kts.	0	0	0.00K	0.00K
Adams (Zone)	4/9/2000	6:00	EST	High Wind	58 kts. M	0	0	0.00K	0.00K
Adams (Zone)	12/12/2000	4:00	EST	High Wind	N/A	0	0	13.90K	0.00K
Adams (Zone)	2/10/2001	2:00	EST	High Wind	N/A	0	0	5.55K	0.00K
Adams (Zone)	3/9/2002	19:30	EST	High Wind	50 kts. E	0	0	0.00K	0.00K
Adams (Zone)	3/21/2002	18:30	EST	High Wind	50 kts. E	0	0	0.00K	0.00K
Adams (Zone)	11/13/2003	5:00	EST	High Wind	60 kts. EG	0	0	0.00K	0.00K
Adams (Zone)	12/1/2006	18:00	EST-5	High Wind	45 kts. ES	0	0	0.00K	0.00K
Adams (Zone)	12/31/2008	8:00	EST-5	High Wind	50 kts. EG	0	0	5.00K	0.00K
Adams (Zone)	2/12/2009	1:00	EST-5	High Wind	50 kts. EG	0	0	25.00K	0.00K
Adams (Zone)	2/25/2011	9:00	EST-5	High Wind	58 kts. MG	0	0	0.00K	0.00K
Adams (Zone)	8/28/2011	1:00	EST-5	Strong Wind	43 kts. EG	0	0	10.00K	0.00K
Adams (Zone)	10/29/2012	15:00	EST-5	High Wind	56 kts. MG	0	0	0.00K	0.00K
Adams (Zone)	4/3/2016	0:00	EST-5	High Wind	52 kts. EG	0	0	1.00K	1.00K
Adams (Zone)	3/2/2018	8:00	EST-5	High Wind	52 kts. EG	0	0	0.00K	0.00K
Adams (Zone)	2/24/2019	13:00	EST-5	High Wind	52 kts. EG	0	0	0.00K	0.00K
<b>TOTAL</b>						<b>0</b>	<b>0</b>	<b>\$60,450</b>	<b>\$1,000</b>

There were 17 wind events in Adams County from 1999 to 2019, for an 85% annual chance of an event on any given year. Six of the 17 recorded events (35%) caused property damage, and the average damage for all 17 was \$3,555.



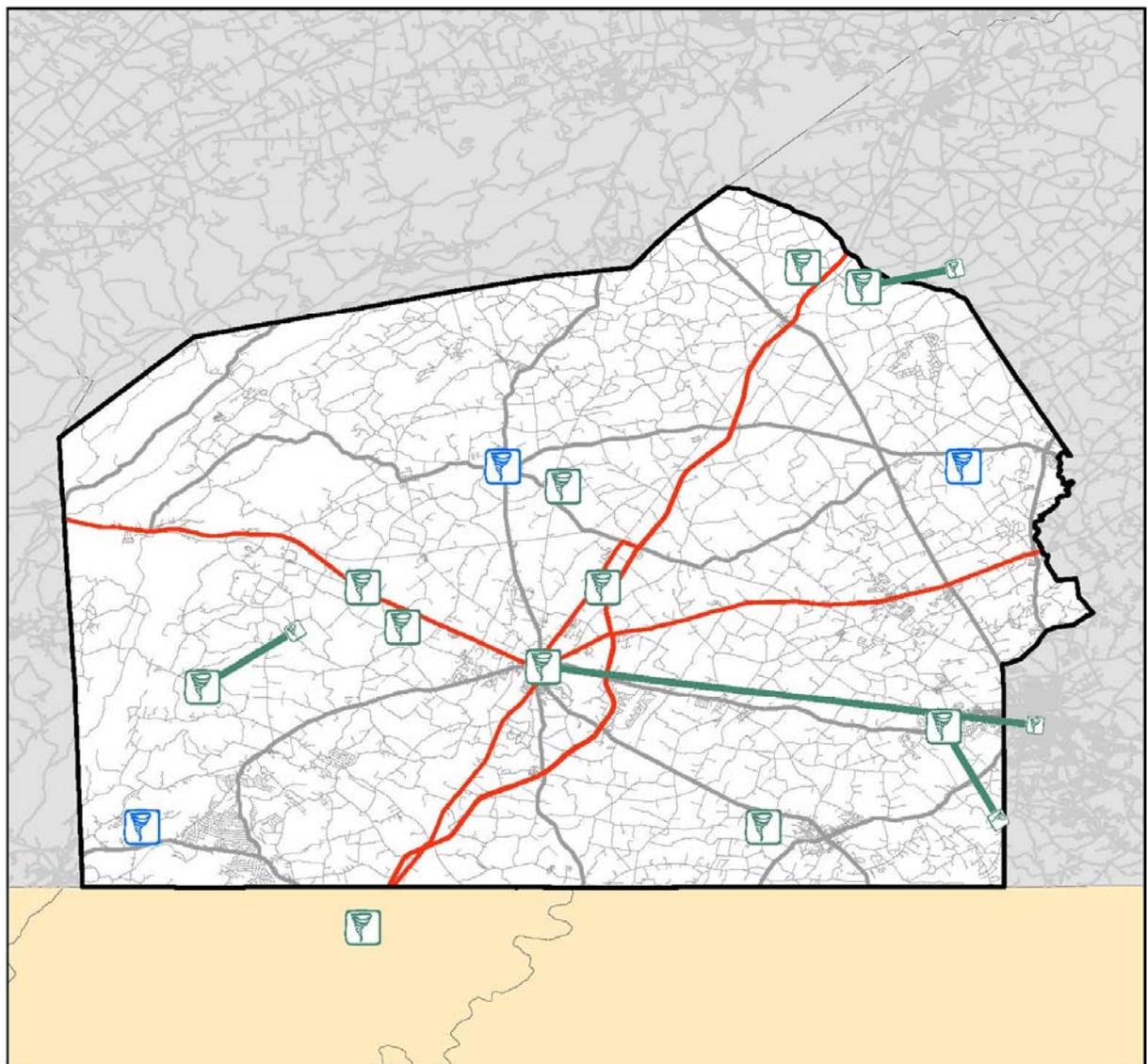
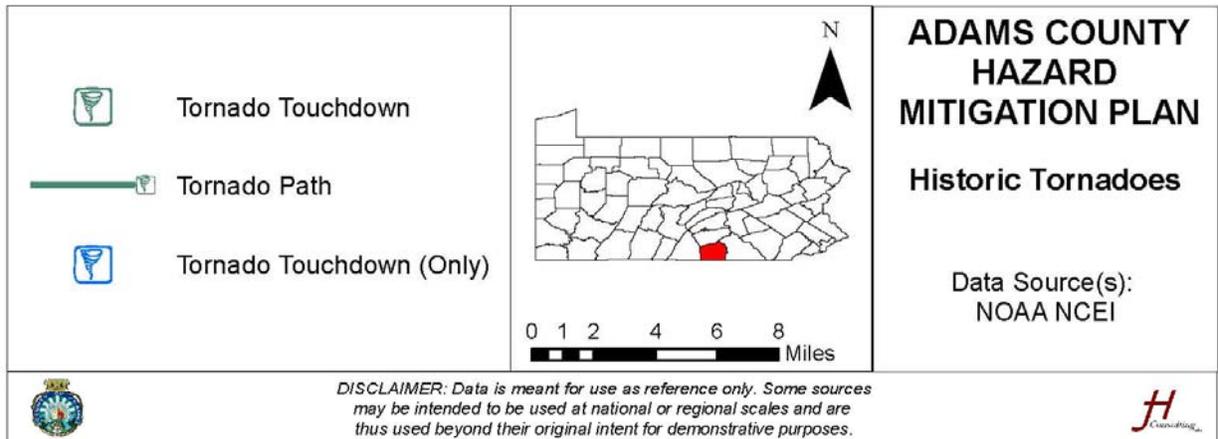
**Table 4.3.11.3-2**

TORNADO EVENTS, ADAMS COUNTY, 1950-2018									
<i>Location</i>	<i>Date</i>	<i>Time</i>	<i>Time Zone</i>	<i>Type</i>	<i>Magnitude</i>	<i>Deaths</i>	<i>Injuries</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (Zone)	3/30/1951	15:00	CST	Tornado	F1	0	0	2.50K	0.00K
Adams (Zone)	4/25/1954	16:30	CST	Tornado	F2	0	0	25.00K	0.00K
Adams (Zone)	9/16/1971	14:45	CST	Tornado	F1	0	0	25.00K	0.00K
Adams (Zone)	3/21/1976	11:30	CST	Tornado	F2	0	0	25.00K	0.00K
Adams (Zone)	8/28/1978	14:30	CST	Tornado	F2	0	0	2.50K	0.00K
Adams (Zone)	6/7/1980	17:00	CST	Tornado	F2	0	0	2.500M	0.00K
Adams (Zone)	6/7/1980	17:00	CST	Tornado	F3	0	0	250.00K	0.00K
McKnightstown	6/24/1996	16:45	EST	Tornado	F1	0	0	0.00K	0.00K
McKnightstown	7/19/1996	13:35	EST	Tornado	F1	0	0	0.00K	0.00K
York Springs	9/6/1996	19:00	EST	Tornado	F1	0	0	0.00K	0.00K
Table Rock	4/1/1998	12:30	EST	Tornado	F1	0	0	0.00K	0.00K
Heidlersburg	3/3/1999	20:30	EST	Tornado	F0	0	0	25.00K	0.00K
Littlestown	8/20/1999	18:00	EST	Tornado	F1	0	0	0.00K	0.00K
Fountain Dale	8/30/2005	23:22	EST	Tornado	F1	0	0	0.00K	0.00K
Gettysburg	8/30/2005	23:38	EST	Tornado	F1	0	0	0.00K	0.00K
Seven Stars	8/30/2005	23:40	EST	Tornado	F1	0	0	0.00K	0.00K
<b>TOTAL</b>						<b>0</b>	<b>0</b>	<b>\$357,500</b>	<b>\$0</b>

There have been 16 tornadoes in Adams County since 1951. These events have caused \$357,500 in damages over the past 68 years, for an average of \$22,300 per event. Figure 4.3.11.3-3 shows a map of historical tornado paths.



Figure 4.3.11.3-3



4.3.11.4 Future Occurrence

Future wind and tornado events will affect each area of Adams County differently. In the northern portion of the county, the agricultural industry would be heavily affected. Fruit, fruit trees, and crops account for a significant portion of the county’s economy, and all are vulnerable to the effects of windstorms and tornadoes.

Central and southeastern Adams County is more residential and would be affected by wind and tornado events differently. These areas would likely experience structure, tree, and utility damage.

4.3.11.5 Vulnerability Assessment

This section summarizes the vulnerability to Adams County from severe wind. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.11.5-1 presents the results of that survey regarding severe wind.

**Table 4.3.11.5-1**

PUBLIC SENTIMENT, TORNADO, WINDSTORM – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Tornado, Windstorm	17 (11.64%)	56 (38.36%)	58 (39.73%)	15 (10.27%)	146
In the past ten years, do you remember this hazard occurring in your community?				72 (49.32%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (139 responses)				45 (32.37%)	INCREASE
				91 (65.47%)	NO CHANGE
				3 (2.16%)	DECREASE

The table below shows the outcome of the vulnerability assessment for Adams County.



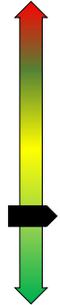
**Table 4.3.11.5-2**

<b>TORNADO, WIND STORM VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	3	Medium	There have been 33 events in Adams County in 68 years, for an average of 0.48 events per year, or a 48% chance per year of an event.
Response	2	1 Day	Tornado events would likely require an intense response for the first 24-hours. Operations beyond one day would likely transition to recovery efforts.
Onset	4	Less than 6 hours	While thunderstorms that produce tornadoes and windstorms are predicted days before the event, tornadoes and wind events occur spontaneously.
Magnitude	1	Localized	Tornado and wind events are highly localized and affect less than 10% of the land area.
Business	1	Less than 24 hours	Tornado and wind events are unlikely to cause prolonged, widespread economic impacts.
Human	2	Low (Some injuries)	Widespread human impacts during tornadoes are unlikely. Individuals can be significantly harmed by debris and structural damage.
Property	1	Less than 10% of property affected	Again, tornado and wind events are highly localized. While individuals may experience significant property damage, less than 10% of all property in Adams County is likely to be damaged in these events.
<b>Total</b>	<b>14</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.12 Wildfire

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	Wildfires are uncontrolled fires that spread rapidly through vegetative fuels, exposing and possibly consuming structures.		
	Period of Occurrence:	Most common in Spring and Fall	Hazard Index Ranking: 15-Low
	Warning Time:	Wildfires can occur at any time, with no warning	State Risk Ranking: 2.4-Medium
	Type of Hazard:	Natural	Disaster Declarations: N/A

A wildfire is a raging, uncontrolled fire that spreads rapidly through vegetative fuels, exposing and possibly consuming structures. Wildfires often begin unnoticed and can spread quickly, creating dense smoke that is visible for miles. Wildfires can occur at any time of the year but mostly occur during long, dry, hot spells. Any small fire in a wooded area, if not quickly detected and suppressed, can get out of control. Human carelessness, negligence, and ignorance cause most wildfires. In some instances, lightning strikes can precipitate spontaneous combustion. Wildfires in Pennsylvania can occur in fields, grass, brush, and forests. 99% of wildfires in Pennsylvania are a direct result of people, often caused by debris burns (PEMA, 2018).

#### 4.3.12.1 Location and Extent

Adams County experiences several fires each year, most of which are easily controlled by local fire departments and do not reach the threshold for inclusion as a “wildfire.” Like all other fires, wildfires require three conditions to start: an available fuel source (including dried leaves or grass), dry conditions (including low relative humidity), and an ignition source. The first two conditions typically occur in Pennsylvania in the spring and fall, when trees are bare, and sunlight can warm the ground and dry surface fuels.

The National Fire Danger Rating System is a system that allows fire officials to estimate current fire danger for a given area based on available fuels, weather, topography, and risks.

- **Low:** When the fire danger is “low,” fuels do not ignite easily, and a more intense heat source is needed to start fires. Dry grasslands may burn easily, but wood fires will spread slowly, and control of fires is typically not difficult.



- **Moderate:** When the fire danger is “moderate,” fires can start from accidental causes, but the number of fire starts is generally low. If a fire does start on open, dry grassland, it can spread quickly on windy days. Most wood fires spread slowly or moderately. The average fire intensity will be moderate, except in heavy concentrations of fuel. Fires are still not likely to become serious and are typically easy to control.
- **High:** When the fire danger is “high,” fires can start easily from most fuel sources. Unattended campfires and brush fires are likely to escape and can spread easily. Fires can become serious and difficult to control unless they are extinguished when they are still small.
- **Very High:** When the fire danger is “very high,” fires will start easily from most fuel sources, spread rapidly, and quickly increase in intensity following ignition. These fires can be difficult to control and will often become much larger and longer-lasting than fires in lower categories.
- **Extreme:** When fire danger reaches “extreme,” fires of all types can start quickly and burn intensely. All fires are potentially serious and can spread quickly with intense burning. Small fires become larger much faster than at the “very high” level. Long-distance fire spotting is likely. These fires can become dangerous and often last for several days.

#### 4.3.12.2 Range of Magnitude

A major cause of forest fires in Pennsylvania is debris burning. These fires typically start small but are spread by wind to dead grass and leaves bordering woodlands. The number and severity of wildfires depend on external factors such as drought, human activity, wind activity, and the amount of available fuel. Wildfires can burn less than one acre up to hundreds of acres of land.

An area of concern for wildfires is the Michaux State Forest, located in Adams, Cumberland, and Franklin Counties. The forest contains more than 85,000 acres used for recreation, wood products, and timber and water resources. Fires in the forest can have a severe impact on the well-being of residents and the local economy. Response to wildfires in the forest would be difficult, as much of the area is rural and rugged.

#### 4.3.12.3 Past Occurrence

From 2015 to 2018, 724 wildfires burned 4,962 acres in Pennsylvania. The most common cause of these fires was debris burning. PA DNR maintains records of wildfires by



forest districts. Table 4.3.12.3-1 lists the wildfires in District 1 (which includes all of Adams County) from 1979 to 2019.

**Table 4.3.12.3-1**

WILDFIRES IN PA DNR DISTRICT 1, 1979-2019						
Year	Spring		Fall		Total	
	# Fires	Acres	# Fires	Acres	# Fires	Acres
1979	37	54.8	22	21.6	59	76.4
1980	19	48.8	43	99.1	62	147.9
1981	82	254.8	69	77.5	151	332.3
1982	39	28.9	10	11.6	49	40.2
1983	8	4.7	13	13.3	21	17.7
1984	20	45.0	12	81.8	32	126.8
1985	70	120.9	9	10.6	79	131.5
1986	65	124.3	2	2.1	67	126.4
1987	94	89.9	50	77.3	144	164.2
1988	49	74.2	46	65.3	95	139.5
1989	80	91.7	6	3.4	86	95.1
1990	34	125.4	17	33.8	51	159.2
1991	44	43.1	24	63.3	68	106.4
1992	40	81.4	5	0.5	45	81.9
1993	6	14.4	4	4.8	10	18.9
1994	10	71.6	6	20.4	16	92.0
1995	22	256.6	4	1.0	26	257.6
1996	5	17.3	2	4.1	7	21.4
1997	12	7.9	21	6.4	33	14.3
1998	6	15.5	39	118.0	45	133.5
1999	15	82.6	30	116.8	45	199.4
2000	8	17.0	13	16.1	21	33.1
2001	37	11.4	42	229.5	79	240.9
2002	5	34.8	10	24.9	15	59.7
2003	3	1.7	1	3.0	4	4.7
2004	0	0.0	2	0.7	2	0.7
2005	18	92.4	3	23.3	21	115.7
2006	25	89.5	7	13.9	32	103.4
2007	10	15.6	12	29.4	22	45.0
2008	9	16.4	2	3.6	11	20.0
2009	18	52.7	3	1.9	21	54.5
2010	7	3.8	11	5.6	18	9.4
2011	4	1.3	5	11.0	9	12.3
2012	18	23.3	0	0.0	18	23.3
2013	9	12.3	5	2.3	14	14.6
2014	3	53.8	7	2.5	13	56.2
2015	21	22.4	7	5.8	28	28.2
2016	22	23.6	17	17.1	39	40.7
2017	18	43.6	2	6.2	20	49.8
2018	11	16.9	1	0.1	12	17.0
2019	15	21.3	9	8.4	24	29.7

Source: [http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr\\_20033433.pdf](http://www.docs.dcnr.pa.gov/cs/groups/public/documents/document/dcnr_20033433.pdf)



There have been 1,590 fires that burned 5,201.9 acres in Region 1 from 1979 to 2018. The yearly average number of fires in this region is 39.75, and the average number of acres burned per year is 130.

#### 4.3.12.4 Future Occurrence

Weather conditions, including extreme heat and drought, increase the likelihood of fires escalating to the level of “wildfire.” Any fire left unattended or mismanaged has the potential to become a wildfire. However, the likelihood of a fire attaining a significant size and intensity is unpredictable and varies based on environmental conditions.

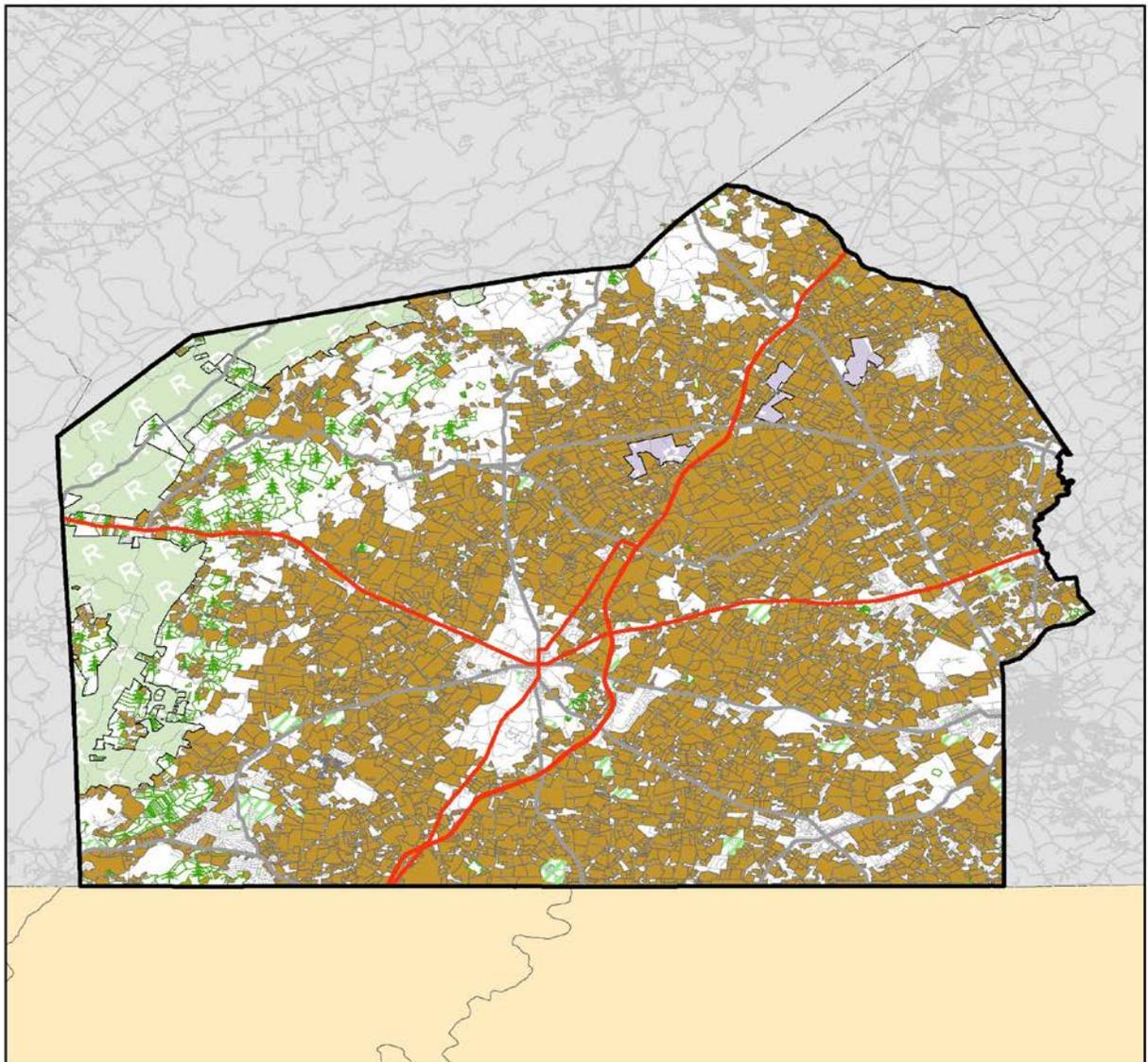
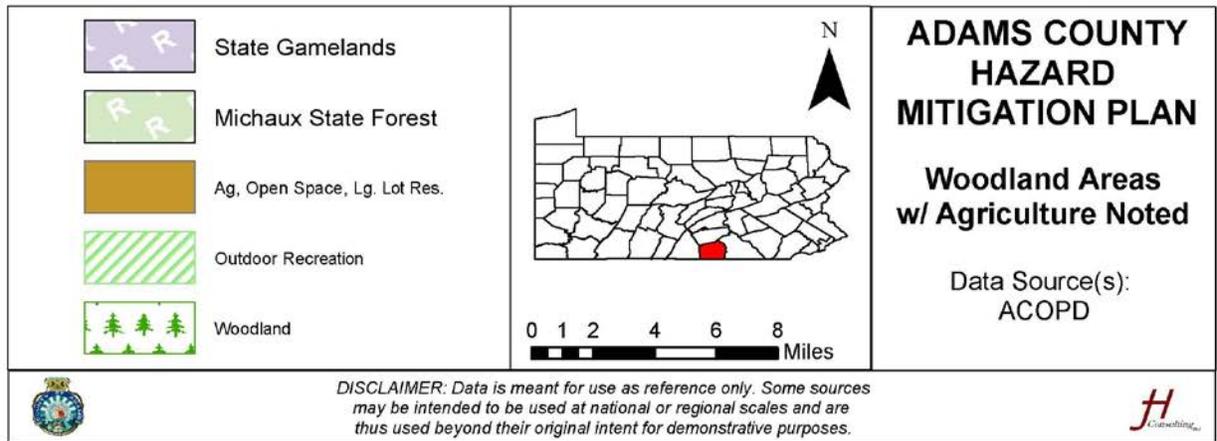
As stated in 4.3.12.1, humans cause 99% of wildfires. The probability of a wildfire occurring in wildfire-prone areas would increase in areas with a significant amount of human activity due to an increase in debris burning, equipment use, power lines, and campfires.

Scholars refer to an area called the “wildland-urban interface,” or WUI, when discussing wildfire risk. Radeloff and colleagues (2005) defined the WUI as “...the area where houses meet or intermingle with undeveloped wildland vegetation” (citing the USDA and USDI, 2001, p. 800). Critically, the WUI does not recognize an area where wildfires are more or less prone to occur. Rather, they identify areas that can expect higher wildfire-related damages should an incident occur. It is difficult to understand that the WUI, even in a single county, is not a place, per se, but conditions that exist. Thus, the WUI can be a rural subdivision in a wooded or vegetative area or three to four homes on an open range (wildlandfirersg.org, 2020).

Figure 4.3.12.4-1 depicts land use in Adams County, and it highlights the state forest as well as various fuel types. For Adams County, though WUI areas exist throughout the county, the priority areas form an arc in the western portion of the county roughly along the Michaux State Forest.



Figure 4.3.12.4-1



**4.3.12.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from wildfire. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.12.5-1 presents the results of that survey regarding wildfire.

**Table 4.3.12.5-1**

PUBLIC SENTIMENT, WILDFIRE – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Wildfire	42 (28.57%)	60 (40.82%)	35 (23.81%)	10 (6.80%)	147
In the past ten years, do you remember this hazard occurring in your community?				9 (6.16%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (134 responses)				21 (15.67%)	INCREASE
				111 (82.84%)	NO CHANGE
				2 (1.49%)	DECREASE

Table 4.3.12.5-2 shows Adams County’s vulnerability to wildfires.

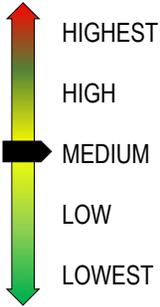
**Table 4.3.12.5-2**

WILDFIRE VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	5	Excessive	Adams County can expect to experience at least one wildfire per year.
Response	2	1 Day	Wildfires in this region are typically small and can be easily contained.
Onset	4	Less than 6 hours	Wildfire conditions are predicted easily, but fires themselves occur with no notice.
Magnitude	1	Localized	The average wildfire burns 3.27 acres, which is less than 10% of the land area.
Business	1	Less than 24 hours	Most wildfires in Adams County are small and would not affect the local economy.
Human	1	Minimum (minor injuries)	Generally, the risk of injury or death due to wildfire is low. First responders to the event may experience negative health effects.
Property	1	Less than 10% of property	The average wildfire in Adams County would burn less than 10% of the county’s land area.
<b>Total</b>	<b>15</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.13 Winter Storm

	Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation, and can range from moderate snowfall or ice events to blizzards that last for several days.	
	<b>Period of Occurrence:</b>	Winter storms occur during cold months, typically November to February
	<b>Hazard Index Ranking:</b>	17-Medium
	<b>Warning Time:</b>	More than 24 hours
	<b>State Risk Ranking:</b>	3.1-High
	<b>Type of Hazard:</b>	Natural
	<b>Disaster Declarations:</b>	DR-4267 DR-1898 DR-3105 DR-1015 EM-3180 DR-1085 EM-3105

Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. A winter storm can range from a moderate snowfall or ice event over a few hours to blizzard conditions with wind-driven snow that lasts for several days. Low temperatures and heavy or blowing snow accompany many winter storms, which can severely impair visibility and disrupt transportation. The Commonwealth of Pennsylvania has a long history of severe winter weather (NOAA, 2009).

#### 4.3.13.1 Location and Extent

While there are widely-accepted scales to characterize other natural disasters, there is no such scale that describes winter storms. Paul Kocin and Louis Uccellini of the National Weather Service developed the Northeast Snowfall Impact Scale (NESIS) in 2004 to characterize and rank snowstorms in the northeastern United States. NESIS scores are a function of the area affected by the snowstorm, the amount of snow, and the number of people living in the path of the storm. Figure 4.3.13.1-1 below shows the NESIS formula.



Figure 4.3.13.1-1

$$NESIS = \sum_{n=4}^{n=30} \left[ \frac{n}{10} \left( \frac{A_n}{A_{mean}} \right) + \left( \frac{P_n}{P_{mean}} \right) \right] \quad (1)$$

where:

- $n$  = snowfall category {4 for > 4", 10 for > 10", 20 for > 20", 30 > 30"}
- $A_n$  = area of snowfall greater than or equal to category  $n$  ( $mi^2$ )
- $P_n$  = population affected by snowfall greater than category  $n$  (2000 census)
- $A_{mean}$  = mean area of >10" snowfall within the 13-state Northeast region (91,000  $mi^2$ )
- $P_{mean}$  = mean population affected by snowfall >10" within the 13-state Northeast region (35.4 million)

The formula above calculates the NESIS raw score, which ranges from around one for smaller storms to over ten for extreme storms. This raw score is then converted to one of five NESIS categories. The largest NESIS values result from storms producing heavy snowfall over large areas that include major metropolitan centers. Table 4.3.13.1-2 below visually describes the NESIS scale.

Table 4.3.13.1-2

NESIS SCALE		
Category	NESIS Value	Description
1	1.0-2.499	Notable
2	2.5-3.99	Significant
3	4.0-5.99	Major
4	6.0-9.99	Crippling
5	10.0+	Extreme

#### 4.3.13.2 Range of Magnitude

Winter storms can bring snow, sleet, freezing rain, and ice, and last for hours or days. They have serious impacts on utility services in affected communities. Heavy snow accumulation on power lines can cause them to fail, leaving citizens without power. Additionally, heavy snow and ice buildup on roadways can further exacerbate the issue by making roads difficult to impossible to traverse. Power interruption, coupled with impassable roads, can leave communities with no electricity service for multiple days.

#### 4.3.13.3 Past Occurrence

The NOAA Storm Event Database maintains records of winter storms in Adams County.



These 62 events appear in Table 4.3.13.3-1 below.

**Table 4.3.13.3-1**

<b>WINTER STORM EVENTS IN ADAMS COUNTY, 1996-2019</b>						
<i>Location</i>	<i>Date</i>	<i>Type</i>	<i>Injuries</i>	<i>Deaths</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (ZONE)	1/7/1996	Blizzard	0	0	\$0.00	\$0.00
Adams (ZONE)	1/12/1996	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	11/28/1996	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/13/1997	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/15/1998	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/2/1999	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/8/1999	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/14/1999	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	3/14/1999	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	1/25/2000	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	1/30/2000	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/13/2000	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/18/2000	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	12/13/2000	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/20/2001	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	3/4/2001	Heavy Snow	0	0	\$5,000.00	\$0.00
Adams (ZONE)	1/6/2002	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/5/2002	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/10/2002	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	12/25/2002	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	1/2/2003	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/6/2003	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/16/2003	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/5/2003	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	1/25/2004	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/6/2004	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/24/2005	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	3/1/2005	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/9/2005	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/16/2005	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/12/2006	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/13/2007	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	3/16/2007	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/13/2007	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	12/15/2007	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/1/2008	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/12/2008	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/6/2009	Ice Storm	0	0	\$2,000.00	\$0.00
Adams (ZONE)	1/27/2009	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	12/19/2009	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/5/2010	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/9/2010	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/26/2011	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/1/2011	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/21/2011	Heavy Snow	0	0	\$0.00	\$0.00



<b>WINTER STORM EVENTS IN ADAMS COUNTY, 1996-2019</b>						
<i>Location</i>	<i>Date</i>	<i>Type</i>	<i>Injuries</i>	<i>Deaths</i>	<i>Property Damage</i>	<i>Crop Damage</i>
Adams (ZONE)	10/29/2011	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	3/6/2013	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	12/14/2013	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/5/2014	Ice Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	1/20/2014	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/3/2014	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	2/4/2014	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/13/2014	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	11/25/2014	Heavy Snow	0	0	\$0.00	\$0.00
Adams (ZONE)	1/22/2016	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	3/13/2017	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/7/2018	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	3/20/2018	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	11/15/2018	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/11/2019	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	2/20/2019	Winter Storm	0	0	\$0.00	\$0.00
Adams (ZONE)	3/3/2019	Winter Storm	0	0	\$0.00	\$0.00
<b>TOTALS</b>			<b>0</b>	<b>0</b>	<b>\$7,000.00</b>	<b>\$0.00</b>

### February 2003

From February 14-19, 2003, the east coast of the United States and Canada experienced a monumental winter storm, which has come to be known as the Blizzard of 2003 or the Presidents' Day Storm II. This storm spread heavy snowfall across major cities in the Northeastern and Mid-Atlantic states, including Pennsylvania. Twenty-two to 30 inches of snow fell across south-central Pennsylvania, including much of the Susquehanna Valley. The heavy snow forced many schools, businesses, and roadways to close for at least one to two days.

### February 2010

A major winter storm affected the entire U.S. Mid-Atlantic region in the first week of February 2010. Snowfall began on February 4 and continued until the 7<sup>th</sup>. Southern Pennsylvania experienced between 15 and 30 inches of snowfall, causing schools, roadways, and businesses to close.

### January 2016

On January 22, 2016, Adams County experienced a significant winter storm. According to the Evening Sun, between 24 and 30 inches of snow fell throughout the county. Main roads were dangerous, and many secondary roads were impassable to those without all-wheel drive vehicles. The Pennsylvania Department of Transportation restricted trailers from major roads,



including interstates 78, 81, 83, and 283, and the post offices throughout most of the county suspended operations for the day.

The above tables and narratives do not provide data on crop losses, though local officials are aware of winter weather-related agricultural impacts. Adams County received USDA Secretarial Designations in 2012 (February) and 2016 (February through April) for freeze and frost impacts (USDA FSA, n.d.). The EWG *Farm Subsidies Database* reports that 23 farmers received disaster assistance payouts at a combined total of \$224,723 in 2012, presumably largely under designation S3373. Of those payouts, \$8,425 were under the “Miscellaneous” category, which includes the crop disaster, quality losses, and non-insured assistance programs. Under the “Supplement Revenue Assistance Payments” program, Adams County farmers received \$216,298 (EWG, n.d.).

The aggregated 2016 data from EWG’s database is also available, but it seemingly covers two designations: S4141 for the aforementioned freeze and frost incident as well as S4165 for drought conditions running May through December (USDA FSA, n.d.). However, seven Adams County farmers received \$94,859 worth of disaster assistance program benefits in 2016 for one or both of these events. Of that total, \$91,096 were under the miscellaneous category referenced above, and the remaining \$3,763 was under the “Livestock Disaster/Emergency” category (which consists of the livestock compensation and livestock emergency assistance programs) (EWG, n.d.).

#### 4.3.13.4 Future Occurrence

There have been 62 winter storm events in Adams County since 1996, for an average of 2.7 events per year. Damages reported were minimal: one storm caused \$5,000 in property damage while another caused \$2,000. Future events in Adams County will likely cause road closures or impassible routes, along with utility interruptions. During severe winter storms, these impacts could last for multiple days.

#### 4.3.13.5 Vulnerability Assessment

This section summarizes the vulnerability to Adams County from winter weather. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.13.5-1 presents the results of that survey regarding winter storms.



**Table 4.3.13.5-1**

<b>PUBLIC SENTIMENT, WINTER STORM – ADAMS COUNTY</b>					
<i>Hazard</i>	<i>Level of Concern</i>				<i>Total Responses</i>
	<i>Not at All</i>	<i>Somewhat</i>	<i>Concerned</i>	<i>Very</i>	
Winter Storm	17 (11.56%)	67 (45.58%)	51 (34.69%)	12 (8.16%)	147
In the past ten years, do you remember this hazard occurring in your community?				120 (82.19%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (139 responses)				44 (31.65%)	INCREASE
				87 (62.59%)	NO CHANGE
				8 (5.76%)	DECREASE

It is assumed that older buildings are at a higher risk of damage from winter storms than newer structures. Additional information on construction type and building codes of the time would allow a more thorough analysis of structure vulnerability. Figure 4.3.13.5-2 shows the 2014 estimated age of structures in Adams County.

**Figure 4.3.13.5-2**

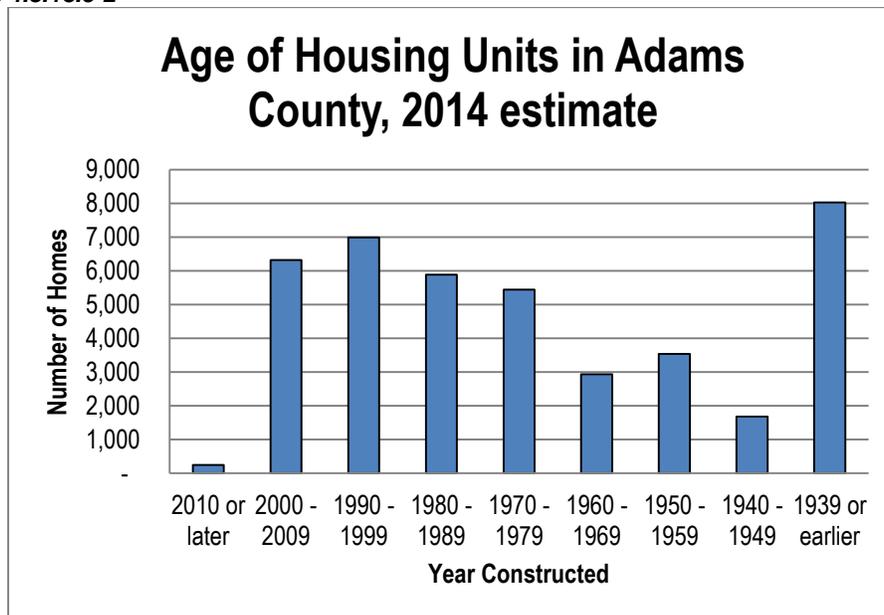


Table 4.3.13.5-3 shows Adams County’s vulnerability to winter storms. Due to the frequency of past events and high annual probability, winter storms are likely to continue affecting Adams County.



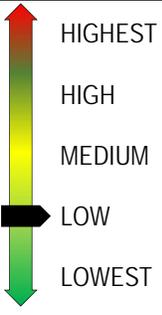
**Table 4.3.13.5-3**

<b>WINTER STORM VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	5	Excessive	There have been 62 events since 1996, for an average of 2.7 events per year. It can be assumed that Adams County will experience a winter storm nearly every year.
Response	3	1 Week	Winter storms can last for multiple days, requiring an extended response.
Onset	1	Over 24 hours	Winter storms can be predicted more than one day in advance, giving citizens and emergency personnel time to prepare for the event.
Magnitude	4	More than 50% of land area	Winter storms would affect all areas of the county, although some areas may experience worse conditions than others,
Business	2	1 Week	Winter storm events can interrupt utilities and communication for several days. The county's economy would be interrupted during this time.
Human	1	Minimum	Winter storms on their own are not likely to cause human injuries or deaths. Human impacts would be due to traffic accidents or extreme temperatures that accompany winter storms.
Property	1	Less than 10%	Winter storms can cause slight property damage, such as roof collapse and utility interruptions. These would likely affect less than 10% of property in the county.
<b>Total</b>	<b>17</b>	<b>Medium</b>	



## 4.0 RISK ASSESSMENT

### 4.3.14 Dam Failure

	HIGHEST	A dam is a barrier preventing the flow of water or loose solid materials (such as snow or soil). Dam failure is the failure of that barrier.	
	HIGH	Period of Occurrence:	Dam failures can occur at any time; some may occur with little warning.
	MEDIUM	Warning Time	None
	LOW	Hazard Index Ranking:	12-Low
LOWEST	Type of Hazard:	Human-Caused	State Risk Ranking: 2.4-Medium
			Disaster Declarations: N/A

A dam is a barrier across flowing water that obstructs, directs, or slows down water flow. Dams provide benefits such as flood protection, power generation, drinking water, irrigation, and recreation. Failure of these structures results in an uncontrolled release of impounded water. Failures are relatively rare, but immense damage and loss of life are possible in downstream communities when such events occur. Aging infrastructure, hydrologic, hydraulic and geologic characteristics, population growth, and design and maintenance practices should be considered when assessing dam failure hazards. The failure of the South Fork Dam, located in Johnstown, Pennsylvania, was the deadliest dam failure ever experienced in the United States. It took place in 1889 and resulted in the Johnstown Flood, which claimed 2,209 lives. Today there are approximately 3,200 dams and reservoirs throughout Pennsylvania (PEMA, 2018).

#### 4.3.14.1 Location and Extent

Figure 4.3.14.1-1 below shows the National Inventory of Dams (NID) list of dams coded by their hazard potential.



Figure 4.3.14.1- 1

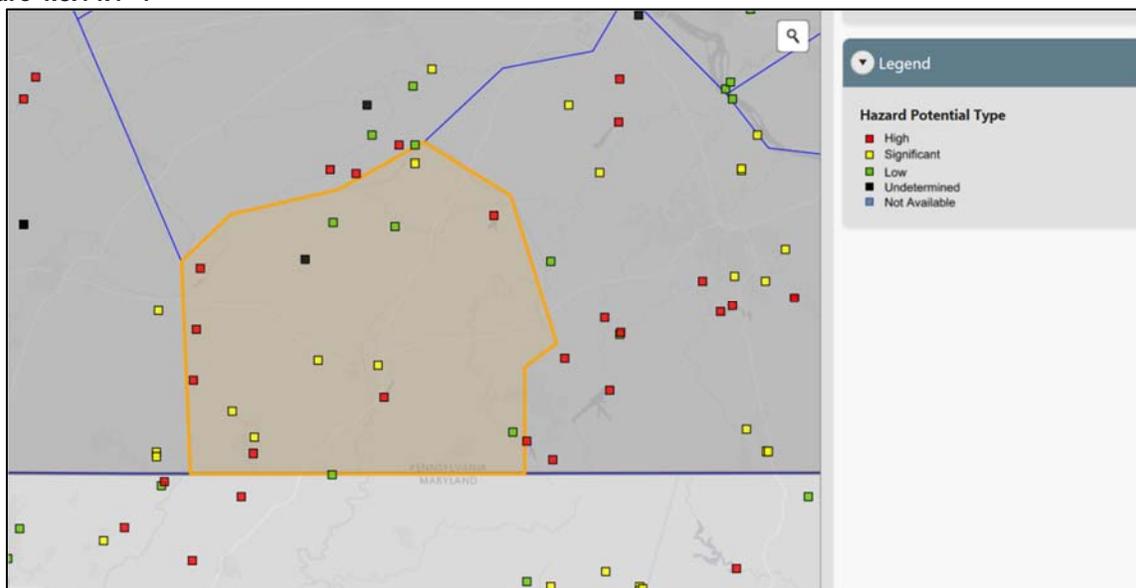


Table 4.3.14.1-2 includes all dams located in Adams County, as well as their location, hazard potential, height, and storage capacity. Of the 16 dams in Adams County, eight are high hazard potential, four are significant hazard potential, and three are low hazard potential. The remaining dams are not classified. Antietam Dam, located in York County, is included in this profile due to the location of its inundation area (which includes Hamiltonban Township).

Table 4.3.14-2

LIST OF DAMS IN ADAMS COUNTY				
<i>Dam</i>	<i>Location</i>	<i>Hazard Potential (FEMA)</i>	<i>NID Height (in feet)</i>	<i>NID Storage (in acre-feet)</i>
Antietam	Hamiltonban Township	High <sup>1</sup>	70	866
Baugher	Huntington Township	Low	18	55
Carbaugh Run	Franklin Township	High	35	365
Granite Lake Dam	Straban Township	Significant <sup>2</sup>	16	32.5
Highland Farms Dam	Latimore Township	Significant	28	48
Irrigation Pond	Menallen Township	Low <sup>3</sup>	26	17
Lake Heritage	Mount Joy Township	High	53	2,966
Lake Meade	Reading/Latimore Township	High	42	5,330
Lawrence Baker	West Manheim Township, York	High	75	7,895

<sup>1</sup> “Dams assigned the high potential classification are those where failure or misoperation will probably cause loss of human life” (FEMA, 2004, p. 6).

<sup>2</sup> “Dams assigned the significant hazard potential classification are those dams where failure or mis-operation results in no probable loss of human life but can cause economic loss, environmental damage, disruption of lifeline facilities, and can impact other concerns” (FEMA, 2004, p. 5).

<sup>3</sup> “Dams assigned the low hazard potential classification are those where failure or misoperation results in no probable loss of human life and low economic and/or environmental losses” (FEMA, 2004, p. 5).



LIST OF DAMS IN ADAMS COUNTY				
<i>Dam</i>	<i>Location</i>	<i>Hazard Potential (FEMA)</i>	<i>NID Height (in feet)</i>	<i>NID Storage (in acre-feet)</i>
Sheppard Dam	County			
Long Pine Run	Franklin Township	High	112	7,490
Mountainview Orchards Pond	Arendtsville	Unknown	25	68
Section F (Lake May)	Carroll Valley Borough	High	22	271
Section K	Carroll Valley Borough	Significant	12	89
Sheppard	Union Township	Low	23	89
Sheppard Meyers Dam	West Manheim Township, York County	High	38	1,213
Williams Dam	Hamiltonban Township	Significant	39	25

Pennsylvania's Department of Environmental Protection is responsible for regulating the construction and maintenance of high hazard dams. Pennsylvania State Code requires dam emergency action plans (EAPs) for all Category 1, Category 2, and Category 3 dams. The EAPs are drafted according to PEMA's EAP guidelines and reviewed by the dam owner, dam operator, and county emergency management coordinators for counties affected by the dam's failure. Table 4.3.14.1-3 below shows the EAP information for dams located in and affecting Adams County.

**Table 4.3.14-3**

EAP STATUS OF DAMS IN ADAMS COUNTY			
<i>Dam</i>	<i>EAP Available (Y/N)</i>	<i>EAP Required (Y/N)</i>	<i>EAP Last Updated</i>
Antietam	Yes	Yes	05/23/2016
Baughner	No	No	N/A
Carbaugh Run	Yes	Yes	11/24/2015
Granite Lake Dam	Yes	Yes	09/08/2008
Highland Farms Dam	Yes	Yes	03/01/2000
Irrigation Pond	No	No	N/A
Lake Heritage	Yes	Yes	05/01/2010
Lake Meade	Yes	Yes	04/01/2014
Lawrence Baker Sheppard Dam (York Co.)	Yes	Yes	01/07/2015
Long Pine Run	Yes	Yes	05/19/2013
Mountainview Orchards Pond	No	No	N/A
Section F (Lake May)	Yes	Yes	11/25/20009
Section K	No	Yes	N/A
Sheppard	No	No	N/A
Sheppard Meyers Dam (York Co.)	Yes	Yes	04/17/2015
Williams Dam	No	Yes	N/A



Complete dam failure can cause significant damage for its inundation area, or the total area that would flood in the event of dam failure. Dam failures lead to several negative economic and environmental impacts. Economic impacts include the cost of rebuilding structures and infrastructure in the inundation areas, as well as lost revenue from industry related to the dam. Dam failures can result in the pollution of surface or groundwater, air, and soil, as well as damage to or destruction of environmentally sensitive areas.

#### 4.3.14.2 Range of Magnitude

There are multiple degrees of dam failure, with the most severe being catastrophic. Sudden, rapid, and uncontrolled release of impounded water characterizes catastrophic failures. Catastrophic failures have the potential to cause significant damage to communities located downstream. There are eight high and four significant hazard dams in Adams County. Complete failure of any of these dams would result in severe adverse effects and potential loss of life in the area downstream of the dam.

Depending on their abruptness, dam failures may or may not leave enough time for evacuation of people or property. Failures caused by overtopping or piping can occur slowly. These types of failures would leave the most evacuation time. Failures due to structural damage or maintenance issues can be gradual or abrupt. In the case of an abrupt failure, evacuation may not be possible.

In addition to economic losses due to damaged infrastructure, the failure of dams used for water supply would leave its communities without a source of potable water. The primary function of five of the dams affecting Adams County is water supply (Antietam, Carbaugh Run, Lawrence Baker Sheppard, Long Pine Run, and Sheppard Meyers).

#### 4.3.14.3 Past Occurrences

The National Performance of Dams Program at Stanford University monitors dam incidents and repairs, as well as incident consequences, for dams in the United States and around the world. While there have been no recorded dam failures or incidents in Adams County in the past, planning committee members noted a potentially critical issue with the New Oxford Dam. Additionally, there have been three significant dam failures in Pennsylvania in the past. Those instances are detailed below.

The Austin (Bayless) Dam was constructed in 1901 outside Austin, Pennsylvania, to supply water to the Bayless Paper Mill. While it stood, several foundation issues made the dam known as a safety concern. In September of 1911, less than two years after its construction, the



Austin Dam collapsed, killing 78 people and causing \$3-6 million in damages (~\$70-140 million today).

The Laurel Run Dam outside Johnstown was constructed from 1915 to 1918 to provide drinking and industrial water for the town. In 1943 and 1959, assessments found the dam to be structurally deficient but took no corrective action. In July of 1977, after a series of storms, the Laurel Run Dam failed. This incident caused over 40 deaths and \$5.3 million in damages.

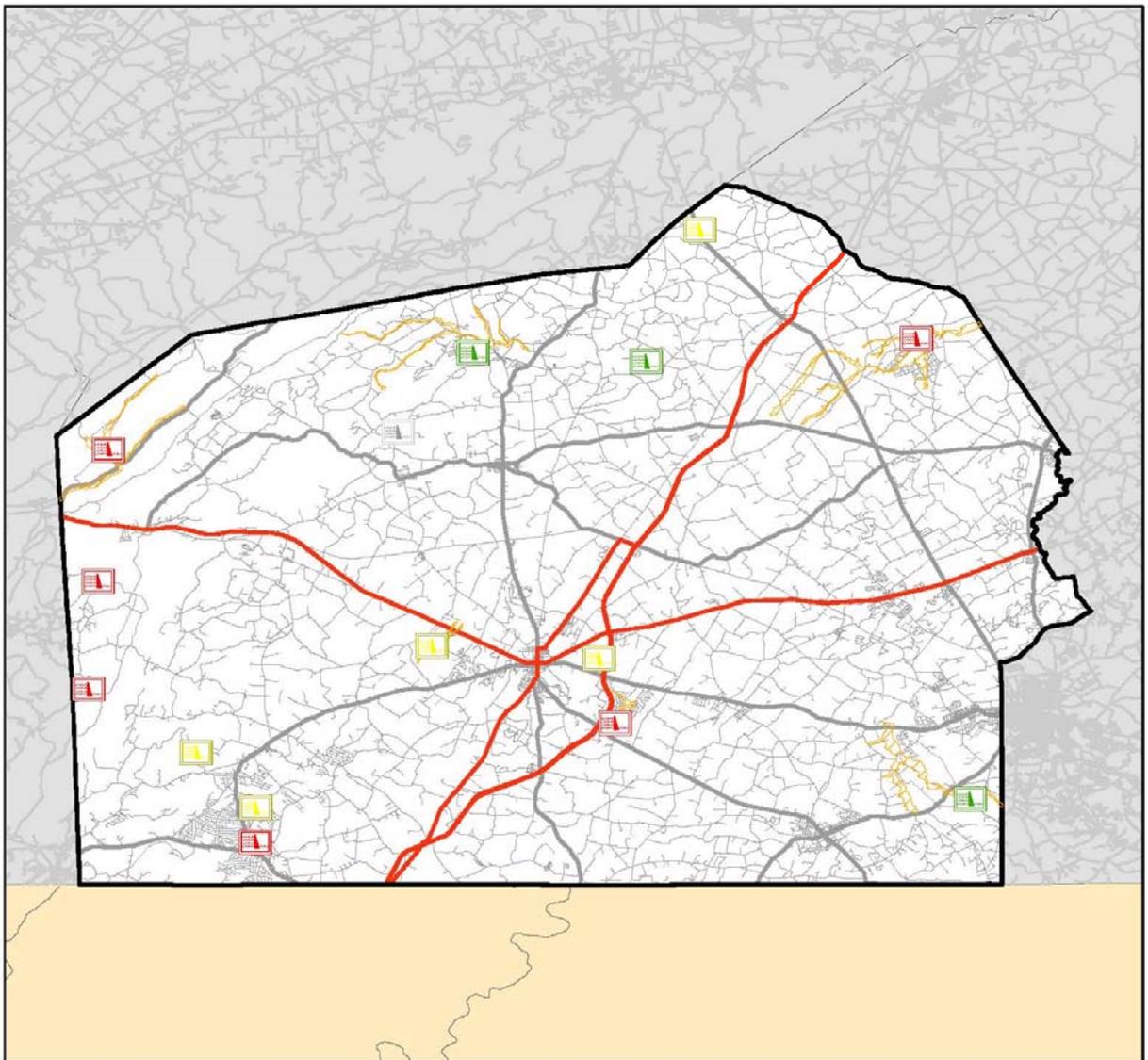
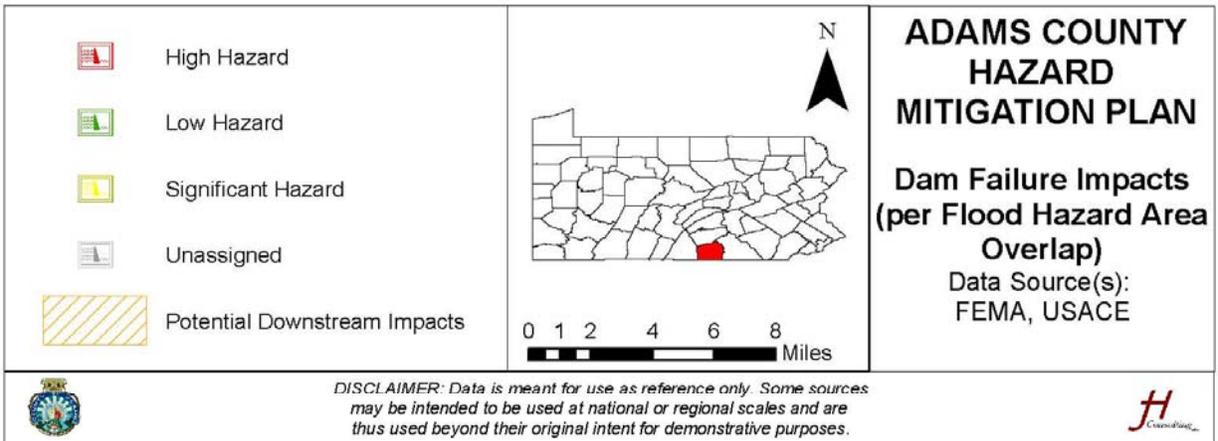
The Penn Forest Dam was constructed between 1956 and 1958 to supply water to the town of Bethlehem. The dam began experiencing problems in 1960, leading to corrective action. In July of 1994, the dam showed signs of seepage, indicating that the condition of the dam was deteriorating. Emergency response procedures were activated and maintained until January of 1995 when the reservoir returned to a safe level.

#### 4.3.14.4 Future Occurrence

The failure of high hazard dams is unlikely in Adams County. All Category 1, 2, and 3 dams have up-to-date EAPs, and high-hazard dams are inspected on an annual basis. Figure 4.3.14.4-1 depicts areas of Adams County susceptible to dam failure.



Figure 4.3.14.4-1



#### 4.3.14.5 Vulnerability Assessment

This section summarizes the vulnerability to Adams County from dam failure. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.14.5-1 presents the results of that survey regarding dam failure.

**Table 4.3.14.5-1**

PUBLIC SENTIMENT, DAM FAILURE – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Dam Failure	119 (81.51%)	21 (14.38%)	4 (2.74%)	2 (1.37%)	146
In the past ten years, do you remember this hazard occurring in your community?				2 (1.37%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (134 responses)				1 (0.75%)	INCREASE
				130 (97.01%)	NO CHANGE
				3 (2.24%)	DECREASE

All structures downstream of a dam are vulnerable to dam failure. Municipalities located in such areas include Hamiltonban Township, Huntington Township, Franklin Township, Straban Township, Latimore Township, Menallen Township, Mount Joy Township, Reading/Latimore Township, West Manheim Township York County, Arendtsville Borough, Carroll Valley Borough, and Union Township.

Table 4.3.14.5-2 below describes Adams County's vulnerability to dam failure.

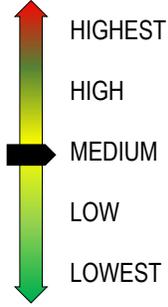
**Table 4.3.14.5-2**

DAM FAILURE VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	1	None	There have been no recorded dam failures in Adams County.
Response	3	1 Week	A complete dam failure is unlikely in Adams County. If an event did occur, it would require a significant emergency response.
Onset	3	6-12 Hours	In most cases, a dam would not fail without prior warning. As dams in Pennsylvania are regularly inspected, a sudden failure is unlikely.
Magnitude	1	Localized	For most dams in Adams County, a dam failure would be a localized event.
Business	1	Less than 24 hours	In the event of a dam failure, Adams County's economy would not be affected.
Human	2	Low (some injuries)	With High and Medium hazard potential dams, complete failure could cause injuries or death.
Property	1	Less than 10%	Dam failure in Adams County would likely affect small areas, and most property damage would be limited to the loss of the dam itself.
<b>Total</b>	<b>12</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.15 Environmental Hazards: Hazardous Materials Release

	A hazardous materials release can contaminate air, water, and soils, possibly resulting in injuries or death.			
	<b>Period of Occurrence:</b>	Hazardous materials releases can occur at any time	<b>Hazard Index Ranking:</b>	17-Medium
	<b>Warning Time:</b>	None	<b>State Risk Ranking:</b>	2.5-High
	<b>Type of Hazard:</b>	Human-Caused	<b>Disaster Declarations:</b>	N/A

Hazardous materials are substances that, if released or misused, can pose a threat to the environment or health. When released, these materials can contaminate air, water, and soil, resulting in possible injuries or death. While often accidental, releases can occur as a result of human carelessness, intentional acts, or as cascading effects of natural hazards. 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 (PEMA, 2018).

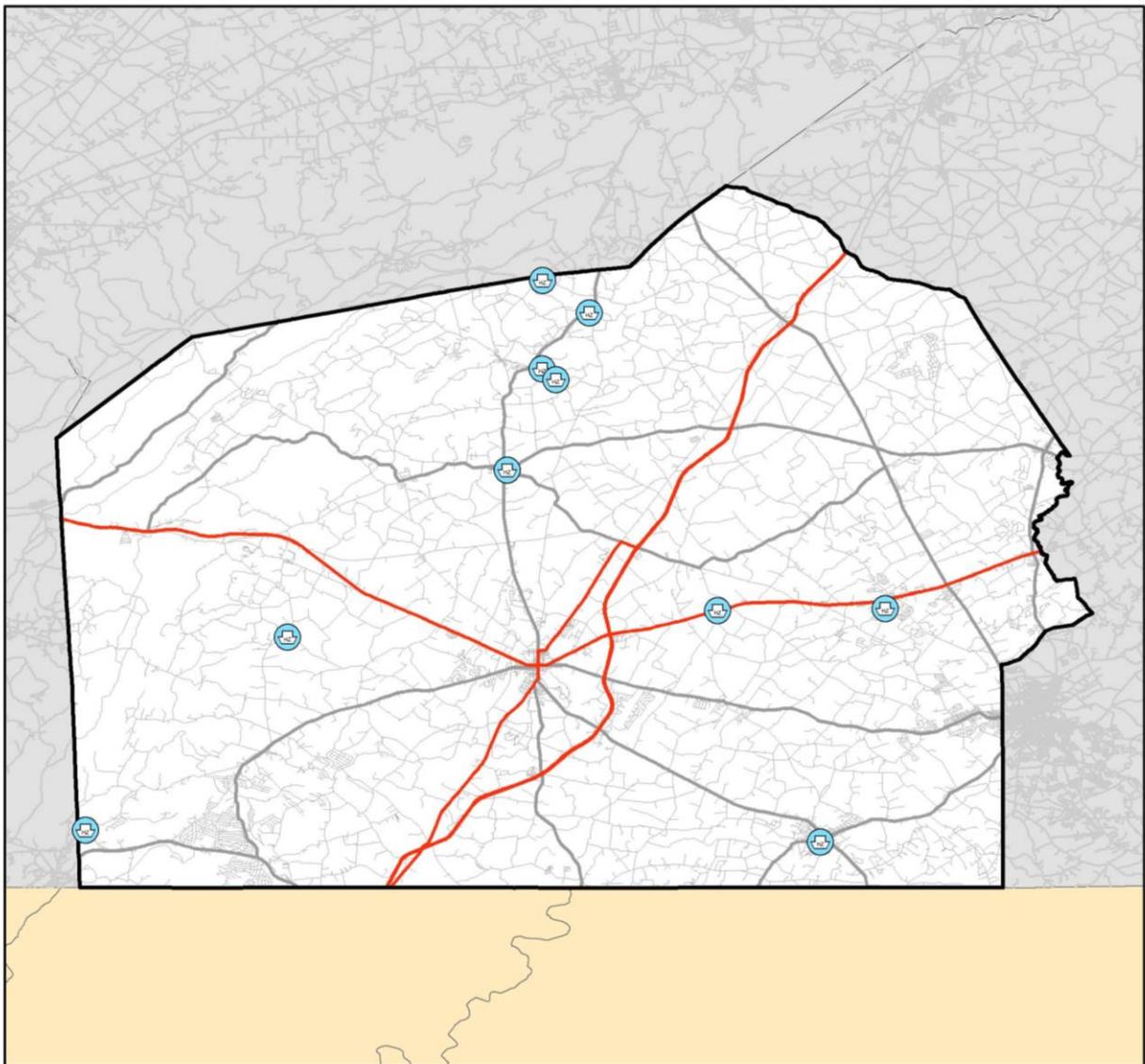
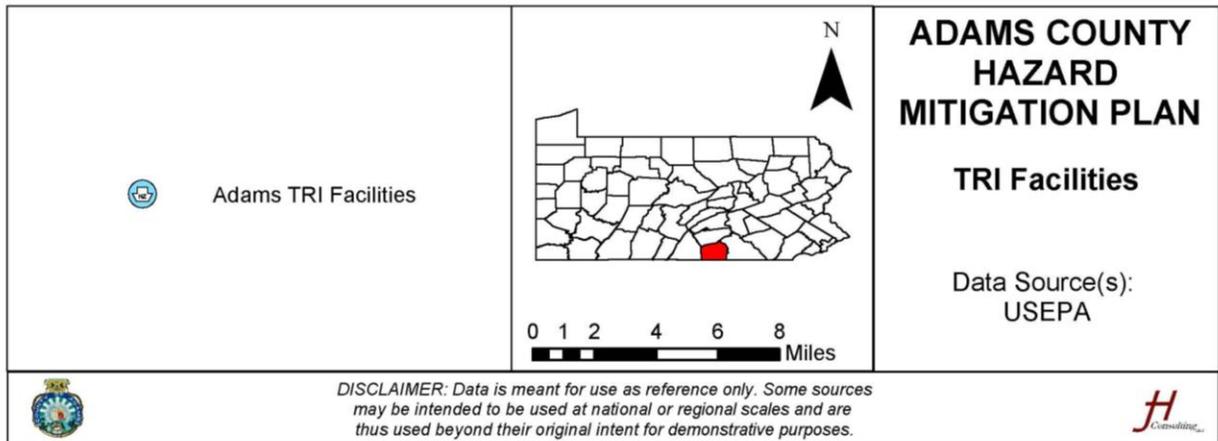
#### 4.3.15.1 Location and Extent

Hazardous materials can be found in every community, as they are used in homes, hospitals, and factories, and are shipped daily via land, air, railways, and pipelines (FEMA, 2019). If released, these materials can damage the environment, critical infrastructure, property, and people.

The U.S. Environmental Protection Agency's (EPA) Toxic Release Inventory (TRI) tracks the management of certain chemicals that may pose a threat to human health and the environment. Industrial facilities must report how much of each chemical is recycled, combusted for energy recovery, treated for destruction, and disposed of or released on- and off-site. Adams County's ten TRI facilities are located throughout the county and shown in Figure 4.3.15.1-1. In 2017, these sites housed a combined 120,300 lbs. of waste and released an additional 221 lbs. of waste into the air and water.



Figure 4.3.15.1-1



In addition to the TRI, the EPA also tracks sites that have improperly handled hazardous materials. Through the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), informally called Superfund, the EPA can clean contaminated sites. Table 4.3.15.1-2 below shows the name and locations of Adams County's Superfund sites, along with their contaminants and affected media.

**Table 4.3.15.1-2**

<b>ADAMS COUNTY SUPERFUND SITES</b>			
<i>Site Name</i>	<i>Jurisdiction</i>	<i>Contaminants</i>	<i>Media</i>
Hunterstown Road	Straban Township	1,1,1-Trichloroethane	Groundwater
		1,1,1- Trichloroethane	Groundwater
		1,1,2- Trichloroethane	Groundwater
		1,1-Dichloroethane	Groundwater
		1,1-Dichloroethene	Groundwater
		1,1- Dichloroethene	Groundwater
		1,1- Dichloroethene	Sediment
		1,1- Dichloroethene	Soil
		Antimony	Sediment
		Antimony	Soil
		Barium	Sediment
		Barium	Soil
		Chloroethene (Vinyl Chloride)	Groundwater
		Chloroethene (Vinyl Chloride)	Groundwater
		Chloroethene (Vinyl Chloride)	Sediment
		Chloroethene (Vinyl Chloride)	Soil
		Chromium	Sediment
		Chromium	Soil
		CIS-1,2- Dichloroethene	Groundwater
		Copper	Sediment
Copper	Soil		
Lead	Sediment		
Lead	Soil		
Mercury	Sediment		
Mercury	Soil		
Toluene	Groundwater		
Hunterstown Road	Straban Township	Trichloroethene	Groundwater
		Trichloroethene	Groundwater
Keystone	Union Township	1,1,1-Trichloroethane	Groundwater
		1,1,1- Trichloroethane	Groundwater
		1,1,1- Trichloroethane	Soil
		1,1,2,2-Tetrachloroethane	Groundwater
		1,1,2,2- Tetrachloroethane	Groundwater
		1,1,2- Trichloroethane	Groundwater
		1,1-Dichloroethane	Groundwater
		1,1- Dichloroethane	Groundwater
		1,1- Dichloroethane	Groundwater
		1,1- Dichloroethane	Soil
		1,1- Dichloroethene	Groundwater



ADAMS COUNTY SUPERFUND SITES					
Site Name	Jurisdiction	Contaminants	Media		
Keystone (cont.)	Union Township	1,1- Dichloroethene	Groundwater		
		1,2- Dichloroethane	Groundwater		
		1,2- Dichloroethane	Groundwater		
		1,2- Dichloroethene (cis and trans mixture)	Groundwater		
		1,2- Dichloroethene (cis and trans mixture)	Soil		
		1,4-Dioxane	Groundwater		
		Aldrin	Groundwater		
		Alpha-Hexachlorocyclohexane	Groundwater		
		Aluminum	Groundwater		
		Anthracene	Soil		
		Antimony	Groundwater		
		Aroclor 1248	Groundwater		
		Arsenic	Groundwater		
		Arsenic	Sediment		
		Barium	Groundwater		
		Barium	Groundwater		
		Base neutral acids	Groundwater		
		Benzene	Groundwater		
		Benzoic Acid	Groundwater		
		Benzoic Acid	Soil		
		Beryllium	Groundwater		
		Beryllium	Groundwater		
		Beryllium	Sediment		
		Beryllium	Soil		
		Bis(2-ethylhexyl) phthalate	Groundwater		
		Bis(2-ethylhexyl) phthalate	Groundwater		
		Butyl-benzyl-phthalate	Soil		
		Cadmium	Groundwater		
		Carbon Disulfide	Groundwater		
		Carbon Tetrachloride	Groundwater		
		Chloroethane	Groundwater		
		Chloroethane	Groundwater		
		Chloroethene (Vinyl Chloride)	Groundwater		
		Chloroethene (Vinyl Chloride)	Groundwater		
		Chloroethene (Vinyl Chloride)	Leachate		
		Chloroform	Groundwater		
		Chromium	Groundwater		
		Keystone	Union Township	Chromium	Groundwater
				Chromium	Soil
				CHRYSENE	Soil
Cis-1,2-dichloroethene	Groundwater				
Cis-1,2-dichloroethene	Leachate				
Cobalt	Groundwater				
Copper	Groundwater				
Copper	Groundwater				
Di-N-Octyl Phthalate	Soil				
Dichlorodifluoromethane	Groundwater				
Dichlorodifluoromethane	Groundwater				
DIELDRIN	Groundwater				
Diethyl Phthalate	Groundwater				



ADAMS COUNTY SUPERFUND SITES			
Site Name	Jurisdiction	Contaminants	Media
Keystone (cont.)	Union Township	Diethyl Phthalate	Soil
		Dimethyl Phthalate	Soil
		Fluoroanthene	Soil
		Gamma-chlordane	Groundwater
		Heptachlor	Groundwater
		Heptachlor epoxide	Groundwater
		Indeno(1,2,3-CD)pyrene	Soil
		Iron	Groundwater
		Iron	Soil
		Lead	Groundwater
		Manganese	Groundwater
		Manganese	Groundwater
		Manganese	Soil
		Mercury	Groundwater
		Mercury	Groundwater
		Mercury	Groundwater
		Mercury	Soil
		Mercury	Surface Water
		Nickel	Groundwater
		Pentachlorophenol	Groundwater
		Phenanthrene	Soil
		Selenium	Groundwater
		Tetrachloroethene	Groundwater
		Tetrachloroethene	Groundwater
		Tetrachloroethene	Soil
		Tetrachloroethene	Leachate
		Trichloroethene	Groundwater
		Trichloroethene	Groundwater
Trichloroethene	Leachate		
Trichloroethene	Groundwater		
Vanadium	Groundwater		
Zinc	Groundwater		
Zinc	Groundwater		
Shrivers Corner	Straban Township	Chromium	Soil
		Lead	Soil
		Metals	Groundwater
		Volatile Organic Compounds	Groundwater
Shrivers Corner	Straban Township	Zinc	Sediment
Westinghouse Elevator Co. Plant	Cumberland Township	1,1,1- Trichloroethane	Free-phase NAPL
		1,1,1- Trichloroethane	Groundwater
		1,1-Dichloroethene	Groundwater
		Trichloroethene	Free-phase NAPL
		Trichloroethene	Groundwater
		Trichloroethene	Soil Gas

4.3.15.2 Range of Magnitude

With any hazardous material release, the severity of an incident depends on several



extenuating circumstances, including weather conditions, terrain, and compliance (or lack thereof) with codes, type of material released, and response time for emergency personnel. A hazardous material release can also include significant environmental impacts, which are listed below.

- 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 and Soil Quality
- Damage to Plant Communities
  - Loss of biodiversity
  - Damage to vegetation
  
- Damage to Animal Species
  - Animal fatalities
  - Degradation of wildlife and aquatic habitat
  - Pollution of drinking water for wildlife
  - Loss of biodiversity
  - Disease

As a general guideline, there are three levels of hazardous materials incidents, ranging from easily contained by local responders to those that require vast amounts of resources (NFPA, 2008).

- **Level 1:** An incident involving hazardous materials that can be contained, extinguished, and/or abated using resources immediately available to the public sector responders. Level 1 incidents present little risk to the environment and/or public health with containment and cleanup.
- **Level 2:** An incident that is beyond the capabilities of the first responders on the scene and could be beyond the public sector responders having jurisdiction. Level 2 incidents might require the services of a state or regional response team or other state or federal



assistance. This level can pose immediate and long-term risks to environmental and public health.

- **Level 3:** An incident that is beyond the capabilities of a single state or regional response team and requires additional assistance. Level 3 incidents can require resources from state and federal agencies and private industry. These incidents generally pose extreme, immediate, and/or long-term risks to the environment and public health.

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

- **Weather conditions** affect how the hazard occurs and develops.
- **Micro-meteorological effects of buildings and terrain** alter the dispersion of hazardous materials.
- **Non-compliance with applicable codes and maintenance failures** can substantially increase the damage to the facility itself and surrounding buildings.

4.3.15.3 Past Occurrence

The Pipeline and Hazardous Materials Safety Administration (PHMSA) maintains a database of all hazardous materials incidents in the U.S. by air, highway, and railway transport. These incidents are summarized in Table 4.3.15.3-1.

**Table 4.3.15.3-1**

<b>PHMSA INCIDENTS IN ADAMS COUNTY</b>				
<i>Incident Location</i>	<i>Date</i>	<i>Hazard Class</i>	<i>Commodity Name</i>	<i>Mode of Transportation</i>
Reading Township	1/20/1994	8	Corrosive liquids, n.o.s.	Highway
Reading Township	5/19/1995	3	Resin solution, flammable	Highway
Gettysburg Borough	8/1/1995	9	Environmentally hazardous substances, liquid, n.o.s.	Highway
New Oxford Borough	1/18/1997	3	Gasoline includes gasoline mixed with ethyl alcohol, with not more than 10% alcohol	Highway
Reading Township	3/3/1997	8	Phosphoric acid solution	Highway



<b>PHMSA INCIDENTS IN ADAMS COUNTY</b>				
<i>Incident Location</i>	<i>Date</i>	<i>Hazard Class</i>	<i>Commodity Name</i>	<i>Mode of Transportation</i>
Reading Township	6/4/1997	3	Flammable liquids, n.o.s.	Highway
Hampton	6/27/1997	8	Ferric chloride, solution	Highway
Reading Township	7/7/1997	3	Ethanol or ethyl alcohol or ethanol solutions or ethyl alcohol solutions	Highway
Reading Township	7/23/1997	8	Sulfuric acid	Highway
Franklin Township	7/28/1997	8	Hypochlorite solutions with more than 5 percent but less than 16 percent available chlorine	Highway
Berwick Township	8/16/1997	3	Flammable liquids, n.o.s.	Highway
Cumberland Township	8/29/1997	3	Adhesives, containing a flammable liquid	Highway
Hilltown	9/8/1997	8	Corrosive liquid, acidic, inorganic, n.o.s.	Highway
Reading Township	1/9/1998	8	Cyclohexylamine	Highway
Reading Township	1/27/1998	3	Adhesives, containing a flammable liquid	Highway
Reading Township	2/26/1998	8	Potassium hydroxide, solution	Highway
Hilltown	3/12/1998	9	Hazardous waste, solid, n.o.s.	Highway
Mount Pleasant Township	3/17/1998	8	Hydrochloric acid, solution	Highway
Hilltown	4/15/1998	3	Flammable liquids, toxic, n.o.s.	Highway
Cumberland Township	5/23/1998	6.1	Dichloromethane	Highway
Berwick Township	6/8/1998	6.1	Tetrachloroethylene	Highway
Huntington Township	7/14/1998	3	Flammable liquids, n.o.s.	Highway
Huntington Township	8/1/1998	6.1	Organophosphorus pesticides, liquid, toxic	Highway
Huntington Township	8/21/1998	5.2	Organic peroxide type F, liquid	Highway
Gettysburg Borough	8/25/1998	6.1	Chloroform	Highway
Franklin Township	9/24/1998	8	Sodium hydroxide, solution	Air
Franklin Township	9/29/1998	3	Flammable liquids, n.o.s.	Air
Mount Pleasant Township	10/5/1998	3	Acetone	Highway
Hilltown	12/17/1998	3	Flammable liquids, n.o.s.	Highway
Plainview	1/22/1999	3	Resin solution, flammable	Highway



<b>PHMSA INCIDENTS IN ADAMS COUNTY</b>				
<i>Incident Location</i>	<i>Date</i>	<i>Hazard Class</i>	<i>Commodity Name</i>	<i>Mode of Transportation</i>
Berwick Township	3/25/1999	9	Hazardous substance, liquid or solid, n.o.s. or from-e, liquid or solid, n.o.s.	Highway
Reading Township	4/19/1999	5.1	Sodium nitrate	Highway
Hilltown	5/21/1999	9	Hazardous waste, solid, n.o.s.	Highway
Huntington Township	6/25/1999	9	Environmentally hazardous substances, liquid, n.o.s.	Highway
Reading Township	9/30/1999	3	Ethanol or ethyl alcohol or ethanol solutions or ethyl alcohol solutions	Highway
Reading Township	11/23/1999	3	Propionaldehyde	Rail
Union Township	1/20/2000	8	Ferric chloride, solution	Highway
Reading Township	2/2/2000	8	Sulfuric acid, fuming	Highway
Berwick Township	6/15/2000	8	Sulfuric acid	Highway
Reading Township	10/27/2000	8	Sulfuric acid	Highway
Gettysburg Borough	1/24/2001	4.1	Flammable solids, organic, n.o.s.	Air
East Berlin Borough	4/13/2001	3	Fuel oil (no. 1, 2, 4, 5, or 6)	Highway
Berwick Township	6/28/2001	9	Hazardous substance, liquid or solid, n.o.s. or from-e, liquid or solid, n.o.s.	Highway
Reading Township	9/13/2001	3	Ethylene glycol monoethyl ether acetate	Highway
Mount Pleasant Township	1/31/2002	5.2	Organic peroxide Type D, liquid	Highway
Mount Pleasant Township	4/28/2003	8	Corrosive liquids, n.o.s.	Highway
Hampton	8/1/2003	3	Fuel oil (no. 1, 2, 4, 5, or 6)	Highway
Mount Pleasant Township	9/4/2003	3	Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base	Highway
New Oxford Borough	10/13/2003	8	Ferric chloride, solution	Highway
Mount Pleasant Township	10/27/2003	3	Amyl acetates	Highway
Berwick Township	11/10/2003	3	Butanedione	Highway
Mount Pleasant Township	12/23/2003	3	Resin solution, flammable	Highway



<b>PHMSA INCIDENTS IN ADAMS COUNTY</b>				
<i>Incident Location</i>	<i>Date</i>	<i>Hazard Class</i>	<i>Commodity Name</i>	<i>Mode of Transportation</i>
Mount Pleasant Township	1/8/2004	3	Paint including paint, lacquer, enamel, stain, shellac solutions, varnish, polish, liquid filler, and liquid lacquer base	Highway
Tyrone Township	1/20/2004	3	Acetone	Highway
Cumberland Township	3/19/2004	3	Tars, liquid including road oils and cutback bitumens	Highway
Mount Pleasant Township	4/29/2004	6.1	Organophosphorus pesticides, liquid, toxic	Highway
Gettysburg Borough	10/26/2005	2.2	Aerosols, non-flammable, (each not exceeding 1 l capacity)	Highway
Gettysburg Borough	4/7/2006	2	Fuel oil, diesel	Highway
Gettysburg Borough	5/16/2007	3	Isopropanol	Highway
Gettysburg Borough	12/24/2007	8	Corrosive liquids, n.o.s.	Highway
Gettysburg Borough	4/16/2009	N/A	N/A	Air
Gettysburg Borough	9/28/2009	3	Petroleum distillates, n.o.s. or petroleum products, n.o.s.	Highway
Gettysburg Borough	10/30/2010	3	Paint related material including paint thinning, drying, removing, or reducing compound	Highway
Gettysburg Borough	2/7/2011	5.1	Magnesium perchlorate	Highway
Littlestown Borough	7/24/2019	8	Hydrochloric acid	Highway

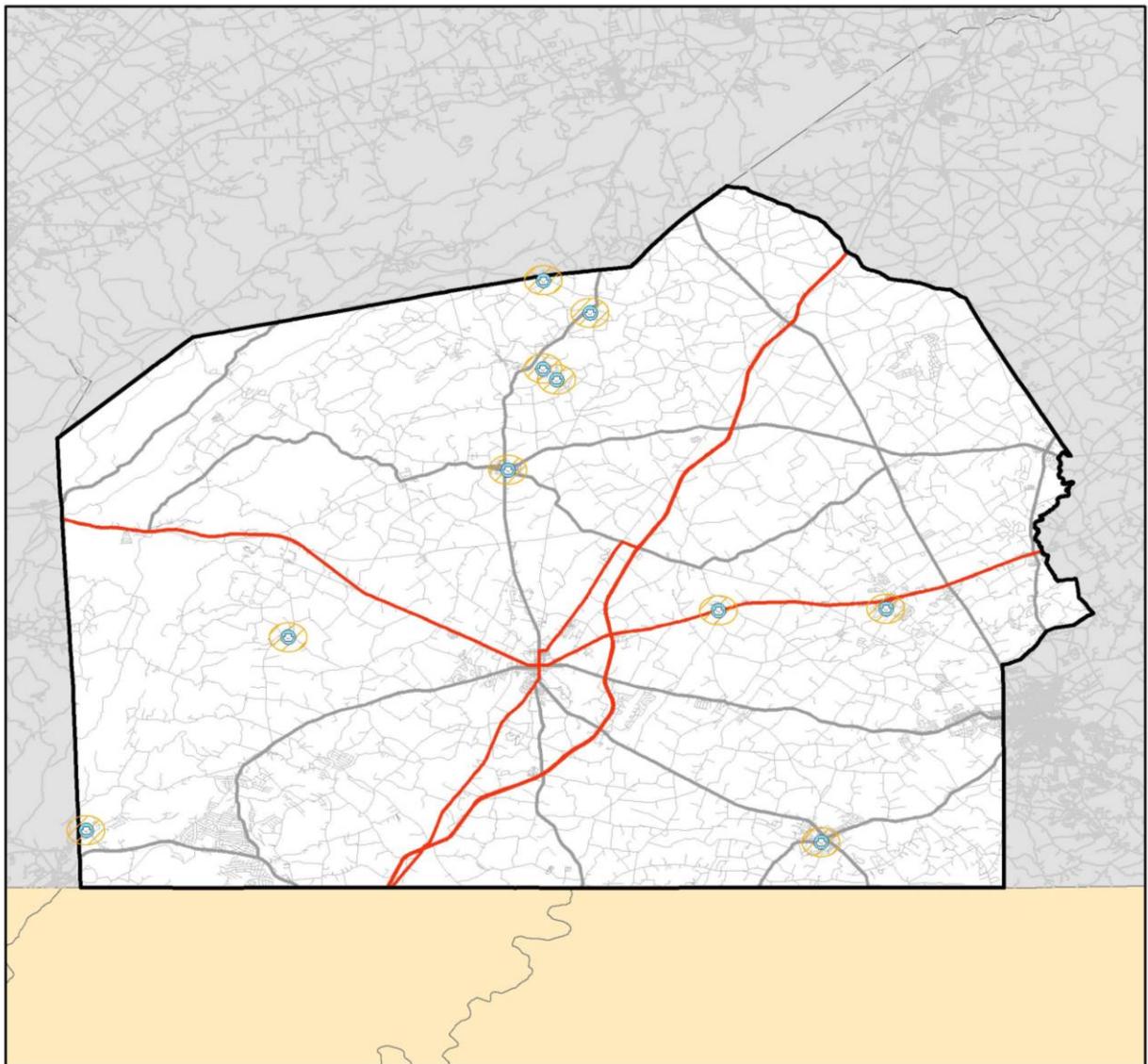
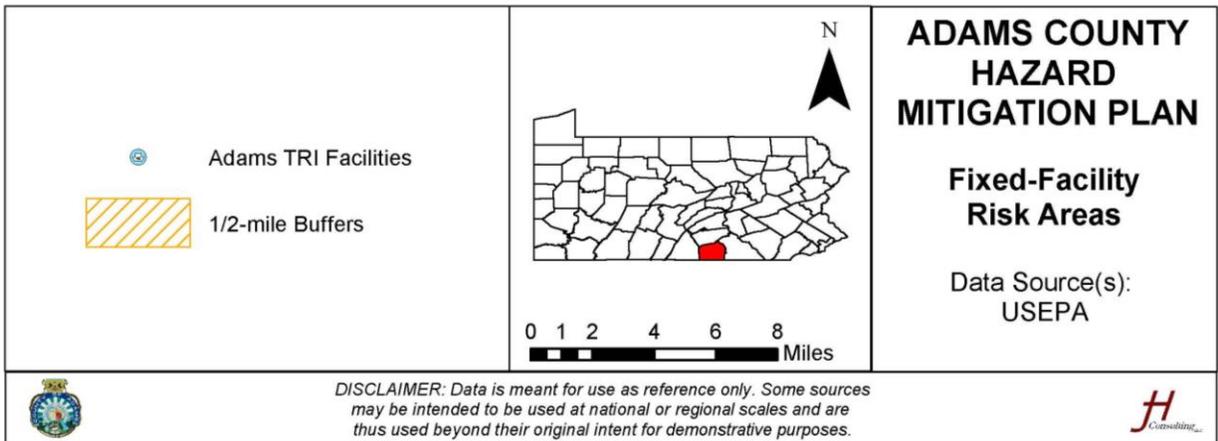
Of the 64 events listed above, most occurred in just three areas. Fourteen incidents occurred in Reading (Township), followed by Gettysburg with 11 incidents, and Mount Pleasant with eight. The most commonly-reported material classes reported in incidents were Class 3 (flammable liquids) and Class 8 (corrosive materials), which coincides with the most transported hazardous materials in the county. Additionally, the majority (92%) of the incidents occurred on a highway. Only 6.25% occurred within the airway mode, and an even smaller minority (1.5%) occurred on a railway.

#### 4.3.15.4 Future Occurrence

Future hazardous materials releases are most likely to occur during the transportation process, specifically during highway transport. Releases could also occur from TRI facilities or Superfund sites. Figure 4.3.15.4-1 depicts these sites (with half-mile buffers).



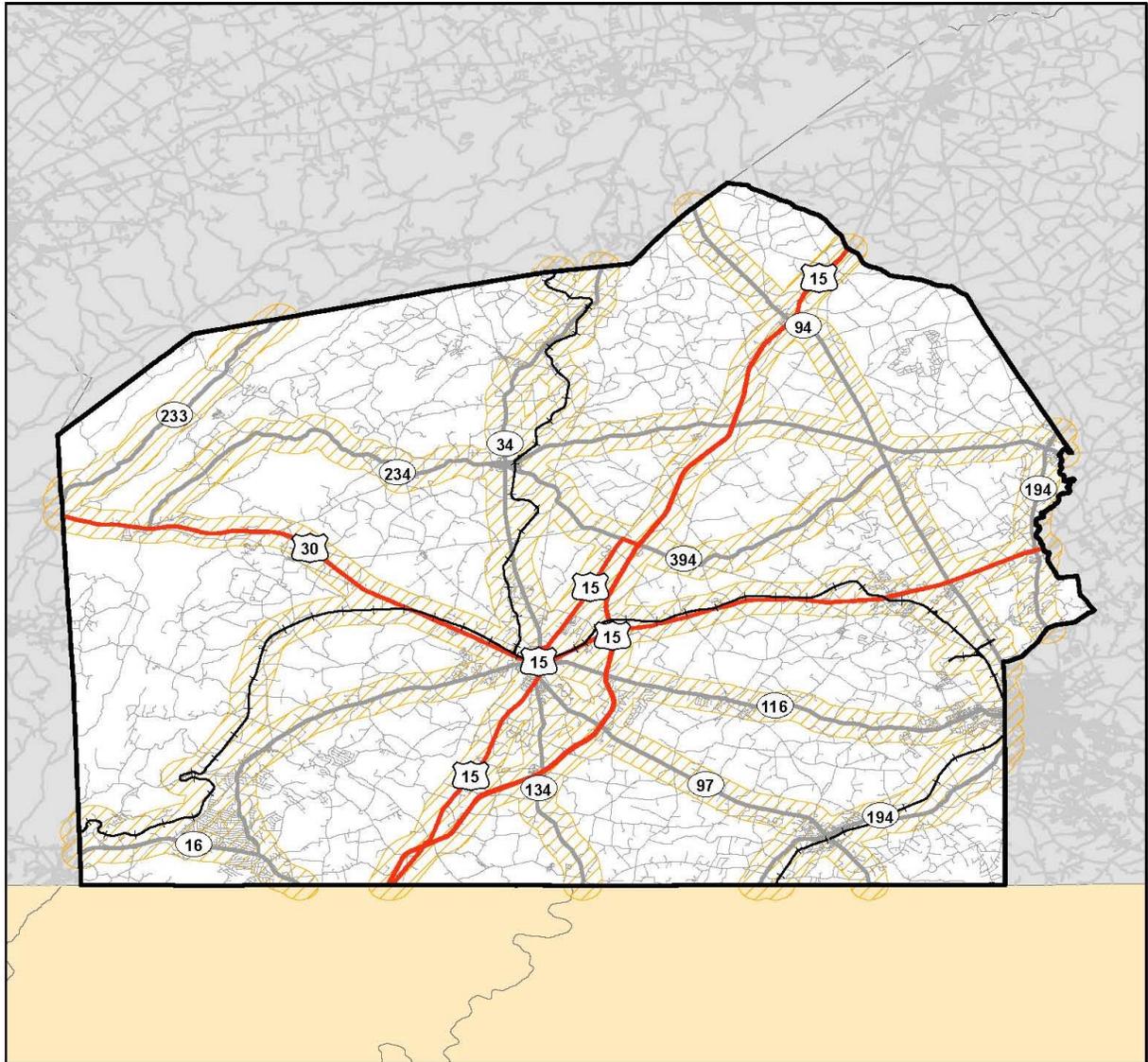
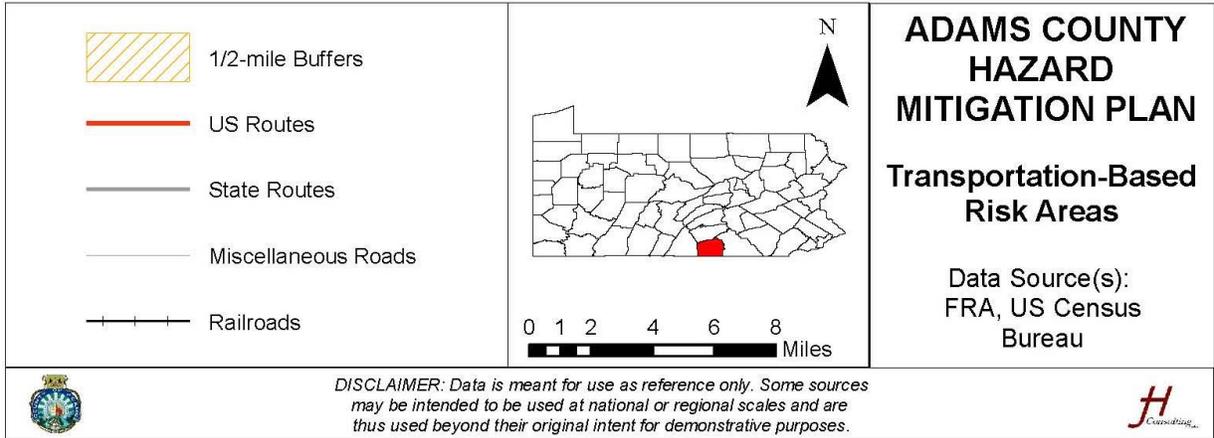
Figure 4.3.15.4-1



Based on previous incidents and the county's most recent commodity flow study, future transportation-based hazardous material releases will most likely involve Class 3 hazardous materials transported by truck. 481,453,616.5 tons of hazardous materials are moved through the county by truck. Of these materials, 83% are Class 3 hazardous materials. Figure 4.3.15.4-2 depicts transportation routes in Adams County (with half-mile buffers).



Figure 4.3.15.4-2



**4.3.15.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from hazardous materials. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.15.5-1 presents the results of that survey regarding hazardous materials releases.

**Table 4.3.15.5-1**

<b>PUBLIC SENTIMENT, ENVIRONMENTAL HAZARDS: HAZARDOUS MATERIALS RELEASE – ADAMS COUNTY</b>					
<i>Hazard</i>	<i>Level of Concern</i>				<i>Total Responses</i>
	<i>Not at All</i>	<i>Somewhat</i>	<i>Concerned</i>	<i>Very</i>	
Hazardous Materials Release	26 (17.69%)	51 (34.69%)	45 (30.61%)	25 (17.01%)	147
In the past ten years, do you remember this hazard occurring in your community?				32 (21.92%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (137 responses)				25 (18.25%)	INCREASE
				109 (79.56%)	NO CHANGE
				3 (2.19%)	DECREASE

Table 4.3.15.5-2 below describes Adams County’s vulnerability to hazardous materials releases.

**Table 4.3.15.5-2**

<b>ENVIRONMENTAL HAZARDS: HAZARDOUS MATERIALS RELEASE VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	5	Excessive	There have been 64 transportation-based incidents since 1994, for an average of 2.56 events per year.
Response	2	1 Day	A hazardous material event would require an emergency response but would be unlikely to last longer than 24 hours.
Onset	5	N/A	Hazardous materials releases can occur at any time, with no warning.
Magnitude	1	Localized	Most incidents in Adams County are transportation-based and affect only a small area of the county.
Business	1	Less than 24 hours	Most likely, a hazardous materials release would not interrupt the county’s economy for an extended period.
Human	2	Low (some injuries)	While not all hazardous materials incidents will cause injuries, there is potential that negative human health effects will occur.
Property	1	Less than 10% of property	Again, hazardous materials incidents are localized and would affect a small amount of property.
<b>Total</b>	<b>17</b>	<b>Medium</b>	



## 4.0 RISK ASSESSMENT

### 4.3.16 Nuclear Incidents

 <p>HIGHEST HIGH MEDIUM LOW LOWEST</p>	Nuclear incidents refer to events involving the release of significant levels of radioactivity or exposure of workers or the general public to radiation.	
	Warning Time: None	Hazard Index Ranking: 21-High
	Period of Occurrence: Nuclear incidents can occur at any time	State Risk Ranking: 2.4-Medium
	Type of Hazard: Human-Caused	Disaster Declarations: N/A

Nuclear incidents generally refer to events involving the release of significant levels of radioactivity or exposure of workers or the general public to radiation (FEMA, 1997). The primary concern following such an incident is the extent of the radiation. The inhalation or ingestion of radioactive isotopes, which can cause acute health effects (e.g., death, burns, severe impairment), chronic health effects (e.g., cancer), and psychological effects (FEMA, 1997) is also a concern.

#### 4.3.16.1 Location and Extent

In a nuclear power plant, the “fuel” is an isotope of either uranium or plutonium. The isotope undergoes fission (i.e., splitting) to produce energy, which heats water and turns steam-driven turbine generators. In addition to energy, split fuel creates radioactive fission products, which are the cause of concern during nuclear accidents. Officials classify nuclear accidents into three categories:

- **Criticality Incidents:** Involve loss of control of nuclear assemblies or power reactors
- **Loss-of-Coolant Incidents:** Occur whenever a reactor’s coolant system experiences a break or opening large enough that the coolant inventory cannot be maintained by the make-up system
- **Loss-of-Containment Incidents:** Involve the release of radioactivity from materials such as tritium, fission products, plutonium, and natural, depleted, or enriched uranium. Points of release have been containment vessels at fixed facilities or damaged packages during transportation accidents.



The Nuclear Regulatory Commission established a list of emergency response communications to be used in case of a nuclear incident.

Figure 4.3.16.1-1

NUCLEAR EMERGENCY RESPONSE COMMUNICATIONS		
Communication	Description	Purpose
Notification of Unusual Event (NOUE)	Events are in progress or have occurred, which indicate a potential degradation of the level of safety of the plant or indicate a security threat to facility protection has been initiated. No releases of radioactive material requiring offsite response or monitoring are expected unless further degradation of safety systems occurs	To assure that the first step in future response has been carried out, to bring the operations staff to a state of readiness and to provide systematic handling of unusual event information and decision-making.
Alert	Events are in progress or have occurred which involve an actual or potential substantial degradation of the level of safety of the plant or a security event that involves probable life-threatening risk to site personnel or damage to site equipment because of hostile actions. Any releases are expected to be limited to small fractions of the Environmental Protection Agency (EPA)	To assure that emergency personnel is readily available to respond if the situation becomes more serious or to perform confirmatory radiation monitoring if required, and provide offsite authorities current information on plant status and parameters.
Site Area Emergency (SAE)	Events are in progress or have occurred which involve actual or likely major failures of plant functions needed for the protection of the public or hostile action that results in intentional damage or malicious acts; 1) toward site personnel or equipment that could lead to the likely failure of or; 2) that prevent effective access to, equipment needed for the protection of the public. Any releases are not expected to result in exposure levels that exceed EPA PAG exposure levels beyond the site boundary.	To assure that emergency response centers are staffed, to assure that monitoring teams are dispatched, to assure that personnel required for evacuation of near-site areas are at duty stations if the situation becomes more serious, to provide consultation with offsite authorities, and to provide updates to the public through government authorities.
General Emergency	Events are in progress or have occurred which involve actual or imminent substantial core degradation or melting with potential for loss of containment integrity or hostile action that results in an actual loss of physical control of the facility. Releases can be reasonably expected to exceed EPA PAG exposure levels offsite for more than the immediate site area.	To initiate predetermined protective actions for the public, to provide continuous assessment of information from the licensee and offsite organizational measurements, to initiate additional measures as indicated by actual or potential releases, to provide consultation with offsite authorities, and to provide updates for the public through government authorities.

There are five nuclear facilities in Pennsylvania: Beaver Valley, Limerick, Peach Bottom, Susquehanna, and Three Mile Island, which closed in September 2019. Adams County is in the ingestion exposure pathway emergency planning zone (EPZ) (i.e., within 50 miles) of the Three



Mile Island and Peach Bottom facilities.

#### 4.3.16.2 Range of Magnitude

Human exposure as a result of a reactor accident can be in three ways: total or partial exposure as a result of proximity to the radiation source, external contamination, and internal contamination (Christodouleas et al., 2011). In previous incidents, only plant workers or emergency personnel involved in the aftermath experienced substantial total- or partial-body exposure. External contamination occurs when the fission products settle on human beings, thereby exposing skin or internal organs. Internal contamination is the primary mechanism through which large populations around a reactor accident can be exposed to radiation, and occurs when fission products are ingested or inhaled or enter the body through open wounds.

#### 4.3.16.3 Past Occurrence

There are 437 nuclear power plants in operation around the world. There have been five major nuclear accidents in the past: (a) Kyshtym, Russia in 1957, (b) Windscale Pules, the United Kingdom in 1957, (c) Three Mile Island, Pennsylvania in 1979, (d) Chernobyl, Ukraine in 1986, and (e) Fukushima, Japan in 2011.

In the United States, officials often consider the incident at Three Mile Island the most serious incident in commercial nuclear power plant operating history, though multiple studies showed that the small radioactive release had no detectable health effects on plant workers or the public. The Chernobyl incident was also significant, and Ukrainian officials still monitor an exclusion zone around the area. The City of Pripyat stands deserted and serves as a symbol of Chernobyl's aftermath. Scientists around the world study the exclusion zone, and the magnitude of the impacts associated with the incident are debated. Modern technology and research practices have enabled on-going monitoring of and research on impact areas following the Fukushima incident in Japan, though long-term impacts are not yet readily available.

#### 4.3.16.4 Future Occurrence

The probability of future events is unlikely. However, if an event were to occur, Adams County, as a support community, would likely host displaced persons. Gettysburg High School is a reception center, and the Gettysburg Area School Complex is a decontamination center for a future incident at the Three Mile Island facility. Such an event is unlikely since Three Mile Island is no longer in operation.



**4.3.16.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from nuclear incidents. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.16.5-1 presents the results of that survey regarding nuclear incidents.

**Table 4.3.16.5-1**

PUBLIC SENTIMENT, NUCLEAR INCIDENTS – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Nuclear Incidents	58 (39.46%)	65 (44.22%)	16 (10.88%)	8 (5.44%)	147
In the past ten years, do you remember this hazard occurring in your community?				1 (0.68%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (136 responses)				4 (2.94%)	INCREASE
				119 (87.50%)	NO CHANGE
				13 (9.56%)	DECREASE

Table 4.3.16.5-2 shows Adams County’s vulnerability to nuclear incidents.

**Table 4.3.16.5-2**

NUCLEAR INCIDENT VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	2	Low	There has been one nuclear incident in Pennsylvania near Adams County. The potential for a future nuclear incident is low (given historical precedent and the current operational status of Three Mile Island).
Response	5	More than one month	Emergency response to a significant nuclear incident could span months, with some operations extending years.
Onset	4	Less than 6 hours	Nuclear incidents may occur with little to no warning.
Magnitude	3	Critical	A future event at Peach Bottom could potentially affect the eastern half of Adams County (within the 50-mile ingestion zone).
Business	3	At least 2 weeks	An incident at Peach Bottom that impacts eastern Adams County could impact business operations to some degree for an extended period.
Human	1	Minimum (minor injuries)	Based on the past event at Three Mile Island, the human population will not be adversely affected by a nuclear incident.
Property	3	25-50% of property	A future event at Peach Bottom could affect the eastern half of Adams County, including property (within the 50-mile ingestion zone).
<b>Total</b>	<b>21</b>	<b>High<sup>1</sup></b>	

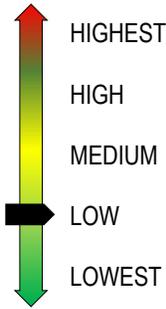
<sup>1</sup> Adams County continues to participate in bi-annual exercises with FEMA and the NRC; despite the decommissioning of the Three Mile Island plant, the county plans to continue participation as long as the exercises are on-going. The county lies within the 50-mile ingestion zone of the Peach Bottom plant, which necessitates planning (but to a lesser extent than for areas in the emergency planning zone).

The ranking for nuclear incidents is high because of the mechanism used to calculate ranks (e.g., magnitude listed as critical per the amount of land area impacted). The on-going drills coupled with public education strategies in Section 6.0 are sufficient to mitigate nuclear incident risks (to the extent possible) in Adams County.



## 4.0 RISK ASSESSMENT

### 4.3.17 Terrorism

	Terrorism refers to the use of force against persons or property with the intent to intimidate or coerce, and includes threats, assassination, kidnapping, hijacking, bombings or bomb threats, cyber-attacks, and use of chemical, biological, nuclear, and radiological weapons.	
	<b>Warning Time</b> None	<b>Hazard Index Ranking:</b> 14-Low
	<b>Period of Occurrence:</b> Acts of terrorism can occur at any time	<b>State Risk Ranking:</b> 2.0-Medium
	<b>Type of Hazard:</b> Human-Caused	<b>Disaster Declarations:</b> N/A

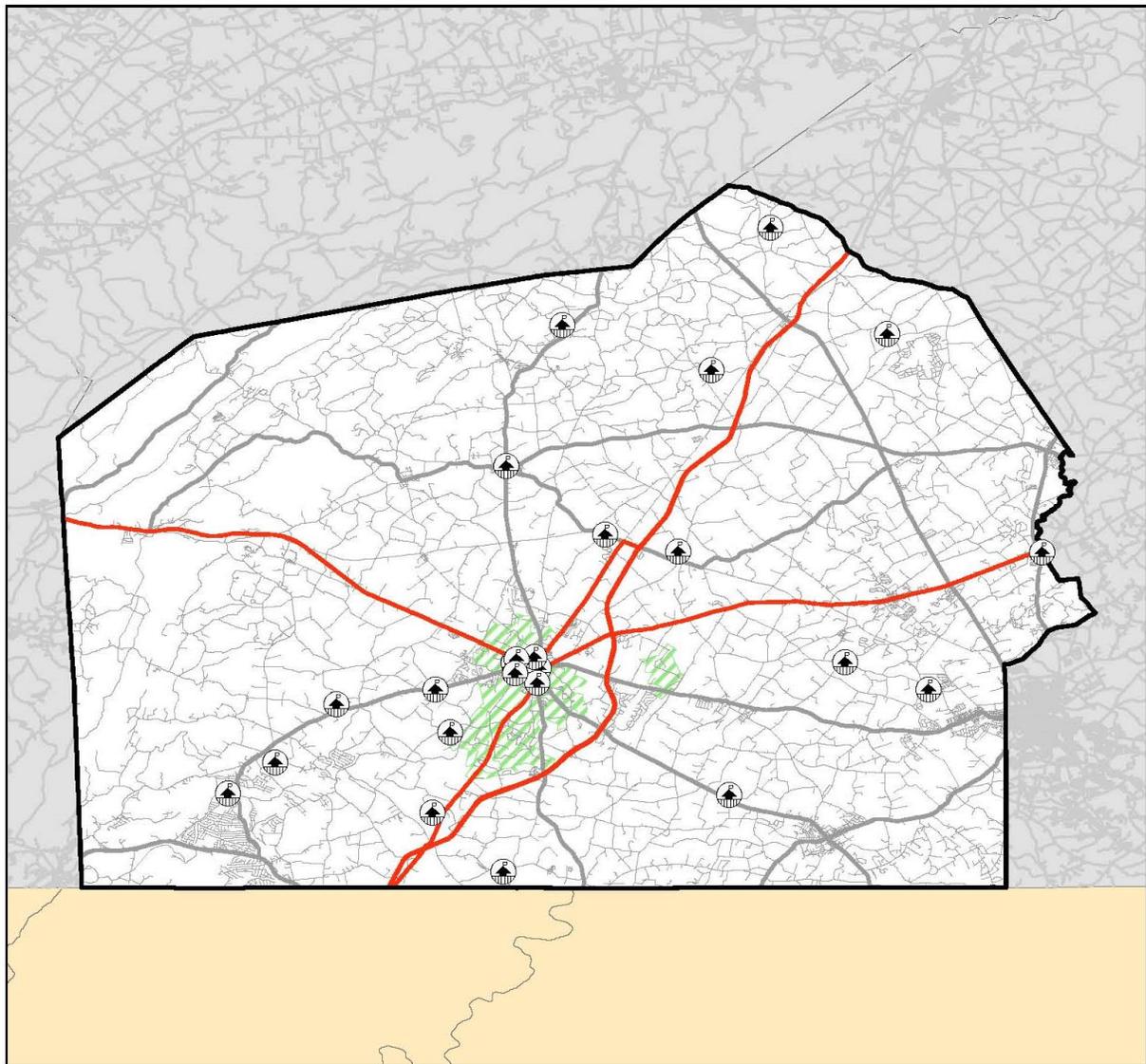
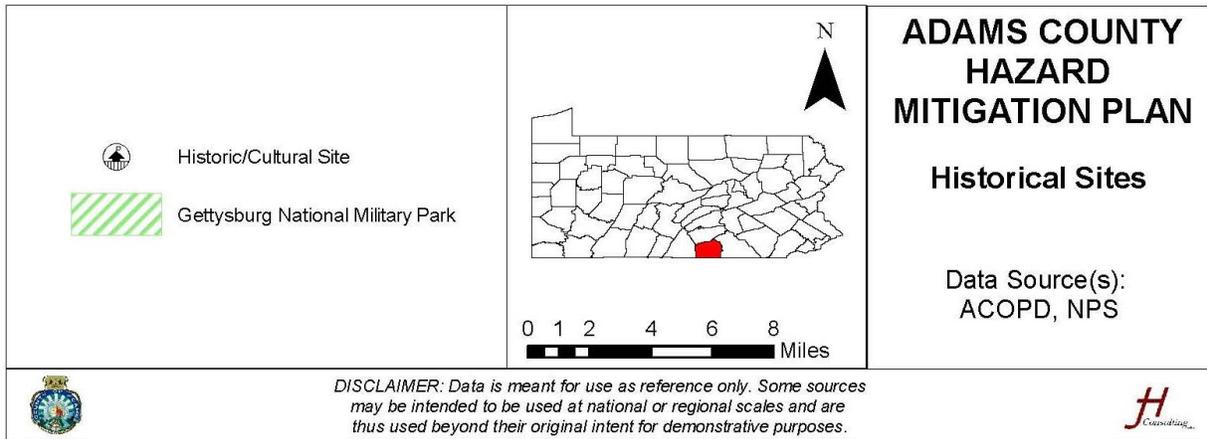
Terrorism is the use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include threats of terrorism, assassinations, kidnappings, hijackings, bomb scares and bombings, cyber-attacks (computer-based), and the use of chemical, biological, nuclear, and radiological weapons (FEMA, 2009). Increasingly, cyberattacks have become a more pressing concern for governments across America.

#### 4.3.17.1 Location and Extent

High-risk targets for 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. Adams County is home to national military monuments (e.g., Gettysburg National Military Park), high-profile landmarks (e.g., the Eisenhower National Historic Site), and large public gatherings. Figure 4.3.17.1-1 below shows the locations of high profile historical sites in the county.



Figure 4.3.17.1-1



The Federal Bureau of Investigation (FBI) classifies terrorism into international and domestic terrorism. International terrorism includes violent acts committed by individuals or groups associated with designated foreign terrorist organizations. Domestic terrorism includes acts carried out by individuals or groups associated with U.S.-based movements that support extremist ideologies.

#### 4.3.17.2 Range of Magnitude

The severity of a terrorism incident depends on the method used, the proximity of a device to people, animals, or other assets and duration of the incident. Terrorists use several methods of attack, including the following.

- **Explosions:** Explosive devices are one of the most common weapons used by terrorists. Materials and information on how to make explosive devices are widely available and these devices are easily carried and detonated.
- **Biological Threats:** Biological threats are organisms or agents that can kill or incapacitate people, and are dispersed by contaminating food or water sources, infecting animals, or spraying them into the air as aerosols.
- **Chemical Threats:** Chemical agents are poisonous vapors, aerosols, liquids, and solids that have toxic effects on people, animals, or plants. Chemical agents are potentially lethal, but often difficult to deliver in lethal concentrations and difficult to produce or acquire.
- **Nuclear Blasts:** All nuclear devices cause deadly effects, including blinding light, intense heat, nuclear radiation, and fires. Nuclear devices can range from small devices carried by individuals to long-range nuclear weapons launched by hostile nations.
- **Radiological Dispersion Devices (RDD):** Terrorist use of an RDD, often called a “dirty bomb,” is more likely than that of a nuclear explosive device. RDDs spread sub-lethal amounts of radiation over a general area with materials commonly used in medicine, agriculture, industry, and research.

A potential worst-case scenario for Adams County would be a terrorist attack at the Gettysburg National Military Park. The park holds historical and cultural significance and attracts approximately one million tourists each year.

#### 4.3.17.3 Past Occurrence

Adams County has experienced terrorist threats in the past. From 2004 to 2009, there



were 26 terrorist incidents reported to PIERS (Pennsylvania’s Emergency Incident Reporting System), including nine bomb threats, 11 suspicious packages or devices, and six miscellaneous incidents. The Pennsylvania Emergency Management Agency no longer uses the PIERS system to collect incident information, so terrorism events since 2009 have not been formally collected. Local news sources have reported the following incidents since 2009. These incidents are shown in Table 4.3.17.3-1.

**Table 4.3.17.3-1**

<b>TERRORISM THREATS ADAMS COUNTY PA</b>			
<i>Date</i>	<i>Location</i>	<i>Threat Location</i>	<i>Type of Threat</i>
November 2019	Gettysburg Borough	Workplace	Bomb Threat
October 2019	Gettysburg Borough	Workplace	Bomb Threat
April 2019	Gettysburg Borough	Law Enforcement Agency	Bomb Threat
April 2019	Gettysburg Borough	Local Prison	Threat
January 2019	Cumberland Township	Human Resources Building	Bomb Threat
February 2018	Fairfield Borough	School	Bomb Threat
November 2017	Gettysburg Borough	Public Event	Bomb Threat
May 2016	Gettysburg Borough and New Oxford Borough	Schools	Bomb Threat

**4.3.17.4 Future Occurrence**

Planners cannot predict terrorist events in the same way that they can natural hazard occurrences and risk areas. Terrorism can also take many forms and involves a range of political and personal agendas. Potentially vulnerable areas include the Gettysburg National Military Park, the Eisenhower National Historic Site, critical facilities (e.g., water plants), and infrastructure (e.g., local electricity grid hardware).

**4.3.17.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from terrorism. Adams County conducted an online survey for the public to share its thoughts on hazard vulnerabilities. Table 4.3.17.5-1 presents the results of that survey regarding terrorism.



**Table 4.3.17.5-1**

<b>PUBLIC SENTIMENT, TERRORISM – ADAMS COUNTY</b>					
<i>Hazard</i>	<i>Level of Concern</i>				<i>Total Responses</i>
	<i>Not at All</i>	<i>Somewhat</i>	<i>Concerned</i>	<i>Very</i>	
Terrorism	40 (27.03%)	56 (37.84%)	31 (20.95%)	21 (14.19%)	148
In the past ten years, do you remember this hazard occurring in your community?				2 (1.37%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (134 responses)				23 (17.16%)	INCREASE
				110 (82.09%)	NO CHANGE
				1 (0.75%)	DECREASE

Table 4.3.17.5-2 shows Adams County’s vulnerability to terrorism.

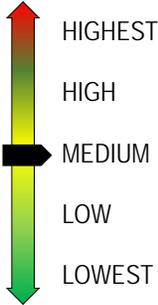
**Table 4.3.17.5-2**

<b>TERRORISM VULNERABILITY SUMMARY</b>			
<i>Category</i>	<i>Points</i>	<i>Description</i>	<i>Notes</i>
Frequency	1	None	While there have been threats of terrorism, there have been no acts of terrorism in Adams County.
Response	2	1 day	With most terrorism incidents, an emergency response would be necessary for a short period.
Onset	4	Less than 6 hours	Terrorism incidents cannot be predicted or forecasted like some natural hazards. The onset of terrorism
Magnitude	1	Localized	Acts of terrorism typically target specific places or events. While significant, an event would affect a small land area.
Business	1	Less than 24 hours	Depending on the event, the local economy could be affected for a prolonged period.
Human	4	High	In the event of a terrorist event, there will likely be multiple severe injuries or deaths.
Property	1	Less than 10% of property	Again, acts of terrorism are specific to a set target and would not cause widespread property damage.
<b>Total</b>	<b>14</b>	<b>Low</b>	



## 4.0 RISK ASSESSMENT

### 4.3.18 Transportation Accidents

	Transportation accidents can result from any form of air, rail, water, or road travel, and can cause regional impacts such as hazardous materials releases or disruption in critical supply/access routes.		
	Warning Time	None	Hazard Index Ranking: 16-Medium
	Period of Occurrence:	Transportation accidents can occur at any time.	State Risk Ranking: 2.4-Medium
	Type of Hazard:	Human-Caused	Disaster Declarations: N/A

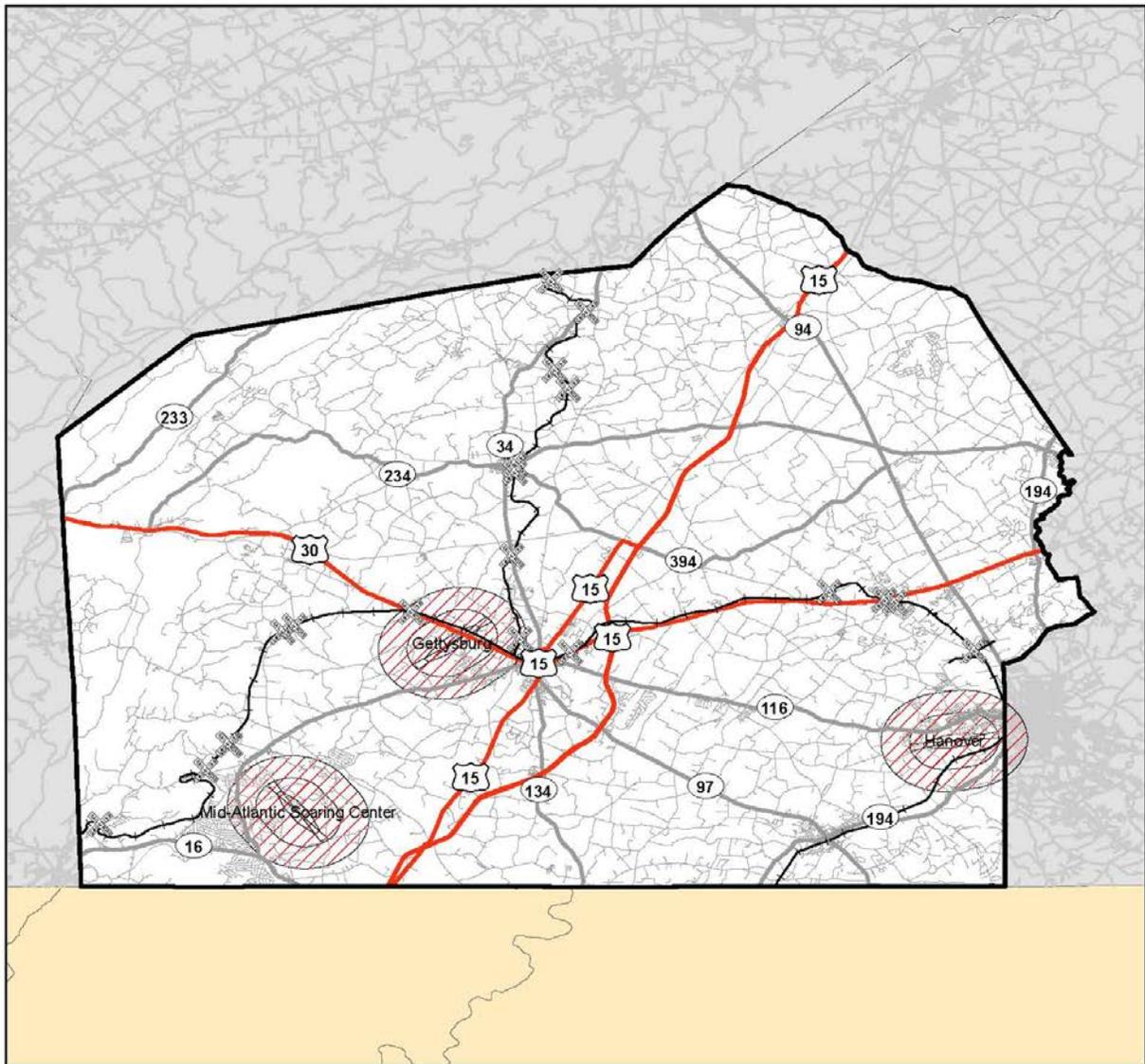
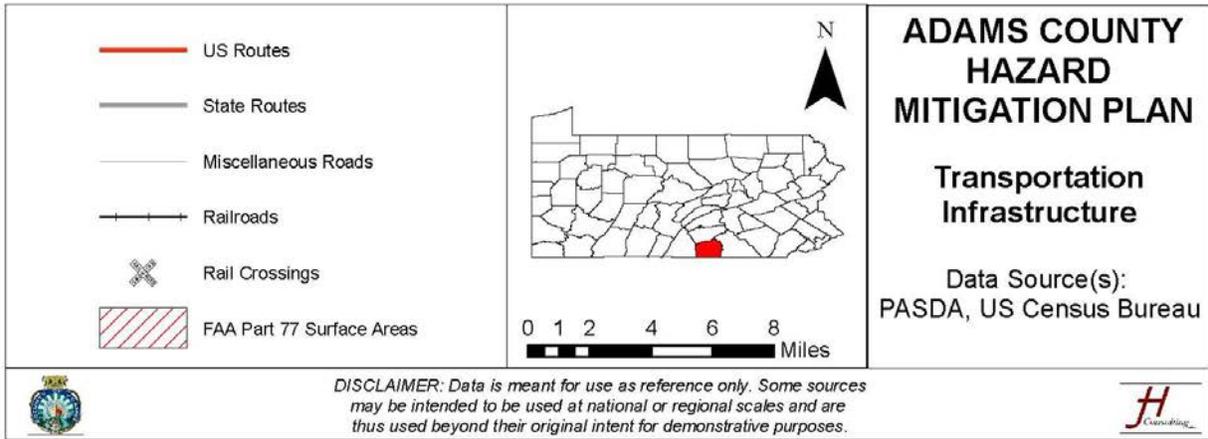
Transportation accidents can result from any form of air, rail, water, or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially along vital transportation corridors or at critical junctions. Traffic congestion, in certain circumstances, can also be hazardous. Traffic congestion is a condition that occurs when traffic demand approaches or exceeds the available capacity of the road network (PEMA, 2018).

#### 4.3.18.1 Location and Extent

For this plan, transportation accidents are incidents involving highway, air, and rail travel. The county is home to two significant transportation routes: US 15 and US 30. Two rail lines are operating in the county which transport freight, including hazardous materials. The CSX line runs east-west through Gettysburg, and the Gettysburg and Northern Railroad line runs from Gettysburg north to Mount Holly Springs. Finally, while there are no public passenger airports in the county, there are four private airports: the Gettysburg Airport and Travel Center, Mid-Atlantic Soaring Center, Hanover Airport, and Southern Adams County Heliport. Figure 4.3.18.1-1 depicts the transportation infrastructure of Adams County.



Figure 4.3.18.1-1



The Pennsylvania Department of Transportation (PennDOT) defines seven roadway crash types (2018).

- **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 transportation accidents are generally one of three types (Federal Railway Administration, 2010).

- **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

The Federal Aviation Administration's (FAA's) guideline on aircraft accident and incident notification, investigation, and reporting defines an aircraft accident as, "an occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight and until all such persons have disembarked, and in which any person suffers death or serious injury, or in which the aircraft receives substantial damage. All aspects of the exceptions to substantial damage (see "Substantial Damage") should be considered before making a final substantial damage determination that would classify the occurrence as an accident" (8020.11D, 2018, p. 2).



4.3.18.2 Range of Magnitude

At a minimum, transportation accidents result in damage to vehicles and minor injuries to passengers and drivers. At worst, significant transportation accidents can result in death or serious injury, extensive property damage, traffic congestion, and temporary business interruption. Most car accidents in Adams County result in injury or property damage only. On average, less than 1.5% of car accidents result in a fatality.

The effects of a transportation accident are exacerbated if the vehicles (either motor vehicles or trains) are carrying hazardous materials. An accident of this nature would cause environmental and human harm in addition to property damage from the accident. See Section 4.3.15 for more information.

4.3.18.3 Past Occurrence

PennDOT provides annual accident reports that show the number of car accidents per county. Table 4.3.18.3 below shows the accidents in Adams County from 2003 to 2018.

**Table 4.3.18.3-1**

CAR ACCIDENTS IN ADAMS COUNTY				
Year	Fatal Injury Crashes	Injury Crashes	Property Damage Only Crashes	Yearly Total
2018	15	424	605	1,044
2017	5	426	571	1,002
2016	15	402	601	1,018
2015	14	394	582	990
2014	6	452	568	1,026
2013	5	489	569	1,063
2012	13	444	538	995
2011	12	286	578	1,076
2010	14	473	520	1,007
2009	21	566	571	1,158
2008	21	485	528	1,034
2007	17	525	519	1,061
2006	16	468	490	974
2005	25	505	495	1,025
2004	15	546	534	1,095
2003	23	536	526	1,085
<b>TOTAL</b>	<b>222</b>	<b>6,997</b>	<b>8,190</b>	<b>15,609</b>
<b>AVERAGE</b>	<b>14.80</b>	<b>466.47</b>	<b>546.00</b>	<b>1,041.60</b>

The Federal Railroad Administration (FRA) provides county-specific information about railway accidents in the United States. Table 4.3.18.4 shows train accidents that occurred from 2010 to 2019.



**Table 4.3.18.3-2**

FRA TEN-YEAR ACCIDENT OVERVIEW, ADAMS COUNTY PA											
Category	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	TOTAL
Total Accidents/Incidents	2	1	1	1	1	0	1	1	2	3	13
Train Accidents (not at Grade-Crossings)	0	0	0	0	0	0	0	0	0	1	1
Hazmat Releases	0	0	0	0	0	0	0	0	0	0	0
Highway-Rail Incidents	1	0	1	0	0	0	0	0	1	1	4
Other Accidents/Incidents	1	1	0	1	1	0	1	1	1	1	9

Aviation accidents are the least frequent type of transportation accidents. Most involve small aircraft and result in few if any injuries. Despite their relative rarity, there have been two aircraft accidents in Adams County. In 2014, two people were killed in a small plane crash near Biglerville. In 2016, another small plane crashed into a tree in Cumberland Township, and responders were able to remove the pilot safely.

Adams County’s hazard mitigation planning committee reported several issues associated with transportation accidents. In many municipalities, the central business district includes densely-constructed areas and potentially heavy pedestrian traffic. Thus, these areas have speed limits. Drivers routinely exceed speed limits, creating hazards. Some municipalities have a town square, and artifacts in the center of the square have been damaged by drivers not aware of the obstruction. Adams County is also an area frequented by tourists (i.e., drivers that may not be familiar with the area).

**4.3.18.4 Future Occurrence**

Based on the number of past occurrences, the likelihood of a transportation accident occurring in Adams County is extremely likely. Most accidents will likely involve motor vehicles, through a train or airplane accident is possible. As Adams County’s population increases and its industry expands, its traffic volume will likely follow suit. Based on this and past occurrences, transportation accidents are highly likely, and will primarily occur on highways.

**4.3.18.5 Vulnerability Assessment**

This section summarizes the vulnerability to Adams County from transportation accidents. Adams County conducted an online survey for the public to share its thoughts on



hazard vulnerabilities. Table 4.3.18.5-1 presents the results of that survey regarding transportation accidents.

**Table 4.3.18.5-1**

PUBLIC SENTIMENT, TRANSPORTATION ACCIDENT – ADAMS COUNTY					
Hazard	Level of Concern				Total Responses
	Not at All	Somewhat	Concerned	Very	
Transportation Accident	26 (17.57%)	51 (34.46%)	43 (29.05%)	28 (18.92%)	148
In the past ten years, do you remember this hazard occurring in your community?				51 (34.91%)	146
Have you noticed an increase or decrease in the occurrences or intensity of this hazard? (138 responses)				46 (33.33%)	INCREASE
				92 (66.67%)	NO CHANGE
				0 (0.00%)	DECREASE

Table 4.3.18.5-2 shows Adams County's vulnerability to transportation accidents.

**Table 4.3.18.5-2**

TRANSPORTATION ACCIDENT VULNERABILITY SUMMARY			
Category	Points	Description	Notes
Frequency	5	Excessive	Adams County can expect to experience multiple vehicle accidents and at most likely, a train accident in any given year.
Response	1	Less than half a day	Transportation accidents do not require a prolonged emergency response. Typical accidents are resolved in less than half a day.
Onset	5	N/A	Transportation accidents cannot be predicted or forecasted like natural hazards.
Magnitude	1	Localized	Traffic patterns may be interrupted, but transportation accidents typically only affect a small portion of the county
Business	1	Less than 24 hours	A transportation accident would not typically interrupt the county's economy.
Human	2	Low (Some injuries)	Depending on the severity of the accident, there may be some injuries. Most are not significant, but a few instances may involve multiple severe injuries.
Property	1	Less than 10% of property	Transportation accidents typically involve a small amount of property, which is far less than 10% of property in Adams County.
<b>Total</b>	<b>16</b>	<b>Medium</b>	



#### 4.4 Hazard Vulnerability Summary

One of the components of a risk assessment is the probability of a hazard occurring and its potential severity should it occur. This process helps to identify which hazards pose the most significant threat to Adams County and participating municipalities.

##### 4.4.1 Methodology

Historical occurrences, not worst-case scenarios, inform all calculations. In cases with no historical occurrences, planners derived estimates from other available data sources, which vary across hazards. Table 4.4.1-1 describes the ranking categories used to determine the overall vulnerability of Adams County to the hazards outlined in the hazard mitigation plan.

Table 4.4.1-1

VULNERABILITY CONSIDERATIONS							
	<i>Frequency</i>	<i>Response</i>	<i>Onset</i>	<i>Magnitude</i>	<i>Business</i>	<i>Human</i>	<i>Property</i>
1	None	Less than half a day	Over 24 hours	Localized (Less than 10% of land area affected)	Less than 24 hours	Minimum (minor injuries)	Less than 10% of property affected
2	Low	1 day	12-24 hours	Limited (10-25% of land area affected)	1 week	Low (some injuries)	10-25% of property affected
3	Medium	1 week	6-12 hours	Critical (25-50% of land area affected)	At least 2 weeks	Medium (multiple severe injuries)	25-50% of property affected
4	High	1 month	Less than 6 hours	Catastrophic (More than 50% of land area affected)	More than 30 days	High (multiple deaths)	More than 50% of property affected
5	Excessive	More than one month	N/A	N/A	N/A	N/A	N/A

“Frequency” refers to the number of times a hazard has occurred in a specific period based on available historical data. Planners calculate the figure by dividing the total number of occurrences by the length of time the data is available. Thus, four occurrences over ten years equal 0.4 occurrences per year. Table 4.4.1-2 describes the frequency and its corresponding category.

Table 4.4.1-2

FREQUENCY			
<i>Value</i>	<i>Score</i>	<i>Description</i>	<i>Definition</i>
.76 - >1.0	5	Excessive	Will occur during a year
.51 - .75	4	High	Likely to occur in a year
.26 - .50	3	Medium	May or may not occur in a year
0 - .25	2	Low	Unlikely to occur in a year
0	1	None	So unlikely that it can be assumed it will not occur in a year



The remaining vulnerability categories in Table 4.4.1-1 are largely qualitative (again based on historical occurrences). Planners estimated the appropriate value for each, and the profiles in Section 4.3 include a table listing each criterion with a determination of its score. Each hazard received a composite score corresponding to category numbers in the far left column of Table 4.4.1-1. Hazards received scores between 7 (i.e., all seven categories at a value of one) and 35 (i.e., all seven categories at a value of five). The list below represents the overall ranges by which Adams County ranked all of the hazards in the plan.

<u>Range of Points (Score)</u>	<u>Hazard Ranking</u>
7 - 10	Lowest
11 - 15	Low
16 - 20	Medium
21 - 25	High
26 - 30	Highest

**4.4.2 Ranking Results**

Using this methodology, Table 4.4.2-1 lists the ranking for each of the hazards identified in the risk assessment (in descending order from the highest point total to the lowest).

**Table 4.4.2-1**

HAZARD RANKING RESULTS								
<i>Hazard</i>	<i>Frequency</i>	<i>Response</i>	<i>Onset</i>	<i>Magnitude</i>	<i>Business</i>	<i>Human</i>	<i>Property</i>	<i>Ranking</i>
Nuclear Incidents	2	5	4	3	3	1	3	21
Flood, Flash Flood, Ice Jam	5	3	4	2	2	1	2	19
Winter Storm	5	3	1	4	2	1	1	17
Env. Haz.: Hazardous Materials Release	5	2	5	1	1	2	1	17
Invasive Species	2	1	1	3	4	2	3	16
Pandemic and Infectious Disease	5	3	1	1	2	3	1	16
Transportation Accidents	5	1	5	1	1	2	1	16
Hurricane, Tropical Storm, Nor'easter	2	3	1	5	1	1	2	15
Extreme Temperature	3	1	1	5	1	3	1	15
Wildfire	5	2	4	1	1	1	1	15
Tornado, Wind Storm	3	2	4	1	1	2	1	14
Terrorism	1	2	4	1	1	4	1	14



HAZARD RANKING RESULTS								
Hazard	Frequency	Response	Onset	Magnitude	Business	Human	Property	Ranking
Drought	2	3	1	5	1	1	1	14
Hailstorm	4	2	2	2	1	1	1	13
Dam Failure	1	3	3	1	1	2	1	12
Subsidence, Sinkhole	5	1	1	2	1	1	1	12
Earthquake	2	1	4	1	1	1	1	11
Landslide	1	2	1	1	1	1	1	8

Based on these results, there is one “High” risk hazard, six “Medium” risk hazards, 10 “Low” risk hazards, and one “Lowest” risk hazards.

#### 4.4.3 Potential Loss Estimates

Potential loss estimates for hazard events help a community understand the monetary value of what might be at stake during a hazard event. Estimates are *potential* in that they generally represent losses that could occur in a countywide hazard scenario. In site-specific (or localized) events, losses may be lower, while regional events may yield higher estimates.

In previous versions of this hazard mitigation plan, planners typically characterized loss estimates as “replacement value,” “contents value,” “functional loss,” and “displacement cost.” While these categories remain valid, planners have migrated toward a case-by-case description of loss based on historical occurrences, scholarly research, etc. The various hazard losses below will indicate the appropriate sources, as well as note whether the loss is historical, modeled, or predicted.

#### Drought

Planners calculated a predictive loss estimate for drought. The USDA maintains data about agricultural activities through five-year censuses. Table 4.4.3-1 is from the 2007, 2012, and 2017 efforts.

**Table 4.4.3-1**

USDA CENSUS OF AGRICULTURE DATA – ADAMS COUNTY					
Year	Farms	Land in Farms (acres)	Harvested Cropland (acres)	Average Harvested Cropland per Farm (acres)	Market Value of Agricultural Products Sold
2007	1,289	174,595	107,626	117.37	\$168,343,000
2012	1,188	171,305	112,966	128.22	\$201,742,000
2017	1,146	166,227	114,458	129.04	\$181,122,000

Source: <https://www.nass.usda.gov/AqCensus/index.php>



There can be no correlation drawn between the presence of farms and drought risk; however, the market value of agricultural products sold provides evidence of total agricultural economic activity exposed to losses from droughts (an average of \$183,735,700). Data on historical occurrences shows no crop damage (or lacks estimates of loans or other assistance provided for crop losses). For planning purposes, utilizing research on average crop yield losses provides the basis for a mathematical loss calculation. Kuwayama (2019) focused on corn and soybeans and found that a week of drought in non-irrigating counties results in average crop yield reductions ranging from 0.1% to 1.2%. The average market value of agricultural products sold annually (i.e., across 52 weeks) suggests an average weekly value of approximately \$3,533,400 (for a potential exposure ranging from \$3,533 to \$42,400). In 2017, the U.S. Department of Agriculture designated Adams County as a “natural disaster area from drought” from May 1 through December 10 (just over seven months) (AgFax, 2017). Combining these calculations suggests a range of exposure of \$98,900 to \$1,187,200 per drought.

**Earthquake**

Planners utilized the HAZUS-MH program from the Federal Emergency Management Agency to produce a modeled loss estimate. The scenario depicts a 5.0 earthquake located at the county seat of Gettysburg. The following tables describe the expected building damages by occupancy type and the building-related economic loss estimates. Tables 4.4.3-1 and 4.4.3-2 highlight expected building damage and economic losses from an earthquake event.

**Table 4.4.3-2**

<b>ADAMS COUNTY EXPECTED BUILDING DAMAGE BY OCCUPANCY (HAZUS)</b>										
	<i>None</i>		<i>Slight</i>		<i>Moderate</i>		<i>Extensive</i>		<i>Complete</i>	
	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>	<i>Count</i>	<i>%</i>
Agriculture	192.83	0.73	77.82	0.94	67.23	1.33	24.06	1.42	6.06	1.35
Commercial	1,079.89	4.09	430.21	5.21	466.98	9.23	201.79	11.89	27.13	12.76
Education	26.45	0.10	11.79	0.14	14.74	0.29	6.90	0.41	2.12	0.47
Government	46.06	0.17	17.67	0.21	21.54	0.43	9.87	0.58	2.86	0.64
Industrial	403.74	1.53	137.63	1.67	150.98	2.98	62.51	3.68	16.15	3.61
Other Residential	1925.46	7.29	851.71	10.31	958.57	18.94	413.54	24.36	91.72	20.49
Religion	128.18	0.49	43.75	0.53	34.83	0.69	14.37	0.85	3.87	0.87
Single-family	22,608.16	85.60	6,688.59	80.98	3,345.82	66.11	964.67	56.82	267.75	59.81
<b>TOTAL</b>	<b>26,411</b>		<b>8,259</b>		<b>5,061</b>		<b>1,698</b>		<b>448</b>	



**Table 4.4.3-3**

<b>ADAMS COUNTY HAZUS BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)</b>							
<i>Category</i>	<i>Area</i>	<i>Single-family</i>	<i>Other Residential</i>	<i>Commercial</i>	<i>Industrial</i>	<i>Others</i>	<i>Total</i>
Income Losses	Wage	0.0000	9.0484	24.8826	1.2028	2.5674	37.7012
	Capital-related	0.0000	3.8446	23.1636	0.7124	0.4746	28.1952
	Rental	10.4687	10.6801	10.9385	0.3977	0.9955	33.4805
	Relocation	36.8203	5.6707	16.3753	2.1660	7.5740	68.6063
	Subtotal	47.2890	29.2438	75.3600	4.4789	11.6115	167.9832
Capital Stock Losses	Structural	59.1859	20.3474	23.4387	6.6529	10.0040	119.6286
	Non-structural	200.1881	75.5719	65.5213	22.1922	24.1059	387.5794
	Content	75.9591	20.0901	35.3348	15.2420	14.6783	161.3043
	Inventory	0.0000	0.0000	0.9865	3.0185	0.3927	4.3977
	Subtotal	335.3328	116.0094	125.2813	47.1056	49.1809	672.9100
<b>TOTAL</b>		<b>382.62</b>	<b>145.25</b>	<b>200.64</b>	<b>51.58</b>	<b>60.79</b>	<b>840.89</b>

Extreme Temperature

There are no historical financial losses available for the ten extreme temperature events in Adams County from 2009 to 2018. However, using statewide data, planners constructed a per-incident historical loss estimate. In Pennsylvania, there were 79 events with \$985,000 in recorded property damage between 2009 and 2018. This data yields an average of \$12,468 per event.

Flood, Flash Flood, Ice Jam

Planners can calculate several loss estimates for flooding. The NFIP records of claims paid database serves as a historical loss estimate. Table 4.4.3-4 shows the total amount of claims paid in each municipality, according to CIS.

**Table 4.4.3-4**

<b>FLOODING CLAIMS PAID, ADAMS COUNTY</b>		
<i>Community</i>	<i>Participation Status</i>	<i>Total Amount of Paid Claims</i>
Abbottstown Borough	Participating	\$47,628.00
Arendtsville Borough	Participating	\$878.00
Bendersville Borough	Participating	\$0.00
Berwick Township	Participating	\$0.00
Biglerville Borough	Participating	\$12,089.00
Bonneauville Borough	Participating	\$4,549.00
Butler Township	Participating	\$22,392.00
Carroll Valley Borough	Participating	\$134,505.00
Conewago Township	Participating	\$7,457.00



FLOODING CLAIMS PAID, ADAMS COUNTY		
Community	Participation Status	Total Amount of Paid Claims
Cumberland Township	Participating	\$1,590,214.00
East Berlin Borough	Participating	\$294,890.00
Fairfield Borough	Participating	\$5,699.00
Franklin Township	Participating	\$84,425.00
Freedom Township	Participating	\$111,026.00
Germany Township	Participating	\$0.00
Gettysburg Borough	Participating	\$662,204.00
Hamilton Township	Participating	\$355,480.00
Hamiltonban Township	Participating	\$0.00
Highland Township	Participating	\$0.00
Huntington Township	Participating	\$0.00
Latimore Township	Participating	\$0.00
Liberty Township	Participating	\$2,347.00
Littlestown Borough	Participating	\$0.00
McSherrystown Borough	Participating	\$0.00
Menallen Township	Participating	\$68,901.00
Mt. Joy Township	Participating	\$8,038.00
Mt. Pleasant Township	Participating	\$53,257.00
New Oxford Borough	Not Participating	N/A
Oxford Township	Participating	\$31,036.00
Reading Township	Participating	\$2,216,339.00
Straban Township	Participating	\$89,800.00
Tyrone Township	Participating	\$0.00
Union Township	Participating	N/A
York Springs Borough	Participating	\$12,566.00

As with earthquakes, planners can compile modeled losses from floods to buildings in Adams County with the HAZUS-MH program. The following tables outline the expected building damages by occupancy and type and the building-related economic losses. Table 4.4.3-5 shows building damage by occupancy.

Table 4.4.3-5

EXPECTED BUILDING DAMAGE BY OCCUPANCY												
Occupancy	1-10		11-20		21-30		31-40		41-50		>50	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Agricultural	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Commercial	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Education	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Government	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Industrial	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Religion	0	0%	0	0%	0	0%	0	0%	0	0%	0	0%
Residential	24	33%	34	47%	6	8%	5	7%	2	3%	1	1%
<b>TOTAL</b>	<b>24</b>		<b>34</b>		<b>6</b>		<b>5</b>		<b>2</b>		<b>1</b>	

Table 4.4.3-6 shows the expected building damage by building type.



**Table 4.4.3-6**

EXPECTED BUILDING DAMAGE BY BUILDING TYPE												
Building Type	1-10		11-20		21-30		31-40		41-50		>50	
	Count	%	Count	%	Count	%	Count	%	Count	%	Count	%
Concrete	0	0%	0	0%	0	0%	0	0	0	0%	0	0%
Manufactured Housing	0	0%	0	0%	0	0%	0	0	0	0%	0	0%
Masonry	6	43%	5	36%	2	14%	1	7	0	0%	0	0%
Steel	0	0%	0	0%	0	0%	0	0	0	0%	0	0%
Wood	18	31%	29	50%	4	7%	4	7	2	3%	1	2%

Table 4.4.3-7 shows building-related economic losses as either direct building losses or business interruption losses.

**Table 4.4.3-7**

BUILDING-RELATED ECONOMIC LOSS ESTIMATES (MILLIONS OF DOLLARS)						
Category	Area	Residential	Commercial	Industrial	Others	Total
Building Loss	Building	15.51	1.66	0.77	0.34	18.27
	Content	6.70	6.32	1.77	1.72	16.51
	Inventory	0.00	0.07	0.22	0.06	0.34
	Subtotal	22.21	8.05	2.76	2.11	35.13
Business Interruption	Income	0.10	5.88	0.07	0.84	6.89
	Relocation	4.12	0.99	0.05	0.30	5.45
	Rental Income	1.18	0.70	0.00	0.06	1.94
	Wage	0.25	6.11	0.10	5.33	11.79
	Subtotal	5.64	13.68	0.22	6.53	26.07
<b>TOTAL</b>		<b>27.85</b>	<b>21.73</b>	<b>2.98</b>	<b>8.64</b>	<b>31.60</b>

NCEI storm event data also supplements the flooding analysis by enabling the calculation of per-incident historical losses. There have been 21 flood events in Adams County over the past 23 years. Of these floods, only one caused reported property damage, one caused a death, and none caused any reported crop damage. The average property damage due to flooding, based on NCEI data, is \$476 per event. Of the 26 flash flood events in Adams County over the past 23 years, four have caused reported property damage, and none caused reported crop damage. The average property damage caused by flash floods is \$4,384 per event.

### Hailstorm

Hail is among the costliest weather disasters nationally. Given robust historical records, planners can calculate per-incident historical loss estimates. According to the NOAA's NCEI



storm events database, 6,045 major hailstorms caused \$1.8 billion in property and crop damage in the U.S. in 2017. These figures suggest high potential, per-storm impacts of nearly \$298,000.

Specifically, in Adams County, 42 historical events resulted in approximately \$15,000 of property damage (and \$0 in crop damage, despite evidence of storms impacting crops) (NCEI, n.d.). Local data suggests an average, per-storm impact of approximately \$357.00.

#### Hurricane, Tropical Storm, Nor'easter

Cyclone events, as well as severe thunderstorms, can impact all areas of Adams County. According to NCEI storm event records, 231 thunderstorm events caused \$1,059,500 in property damage along with \$200.00 in crop damage between 1955 and 2019. Significantly, all reported losses occurred after 1994 (resulting in a total of 176 events over 25 years). These figures suggest historical, per-incident losses of approximately \$60,200.

#### Invasive Species

Documented historical occurrences also enable the calculation of a historical, per-incident loss estimate. The 1999 plum pox infestation noted in Section 4.3.7 resulted in \$50 million in losses across four counties, including Adams, for an average of \$12,500,000 per county.

Planners could also calculate a predictive loss estimate. The Chesapeake Group produced a report that detailed the fruit belt industry in southeastern Pennsylvania, including Adams County. The document outlining the industry in Adams County includes an "impact model." That report noted that the fruit belt contributed approximately \$580 million to the Adams County economy. The report also cites approximately 20,000 acres of tree fruit in the historic South Mountain Fruit Belt of Adams County (for an economic impact of approximately \$29,000 per acre). The previously-noted 1999 plum pox infestation impacted 1,600 acres in four counties (for an average of 400 acres per county). At an economic impact of \$29,000/acre, an infestation impacting 400 acres could yield \$11,600,000 in potential economic losses (for the year in which the infestation occurred).

#### Landslide

Using scholarly research, Adams County calculated a predictive loss estimate stemming from erosion. Telles, Guimaraes, Carmela, and Dechen (2011) compiled a meta-analysis of studies that examined the costs of soil erosion. That analysis cited 16 studies in the United



States, and within those studies, researchers reported an on-site average of \$182.17 estimated dollars/year loss (per ton of lost soil).

The landslide profile in Section 4.3.8 indicated multiple areas within Adams County where 100,000 tons of erosion occurred within a given year (NRCS PA, 2007). Using the research-derived figure per ton results in a predictive loss estimate of \$18,217,000 annually.

#### Pandemic and Infectious Disease

Losses based on historical health-related incidents are difficult to estimate. According to a study by Molinari et al. (2007), seasonal influenza results in a substantial economic impact, estimated, in part, at \$16.3 billion in lost earnings. By population, Adams County represents 0.03% of the United States population. Since seasonal influenza primarily impacts the human population, using Adams County's composition of the U.S. as a multiplier (i.e., 0.0003) and applying it to the potential economic impact, lost earnings in the county could reach \$4,829,000 each year (a predictive loss estimate).

Although that number appears high, it equates to approximately \$74.67 per year for each person listed by the U.S. Census Bureau as "in civilian labor force" for the county. Public health emergencies rarely affect structures. They affect people, and at times, the operations of critical facilities, businesses, and other community assets.

#### Subsidence, Sinkhole

To estimate exposures to subsidence and sinkholes, planners dissolved point features of known sinkholes into a shapefile in a GIS database, and then selected building footprints that intersected the newly-created shapefile. This operation yielded seven impacted buildings. Planners then utilized parcel ID numbers to compile aggregated and average exposure values. The seven impacted properties generated a total exposure (i.e., land plus building value) of \$16,713,700, with an average of \$2,387,671 per property. When extracting the building values out of the total figures, the aggregate exposure is \$11,309,300, with an average of \$1,615,614 per structure.

#### Tornado, Wind Storm

NCEI storm event records enable historical, per-incident loss estimates for both severe wind events and tornadoes. The 17 wind events occurring between 1999 and 2019 resulted in a reported \$60,450 property damage and \$1,000 crop damage. The average property damage per severe wind event was \$3,555.



Further, Adams County experienced 16 tornadoes between 1951 and 2005, and these events resulted in combined estimated property damage of \$357,500. The historic tornadoes in the county accounted for an average of \$22,300 per incident.

#### Wildfire

Adams County compiled a predictive loss estimate for wildfires based on National Interagency Fire Center (2019) data alongside the Pennsylvania Department of Conservation and Natural Resources (DCNR) data. According to the DCNR, 1,590 fires burned 5,201.9 acres in Region 1 (which includes all of Adams County) between 1979 and 2018. The average annual number of fires in this region was 39.75, with an average acreage of 130. Further, the National Interagency Fire Center notes that firefighters may incur an average of \$203 worth of suppression costs (based on federal agency expenditures – i.e., forest service, department of interior agencies, etc.) per acre burned. Based on the Pennsylvania DCNR figures, Region 1 could expect to incur \$26,390 of losses per fire and \$1,049,000 per year.

#### Winter Storm

Like the other severe weather hazards presented in this plan, historical data from the National Centers for Environmental Information enable the calculation of historical, per-incident loss estimates. Adams County experienced 62 winter weather events between 1996 and 2019. These incidents (combined) yielded a reported \$7,000 in property damage. The incidents suggest an average of \$113 in property losses per incident, which is likely too low to be useful. Within the data, one incident accounted for \$5,000 of the losses, while another incident accounted for the remaining \$2,000. Using these figures across two incidents, a more accurate winter weather historical loss estimate would be \$3,500 per incident.

#### Dam Failure

The Stanford University National Performance of Dams Program (NPDP) reports 92 dam-related incidents in Pennsylvania with an associated “total economic loss” of \$209,325,000 (combined). These figures suggest an average historical, per-incident loss of \$23,258,333. (Note: of the 92 incidents, nine had accompanying economic loss figures. Of those nine, five were \$0.00.)



### Environmental Hazards: Hazardous Materials Release

The U.S. Department of Transportation's Pipeline and Hazardous Materials Safety Administration (PHMSA) provides loss data for some incidents. The Adams County PHMSA data included 28 incidents that occurred between 2000 and 2019; 12 (42.86%) incidents included reported "damages." Those reported damages were \$208,421, or an average of \$17,370 per incident. Another perspective on these estimated losses would be an average of approximately \$10,970 per year.

### Nuclear Incidents

Estimating losses from nuclear incidents has notoriously been difficult. Specifically, scholars have conducted significant research on the 1979 Three Mile Island incident that serves as perhaps the best historical loss estimates for the Adams County area. "Losses" in these studies have ranged from direct dollar losses to social and psychological confidence losses in addition to environmental losses. The numbers associated with these estimates vary widely.

For this plan, planners utilized a scholarly article from Sagara, Fujimoto, and Fukuda (1998) that identified the total loss for state and county governments at \$90,000. That article further identified one state government and seven county governments surrounding the plant site. The loss estimate divided by the eight contributing governments yields a historical loss estimate of \$11,250 for governmental purposes (i.e., not an economic, environmental, etc. loss).

### Terrorism

Adams County focused its terrorism loss estimate on tourism impacts given the risks identified in Section 4.3.17. Enders and Olson wrote, in a study measuring the economic costs of terrorism, that a consistent finding across researching examining the connections between terrorism and tourism is that large countries experience minimal tourism losses from terrorism (2012). Enders and Olson cited a 2003 Sloboda article that estimated total terrorism-related tourism losses in the United States at \$56 million between the first Gulf War and 2012. The Enders and Olson article cites a 1992 piece by Enders, Sandler, and Parise that estimated continental Europe's tourism losses from terrorism at 29.6% of a year's worth of tourism revenues.

Though comparing the research-generated figure for continental Europe to local tourism revenues in Adams County could not reasonably be accurate, it does provide a predicted loss that can be helpful to planners. The Gettysburg & Adams County Chamber of Commerce reported that visitors (i.e., tourists) spent \$691.2 million in Gettysburg and Adams County in



2016. Calculations using the European estimate yield a potential loss of \$204,595,200 in tourism revenues per terrorist event.

### Transportation Accidents

PennDOT reported that in 2017, “the economic loss due to traffic crashes was \$1,414 to every man, woman, and child in Pennsylvania” (2018, p. 8). Further, that report cited an average cost of \$3,278 in property damage per crash. The historical incident data presented in Section 4.3.18 above notes an average of 1,042 crashes per year in Adams County. These figures, then, suggest a predictive loss estimate of \$3,415,676 per year.

### 4.4.4 Future Development and Vulnerability

Understanding the risk Adams County faces from future events is an important consideration of vulnerability. This section examines various demographic and other trends in Adams County to contextualize future risk to the hazards identified later in this plan.

### Population

**Hazard Mitigation Relevance:** People are some of the most important assets in a community. Understanding population trends and concentrations assists in describing current and future vulnerability, as well as in the design of outreach and to target preparedness, response, and mitigation actions. Also, understanding where people reside or visit in a community informs the appropriate locations for mitigation projects (FEMA, 2013).

Adams County’s population has steadily increased since 1990. However, the Center for Rural Pennsylvania maintains its classification of Adams County as a “rural” county. The center defines rural as a population density within the area less than the statewide average density of 284 persons per square mile ([rural.palegislature.us/demographics\\_rural\\_urban.html](http://rural.palegislature.us/demographics_rural_urban.html)). Given the Census Bureau’s 2018 estimate of 106,541, Adams County’s population density is 205 persons per square mile. (Neighboring Cumberland and York Counties are “urban.”)

The Adams County Office of Planning and Development expects the county’s population to continue a steady increase. Between the 1990 and 2010 decennial Censuses, the population increased by 29.6% (from 78,274 to 101,407). Census estimates for 2018 show a 5.1% increase. The county expects an 18.2% increase through 2040, bringing the county’s population to 125,880. Figure 4.4.4-1 presents the office of planning and development’s projections.



Figure 4.4.4-1

**POPULATION DATA and PROJECTIONS**  
Municipalities of Adams County, Pennsylvania

	Population					Projections		
	1990	2000	2010	2015 Est.	2018 Est.	2020	2030	2040
Abbottstown	539	905	1,011	1,018	1,023	1,027	1,043	1,128
Arendtsville	693	848	952	952	952	952	956	1,057
Bendersville	580	578	641	651	651	654	692	762
Biglerville	993	1,101	1,200	1,207	1,211	1,214	1,227	1,341
Bonneauville	1,282	1,378	1,800	1,802	1,805	1,806	1,847	2,346
Carroll Valley	1,457	3,291	3,876	3,925	4,006	4,042	4,227	4,789
East Berlin	1,175	1,365	1,521	1,523	1,523	1,524	1,530	1,751
Fairfield	524	486	507	509	511	512	521	577
Gettysburg	7,025	7,490	7,820	7,680	7,688	7,707	7,785	8,258
Littlestown	2,974	3,947	4,434	4,565	4,678	4,745	5,001	5,295
McSherrystown	2,769	2,691	3,038	3,053	3,068	3,076	3,109	3,301
New Oxford	1,817	1,696	1,783	1,792	1,792	1,794	1,804	1,909
York Springs	547	574	833	833	833	833	843	911
<b>TOTAL: Boros</b>	<b>22,155</b>	<b>26,348</b>	<b>29,216</b>	<b>29,510</b>	<b>29,741</b>	<b>29,866</b>	<b>30,586</b>	<b>33,423</b>
Berwick	1,831	1,818	2,389	2,466	2,494	2,524	2,677	3,293
Butler	2,514	2,678	2,567	2,650	2,710	2,750	2,912	3,131
Conewago	4,532	5,709	7,085	7,369	7,645	7,801	8,585	9,511
Cumberland	5,431	5,718	6,162	6,779	6,976	7,201	8,219	8,984
Franklin	4,126	4,590	4,877	4,985	5,045	5,092	5,303	5,839
Freedom	692	844	831	846	851	856	883	975
Germany	1,949	2,269	2,700	2,833	2,905	2,962	3,198	3,588
Hamilton	1,760	2,044	2,530	2,630	2,684	2,726	2,959	3,468
Hamiltonban	1,872	2,216	2,372	2,403	2,430	2,446	2,538	2,862
Highland	815	825	943	968	982	992	1,062	1,232
Huntington	1,989	2,233	2,369	2,417	2,452	2,476	2,599	2,866
Latimore	2,209	2,528	2,580	2,644	2,679	2,706	2,813	3,104
Liberty	938	1,063	1,237	1,278	1,330	1,356	1,483	1,613
Menallen	2,700	2,974	3,515	3,728	3,802	3,882	4,246	4,632
Mount Joy	2,848	3,232	3,670	3,827	3,920	3,990	4,311	4,899
Mount Pleasant	4,076	4,420	4,693	4,938	5,030	5,124	5,550	6,010
Oxford	3,437	4,876	5,517	5,628	6,149	6,324	7,171	6,790
Reading	3,828	5,106	5,780	5,933	6,019	6,085	6,471	7,224
Straban	4,565	4,539	4,928	5,044	5,110	5,161	5,399	5,915
Tyrone	1,829	2,273	2,298	2,343	2,365	2,384	2,478	2,787
Union	2,178	2,989	3,148	3,180	3,222	3,243	3,325	3,734
<b>TOTAL: Twps</b>	<b>56,119</b>	<b>64,944</b>	<b>72,191</b>	<b>74,890</b>	<b>76,800</b>	<b>78,081</b>	<b>84,183</b>	<b>92,457</b>
<b>Adams County</b>	<b>78,274</b>	<b>91,292</b>	<b>101,407</b>	<b>104,400</b>	<b>106,541</b>	<b>107,967</b>	<b>114,769</b>	<b>125,880</b>



Source: US Census Bureau Decennial Census;  
ACOPD - Estimates March 2019, Projections last revised December 2019



## Education, Business Development, Transportation, and Other Development

### **Hazard Mitigation Relevance**

- (Economic and Business Development) Describing economic and business development trends helps to assess dependencies between economic sectors and the infrastructure needed to support them (FEMA, 2013).
- (Transportation) The transportation infrastructure is a key community asset, particularly in the response and recovery phases. Ensuring open arterial routes helps with emergency response, the movement of life-saving (or sustaining) supplies, etc. Identifying key transportation assets and understanding their potential vulnerabilities can inform projects designed to support their continuity in emergencies.
- (Land Use) Land use descriptions inform discussions of risk and vulnerability. For example, flooding may exist as a high risk, but may not correlate with high vulnerability in open or unpopulated forested areas. Further, understanding land use may identify valuable areas where natural features can provide protective functions that reduce the magnitude of hazard events (FEMA, 2013). *Proposed* land uses can inform discussions about the types of assets that future hazard occurrences could impact.

Development in Adams County has centered historically on those areas with abundant transportation access. According to the county's office of planning and development, much of the future land use continues this trend (Explore Adams, <https://adamsgis.maps.arcgis.com/apps/MapSeries/index.html?appid=a0194d4c547e4bdfbdf6c16712ee2ef4>). The areas at crossroads in boroughs are "mixed-use." Numerous areas near Abbottstown, Bendersville, East Berlin, Gettysburg, Littlestown, McSherrystown, New Oxford, Straban, and York Springs appear as "employment centers," indicating those areas as targeted for general economic development. Areas just east of Gettysburg (toward New Oxford Borough and Oxford Township) are the only areas with anticipated commercial development, owing largely to the crossroads of US 15 and US 30.

The county anticipates residential development in the southern, central, and eastern areas of the county. Medium-low density residential development areas are throughout those areas. Areas of medium density residential development appear along the US 30 corridor as well. Significantly, local officials realize the value of maintaining the rural nature of Adams County. The county's comprehensive plan contains a "growth management plan" that identifies designated growth areas. Many other comprehensive plans in the county reference the county plan and remain consistent with it. Growth areas in the eastern portions of the county focus on the Boroughs of Abbottstown, Bonneauville, East Berlin, Littlestown, McSherrystown, and New Oxford, and include portions of Berwick, Conewago, Germany, Hamilton, Mount Pleasant, Oxford, Reading, and Union Townships. Other smaller growth areas are in the Hampton area, at SR 94 and SR 394; in the Green Springs area east of SR 94 near the county line at Hanover; and Lake Meade.

Growth in the central portion of the county emanates outward from the Gettysburg area, with additional development associated with York Springs and several interchanges along US



15. Development near Gettysburg includes the US 15-US 30 interchange and Lake Heritage areas, with smaller growth areas at US 15/Bus 15 at Fairplay south of Gettysburg; at the Black Horse area west of the borough and north of SR 116; near Mummasburg northwest of Gettysburg Borough; and in the Hunterstown area (at the SR 394/US 15 interchange). Growth areas near Gettysburg include portions of Cumberland, Franklin, Freedom, Highland, Mount Joy, Mount Pleasant, and Straban Townships. Growth in the York Springs/SR 234 interchange area includes parts of Huntington, Latimore, and Tyrone Townships.

The western portions of the county will likely see growth in and near the boroughs, primarily in Carroll Valley, with less growth in the Arendtsville, Bendersville, Biglerville, and Fairfield areas. The office of planning and development also identified small growth areas in Hamiltonban, Highland, and Liberty Townships.

Various municipalities maintain seven other comprehensive plans. Table 4.4.4-2 highlights goals, tools, and overlaps with the county's plan.

**Table 4.4.4-2**

<b>OTHER COMPREHENSIVE PLANNING CONSIDERATIONS</b>		
<i>Plan (and Municipalities)</i>	<i>Year Adopted</i>	<i>Goals, Tools, Overlaps</i>
Bonneauville-Mount Pleasant Joint Comprehensive Plan  (Bonneauville Borough, Mount Pleasant Township)	2003	<ul style="list-style-type: none"> <li>• Transfer of development rights program proposed to incentivize private developers to preserve farmland</li> <li>• Land use plan categories to direct development: public recreation and battlefield preservation, conservation corridors, agricultural preservation, land conservation</li> <li>• Consider development timing-monitor private sector growth trends to determine if growth areas should be expanded</li> </ul>
(The) Borough of Carroll Valley Comprehensive Plan  (Carroll Valley Borough)	2012	<ul style="list-style-type: none"> <li>• Seek to designate areas or corridors within its limits as growth areas, consistent with the county's comprehensive plan</li> <li>• Growth areas evaluated by borough staff, committees, and elected officials to determine if changes to zoning designations, ordinances, rules, or regulations to ensure housing needs can be pursued</li> <li>• Evaluate the current zoning delineation and corresponding ordinances for areas that require modification to allow for business development</li> </ul>
Central Adams Joint Comprehensive Plan  (Cumberland Township, Gettysburg Borough, Straban Township)	2018	<ul style="list-style-type: none"> <li>• Future land use areas depicted on Map B20</li> </ul>

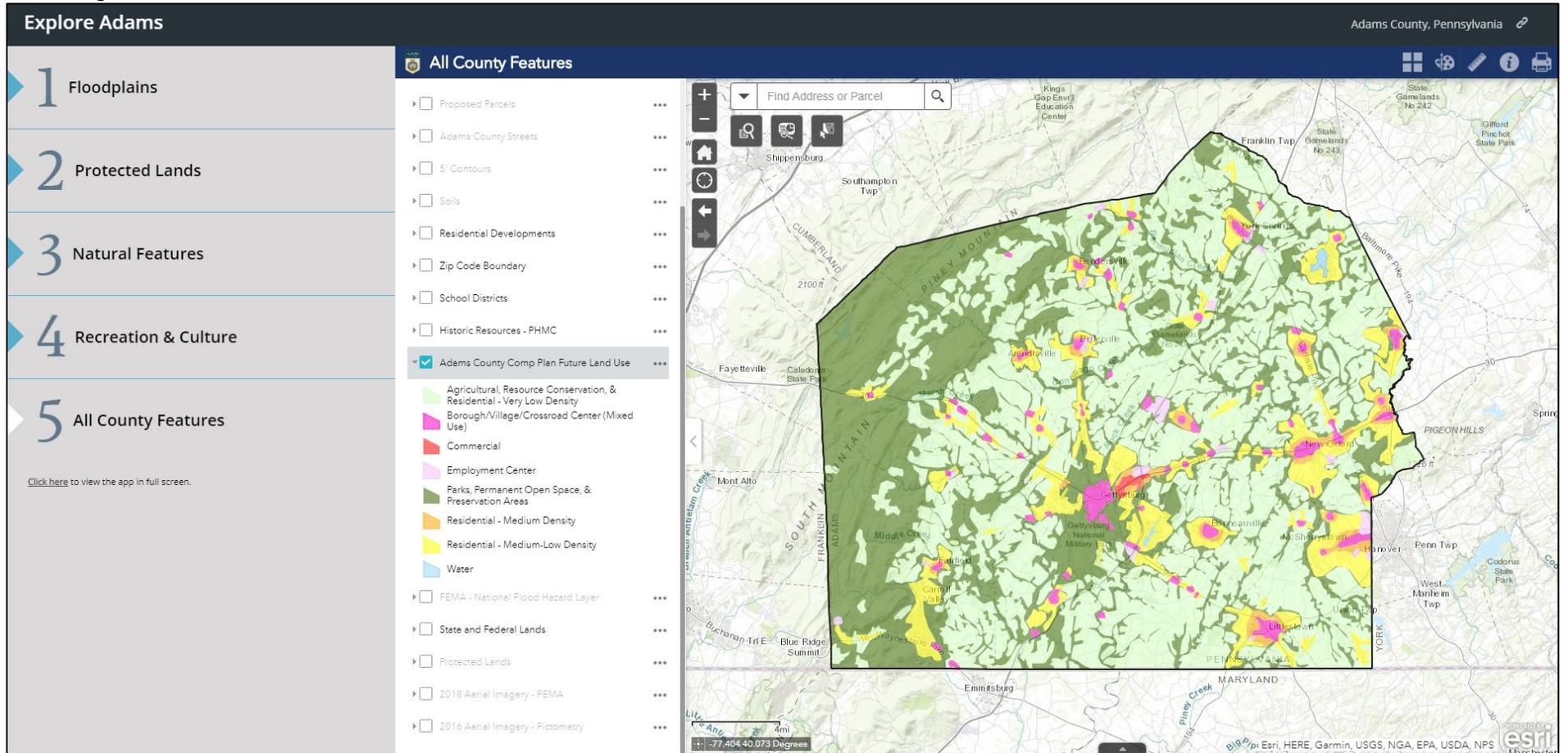


<b>OTHER COMPREHENSIVE PLANNING CONSIDERATIONS</b>		
<i>Plan (and Municipalities)</i>	<i>Year Adopted</i>	<i>Goals, Tools, Overlaps</i>
Conewago Township, Adams County Comprehensive Plan  (Conewago Township)	2008	<ul style="list-style-type: none"> <li>Seeks to maintain consistency with county planning, particularly regarding east-west transportation corridors, while maintaining rural nature of township</li> <li>Goals to concentrate development on the edges of towns and villages to ensure utility support</li> </ul>
Eastern Adams Joint Comprehensive Plan and Route 194 Corridor Study  (Abbottstown Borough, East Berlin Borough, Hamilton Township, New Oxford Borough, Oxford Township, Reading Township)	2012	<ul style="list-style-type: none"> <li>Designated growth areas established and included in Map 23 of the plan</li> </ul>
Northwest Adams Joint Comprehensive Plan  (Arendtsville Borough, Bendersville Borough, Biglerville Borough, Butler Township, Franklin Township, Menallen Township)	2010	<ul style="list-style-type: none"> <li>Designated growth areas and potential future growth areas established and intended to accommodate most of the region's residential growth in the next 10 to 20 years and shown on the future land use map (Map 9-5)</li> <li>Growth areas contain 3,681 acres for potential development</li> <li>Transfer of development rights program proposed to incentivize private developers to preserve farmland</li> </ul>
Southeast Adams Joint Comprehensive Plan  (Germany Township, Littlestown Borough, Union Township)	2008	<ul style="list-style-type: none"> <li>Designated growth areas and potential future growth areas established and shown on the future land use plan</li> <li>Most growth within the region will occur within the designated growth area, and upon build-out, growth would then be accommodated in the potential future growth area</li> </ul>

Figure 4.4.4-3, taken from Explore Adams (ACODP, n.d.), shows these future land use areas.



Figure 4.4.4-3



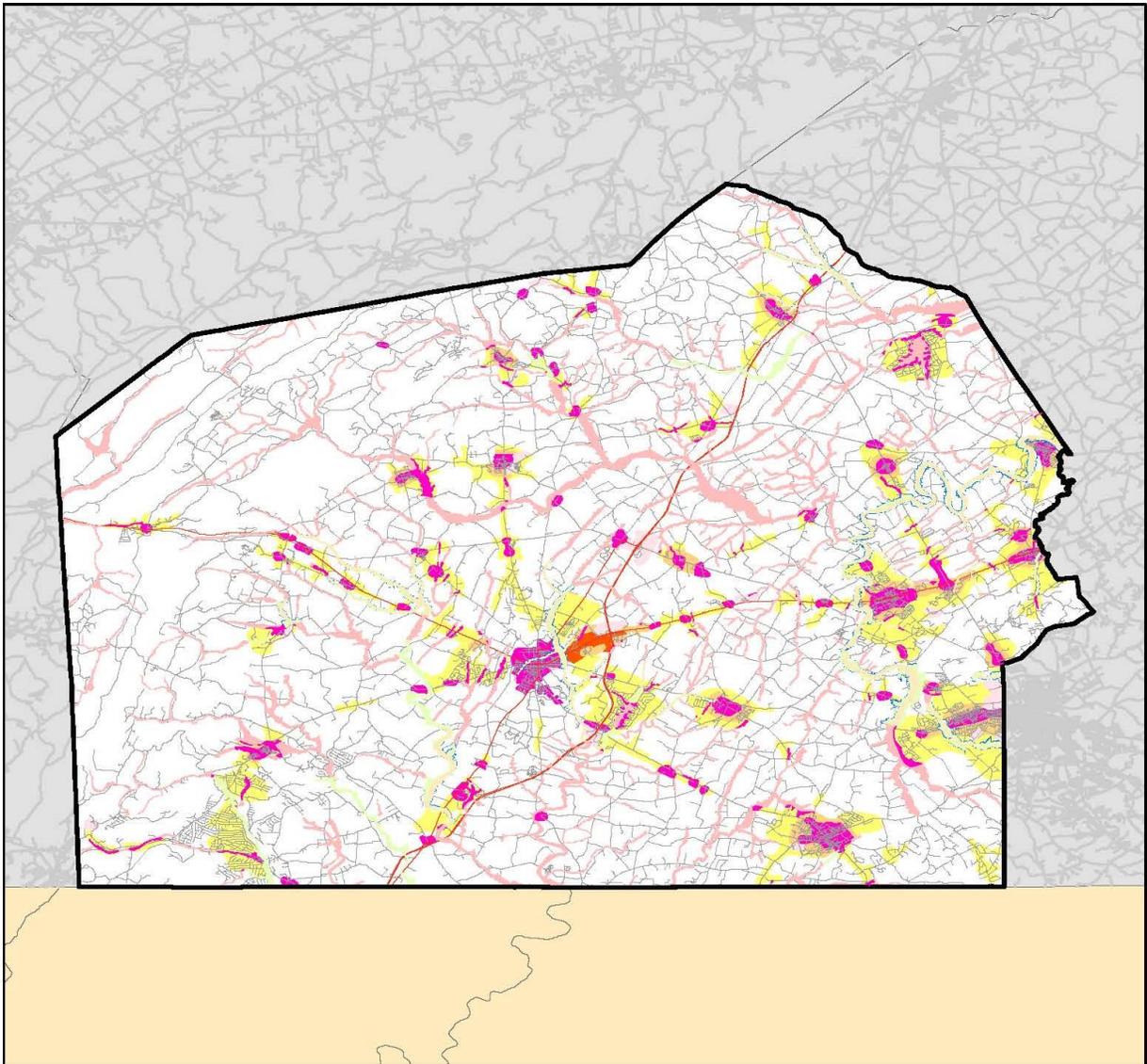
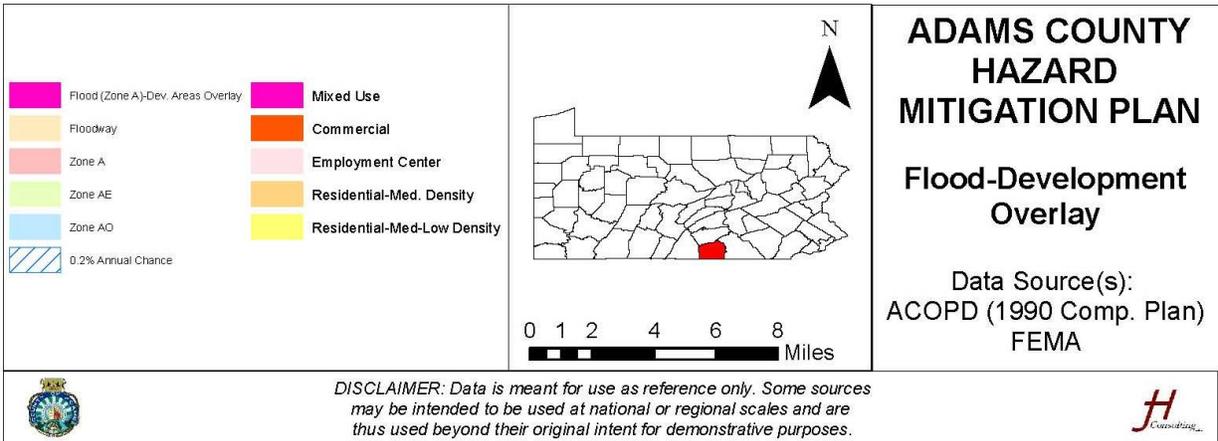
### Planned Development and Hazard Areas

When planning for new development, this plan suggests that it is vital to consider areas where new development avoids damages from future hazardous events. The following maps identify areas targeted for development cross-referenced with various risk areas per the risk assessment in Section 4.0.

- Figure 4.4.4-4: Flood-Development Overlay
  - This figure shows those areas identified for future development in the 1990 comprehensive plan that intersection Zone A Special Flood Hazard Areas.
  - The primary mitigation action in these areas would be to maintain greenspace in flood-prone areas to the extent possible.
  - If building or upgrading in or near SFHAs, construction of livable or usable spaces about the base flood elevation (subject to local floodplain management ordinances) should be required.
  - Additionally, sharing information on the flooding risk and encouraging resident/employee protective actions in timely fashions can be beneficial.



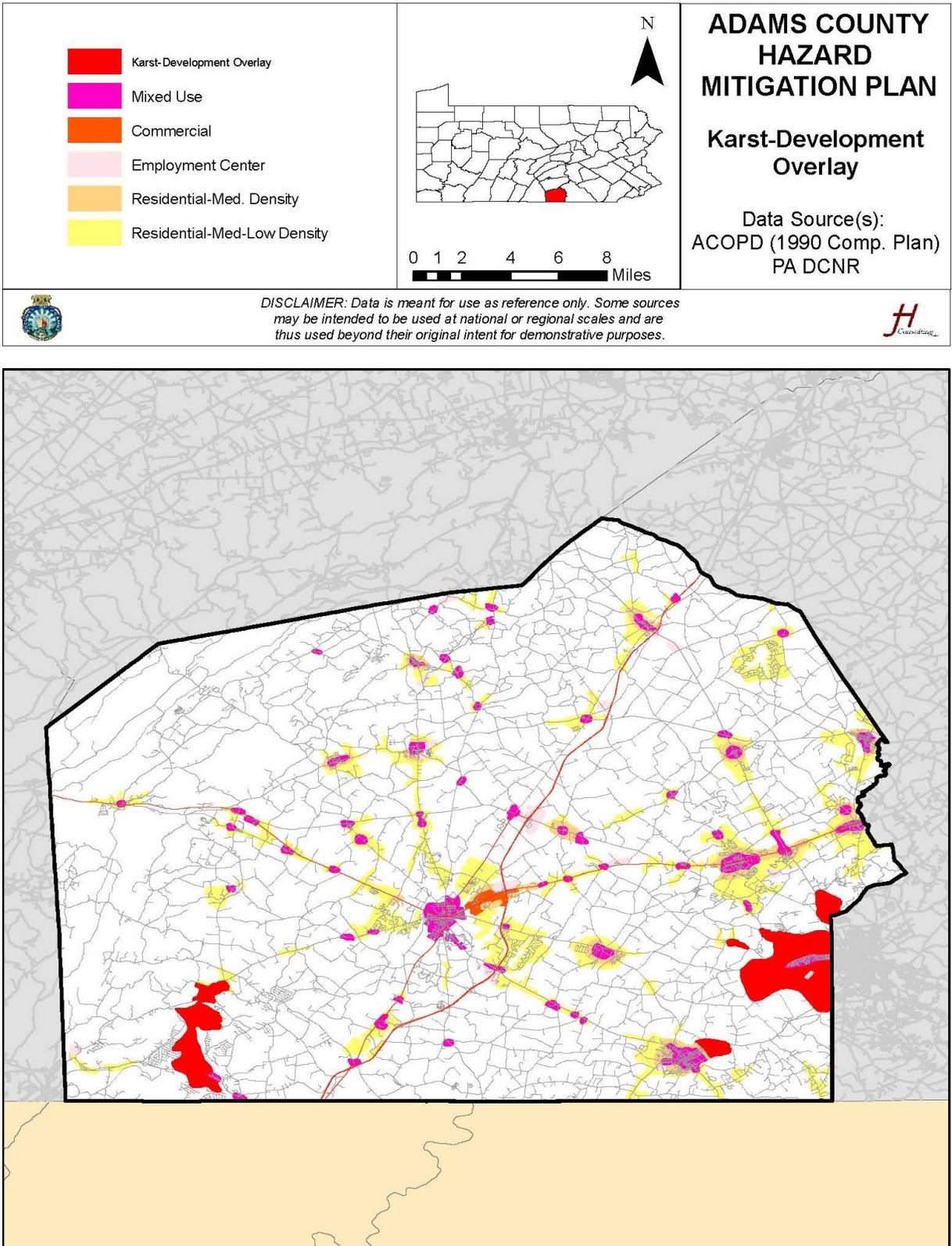
Figure 4.4.4-4



- Figure 4.4.4-5: Karst-Development Overlay
  - This figure shows those areas identified for future development in the 1990 comprehensive plan that lie above known Karst areas.
  - According to FEMA's 2013 booklet outlining mitigation ideas, access to information is a key mitigation strategy for subsidence-prone areas. Municipalities may consider sharing information on structural design ideas that can resist the loading associated with subsidence, etc.



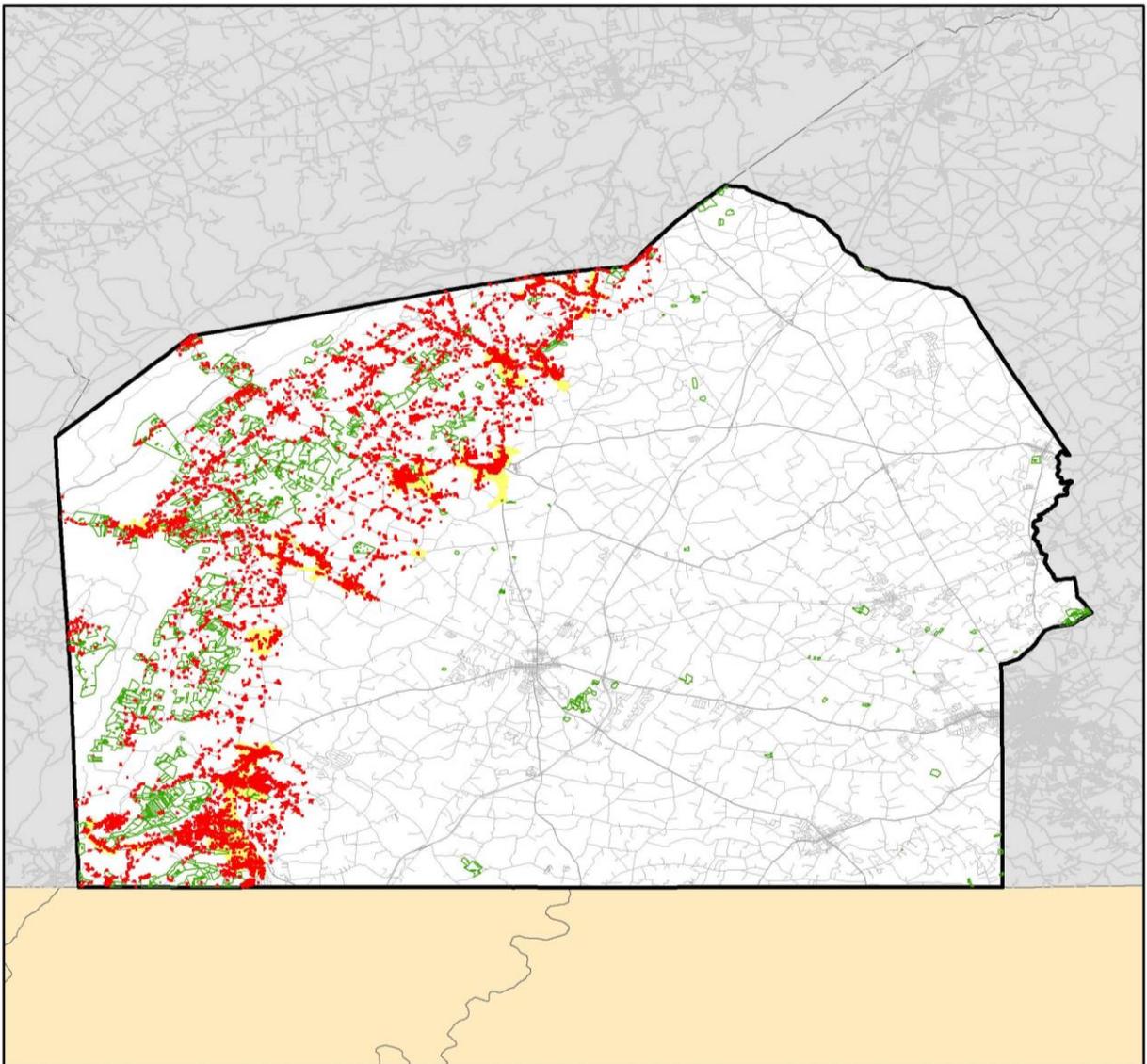
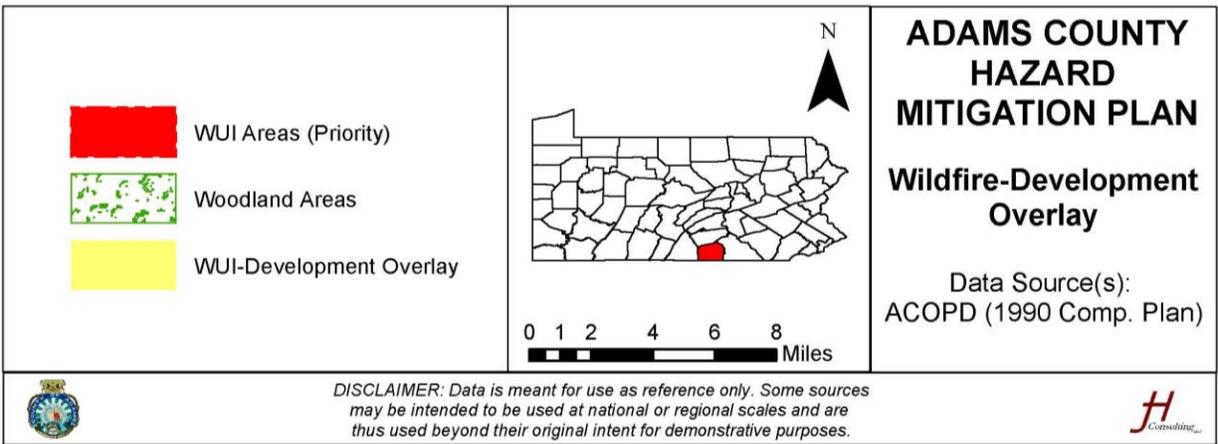
Figure 4.4.4-5



- Figure 4.4.4-6: Wildfire-Development Overlay
  - This figure shows building footprints within 2.4 kilometers (Radeloff et al., 2005) of woodland areas near the Michaux State Forest as well as the areas identified in the 1990 comprehensive plan for future development that surround them.
  - In these areas, municipal officials may consider wildland-urban interface codes that can regulate safer construction, the placement of signage and fire hydrants, vegetation management, etc. Municipalities may also consider participating in Firewise programs.
  - Residents or developers in these areas may use fire-resistant roofing and building materials in remodels, upgrades, and new construction. They may use functional shutters over windows.
  - Further, property owners may manage the vegetation on their properties, including safe disposal of yard and household waste; removing dead/dry leaves, twigs, needles, and other combustibles from roofs; creating a defensible space around structures; etc. (FEMA, 2013).



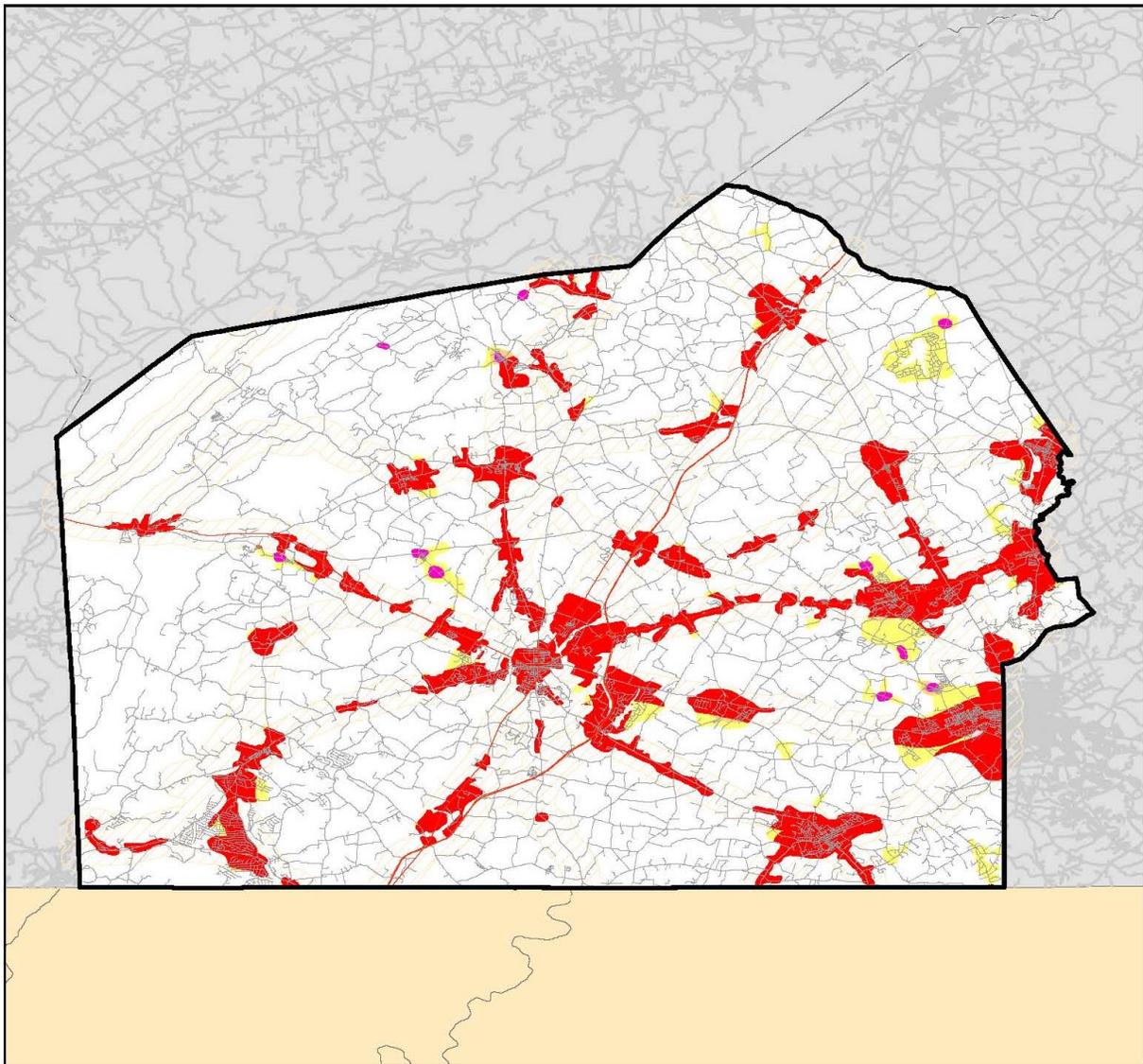
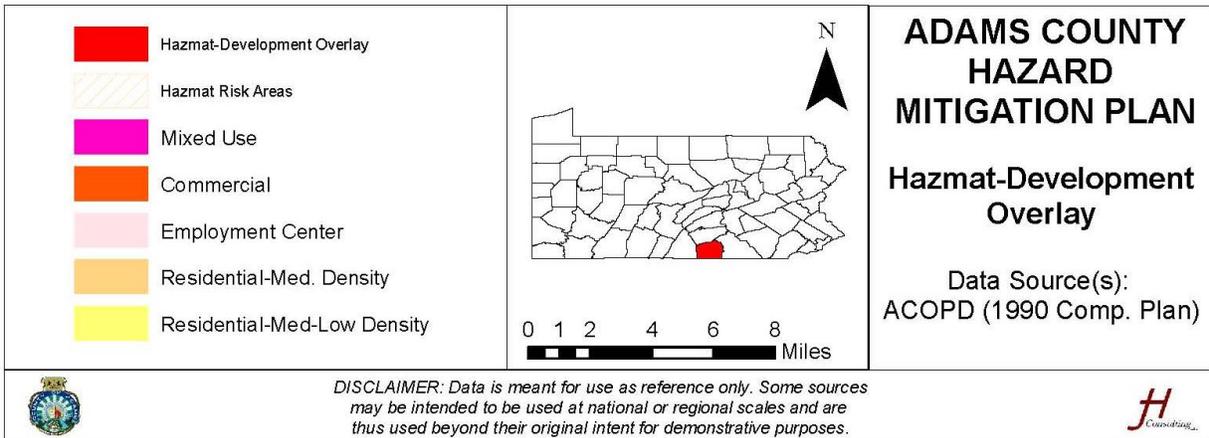
Figure 4.4.4-6



- Figure 4.4.4-7: Hazmat-Development Overlay
  - This figure shows hazardous material risk areas along with the areas identified in the 1990 comprehensive plan as “future development areas” that overlap them.
  - Developers and residents that build in these areas should have a plan to shelter-in-place. They may also find it beneficial to pre-plan an evacuation, to include the location to which they would evacuate (or have their employees evacuate).
  - Relationships with local industries (where fixed facilities are active) and jurisdictional fire departments may also be important to enhance access to early warnings, information on protective measures, etc.



Figure 4.4.4-7



### Climate Change and Other Complicating Variables

Direct, calculable consequences of disasters can include fatalities, injuries, and damages to humans, animals, or property. Disasters do not end there; there are several indirect effects, tangible and intangible, associated with them. Some examples of these include loss of livelihood and income, loss of community and population, mental and psychosocial impacts, costs of rebuilding, repair or replacement, loss of inventory, wages and tax revenue, etc. (Coppola, 2015). All of these also have a cost associated with them, but it is much more difficult to assign a specific dollar value and quantify them accurately. For this plan, the primary focus of loss estimates will be the direct consequences of the given hazard.

Countless situations could occur that could result in a disruption to critical systems throughout Adams County. Loosely-related variables often considered *cascading hazards*, can complicate some hazards. For example, high winds may cause sporadic damage, but often do not become a significant countywide concern until a large number of residents are without power. In addition to weather-related power outages, cascading hazards in Adams County could include (but not be limited to) the following.

- Damage to infrastructure (i.e., roads, bridges, pipes, utility poles, etc.) and residences following flooding
- Flooding of downstream or protected areas in the event of a dam or levee failure
- Drinking water supply shortages and contamination following severe and prolonged drought conditions or floods
- Power outages, ruptured gas lines, etc. following earthquakes or severe weather
- Public health concerns following flooding conditions
- Population displacement before, during, or after an event that may be temporary or permanent

The complicating variables related to each hazard often appear in the hazard profiles. The information presented relates to worst-case scenario events; a single event may not always reach all impacts described. It is important, however, to understand that the impacts of hazards go beyond those seen immediately after the event. The effects of one event can last months or even years, especially where public health, social, economic, environmental, and infrastructure impacts are concerned.

Many natural hazards are related to the climate or weather, such as droughts, severe weather, and floods. There is an important distinction between weather and climate. Weather refers to the atmospheric conditions of a geographical region over a short period, such as days



or weeks. Climate, in contrast, refers to the atmospheric conditions of a geographical area over long periods, such as years or even decades (Keller & Devecchio, 2015, pp. 406-407). According to the U.S. Global Change Research Program, there are weather and climate changes already observed in the United States.

- Since recordkeeping began in 1895, the average U.S. temperature has increased by 1.3°F to 1.9°F, with most of the increase happening since 1970. Also, the first decade of the 2000s was the warmest on record.
- The average precipitation across the U.S. has increased since 1900, with some areas experiencing higher than the national average and some lower. Heavy downpours are increasing, especially over the last 30-50 years.
- Drought events have increased in the west. Changes in precipitation and runoff, combined with changes in consumption and withdrawal, have reduced surface and groundwater supplies in many areas.
- Some types of severe weather events have experienced changes. Heatwaves are more frequent and intense, and cold waves have become less frequent and intense overall.
- The intensity, frequency, and duration of North Atlantic hurricanes have increased since the early 1980s.

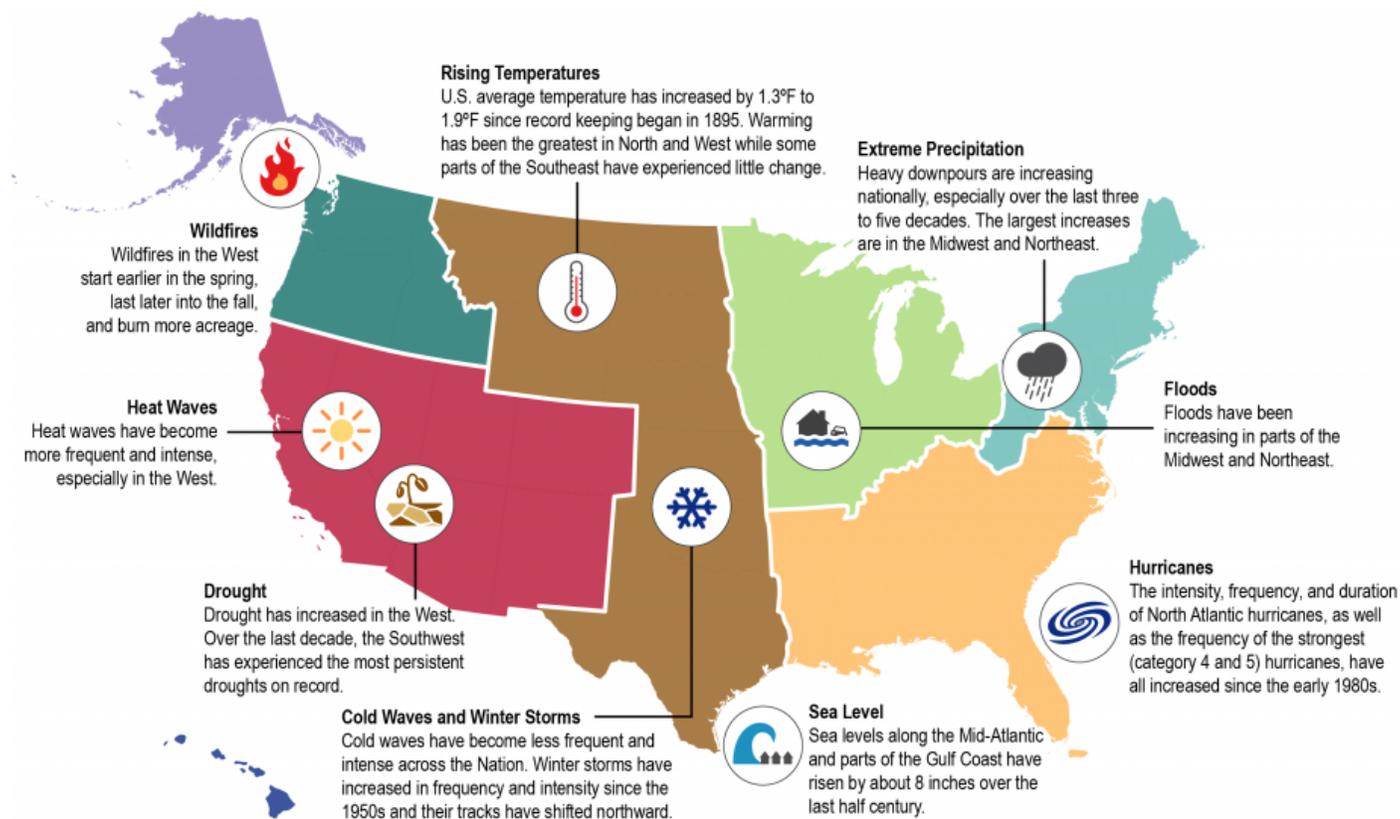
Climate change can have a significant impact on human health and the environment. The changes mentioned above can affect the environment by leading to changes in land use, ecosystems, infrastructure conditions, geography, and agricultural production. Extreme heat, poor air quality, reduced food and water supply and quality, changes in infectious agents, and population displacement can lead to public health concerns such as heat-related illnesses, cardiopulmonary illnesses, food, water, and vector-borne diseases and have consequences on mental health and stress (USGCRP, n.d.).

The National Climate Assessment (NCA) defined climate trends for national U.S. regions in 2014. The major trends are:

- wildfires and heat waves on the west coast,
- rising temperatures and increased severity and frequency of winter storms in the middle of the country,
- more rain and flooding in the Midwest and northeastern parts of the country, and
- an increase in sea levels in the mid-Atlantic with an increase of hurricane activity in the southeastern states.



The Intergovernmental Panel on Climate Change (IPCC) largely concurs with the above list (IPCC, n.d.). In Pennsylvania, the trend will likely be an increase in extreme precipitation, as noted in the graphic below.



### Public Health, Social Vulnerability, and Other General Vulnerability Indicators

Vulnerability is the “measure of the propensity of an object, area, individual, group, community, country, or other entity to incur the consequences of a hazard” (Coppola, 2015, p. 33). Many aspects contribute to the vulnerability of a society; these can include income disparity, class, race or ethnicity, gender, age, disability, health, and literacy (Thomas & Phillips, 2013, pp. 2-3). Understanding the overall health status of the community is important in determining the vulnerability of the population to any given hazard; emergencies and disaster situations can exacerbate existing medical conditions. Vulnerable populations, populations of concern, or populations at risk are those individuals or groups of people who are more exposed to the risks of the impacts of a hazard because of their age, gender, income, occupation, disability, physical or mental health, literacy, religion, education, or ethnicity.



Some groups face several stressors related to both climate and non-climate factors. For example, people living in impoverished urban or isolated rural areas, floodplains, and other at-risk locations are more vulnerable not only to extreme weather and persistent climate change but also to social and economic stressors. Many of these stressors can occur simultaneously or consecutively. Over time, this accumulation of multiple, complex stressors is expected to become more evident as climate impacts interact with stressors associated with existing mental and physical health conditions and with other socioeconomic and demographic factors. Where appropriate (and where information is available), hazard profiles provide further vulnerability details.



## 5.0 CAPABILITY ASSESSMENT

§201.6(b)(3)	Review and incorporation, if appropriate, of existing plans, studies, reports, and technical information.
§201.6(c)(4)(ii)	[This plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.

This section discusses the capabilities present within jurisdictions in Adams County that can support the implementation of mitigation activities.

### 5.1 Update Process Summary

Adams County has many resources to implement hazard mitigation initiatives, including planning and regulatory tools, administrative assistance and technical expertise, fiscal resources, use of local, regional, state, and federal funding sources, and educational outreach methods. These resources facilitate community resiliency through actions taken before, during, and after a hazard event.

This section builds on information collected during the 2010 and 2015 planning processes. In 2010, the plan identified the most commonly-used resources available to Adams County to support hazard mitigation (with a focus on planning and regulatory tools). The county originally collected capability data via a survey, with three sections cataloging existing resources and three others soliciting qualitative assessment of community readiness.

For the 2015 update, the county utilized a revised capability assessment survey based on updated FEMA and PEMA guidance. That survey contained five sections, including planning and regulatory, administrative and technical, financial, education and outreach, and self-assessment. The discussion on the county's implementation of the National Flood Insurance Program (NFIP) was expanded in 2015.

This update again utilized a capability assessment survey. Structurally, the survey was similar to the tool administered in 2015. The survey contains five sections: (a) planning and regulatory, (b) administrative and technical, (c) financial, (d) political, and (e) self-assessment. The county reinstated the political capabilities section that had been removed in the 2015 version. The need for on-going education on hazard mitigation was apparent to committee members, and actions within the county's updated plan speak to the need to continue them. The committee thus recognized that an important component of gauging the ability to implement mitigation projects is understanding the appetite for and potential barriers to implementation



(and the political capability section provides insight on those topics). Additionally, the survey included four sample mitigation projects (e.g., “XYZ community restricts public investments or capital improvements in known hazard areas”), and municipal representatives indicated whether they felt residents in their communities would support those types of actions via a Likert-style scale.

## 5.2 Capability Assessment Findings

This section summarizes the findings of the capability assessment administered by the Adams County Department of Emergency Services (ACDES) and the consultant. Table 5.2-1 summarizes the capabilities by jurisdiction.

**Table 5.2-1**

JURISDICTIONAL CAPABILITIES (SUMMARY)							
<i>Municipality</i>	Comprehensive Plan	NFIP	Building Codes	Zoning Ordinance	SALDOs	Capital Budget	Public Works Budget
Adams County	X	See-Muni.		X	X		
Abbottstown Borough	X	X		X	X	X <sup>2</sup>	X <sup>2</sup>
Arendtsville Borough	X	X			X		
Bendersville Borough	X	X		X	X		
Biglerville Borough	X	X		X	X		X <sup>1</sup>
Bonneauville Borough	X	X		X	X		
Carroll Valley Borough	X	X		X	X		
East Berlin Borough	X	X		X	X		
Fairfield Borough	X	X	X	X	X		
Gettysburg Borough	X	X	X	X	X		
Littlestown Borough	X	X		X	X		
McSherrystown Borough		X		X	X		
New Oxford Borough	X			X	X		
York Springs Borough		X		X	X		
Berwick Township		X	X	X	X		
Butler Township	X	X		X	X		
Conewago Township	X	X	X	X	X		
Cumberland Township	X	X	X	X	X		X <sup>1</sup>
Franklin Township	X	X	X	X	X		
Freedom Township	X	X		X	X		
Germany Township	X	X		X	X		
Hamiltonban Township		X		X	X		
Hamilton Township	X	X		X	X		
Highland Township		X		X	X		
Huntington Township		X		X	X		
Latimore Township		X		X	X		
Liberty Township		X		X	X		



JURISDICTIONAL CAPABILITIES (SUMMARY)							
<i>Municipality</i>	Comprehensive Plan	NFIP	Building Codes	Zoning Ordinance	SALDOs	Capital Budget	Public Works Budget
Menallen Township	X	X		X	X		
Mount Joy Township	X	X	X	X	X	X	X <sup>1</sup>
Mount Pleasant Township	X	X	X	X	X		
Oxford Township	X	X	X	X	X	X <sup>2</sup>	X <sup>1</sup>
Reading Township	X	X		X	X		
Straban Township		X		X	X		
Tyrone Township		X		X	X		
Union Township	X	X		X	X		

<sup>1</sup> Yes, but it would be limited or would be comprised of in-kind services.

<sup>2</sup> No, but my jurisdiction would consider it in future budgets.

### 5.2.1 Planning and Regulatory Capability

Comprehensive plans promote sound land use and regional cooperation among local governments to address planning issues. These plans serve as the official policy guide for influencing the location, type, and extent of future development by establishing the basic decision-making and review processes on zoning matters, subdivision and land development, land uses, public facilities, and housing needs over time.

Building codes regulate construction standards for new construction and substantially-renovated buildings. Standards can require resistant or resilient building design practices to address hazard impacts common to a given community. In 2003, Pennsylvania implemented Act 45 of 1999, the Uniform Construction Code (UCC), a comprehensive building code that establishes minimum regulations for most new construction, including additions and renovations to existing structures.

Through the administration of floodplain ordinances, municipalities can ensure that all new construction or substantial improvements to existing structures located in the floodplain are flood-proofed, dry-proofed, or built above anticipated flood elevations. Floodplain ordinances may also prohibit development in certain areas altogether. The NFIP establishes minimum ordinance requirements that must be met for that community to participate in the program. However, a community is permitted and encouraged to adopt standards that exceed NFIP requirements.

Subdivision and land development ordinances (SALDOs) regulate the development of housing, commercial, industrial, or other uses, including associated public infrastructure, as



officials subdivide land 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.

Zoning ordinances allow for local communities to regulate the use of land to protect the interests and safety of the general public. Zoning ordinances can address unique conditions or concerns within a given community. They may be used to create buffers between structures and high-risk areas, limit the type or density of development, or require land development to consider specific hazard vulnerabilities.

### 5.2.2 Administrative and Technical Capability

“Administrative capability” is the adequacy of departmental and personnel resources for the implementation of mitigation-related activities. Technical capability relates to the 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 managers, 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.

The most common specialists that support a technical capability in Adams County, per capability survey responses, were contracted engineers (12 respondents) and emergency managers (10 respondents) with an understanding of natural or human-caused hazards and general knowledge of the local area. Contracted planners (eight respondents) also provide technical expertise. Floodplain managers, in-house building inspectors, in-house planners, and contracted planners also appeared in survey responses.

### 5.2.3 Financial Capability

The decision and capacity to implement mitigation-related activities are often dependent on the presence of local financial resources. While some mitigation actions are less costly than others, funds must be available locally to implement policies and projects. Financial resources



are particularly important if communities wish to take advantage of state or federal mitigation grant funding opportunities that require municipalities to match contributions.

State programs that may provide financial assistance for mitigation activities include, but are not limited to:

- Community Conservation Partnerships Program,
- Community Revitalization Program,
- Floodplain Land Use Assistance Program,
- Growing Greener Program,
- Keystone Grant Program,
- Local Government Capital Projects Loan Program,
- Pennsylvania Heritage Areas Program,
- Pennsylvania Recreational Trails Program,
- Shared Municipal Services, and
- Technical Assistance Program.

Federal programs that may offer financial assistance for mitigation activities include, but are not limited to:

- Community Development Block Grant (CDBG),
- Disaster Housing Program,
- Emergency Conservation Program,
- Emergency Management Performance Grants (EMPG),
- Emergency Watershed Protection Program, Hazard Mitigation Grant Program (HMGP),
- Flood Mitigation Assistance Program,
- Non-Insured Crop Disaster Assistance Program,
- Pre-Disaster Mitigation Program,
- Repetitive Flood Claims Program (RFC),
- Section 108 Loan Guarantee Programs,
- Severe Repetitive Loss (SRL) Program, and
- Weatherization Assistance Program.

Respondents indicated a general knowledge of potential funding programs via the capability assessment survey. None of the respondents indicated having a grants specialist on their payroll.



**5.2.4 Political Capabilities**

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

**5.2.5 Self-Assessment Results**

The following table summarizes the results of the self-assessment survey as a percentage of the responses received.

**Table 5.2.5-1**

<b>CAPABILITY SELF-ASSESSMENT</b>			
<i>Capability</i>	<i>High</i>	<i>Moderate</i>	<i>Limited</i>
Planning & Regulatory	0	1	0
Administrative & Technical	3	6	6
Fiscal	1	4	10
Political	1	8	6

The 2019 self-assessment also included four questions to gauge community receptiveness to several types of mitigation strategies. The following table details the results.



**Table 5.2.5-2**

SELF-ASSESSMENT: PROJECT CONSIDERATIONS					
<i>Sample Mitigation Strategy</i>	<i>Very Willing</i>	<i>Willing</i>	<i>Neutral</i>	<i>Unwilling</i>	<i>Very Much Unwilling</i>
XYZ community guides development away from known hazard areas.	2	8	3	2	0
XYZ community restricts public investments or capital improvements within hazard areas.	2	8	3	2	0
XYZ community enforces local development standards (e.g., building codes, floodplain management ordinances, etc.) that go beyond minimum state or federal requirements.	1	7	6	1	0
XYZ community offers financial incentives (e.g., through property tax credits) to individuals and businesses that employ resilient construction techniques (e.g., voluntarily elevate structures, employ landscape designs that establish buffers, install green infrastructure elements, etc.).	0	2	9	3	1

### 5.2.6 Plan Integration

Adams County’s consultant utilized several other local plans and assessments during the compilation of this plan. In FEMA’s guidance governing the completion of mitigation plans, this effort is “plan integration.” Plan integration ensures that hazard mitigation planning is woven into each jurisdiction’s planning and regulatory documents. Per FEMA, plan integration is the regular consideration and management of hazard risks in a community’s existing planning framework. The planning framework is the collection of plans, policies, codes, and programs that guide land use and development, how communities maintain and implement those, and the roles of a range of stakeholders to evaluate and update them. Effective integration of hazard mitigation occurs when the planning framework fosters development that does not increase risks from known hazards or leads to redevelopment that reduces risk from known hazards (FEMA, 2013).

In Pennsylvania, integrating hazard mitigation into planning tools is through the MPC in that protecting and promoting safety and health is the purpose of the code. Further, the purpose of the municipalities planning code (MPC) is “to minimize such problems as may presently exist or which may be foreseen,” which is the focus of hazard mitigation planning.

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.

Adams County has been successful in integrating hazard mitigation into its planning tools through goals, objectives, and actions, and will continue to do so as part of the 2020



update. The following table reflects actions completed since 2010 that demonstrate plan integration.

**Table 5.2.6-1**

<b>INTEGRATION OF MITIGATION PLAN INTO THE LOCAL PLANNING FRAMEWORK</b>	
<i>Planning Framework</i>	<i>Examples of Plan Integration</i>
Comprehensive Plan, Zoning Ordinances, and Municipal Codes	<p>GOALS, OBJECTIVES, AND ACTIONS LISTED IN THE 2020 PLAN</p> <ul style="list-style-type: none"> <li>• Goal: Promote disaster resilience in future development through code enforcement.</li> <li>• Objective: Educate citizens annually on compliance with applicable local codes and ordinances.</li> <li>• Objective: Update municipal floodplain ordinances within six months of official updates to FIRMs.</li> </ul> <p>EXAMPLES FROM PREVIOUS VERSIONS OF THE PLAN</p> <ul style="list-style-type: none"> <li>• Objective: Encourage and facilitate the development or revision of comprehensive plans and zoning/land use ordinances to limit development in high-hazard areas.</li> <li>• Action: Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.</li> <li>• Action: Evaluate ordinances to standardize hydrant connections and provide sprinkler systems for new development.</li> <li>• Adams County multi-municipal planning efforts have focused on the development of joint municipal comprehensive plans that establish growth areas in low-hazard areas.</li> </ul> <p>REPRESENTATIVE LOCAL PLANS</p> <ul style="list-style-type: none"> <li>• Bonneauville Borough &amp; Mt. Pleasant Township Comprehensive Plan</li> <li>• Carroll Valley Borough Comprehensive Plan</li> <li>• Central Adams Joint Comprehensive Plan</li> <li>• (The) Eastern Adams County Joint Comprehensive Plan and Route 194 Corridor Study</li> <li>• Germany Township, Littlestown Borough &amp; Union Township Comprehensive Plan</li> <li>• Hanover Region Economic Development Plan</li> <li>• Northwest Adams County Joint Comprehensive Plan</li> </ul>
Building Codes	<p>GOALS, OBJECTIVES, AND ACTIONS LISTED IN THE 2020 PLAN</p> <ul style="list-style-type: none"> <li>• Goal: Promote disaster resilience in future development through code enforcement.</li> <li>• Objective: Educate citizens annually on compliance with applicable local codes and ordinances.</li> </ul> <p>EXAMPLES FROM PREVIOUS VERSIONS OF THE PLAN</p> <ul style="list-style-type: none"> <li>• Objective: Encourage and facilitate the adoption of building codes that protect new construction and substantial renovations from the effects of identified hazards.</li> <li>• Action: Evaluate the adequacy of township/borough building codes.</li> <li>• Action: Encourage adoption of the International Building Code in all townships/boroughs.</li> </ul>



INTEGRATION OF MITIGATION PLAN INTO THE LOCAL PLANNING FRAMEWORK	
<i>Planning Framework</i>	<i>Examples of Plan Integration</i>
Functional Plans	<p>GOALS, OBJECTIVES, AND ACTIONS LISTED IN THE 2020 PLAN</p> <ul style="list-style-type: none"> <li>• Goal: Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.</li> <li>• Objective: Identify an emergency management coordinator (EMC) to represent all 34 municipalities in Adams County.</li> <li>• Objective: Ensure that 100% of the designated EMCs have achieved a minimum baseline of training.</li> </ul> <p>EXAMPLES FROM PREVIOUS VERSIONS OF THE PLAN</p> <ul style="list-style-type: none"> <li>• Adams County's stormwater management plan was prepared to meet PADEP Act 167 requirements and includes a model stormwater ordinance. Each municipality amends or adopts stormwater management ordinances consistent with the plan.</li> </ul> <p>REPRESENTATIVE LOCAL PLANS</p> <ul style="list-style-type: none"> <li>• Adams County Emergency Operations Plan</li> <li>• Adams County Municipal Solid Waste Management Plan Update</li> <li>• Adams County Pennsylvania Water Supply and Wellhead Protection Plan</li> <li>• Adams County Stormwater Management Plan: Act 167 County-Wide Stormwater Management Plan</li> </ul>
Project Review	<p>GOALS, OBJECTIVES, AND ACTIONS LISTED IN THE 2020 PLAN</p> <ul style="list-style-type: none"> <li>• Action: Identify mitigation projects such as acquisition and relocation, elevation, mitigation reconstruction, etc. in repetitively flood-prone areas, and work with homeowners to implement those projects.</li> <li>• Action: Consider the formation of a committee that works with community-specific groups in the prioritization of their historical resources. Involve the SHPO in the process to vet strategies and to help set the criteria.</li> </ul> <p>EXAMPLES FROM PREVIOUS VERSIONS OF THE PLAN</p> <ul style="list-style-type: none"> <li>• Action: Integrate evaluation of snow-removal and emergency access logistics with new development planning.</li> </ul>



INTEGRATION OF MITIGATION PLAN INTO THE LOCAL PLANNING FRAMEWORK	
<i>Planning Framework</i>	<i>Examples of Plan Integration</i>
Public and Stakeholder Engagement	<p>GOALS, OBJECTIVES, AND ACTIONS LISTED IN THE 2020 PLAN</p> <ul style="list-style-type: none"> <li>• Objective: Educate citizens annually about the hazard risks they face and personal/household mitigation strategies.</li> <li>• Objective: Educate stakeholders (e.g., local officials and citizens) annually about the importance of stormwater management and source water protection and their links to hazard mitigation and risk reduction.</li> </ul> <p>EXAMPLES FROM PREVIOUS VERSIONS OF THE PLAN</p> <ul style="list-style-type: none"> <li>• Objective: Provide public education to increase awareness of hazards and opportunities for mitigation.</li> <li>• Action: Adams County DES conducts outreach on hazard mitigation and actions to take during an emergency.</li> <li>• Partnerships: Adams County municipalities have formed many multi-municipal partnerships that result in creating efficiency and effectiveness in addressing hazard mitigation. Examples of partnerships include the following. <ul style="list-style-type: none"> <li>○ Establishing a county council of governments</li> <li>○ Partnering for emergency management services</li> <li>○ Joint municipal firefighting services</li> <li>○ Joint comprehensive planning</li> <li>○ Multi-municipal purchasing</li> <li>○ Regional police service</li> <li>○ Multi-municipal road maintenance</li> </ul> </li> <li>• Public outreach via newsletters: Several municipalities create newsletters to provide information and reminders on responsible stormwater management, maintaining groundwater, creating an emergency preparedness kit, and keeping areas around fire hydrants free of plantings and snow in the winter.</li> </ul> <p>REPRESENTATIVE LOCAL PLANS</p> <ul style="list-style-type: none"> <li>• Adams County Emergency Operations Plan</li> </ul>

While Adams County has been successful in progress toward plan integration, local officials can always do more. In Pennsylvania’s communities (and around the country), a lack of resources to accomplish the initiatives outlined in plan integration efforts remains a barrier. Several municipalities noted a lack of financial resources as an impediment to implementing hazard mitigation projects in their jurisdictions (as evidenced by the self-assessment and the lack of existing funds in public works or capital improvement budgets to support mitigation). This finding appeared in earlier versions of the mitigation plan as well.

Additionally, stakeholders in this update recognized that agencies and organizations throughout the county could accomplish additional plan integration by taking a more strategic approach to hazard mitigation. For example, the historical and cultural subcommittee recognized the value in identifying stand-alone “structural” (or otherwise tangible) mitigation projects to protect individual cultural assets. However, the community-level discussions and



resultant prioritization processes that identify which cultural assets *are most important to protect* are missing (or could be strengthened). While community development planning efforts include goals that are consistent with those espoused by hazard mitigation proponents, stakeholders have yet to realize the full potential benefit of how stormwater management or transportation infrastructure improvements (as examples) can support mitigation. As such, education and outreach efforts appear to rise in importance as the county continues its plan integration. The participation of the Adams County Office of Planning and Development in this update (as well as in municipal planning efforts) is a positive first step toward this outreach.

Table 5.2.6-2 outlines the local plans, studies, and assessments that supported this update.

**Table 5.2.6-2**

<b>REFERENCED DOCUMENTS</b>		
<i>Document Type</i>	<i>Document Citation</i>	<i>How Incorporated into Plan</i>
Plan	Abbottstown Borough, East Berlin Borough, Hamilton Township, New Oxford Borough, Oxford Township & Reading Township. (2012). <i>The eastern Adams County joint comprehensive plan and Route 194 corridor study.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas; also used to outline transportation infrastructure project consistency with mitigation objectives.
Plan	Adams County Conservation District & Adams County Office of Planning and Development. (2011). <i>Adams County stormwater management plan: Act 167 countywide stormwater management plan.</i> County Government: Gettysburg, PA.	Evaluated for consistency with mitigation objectives (i.e., plan integration) and to identify potential flood mitigation projects.
Plan	Adams County Department of Emergency Services. (2019). <i>Adams County emergency operations plan.</i> County Government: Gettysburg, PA.	Used as general guidance on existing plan integration for hazard mitigation.  *NOTE: Reviewed municipal EOPs, as available, for the same purpose.
Plan	Adams County Office of Planning and Development. (2001). <i>Adams County Pennsylvania water supply and wellhead protection plan.</i> County Government: Gettysburg, PA.	Evaluated for consistency with mitigation objectives (i.e., plan integration).
Plan	Adams County Office of Planning and Development. (2019). <i>Adams County municipal solid waste management plan update.</i> County Government: Gettysburg, PA.	Evaluated for consistency with mitigation objectives (i.e., plan integration).
Plan	Arendtsville Borough, Bendersville Borough, Biglerville Borough, Butler Township, Franklin Township & Menallen Township. (2010). <i>Northwest Adams County joint comprehensive plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.
Plan	Bonneauville Borough & Mt. Pleasant Township. (2003). <i>Comprehensive plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.
Plan	Carroll Valley Borough. (2012). <i>Comprehensive plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.



<b>REFERENCED DOCUMENTS</b>		
<i>Document Type</i>	<i>Document Citation</i>	<i>How Incorporated into Plan</i>
Plan	Conewago Township, Hanover Borough, McSherrystown Borough & Penn Township. (2013). <i>Hanover region economic development plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.
Plan	Cumberland Township, Gettysburg Borough & Straban Township. (2018). <i>Central Adams joint comprehensive plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.
Plan	Germany Township, Littlestown Borough & Union Township. (n.d.). <i>Comprehensive plan.</i>	Used to identify development areas for both plan integration and to outline overlapping risk areas with growth areas.



## 6.0 MITIGATION STRATEGY

§ 201.6(c)(3)	A mitigation strategy that provides the jurisdiction's blueprint for reducing the potential losses identified in the risk assessment, based on existing authorities, policies, programs and resources, and its ability to expand on and improve these existing tools.
§ 201.6(c)(3)(ii)	A section that identifies and analyzes a comprehensive range of specific mitigation actions and projects being considered to reduce the effects of each hazard, with particular emphasis on new and existing buildings and infrastructure. All plans approved by FEMA after October 1, 2008, must also address the jurisdiction's participation in the NFIP, and continued compliance with NFIP requirements, as appropriate.
§ 201.6(c)(3)(iii)	An action plan describing how the actions identified in paragraph (c)(3)(ii) of this section will be prioritized, implemented, and administered by the local jurisdiction. Prioritization shall include a special emphasis on the extent to which benefits are maximized according to a cost-benefit review of the proposed projects and their associated costs.

This section uses the information presented thus far as the basis of a mitigation action plan comprised of specific projects to reduce or eliminate hazard-related losses throughout Adams County.

### 6.1 Update Process Summary

Mitigation goals are general guidelines that explain what the county wants to achieve. Goals are usually broad policy statements representing desired long-term results. Mitigation objectives describe strategies or implementation steps to attain the identified goals. Objectives are more specific statements than goals, and the described steps are usually measurable and can have a defined completion date.

Adams County identified four goals with associated objectives in its 2015 plan. At its June 2019 meeting, the planning committee reviewed those objectives. In reviewing the goals, committee members recognized that they contained similar wording, and many of them focused on individual hazards. To better represent a cohesive effort, the committee consolidated five goals and revised it to apply to multiple hazards. The committee also retained a goal from 2015, and it deleted one of the goals. Committee members recognized the value of an efficient and effective response to hazard mitigation, and thus added a new goal to support the integration of mitigation and preparedness efforts. Similarly, committee members recognized the importance of source water protection and stormwater management efforts, and they added a second new goal supporting these efforts.



**Table 6.1-1**

GOALS AND OBJECTIVES	CONTINUE	CHANGE	DELETE	REASON/STATUS
Goal 1: Reduce potential injury/death and damage to existing community assets due to flooding.		X		Consolidated with Goals 2, 3, 4, and 5 into a single goal that addresses damage reduction at existing community assets from all hazards.
Objective 1.A: Identify by municipality and evaluate protection, acquisition, or relocation of homes and existing facilities with the highest relative vulnerability in the 1% chance floodplain.		X		Flooding continues to be a frequent and damaging hazard throughout Adams County; kept and consolidated with Objectives 1.B and 1.C.
Objective 1.B: Identify and evaluate strategies for repetitive loss properties and frequently impacted structures.		X		Flooding continues to be a frequent and damaging hazard throughout Adams County; kept and consolidated with Objectives 1.A and 1.C.
Objective 1.C: Provide public outreach/education regarding strategies (e.g. flood proofing) for property owners in 1%-chance floodplain.		X		Flooding continues to be a frequent and damaging hazard throughout Adams County; kept and consolidated with Objectives 1.A and 1.B.
Objective 1.D: Address identified data limitations regarding lack of detailed information about the County's high-hazard areas and individual structures located in the 1% chance floodplain.			X	Deleted, local officials can cross reference parcel and structure data with special flood hazard areas via currently-available GIS data.
Goal 2: Reduce potential injury/death and damage to existing community assets due to severe weather.		X		Consolidated with Goals 1, 3, 4, and 5 into a single goal that addresses damage reduction at existing community assets from all hazards.
Objective 2.A: Identify the most vulnerable and critical existing structures and infrastructure due to the effects of severe weather.		X		Kept because committee members recognized the importance of protecting vulnerable and critical structures/infrastructures; consolidated into the goal address damage reduction to multiple hazards.
Objective 2.B: Encourage the public to identify personal storm shelters and identify warning systems during the event of severe weather.	X	X		Education programs targeting personal resilience continue to be effective and desirable; kept and re-categorized under the appropriate "new" goal.
Objective 2.C: Assess the adequacy of municipal zoning/land-use ordinances and building code implementation.	X	X		Kept, but consolidated with Objective 6.A and 6.B and broadened into a "code enforcement" reference on a revised, more actionable goal.
Goal 3: Reduce potential injury/death and damage to existing community assets due to fires.		X		Consolidated with Goals 1, 2, 4, and 5 into a single goal that addresses damage reduction at existing community assets from all hazards.
Objective 3.A: Ensure adequate water supply for firefighting.	X	X		Ensuring response agencies have what they need to respond appropriate continued to be important; kept, but combined with notes about supporting other training and equipment projects designed to support an efficient response (and placed under the new, response-centric goal).
Goal 4: Reduce potential injury/death and damage to existing community assets due to environmental hazards.		X		Consolidated with Goals 1, 2, 3, and 5 into a single goal that addresses damage reduction at existing community assets from all hazards.
Objective 4.A: Develop comprehensive approach to reducing potential injury/damages for nearby critical facilities and vulnerable populace.		X		Consolidated with other goals and objectives to present a more unified, comprehensive approach to damage reduction to critical facilities, infrastructure, and vulnerable populations from all hazards.



GOALS AND OBJECTIVES	CONTINUE	CHANGE	DELETE	REASON/STATUS
Objective 4.B: Evaluate potential contamination of drinking water sources along transportation corridors.		X		Protecting drinking water and ensuring proper stormwater management continue to be important; kept, but subsumed under a new goal targeting stormwater management and source water protection.
Goal 5: Reduce potential injury/death and damage to existing community assets due to terrorism and nuclear incidents.		X		Consolidated with Goals 1, 2, 3, and 4 into a single goal that addresses damage reduction at existing community assets from all hazards.
Objective 5.A: Identify by municipality the most vulnerable and critical structures and infrastructure relative to terrorism and nuclear incidents and identify tactical vulnerability.		X		Consolidated with other goals and objectives to present a more unified, comprehensive approach to damage reduction to critical facilities, infrastructure, and vulnerable populations from all hazards.
Objective 5.B: Enhance response capability of County and municipal services.		X		Kept, but broadened into a goal that could help reduce risk to many hazards.
Goal 6: Promote disaster-resistant future development.	X	X		Retained, but made more specific (and actionable) by adding a code enforcement element.
Objective 6.A: Encourage and facilitate the development or revision of comprehensive plans and zoning/land use ordinances to limit development in high-hazard areas.	X	X		Kept, but consolidated with Objective 2.C and 6.B and broadened into a "code enforcement" reference on a revised, more actionable goal.
Objective 6.B: Ensure implementation of applicable provisions of the UCC to provide protection for new construction and substantial renovations from the effects of identified hazards.	X	X		Kept, but consolidated with Objective 2.C and 6.A and broadened into a "code enforcement" reference on a revised, more actionable goal.
Goal 7: Promote hazard mitigation as a public value in recognition of its importance to the health, safety, and welfare of the population.			X	Deleted, noted that public education actions could appear under the other remaining goals.
Objective 7.A: Provide public education to increase awareness of hazards, opportunities for hazard mitigation, and actions to take during an emergency.	X	X		Education programs targeting personal resilience continue to be effective and desirable; kept and re-categorized under the appropriate "new" goal.
Objective 7.B: Promote partnerships between the municipalities and the County to continue to develop a County-wide approach to identifying and implementing mitigation actions.		X		Kept, but subsumed under the new goal supporting a more efficient response capability.
Objective 7.C: Develop a comprehensive approach to reduce potential injury to vulnerable populace.		X		Kept, but subsumed under the new goal supporting a more efficient response capability.
Objective 7.D: Promote public education and outreach to address Pandemic and Infectious Disease and Invasive Species.			X	The committee kept the actions listed under this objective, but because those actions supported the new goal supporting an efficient response, the committee deleted this as a stand-alone objective.

Mitigation actions provide more detailed descriptions of specific work tasks to help the county and its municipalities achieve identified goals and objectives. There were 37 actions identified as part of the 2015 mitigation plan. The county's consultant worked individually with participating municipalities to discuss projects listed as applicable to their community in the previous version, as well as to discuss potential new projects to add to this version of the plan.



As such, the consultant worked with local representatives to classify each existing action as “completed,” “deleted,” “deferred,” “on-going,” or “new.” See Table 6.1-2 below. Additionally, committee members revised the mitigation action prioritization process (the updated methodology appears in Section 6.4 below).



Table 6.1-2

ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
<p>1.A.1: Identify and conduct cost-benefit analysis of protection, acquisition, or relocation of existing facilities with the highest relative vulnerabilities.</p> <p><i>REV: Identify mitigation projects such as acquisition and relocation, elevation, mitigation reconstruction, etc. in repetitively flood-prone areas, and work with homeowners to implement those projects.</i></p>				X	<p>The Gettysburg Municipal Authority (GMA) is looking to expand its office complex at East Middle and Sixth Streets, and the project includes a goal of creating safe spaces above the floodplain to protect records and to provide an area from which equipment could operate during a flood. At the time of this revision, GMA was in talks with Gettysburg Borough officials about zoning and related requirements. Additionally, Butler Township officials elevated a mobile home near Arendtsville by putting it on a larger (i.e., "higher") foundation.</p> <p>County officials recommended revising this project for the 2020 plan update to generalize the language and to emphasize working with property owners in repetitively-flooded areas.</p>
<p>1.A.2: Utilize generators, battery backups, and sump pumps in municipal buildings and other critical facilities.</p>				X	<p>Adams County Emergency Services (ACDES) indicates that many county-owned buildings have generator auxiliary power. For the next mitigation planning cycle, ACDES will continue its efforts to encourage municipalities to equip their municipal-owned buildings and infrastructure with auxiliary power. Arendtsville Borough indicated the completion of this project for its water and sewer plants in August of 2018. Biglerville Borough indicates generators present at the sewer plant, Upper Adams School District (physical location at 161 North Main Street), and Biglerville Hose &amp; Truck Company station. Biglerville has a generator to support its water wells, but that generator is not currently online (and needs replacement).</p>
<p>1.B.1: Develop a strategy to address repetitive flooding impacting residential structures along Conewago Creek in Reading Township.</p>	X				<p>ACOPD noted the successful elevation of several homes in Reading Township.</p>
<p>1.B.2: Identify stormwater management improvements in Biglerville Borough and Butler Township.</p>				X	<p>Biglerville attempted to work with PennDOT regarding stormwater concerns, but that agency does not directly address those issues; PennDOT support borough efforts by providing flaggers when sinkhole/stormwater road repairs were underway. Borough efforts included stormwater piping to address washouts that had exposed pipes.</p>



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
<p>1.B.3: Identify stormwater management improvements along Carrolls Tract Road in Hamiltonban Township.</p> <p>REV: Identify stormwater management improvements, to include green infrastructure/low-impact development, in Hamiltonban Township.</p>				X	<p>The Adams County Office of Planning and Development indicated that there have been improvements upstream of facilities such as the new post office to slow water flow. For the 2020 plan update, committee members felt broadening the intent of the project to consider green infrastructure or low-impact development options, to continue lessening the flow of runoff in strategically-selected areas, would be beneficial.</p>
<p>1.B.4: Assess locally owned (county/township/borough) bridges for direct flooding impacts and evaluate means to mitigate flood hazards to ensure bridges remain open during flood events.</p> <p>REV: Assess locally owned (county/township/borough) bridges for direct flooding impacts and share information (such as the PADEP guidelines for stream maintenance) regarding the mitigation of those flood hazards to ensure bridges remain open during flood events.</p>				X	<p>Committee members discussed the realization that bridges often serve as pinch points, where debris lodges and causes flooding problems. For instance, there are pinch points in Franklin Township in the Orrtanna area. There is another near Menallen. Resources such as the <i>Guidelines for Maintaining Streams in Your Community</i> from the Pennsylvania Department of Environmental Protection could be helpful to both jurisdictional leaders and property owners (i.e., outlining what one can and cannot do in a stream). The committee thus felt that making resources such as the guidelines available would support the on-going nature of this project.</p>
<p>1.C.1: Continue to conduct outreach with municipalities to provide information regarding flood mitigation actions.</p> <p>REV: Continue to conduct outreach with municipalities to provide information regarding flood mitigation actions, including administrative options, traditional projects, and the overlap of flood mitigation and stormwater management.</p>				X	<p>The U.S. Environmental Protection Agency (EPA) utilized FY2018 and FY2019 funds to support critical staff positions to begin implementation of countywide action plans for the Phase III Watershed Implementation Plan (which included Adams County as one of four pilot counties). Other flood mitigation options rest with consideration of stormwater management and low-impact development. An example would be the basin conversion at Colonial Ridge in Bonneville.</p>
<p>1.C.2: Promote the Community Rating System (CRS) to reduce insurance premiums and flood damage in Adams County municipalities prone to flooding.</p>				X	<p>FEMA released the final determination of modifications to floodplain mapping in areas of Adams County in March of 2020. Municipalities are reviewing floodplain ordinances and other insurance-related information in response to those changes. Based on changes, some communities may be interested in examining the CRS.</p>
<p>1.D.1: Use County GIS to inventory structures in floodplains.</p> <p>REV: Use county GIS to graphically depict flood-prone areas and structures.</p>				X	<p>The Adams County Office of Planning &amp; Development maintains several GIS layers, including building footprints and up-to-date digital floodplain information. Together, these layers complete this project as it is written. Further, the department of planning actively maintains and supplements this data. For instance, in 2021, the county is scheduled to fly new aerials to update the accuracy of available data.</p>



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
1.D.2: Obtain information for structures in areas with the highest relative vulnerability to determine the best property protection methods.				X	The county planning office has developed building footprint data which, when combined with spatial information in the risk assessment portion of this plan, can identify those structures in risk areas.
1.D.3: Obtain information for all remaining structures in the 1%-chance floodplain to determine the best property protection methods to promote with individual property owners.		X			As noted in the status for Action 1.D.1, the office of planning maintains the GIS data for the county. Committee members opted to consolidate this project with a generalized 1.D.1.
2.A.1: Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan.				X	Several municipalities indicated that this action is an on-going component of their municipal (or regional) emergency operations planning efforts. Additionally, the risk assessment portion of this plan is a qualitative consideration of vulnerability (generally), and it includes some inclusion of impacts to critical facilities and infrastructure.
2.A.2: Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, personal care facilities, day care facilities, fire, police, rescue, and emergency management).				X	Several municipalities indicated that this action is an on-going component of their municipal (or regional) emergency operations planning efforts.
2.A.3: Assist in developing action plans for reducing potential damage and loss of function at identified critical facilities and infrastructure.				X	Biglerville Borough completed a 2017 update on its sewer plant as well as a \$125,000 CDBG sewer line project. The GMA is replacing deteriorated major sewer pipes beginning at Water and Stratton Streets southwest to Middle Street and Bream Alley (west of West Street).
2.B.1: Continue to identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.				X	The ACDES, municipal emergency managers, and local public health officials consider functional and access needs populations in emergency operations planning updates. Additionally, the steering committee for this update added "benefits to functional and access needs populations" as a project prioritization criterion.
2.C.1: Continue to monitor existing municipal ordinances from a hazard mitigation perspective.				X	Fairfield Borough indicated a new floodplain ordinance is in process (as of January 2020). The flood map modifications noted above have also served as the catalysts for several discussions regarding hazard-related updates to municipal ordinances. The Adams County Council of Governments (COG) serves as a collective resource for municipalities seeking support for updates to local ordinances. During the 2020 mitigation plan update, the steering committee identified the COG as a resource supporting mitigation plan maintenance, to include potentially naming a "mitigation subcommittee" within the COG. That effort would help to ensure that municipalities consider mitigation perspectives when reviewing ordinances.



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
2.C.2: Ensure implementation of the UCC.	X				All municipalities fall under the UCC because it is a state requirement. Implementation the local level is through code enforcement officers. The officers have to be certified through the state, which ensures a level of consistency.
3.A.1: Continue to identify dry wells by municipality.	X				Participants in the 2020 update believe the term “dry wells” which typically refers to structures that dispose of unwanted water, is a typographical area (and should instead read “dry hydrant”). Various entities throughout Adams County have been aggressive in the installation of dry hydrants. For example, the Adams Electric Company provided materials to several communities years ago to install dry hydrants. The location of those hydrants, though, is not mapped. Committee members recommended creating a map of existing dry hydrants, along with radii that attempt to show areas served by the dry hydrants. This map would then allow for strategic consideration of additional hydrant installation.
3.A.2: Continue to encourage municipalities to address the adequacy of water for firefighting.				X	Arendtsville Borough began a project to address this action in April 2020. Additionally, several entities in Adams County have been installing dry hydrants to support firefighting. The identification of additional options, though, is on-going. See the status for Action 3.A.1 (regarding dry hydrants) as well.
3.A.3: Communicate with fire companies to identify any deficiencies in water supply for firefighting.		X			For efficiency purposes, the steering committee deleted this project, yet consolidated the participation of fire companies with Action 3.A.2 above.
4.A.1: The LEPC should work with facility owners and operators identified as having the greatest potential impact to ensure facilities are in compliance with all relevant local, state, and federal requirements; neighboring property owners understand the potential extent of the risk; traffic routing signs and trucker education are adequate; and alert and warning systems are appropriate to the situation.				X	The LEPC’s planner reaches out to facility owners and operators annually regarding Tier II submissions, payments, and off-site planning. The off-site planning requirements include local area vulnerability assessment (which may include participation by those whose businesses/residences fall in impact areas). The county completes this action annual as a matter of compliance.
4.A.2: Inform fire companies along rail lines of the potential for hazmat releases.	X				Local fire companies train on potential rail incidents, including those with hazardous material releases, regularly. The LEPC updates the county’s commodity flow study periodically, which includes a rail section, and shares it with local stakeholders as well.
4.A.3: Develop an evacuation plan for Lincoln Speedway in Berwick Township.	X			X	Per the township’s vice chairman, the EMC, fire chief, and speedway officials are working on the plan. The on-going aspect of the project is to bring the new speedway owners and new EMC up to speed.



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
4.B.1: Distribute the commodity flow study to municipalities, municipal authorities, and fire departments.	X				The LEPC updates the county's commodity flow study periodically and shares it with local stakeholders.
5.A.1: Identify by municipality existing critical facilities with the highest relative vulnerability.  <i>REV: Create a database that identifies and ranks the vulnerability of critical facilities by hazard; ensure that data can be sorted by municipality.</i>				X	The county's LEPC works with local covered facilities to develop off-site emergency response plans, and these off-site plans identify potentially-impacted critical facilities in local communities. Additionally, there is some consideration of vulnerable critical facilities in this hazard mitigation plan and on-going terrorism and nuclear preparedness efforts. Currently, there is not an overlay document that captures this information.
5.A.2: Work with PEMA, FEMA, and the U.S. Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities.				X	Adams County agencies participate in the South Central Regional Counterterrorism Task Force, which frequently shares information regarding mitigation and prevention of terrorist activity.
5.B.1: Work with the South Central Regional Counterterrorism Task Force and emergency responders to plan and prepare for terrorist activities, including training and exercises.				X	The task force's executive board meets monthly. Further, the task force sponsors frequent training throughout the region.
6.A.1: Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.				X	The ACDES provides copies of this plan to participating municipalities as updates occur. Further, as part of the 2020 update, the steering committee revised the plan maintenance section to include annual updates through the COG, which means that more frequent discussions surrounding risk and vulnerability will occur.
6.A.2: Continue to integrate evaluation of snow-removal and emergency access logistics with new development planning.  <i>REV: Encourage developers to work with municipal officials to create emergency plans to ensure (or support) emergency ingress and egress to their communities.</i>				X	Fairfield Borough indicated that this action is on-going through SALDOs, and the county's office of planning agreed. Some municipalities, though, do not maintain roadways in subdivisions and other housing developments; some fall to the responsibility of homeowners' associations or developers. Committee members recommended revising this project to focus on the issue of emergency access. Some issues relative to access are dynamic. For instance, in a heavy winter that experiences significant snowfall, the access issue may be what to do with plowed snow. Thus, the action becomes one of preparedness planning and memorandum of understanding/mutual aid agreement preparation as new developments (or redeveloped areas) open.



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
6.A.3: Update municipal subdivision and land development ordinances to address subsidence and sinkhole development due to identified near-surface limestone or Karst geologic features and require a carbonate study for development within Karst areas.				X	Some municipalities have completed this project, including Conewago Twp. Additionally, the Adams County Office of Planning & Development has a map on its website that depicts subsidence-prone areas, the location of known sinkholes, etc.
6.B.1: Ensure implementation of applicable provisions of the UCC.	X				Arendtsville Borough adopted changes in January 2020. Fairfield indicated that this project was on-going and supported by a third party. See Action 2.C.2 above.
6.B.2: Encourage adoption of International Building Code in all townships/boroughs.	X				Similarly to Action 2.C.2 above, the International Building Code is included in the UCC.
7.A.1: Continue to educate and conduct outreach pertaining to hazard mitigation and actions to take during an emergency.				X	The ACDES, the county's LEPC, municipal emergency coordinators, threat preparedness personnel with local public health authorities, etc. all regularly sponsor outreach campaigns to Adams County residents.
7.B.1: Convene regular meetings of the HMPC to discuss issues and progress related to the implementation of the plan.  <i>REV: Convene regular meetings of the COG/steering committee to discuss issues and progress related to the implementation of the plan.</i>				X	Steering committee members acknowledged that it is difficult to schedule stand-alone hazard mitigation planning committee meetings during the five-year mitigation cycle, especially when there are so many other on-going multi-jurisdictional planning initiatives. During the 2020 update, the steering committee resolved to approach the Adams County COG to request a standing mitigation item on meeting agendas to serve as a vehicle for sharing progress related to implementing this plan. (For the update, the "HMPC" was replaced by "COG/steering committee.")
7.C.1: Identify special populations requiring additional emergency response during any hazard event and evaluate means to enhance response capability.				X	The ACDES, municipal emergency managers, and local public health officials consider functional and access needs populations in emergency operations planning updates. Additionally, the steering committee for this update added "benefits to functional and access needs populations" as a project prioritization criterion.
7.D.1: Work with appropriate county and regional partners to conduct public education on the County's Pandemic Plan.				X	Like many communities, public health authorities in Adams County regularly coordinate preparedness efforts with local, regional, and state partners. Further, public education efforts targeting information on seasonal flu, flu vaccinations, immunizations, etc. are regular occurrences. During the latter stages of the 2020 update to this plan, Adams County responded to the COVID-19 pandemic, which will likely alter available funding, planning efforts, and the nature of public education regarding pandemic incidents moving forward.



ACTION TITLE	COMPLETED	DELETED	DEFERRED	ON-GOING	DESCRIPTION OF PROGRESS OR REASON FOR DISCONTINUATION
7.D.2: Work with appropriate county and regional partners to conduct public education on the impacts of invasive species.				X	Fairfield indicated this project to be on-going via periodic newsletters. Additionally, the Adams County Conservation District partners with the Penn State Cooperative Extension service to share information, particularly regarding the spotted lanternfly. Committee members indicated that information sharing efforts should continue (and can be enhanced).



## 6.2 Mitigation Goals and Objectives

Based on the steps outlined in Section 6.1 above, the goals and objectives for Adams County's 2020 mitigation strategy appear in Table 6.2-1.

Table 6.2-1

ADAMS COUNTY MITIGATION GOALS AND OBJECTIVES	
<b>Goal 1</b>	<b>Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, communications, etc.) from all hazards that could impact the county.</b>
Objective 1.A	Educate citizens annually about the hazard risks they face and personal/household mitigation strategies.
Objective 1.B	Modernize the communications system used for emergency communications through training and technological upgrades.
Objective 1.C	Identify, by municipality, 100% of properties (homes and existing facilities) with the highest relative vulnerability in the 1%-chance floodplain; evaluate protection, acquisition, or relocation options; and educate property owners on personal mitigation strategies.
<b>Goal 2</b>	<b>Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.</b>
Objective 2.A	Educate stakeholders (e.g., local officials and citizens) annually about the importance of stormwater management and source water protection and their links to hazard mitigation and risk reduction.
<b>Goal 3</b>	<b>Promote disaster resilience in future development through code enforcement.</b>
Objective 3.A	Educate citizens annually on compliance with applicable local codes and ordinances.
Objective 3.B	Update municipal floodplain ordinances within six months of official updates to flood insurance rate maps (FIRMs).
<b>Goal 4</b>	<b>Reduce losses by facilitating a more efficient response to identified hazards.</b>
Objective 4.A	Identify an emergency management coordinator (EMC) to represent all 34 municipalities in Adams County.
Objective 4.B	Ensure that 100% of the designated EMCs in Adams County have achieved a minimum baseline of training.
Objective 4.C	Facilitate communication prior to a hazard event by increasing the number of residents receiving emergency notifications by 10%.
Objective 4.D	Support all training, equipment, and infrastructure projects that would result in a more efficient emergency response for police, fire, emergency medical, public health, and medical agencies.

## 6.3 Identification and Analysis of Mitigation Techniques

There are five primary types of mitigation actions that can work to reduce long-term vulnerability: local plans and regulations, structure and infrastructure projects, natural systems protection, education programs, and preparedness and response activities (Coastal Hazards Research Center & Center for Sustainable Community Design, n.d.).

- **Local Plans and Regulations:** Local land use or comprehensive plans embody the goals, values, and aspirations of the community, as expressed through a process of community engagement. Local ordinances and review processes influence land development and building construction. In some cases, plans and regulations can work at cross-purposes. For example, a capital improvement plan may call for extending



water and sewer lines to an area that is vulnerable to natural hazards. Examples include the following.

- Comprehensive plans
  - Land use ordinances
  - Subdivision regulations
  - Development review
  - Building codes and enforcement
  - NFIP Community Rating System
  - Capital improvement programs
  - Open space preservation
  - Stormwater management regulations and master plans
- 
- **Structure and Infrastructure Projects:** These actions involve modifying existing structures and infrastructure to protect them from a hazard or remove them from a hazard area. These projects could apply to public or private structures as well as critical facilities and infrastructure. This type of action also involves projects to construct human-made structures to reduce the impact of hazards. Examples include the following.
    - Acquisitions and elevations of structures in flood-prone areas
    - Utility undergrounding
    - Structural retrofits
    - Floodwalls and retaining walls
    - Detention and retention structures
    - Culverts
    - Safe rooms
- 
- **Natural Systems Protection:** These are actions that minimize damage and losses while preserving or restoring the functions of natural systems. Examples include the following.
    - Sediment and erosion control
    - Stream corridor restoration
    - Forest management
    - Conservation easements
    - Wetland restoration and preservation



- **Education Programs:** These are actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate them. Although this type of mitigation reduces risk less directly than structural projects or regulations, it is an important foundation. A greater understanding and awareness of hazards and risk among local officials, stakeholders, and the public can lead to direct actions. Examples include the following.
  - Radio or television spots
  - Websites with maps and information
  - Real estate disclosure
  - Presentations to school groups or neighborhood organizations
  - Mailings to residents in hazard-prone areas.
  - StormReady
  - Firewise Communities
  
- **Preparedness and Response Activities:** Mitigation actions that reduce or eliminate long-term risk are different from actions taken to prepare for or respond to hazard events. Mitigation activities lessen or eliminate the need for preparedness or response resources in the future. When analyzing risks and identifying mitigation actions, the planning team may also identify emergency response or operational preparedness actions.

For some hazards such as tornadoes, including preparedness actions in the mitigation plan may be necessary and practical. The mitigation plan may be the best place for your community to capture and justify the need for these actions. However, these will not supplant or meet the federal requirements for identifying mitigation actions. It is important that the planning team understands the difference and can distinguish between mitigation and other emergency management activities.

To help committee members and participating jurisdictions better understand the types of mitigation techniques that work best for the hazards identified in the risk assessment, planners kept Table 6.3-1 in this version of the plan.



**Table 6.3-1**

HAZARD	MITIGATION TECHNIQUES				
	<i>Local Plans &amp; Regulations</i>	<i>Structure &amp; Infrastructure Projects</i>	<i>Natural Systems Protection</i>	<i>Education Programs</i>	<i>Preparedness &amp; Response Activities</i>
Drought	X	X	X	X	X
Earthquake	X			X	X
Extreme Temperature				X	X
Flood, Flash Flood, Ice Jam	X	X	X	X	X
Hailstorm				X	X
Hurricane, Tropical Storm, Nor'easter	X			X	X
Invasive Species			X	X	
Landslide	X		X	X	
Pandemic and Infectious Disease				X	X
Subsidence, Sinkhole	X			X	
Tornado, Wind Storm	X	X		X	X
Wildfire	X			X	X
Winter Storm	X	X		X	X
Dam Failure	X			X	X
Env. Haz. (Hazardous Materials Release)	X		X	X	X
Nuclear Incidents				X	X
Terrorism				X	X
Transportation Accidents	X			X	X

#### 6.4 Mitigation Action Plan

The following action plan identifies the goals, objectives, and actions that comprise Adams County's 2020 mitigation action plan. The consulting team presented an initial version of this list to the planning committee at its final meeting in January 2020, and consultants revised it (based on committee member feedback) into the version that appears in Table 6.4-1 below.

The table lists the mitigation actions by goal and objective. A total of 32 actions appear in the 2020 version of the plan. The action plan includes at least one action for each identified hazard, but multiple actions contribute to the mitigation of several hazards. Each participating municipality has at least one action. The committee intends for each mitigation action to contribute towards achieving at least one of the goals and objectives identified in Section 6.2 above. Underlined actions will contribute toward continued compliance with (and participation in) the National Flood Insurance Program (NFIP). Note, by inclusion on this table, the numbering



associated with the action will change since the committee goals and objectives from the 2015 version. In this table, the actions appear with their previous numbers for clarity.

**Table 6.4-1**

<b>ADAMS COUNTY 2020 MITIGATION GOALS, OBJECTIVES, AND ACTIONS</b>	
<b>Goal 1</b>	<b>Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, communications, etc.) from all hazards that could impact the county.</b>
Objective 1.A	Educate citizens annually about the hazard risks they face and personal/household mitigation strategies.
<u>Action 1.A.1</u>	Obtain information for structures in areas with the highest relative vulnerability to determine the best property protection methods. (Old Number 1.D.2)
Action 1.A.2	Continue to identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan. (Old Number 2.B.1)
Action 1.A.3	Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level. (Old Number 6.A.1)
Action 1.A.4	Continue to educate and conduct outreach pertaining to hazard mitigation and actions to take during an emergency. (Old Number 7.A.1)
Action 1.A.5	Work with appropriate county and regional partners to conduct public education on the impacts of invasive species. (Old Number 7.D.2)
Objective 1.B	Modernize the communications system used for emergency communications through training and technological upgrades.
Action 1.B.1	As technology advances, upgrade emergency communications capabilities throughout the county.
Objective 1.C	Identify, by municipality, 100% of properties (homes and existing facilities) with the highest relative vulnerability in the 1%-chance floodplain; evaluate protection, acquisition, or relocation options; and educate property owners on personal mitigation strategies.
<u>Action 1.C.1</u>	Identify mitigation projects such as acquisition and relocation, elevation, mitigation reconstruction, etc. in repetitively flood-prone areas, and work with homeowners to implement those projects. (Old Number 1.A.1)
Action 1.C.2	Assess locally owned (county/township/borough) bridges for direct flooding impacts and share information (such as the PADEP guidelines for stream maintenance) regarding the mitigation of those flood hazards to ensure bridges remain open during flood events. (Old Number 1.B.4)
<b>Goal 2</b>	<b>Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.</b>
Objective 2.A	Educate stakeholders (e.g., local officials and citizens) annually about the importance of stormwater management and source water protection and their links to hazard mitigation and risk reduction.
<u>Action 2.A.1</u>	Identify stormwater management improvements in Biglerville Borough and Butler Township. (Old Number 1.B.2)
<u>Action 2.A.2</u>	Identify stormwater management improvements, to include green infrastructure/low-impact development, in Hamiltonban Township. (Old Project 1.B.3)
<b>Goal 3</b>	<b>Promote disaster resilience in future development through code enforcement.</b>
Objective 3.A	Educate citizens annually on compliance with applicable local codes and ordinances.
<u>Action 3.A.1</u>	Continue to conduct outreach with municipalities to provide information regarding flood mitigation actions, to include administrative options, traditional projects, and the overlap of flood mitigation and stormwater management. (Old Number 1.C.1)
<u>Action 3.A.2</u>	Use county GIS to graphically depict flood-prone areas and structures. (Old Number 1.D.1)
<u>Action 3.A.3</u>	Continue to monitor existing municipal ordinances from a hazard mitigation perspective. (Old Number 2.C.1)
Action 3.A.4	Encourage developers to work with municipal officials to create emergency plans to ensure (or support) emergency ingress and egress to their communities. (Old Number 6.A.2)



<b>ADAMS COUNTY 2020 MITIGATION GOALS, OBJECTIVES, AND ACTIONS</b>	
Action 3.A.5	Update municipal subdivision and land development ordinances to address subsidence and sinkhole development due to identified near-surface limestone or Karst geologic features and require a carbonate study for development within Karst areas. (Old Number 6.A.3)
Objective 3.B	Update municipal floodplain ordinances within six months of official updates to flood insurance rate maps (FIRMs).
<u>Action 3.B.1</u>	Promote the Community Rating System (CRS) in an effort to reduce insurance premiums and flood damage in Adams County municipalities prone to flooding. (Old Number 1.C.2)
<b>Goal 4</b>	<b>Reduce losses by facilitating a more efficient response to identified hazards.</b>
Objective 4.A	Identify an emergency management coordinator (EMC) to represent all 34 municipalities in Adams County.
Action 4.A.1	Convene regular meetings of the COG/steering committee to discuss issues and progress related to the implementation of the plan. (Old Number 7.B.1)
Objective 4.B	Ensure that 100% of the designated EMCs in Adams County have achieved a minimum baseline of training.
Action 4.B.1	In light of recent turnover of municipal EMCs, identify coordinators as quickly as possible once an opening occurs to ensure continual countywide coordination for hazard mitigation and preparedness. Ensure delivery of baseline training to new EMCs.
Objective 4.C	Facilitate communication prior to a hazard event by increasing the number of residents receiving emergency notifications by 10%.
Action 4.C.1	The LEPC should work with facility owners and operators identified as having the greatest potential impact to ensure facilities are in compliance with all relevant local, state, and federal requirements; neighboring property owners understand the potential extent of the risk; traffic routing signs and trucker education are adequate; and alert and warning systems are appropriate to the situation. (Old Number 4.A.1)
Action 4.C.2	Continue to encourage residents to sign up for mass notification alerts.
Objective 4.D	Support all training, equipment, and infrastructure projects that would result in a more efficient emergency response for police, fire, emergency medical, public health, and medical agencies.
Action 4.D.1	Utilize generators, battery backups, and sump pumps in municipal buildings and other critical facilities. (Old Number 1.A.2)
Action 4.D.2	Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan. (Old Number 2.A.1)
Action 4.D.3	Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, personal care facilities, day care facilities, fire, police, rescue, and emergency management). (Old Number 2.A.2)
Action 4.D.4	Assist in developing action plans for reducing potential damage and loss of function at identified critical facilities and infrastructure. (Old Number 2.A.3)
Action 4.D.5	Continue to encourage municipalities to address the adequacy of water for firefighting. (Old Number 3.A.2)
Action 4.D.6	Map the locations of existing dry hydrants, and draw radii around those hydrants denoting the potential service areas. Use the map to identify under-served areas.
Action 4.D.7	Create a database that identifies and ranks the vulnerability of critical facilities by hazard; ensure that data can be sorted by municipality. (Old Number 5.A.1)
Action 4.D.8	Work with PEMA, FEMA, and the U.S. Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities. (Old Number 5.A.2)
Action 4.D.9	Work with the South Central Regional Counterterrorism Task Force and emergency responders to plan and prepare for terrorist activities, including training and exercises. (Old Number 5.B.1)
Action 4.D.10	Identify special populations requiring additional emergency response during any hazard event and evaluate means to enhance response capability. (Old Number 7.C.1)
Action 4.D.11	Work with appropriate county and regional partners to conduct public education on the county's pandemic plan. (Old Number 7.D.1)



ADAMS COUNTY 2020 MITIGATION GOALS, OBJECTIVES, AND ACTIONS	
Action 4.D.12	Obtain a generator for auxiliary power to ensure continued access to wells in Biglerville in the event of a long-term power outage.

All of the mitigation actions listed in Table 6.4-1 above will require substantial time commitments from local officials to implement fully. While the planning committee believes these actions are attainable within the next five years, the reality of limited time and resources requires the evaluation and prioritization of mitigation actions.

Evaluating mitigation actions involves judging each action against certain criteria to determine whether or not it can be executed. The planning committee evaluated the feasibility of mitigation actions against the following ten criteria.

- The action addresses more than one hazard at once.
- The action aims to protect “functional and access needs” populations.
- The action attempts to reduce the negative impacts of frequent and severe hazards.
- The action is easy to implement (most of the population agrees with the project, and it does not have negative political ramifications).
- The action protects the environment.
- The action is easily paid for with local funds or attainable grants.
- The action is already scheduled to start or is in process.
- The action directly aligns with one or more of the goals set by the committee.
- The action promotes partnerships within the county.
- The action promotes the modernization and efficiency of information flow.

The committee spent most of Meeting 4 discussing prioritization criteria for mitigation actions. To support prioritization, committee members completed a worksheet indicating a “score” for each of the ten criteria by order of importance (i.e., with “1” being the highest importance). The consultant collected the worksheets and averaged the responses to derive a weighting for each of the criteria. The criterion with the lowest average score received a point value of ten (and so on, with the criterion receiving the highest average score receiving a point value of one). Table 6.4-2 shows the scoring for the ten criteria.



**Table 6.4-2**

CRITERIA	AVG. SCORE	RESULTANT WEIGHT
The action addresses more than one hazard at once.	4.8125	7
The action aims to protect “functional and access needs” populations.	3.0625	10
The action attempts to reduce the negative impacts of frequent and severe hazards.	3.9375	8
The action is easy to implement (most of the population agrees with the project, and it does not have negative political ramifications).	6.5625	3
The action protects the environment.	5.5	6
The action is easily paid for with local funds or attainable grants.	6.125	4
The action is already scheduled to start or is in process.	8.25	1
The action directly aligns with one or more of the goals set by the committee.	6.875	2
The action promotes partnerships within the county.	5.75	5
The action promotes the modernization and efficiency of information flow.	3.8125	9

Table 6.4-3 below is the full prioritization scoring tabulation for the mitigation actions in the 2020 version of the plan. The committee allowed tie scores for priority. In those instances, planners skipped the subsequent rankings corresponding to the number of items tied. For instance, if three items tied for priority ranking Number 3, those three items appears as a “3” priority, and the item(s) receiving the next highest score would pick up at Number 6.



Table 6.4-3

ACTION	POINT TOTALS										TOTAL SCORE	PRIORITY RANKING
	10	9	8	7	6	5	4	3	2	1		
	Aims to protect "functional and access needs" populations	Promotes the modernization and efficiency of information flow	Attempts to reduce the negative impacts of frequent and severe hazards	Addresses more than one hazard at once	Protects the environment	Promotes partnerships within the county	Easily paid for with local funds or attainable grants	Easy to implement (most of the population agrees with the project, and it does not have negative political ramifications)	Directly aligns with one or more of the goals set by the committee	Already scheduled to start or is in process		
1.A.1		X	X	X			X	X	X	X	34	10
1.A.2	X		X	X		X	X	X	X	X	40	2
1.A.3		X	X	X		X	X	X	X	X	39	3
1.A.4		X	X	X				X	X	X	30	17
1.A.5		X			X	X		X	X	X	26	19
1.B.1		X	X	X		X		X	X	X	35	8
1.C.1			X		X				X		16	29
1.C.2			X		X	X			X	X	22	22



ACTION	POINT TOTALS										TOTAL SCORE	PRIORITY RANKING
	10	9	8	7	6	5	4	3	2	1		
	Aims to protect "functional and access needs" populations	Promotes the modernization and efficiency of information flow	Attempts to reduce the negative impacts of frequent and severe hazards	Addresses more than one hazard at once	Protects the environment	Promotes partnerships within the county	Easily paid for with local funds or attainable grants	Easy to implement (most of the population agrees with the project, and it does not have negative political ramifications)	Directly aligns with one or more of the goals set by the committee	Already scheduled to start or is in process		
2.A.1	Identify stormwater management improvements in Biglerville Borough and Butler Township.		X		X	X		X	X	X	25	20
2.A.2	Identify stormwater management improvements, to include green infrastructure/low-impact development, in Hamiltonban Township.		X		X	X		X	X	X	25	20
3.A.1	Continue to conduct outreach with municipalities to provide information regarding flood mitigation actions, to include administrative options, traditional projects, and the overlap of flood mitigation and stormwater management.	X	X		X	X		X	X	X	34	10
3.A.2	Use county GIS to graphically depict flood-prone areas and structures.		X	X		X	X	X	X	X	32	13
3.A.3	Continue to monitor existing municipal ordinances from a hazard mitigation perspective, to include adopting and enforcing building codes consistent with the most recent edition of the International Building Codes.			X	X	X	X		X	X	28	18
3.A.4	Encourage developers to work with municipal officials to create emergency plans to ensure (or support) emergency ingress and egress to their communities.	X		X	X		X	X		X	37	7
3.A.5	Update municipal subdivision and land development ordinances to address subsidence and sinkhole development due to identified near-surface limestone or Karst geologic features and require a carbonate study for development within Karst areas.			X			X	X		X	20	26



ACTION	POINT TOTALS										TOTAL SCORE	PRIORITY RANKING	
	10	9	8	7	6	5	4	3	2	1			
	Aims to protect "functional and access needs" populations	Promotes the modernization and efficiency of information flow	Attempts to reduce the negative impacts of frequent and severe hazards	Addresses more than one hazard at once	Protects the environment	Promotes partnerships within the county	Easily paid for with local funds or attainable grants	Easy to implement (most of the population agrees with the project, and it does not have negative political ramifications)	Directly aligns with one or more of the goals set by the committee	Already scheduled to start or is in process			
3.B.1	Promote the Community Rating System (CRS) in an effort to reduce insurance premiums and flood damage in Adams County municipalities prone to flooding.			X			X	X		X		19	27
4.A.1	Convene regular meetings of the COG/steering committee to discuss issues and progress related to the implementation of the plan.		X	X	X		X	X	X	X	X	39	3
4.B.1	In light of recent turnover of municipal EMCs, identify coordinators as quickly as possible once an opening occurs to ensure continual countywide coordination for hazard mitigation and preparedness. Ensure delivery of baseline training to new EMCs.		X	X	X		X	X	X	X	X	39	3
4.C.1	The LEPC should work with facility owners and operators identified as having the greatest potential impact to ensure facilities are in compliance with all relevant local, state, and federal requirements; neighboring property owners understand the potential extent of the risk; traffic routing signs and trucker education are adequate; and alert and warning systems are appropriate to the situation.	X	X				X	X	X	X	X	34	10
4.C.2	Continue to encourage residents to sign up for mass notification alerts.	X	X	X	X			X	X	X	X	44	1
4.D.1	Utilize generators, battery backups, and sump pumps in municipal buildings and other critical facilities.			X					X	X	X	14	31
4.D.2	Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan.		X		X				X	X	X	22	22



ACTION	POINT TOTALS										TOTAL SCORE	PRIORITY RANKING
	10	9	8	7	6	5	4	3	2	1		
	Aims to protect "functional and access needs" populations	Promotes the modernization and efficiency of information flow	Attempts to reduce the negative impacts of frequent and severe hazards	Addresses more than one hazard at once	Protects the environment	Promotes partnerships within the county	Easily paid for with local funds or attainable grants	Easy to implement (most of the population agrees with the project, and it does not have negative political ramifications)	Directly aligns with one or more of the goals set by the committee	Already scheduled to start or is in process		
4.D.3 Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, personal care facilities, day care facilities, fire, police, rescue, and emergency management).	X		X	X			X	X	X	X	35	8
4.D.4 Assist in developing action plans for reducing potential damage and loss of function at identified critical facilities and infrastructure.			X	X				X	X	X	21	25
4.D.5 Continue to encourage municipalities to address the adequacy of water for firefighting.			X			X		X	X	X	19	27
4.D.6 Map the locations of existing dry hydrants, and draw radii around those hydrants denoting the potential service areas. Use the map to identify under-served areas.		X	X			X	X	X	X		31	14
4.D.7 Create a database that identifies and ranks the vulnerability of critical facilities by hazard; ensure that data can be sorted by municipality.		X	X			X		X	X	X	31	14
4.D.8 Work with PEMA, FEMA, and the U.S. Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities.						X	X	X	X	X	15	30
4.D.9 Work with the South Central Regional Counterterrorism Task Force and emergency responders to plan and prepare for terrorist activities, including training and exercises.				X		X	X	X	X	X	22	22



ACTION	POINT TOTALS										TOTAL SCORE	PRIORITY RANKING
	10	9	8	7	6	5	4	3	2	1		
	Aims to protect "functional and access needs" populations	Promotes the modernization and efficiency of information flow	Attempts to reduce the negative impacts of frequent and severe hazards	Addresses more than one hazard at once	Protects the environment	Promotes partnerships within the county	Easily paid for with local funds or attainable grants	Easy to implement (most of the population agrees with the project, and it does not have negative political ramifications)	Directly aligns with one or more of the goals set by the committee	Already scheduled to start or is in process		
4.D.10 Identify special populations requiring additional emergency response during any hazard event and evaluate means to enhance response capability.	X		X	X				X	X	X	31	14
4.D.11 Work with appropriate county and regional partners to conduct public education on the county's pandemic plan.	X	X	X			X		X	X	X	38	6
4.D.12 Obtain a generator for auxiliary power to ensure continued access to wells in Biglerville in the event of a long-term power outage.			X					X	X	X	14	31



A mitigation action plan for each action appears in Table 6.4-4 below. The action plans identify, to the extent possible, the following information.

- **Community(ies):** Communities assisted by implementing the mitigation action
- **Action Type:** The mitigation action category (local plans and regulations, structural and infrastructure projects, natural systems protection, education programs, and preparedness and response activities)
- **Hazard(s) Addressed:** Hazard (or hazards) addressed by the action
- **Priority:** Priority based on the scoring in Table 6.4-3 above
- **Estimated Cost:** An informal cost estimate or credible source from which to develop a cost estimate
- **Potential Funding Source(s):** The programs and agencies/entities that could fund the mitigation action
- **Lead Agency or Department:** The coordinating agency for the mitigation action
- **Implementation Schedule:** An approximate timeframe for completion

Table 6.4-4

ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
Action 1.A.1	Obtain information for structures in areas with the highest relative vulnerability to determine the best property protection methods.
Community(ies):	Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough
Action Type	Local Plans & Regulations
Hazard(s) Addressed	Dam Failure Flood, Flash Flood, Ice Jam Landslide Subsidence, Sinkhole
Priority	10
Estimated Cost	TBD
Potential Funding Source(s)	Local Funds
Lead Agency or Department	Adams County Office of Planning & Development (ACOPD) Adams County Department of Emergency Services (ACDES)
Implementation Schedule	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 1.A.2</b>	<b>Continue to identify residents with the highest relative vulnerability to the effects of severe weather and prepare implementation plan.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	Hailstorm Hurricane, Tropical Storm, Nor'easter Tornado, Wind Storm Winter Storm
<b>Priority</b>	2
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	EMPG, Local Funds
<b>Lead Agency or Department</b>	ACDES Municipal Emergency Management Coordinators (EMCs)
<b>Implementation Schedule</b>	On-Going
<b>Action 1.A.3</b>	<b>Distribute and promote the inclusion of vulnerability analysis information as part of periodic plan review and revisions at the township/borough level.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	3
<b>Estimated Cost</b>	N/A
<b>Potential Funding Source(s)</b>	N/A
<b>Lead Agency or Department</b>	ACDES
<b>Implementation Schedule</b>	1 Year
<b>Action 1.A.4</b>	<b>Continue to educate and conduct outreach pertaining to hazard mitigation and actions to take during an emergency.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Education Programs
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	17
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Adams County Local Emergency Planning Committee (LEPC) Municipal EMCs
<b>Implementation Schedule</b>	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 1.A.5</b>	<b>Work with appropriate county and regional partners to conduct public education on the impacts of invasive species.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Education Programs
<b>Hazard(s) Addressed</b>	Invasive Species
<b>Priority</b>	19
<b>Estimated Cost</b>	Coordination with partners should require little no direct funding (especially since entities like the Penn State Extension Service conduct similar efforts as a matter of regular business).
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	Adams County Conservation District Penn State Extension Service
<b>Implementation Schedule</b>	On-Going
<b>Action 1.B.1</b>	<b>As technology advances, upgrade emergency communications capabilities throughout the county.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	8
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	SHSP, HSGP, EMPG, State Funds, Local Funds
<b>Lead Agency or Department</b>	ACDES Adams County 911 Center Municipal EMCs First Responder Agencies
<b>Implementation Schedule</b>	5 Years
<b>Action 1.C.1</b>	<b>Identify mitigation projects such as acquisition and relocation, elevation, mitigation reconstruction, etc. in repetitively flood-prone areas, and work with homeowners to implement those projects.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Structure & Infrastructure Projects
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	29
<b>Estimated Cost</b>	TBD (per individual projects)
<b>Potential Funding Source(s)</b>	HMGP, PDM, Local Funds
<b>Lead Agency or Department</b>	ACOPD ACDES
<b>Implementation Schedule</b>	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 1.C.2</b>	<b>Assess locally owned (county/township/borough) bridges for direct flooding impacts and share information (such as the PADEP guidelines for stream maintenance) regarding the mitigation of those flood hazards to ensure bridges remain open during flood events.</b>
<b>Community(ies):</b> Fairfield Borough, Freedom Township, Germany Township, Menallen Township	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	22
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	HMGP, PDM, FMA, Pennsylvania Infrastructure Bank
<b>Lead Agency or Department</b>	Municipal EMCs
<b>Implementation Schedule</b>	5 Years
<b>Action 2.A.1</b>	<b>Identify stormwater management improvements in Biglerville Borough and Butler Township.</b>
<b>Community(ies):</b> Biglerville Borough, Butler Township	
<b>Action Type</b>	Structure & Infrastructure Projects
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	20
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	HMGP, PDM, FMA, PENNVEST, Local Funds
<b>Lead Agency or Department</b>	Borough/Township Managers ACOPD
<b>Implementation Schedule</b>	5 Years
<b>Action 2.A.2</b>	<b>Identify stormwater management improvements, to include green infrastructure/low-impact development, in Hamiltonban Township.</b>
<b>Community(ies):</b> Hamiltonban Township	
<b>Action Type</b>	Structure & Infrastructure Projects
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	20
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	HMGP, PDM, FMA, PENNVEST, Local Funds
<b>Lead Agency or Department</b>	Township Secretary ACOPD
<b>Implementation Schedule</b>	5 Years
<b>Action 3.A.1</b>	<b>Continue to conduct outreach with municipalities to provide information regarding flood mitigation actions, to include administrative options, traditional projects, and the overlap of flood mitigation and stormwater management.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Education Programs
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	10
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES ACOPD
<b>Implementation Schedule</b>	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 3.A.2</b>	<b>Use county GIS to graphically depict flood-prone areas and structures.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	13
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACOPD
<b>Implementation Schedule</b>	On-Going
<b>Action 3.A.3</b>	<b>Continue to monitor existing municipal ordinances from a hazard mitigation perspective, to include adopting and enforcing building codes consistent with the most recent edition of the International Building Codes.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	18
<b>Estimated Cost</b>	N/A
<b>Potential Funding Source(s)</b>	N/A
<b>Lead Agency or Department</b>	ACOPD Municipal Managers Municipal EMCs
<b>Implementation Schedule</b>	On-Going
<b>Action 3.A.4</b>	<b>Encourage developers to work with municipal officials to create emergency plans to ensure (or support) emergency ingress and egress to their communities.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	7
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	Municipal EMCs
<b>Implementation Schedule</b>	5 Years



<b>ADAMS COUNTY 2020 MITIGATION ACTION PLAN</b>	
<b>Action 3.A.5</b>	<b>Update municipal subdivision and land development ordinances to address subsidence and sinkhole development due to identified near-surface limestone or Karst geologic features and require a carbonate study for development within Karst areas.</b>
<b>Community(ies):</b> Berwick Township, Carroll Valley Borough, Conewago Township, Fairfield Borough, Franklin Township, Germany Township, Hamiltonban Township, Huntington Township, Littlestown Borough, McSherrystown Borough, Mount Pleasant Township, Oxford Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Subsidence, Sinkhole
<b>Priority</b>	26
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	Municipal Managers ACOPD
<b>Implementation Schedule</b>	On-Going
<b>Action 3.B.1</b>	<b>Promote the Community Rating System (CRS) in an effort to reduce insurance premiums and flood damage in Adams County municipalities prone to flooding.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam
<b>Priority</b>	27
<b>Estimated Cost</b>	Participation in the program will not require direct costs; however, participants may incur personnel costs associated with program maintenance.
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	Municipal EMCs Municipal Managers ACOPD ACDES
<b>Implementation Schedule</b>	5 Years
<b>Action 4.A.1</b>	<b>Convene regular meetings of the COG/steering committee to discuss issues and progress related to the implementation of the plan.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	3
<b>Estimated Cost</b>	N/A
<b>Potential Funding Source(s)</b>	N/A
<b>Lead Agency or Department</b>	Adams County Council of Governments (COG) ACDES
<b>Implementation Schedule</b>	1 Year (and On-Going afterward)



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 4.B.1</b>	<b>In light of recent turnover of municipal EMCs, identify coordinators as quickly as possible once an opening occurs to ensure continual countywide coordination for hazard mitigation and preparedness. Ensure delivery of baseline training to new EMCs.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	3
<b>Estimated Cost</b>	N/A
<b>Potential Funding Source(s)</b>	N/A
<b>Lead Agency or Department</b>	ACDES
<b>Implementation Schedule</b>	5 Years
<b>Action 4.C.1</b>	<b>The LEPC should work with facility owners and operators identified as having the greatest potential impact to ensure facilities are in compliance with all relevant local, state, and federal requirements; neighboring property owners understand the potential extent of the risk; traffic routing signs and trucker education are adequate; and alert and warning systems are appropriate to the situation.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Environmental Hazards: Hazardous Materials Release Transportation Accidents
<b>Priority</b>	10
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Act 165, PennDOT HSF, PennDOT MLFF, Local Funds
<b>Lead Agency or Department</b>	Adams County LEPC
<b>Implementation Schedule</b>	On-Going
<b>Action 4.C.2</b>	<b>Continue to encourage residents to sign up for mass notification alerts.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Education Programs
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	1
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Municipal EMCs
<b>Implementation Schedule</b>	On-Going



<b>ADAMS COUNTY 2020 MITIGATION ACTION PLAN</b>	
<b>Action 4.D.1</b>	<b>Utilize generators, battery backups, and sump pumps in municipal buildings and other critical facilities.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Structure & Infrastructure Projects
<b>Hazard(s) Addressed</b>	Flood, Flash Flood, Ice Jam Tornado, Wind Storm Winter Storm
<b>Priority</b>	31
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	HMGP, PDM, Local Funding
<b>Lead Agency or Department</b>	Utility Departments
<b>Implementation Schedule</b>	5 Years
<b>Action 4.D.2</b>	<b>Conduct qualitative evaluation process for critical facilities and infrastructure to determine relative vulnerability and gather information for subsequent refinements of this mitigation plan.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	22
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Adams County LEPC Municipal EMCs
<b>Implementation Schedule</b>	On-Going



<b>ADAMS COUNTY 2020 MITIGATION ACTION PLAN</b>	
<b>Action 4.D.3</b>	<b>Identify critical facilities with the highest relative vulnerability to the effects of power outage (i.e., hospitals, nursing homes, personal care facilities, day care facilities, fire, police, rescue, and emergency management).</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	Hailstorm Pandemic & Infectious Disease Tornado, Wind Storm Winter Storm
<b>Priority</b>	8
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Adams County LEPC Municipal EMCs
<b>Implementation Schedule</b>	On-Going
<b>Action 4.D.4</b>	<b>Assist in developing action plans for reducing potential damage and loss of function at identified critical facilities and infrastructure.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	25
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	HSGP, EMPG, Local Funds
<b>Lead Agency or Department</b>	ACDES Adams County LEPC Municipal EMCs
<b>Implementation Schedule</b>	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 4.D.5</b>	<b>Continue to encourage municipalities to address the adequacy of water for firefighting.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	Drought Wildfire
<b>Priority</b>	27
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	CDBG, State Funds, Local Funds
<b>Lead Agency or Department</b>	Municipal EMCs
<b>Implementation Schedule</b>	On-Going
<b>Action 4.D.6</b>	<b>Map the locations of existing dry hydrants, and draw radii around those hydrants denoting the potential service areas. Use the map to identify under-served areas.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	Drought Wildfire
<b>Priority</b>	14
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES ACOPD
<b>Implementation Schedule</b>	3 Years
<b>Action 4.D.7</b>	<b>Create a database that identifies and ranks the vulnerability of critical facilities by hazard; ensure that data can be sorted by municipality.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	14
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Municipal EMCs Adams County LEPC ACOPD
<b>Implementation Schedule</b>	5 Years



<b>ADAMS COUNTY 2020 MITIGATION ACTION PLAN</b>	
<b>Action 4.D.8</b>	<b>Work with PEMA, FEMA, and the U.S. Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Local Plans & Regulations
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	30
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	SHSP, EMPG, Act 165, Local Funds
<b>Lead Agency or Department</b>	ACDES
<b>Implementation Schedule</b>	On-Going
<b>Action 4.D.9</b>	<b>Work with the South Central Regional Counterterrorism Task Force and emergency responders to plan and prepare for terrorist activities, including training and exercises.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	Terrorism
<b>Priority</b>	22
<b>Estimated Cost</b>	N/A
<b>Potential Funding Source(s)</b>	N/A
<b>Lead Agency or Department</b>	ACDES
<b>Implementation Schedule</b>	On-Going
<b>Action 4.D.10</b>	<b>Identify special populations requiring additional emergency response during any hazard event and evaluate means to enhance response capability.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Preparedness & Response Activities
<b>Hazard(s) Addressed</b>	All
<b>Priority</b>	14
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	Local Funds
<b>Lead Agency or Department</b>	ACDES Municipal EMCs
<b>Implementation Schedule</b>	On-Going



ADAMS COUNTY 2020 MITIGATION ACTION PLAN	
<b>Action 4.D.11</b>	<b>Work with appropriate county and regional partners to conduct public education on the county's pandemic plan.</b>
<b>Community(ies):</b> Abbottstown Borough, Arendtsville Borough, Bendersville Borough, Berwick Township, Biglerville Borough, Bonneauville Borough, Butler Township, Carroll Valley Borough, Conewago Township, Cumberland Township, East Berlin Borough, Fairfield Borough, Franklin Township, Freedom Township, Germany Township, Gettysburg Borough, Hamilton Township, Hamiltonban Township, Highland Township, Huntington Township, Liberty Township, Littlestown Borough, McSherrystown Borough, Menallen Township, Mount Joy Township, Mount Pleasant Township, New Oxford Borough, Oxford Township, Reading Township, Straban Township, Tyrone Township, Union Township, York Springs Borough	
<b>Action Type</b>	Education Programs
<b>Hazard(s) Addressed</b>	Pandemic, Infectious Disease
<b>Priority</b>	6
<b>Estimated Cost</b>	TBD
<b>Potential Funding Source(s)</b>	State Funds, Local Funds
<b>Lead Agency or Department</b>	Adams County State Health Center
<b>Implementation Schedule</b>	On-Going
<b>Action 4.D.12</b>	<b>Obtain a generator for auxiliary power to ensure continued access to wells in Biglerville in the event of a long-term power outage.</b>
<b>Community(ies):</b> Biglerville Borough	
<b>Action Type</b>	Structure & Infrastructure Projects
<b>Hazard(s) Addressed</b>	Drought Flood, Flash Flood, Ice Jam Hurricane, Tropical Storm, Nor'easter Tornado, Wind Storm Winter Storm
<b>Priority</b>	31
<b>Estimated Cost</b>	Up to \$25,000
<b>Potential Funding Source(s)</b>	HMGF, PDM, Local Funds
<b>Lead Agency or Department</b>	Biglerville Borough Manager
<b>Implementation Schedule</b>	5 Years



## 7.0 PLAN MAINTENANCE

§ 201.6(c)(4)(i)	[The plan maintenance process shall include a] section describing the method and schedule of monitoring, evaluating, and updating the mitigation plan within a five-year cycle.
§ 201.6(c)(4)(ii)	[The plan shall include a] process by which local governments incorporate the requirements of the mitigation plan into other planning mechanisms such as comprehensive or capital improvement plans, when appropriate.
§ 201.6(c)(4)(iii)	[The plan maintenance process shall include a] discussion on how the community will continue public participation in the plan maintenance process.

This section of the plan outlines the process by which Adams County and the participating municipalities will update and maintain this document.

### 7.1 Update Process Summary

Monitoring, evaluating, and updating this plan is critical to maintaining its value and success in Adams County’s hazard mitigation efforts. Ensuring effective implementation of mitigation activities paves the way for continued momentum in the planning process and gives direction for the future. This section explains who will be responsible for maintenance activities and what those responsibilities entail. It also provides a methodology and schedule of maintenance activities, including a description of how the public will participate on a continued basis.

The plan maintenance process presented in this section is similar to those presented in the 2010 and 2015 versions of this plan. Adams County recognizes the benefit of yearly progress reports, with each municipality providing information as needed. Again, this section stipulates that the county will conduct both annual reviews and reviews within 30 days of declared disaster events to help identify mitigation opportunities. The primary difference in this version versus the 2015 version is that this plan identifies the topics of the annual meetings to make them more actionable (see Section 7.2 below). Table 7.1-1 lists the efforts made in updating the plan since the 2015 adoption.



**Table 7.1-1**

<b>PLAN MAINTENANCE EFFORTS, 2015-2019</b>	
<i>Responsible Entity</i>	<i>Description (including approximate date)</i>
Adams County Department of Emergency Services	Hosts regular emergency services committee meetings to discuss preparedness and response issues (annual)
Adams County Department of Emergency Services	Conducts training exercises that feature numerous scenarios, including flooding and severe weather (annual)
Adams County Office of Planning & Development	Holds meetings and training for municipality road crews throughout the year (annual)
Miscellaneous	County agencies participated in the process to update various flood maps (2018, 2019)
Miscellaneous	Municipalities are updating floodplain ordinances based on changes to flood maps (2019, present)
Miscellaneous	Municipalities recently updated stormwater management ordinances (2015-2019)
Abbottstown Borough	Added LED signage in the town square to mitigate traffic accidents (2019)
Mt. Joy Township	Conducts after-action reviews with township road crews following significant weather events (as needed)
Gettysburg College	Supports an emergency medical services club (on-going)

## 7.2 Monitoring, Evaluating and Updating the Plan

The plan maintenance procedure is not only a function of the regulatory driver governing the completion of plans as a requirement for mitigation funding but also an opportunity to support networking amongst key stakeholders in the county. The committee (and the Adams County Department of Emergency Services [ACDES]) understand that it is not feasible to dedicate a full-time effort to maintaining this plan. However, a regular and periodic process is feasible, and that process is as follows.

To ensure that hazard mitigation remains an active topic of conversation, the committee agreed that it would approach the Adams County Council of Governments (COG) to request the use of the COG as a vehicle to discuss hazard mitigation on an annual basis. To accomplish this task, hazard mitigation planning committee members agreed to ask the COG about creating a standing hazard mitigation agenda item to allow for discussion on the topic (and documentation of that discussion) at each of the COG’s meetings. Using the COG as a vehicle with a standing mitigation agenda item will also ensure that the county addresses the mitigation plan soon after any declared incidents occur. The committee felt it would be helpful to set “guideposts” for minimum topics to cover on an annual basis.

- **Year 1:** Ensure countywide adoption of the plan.
- **Year 2:** Focus on hazard identification and risk analysis. Evaluate how well the plan predicted impacted areas.



- **Year 3:** The ACDES will engage with the public via an online survey (see Section 7.3 below).
- **Year 4:** Update project implementation.
- **Year 5:** Coordinate the next formal update of the plan.

The goal of the annual planning committee meetings will be to generate content for the next plan update and educate new stakeholders as they enter the process. Representatives on the planning committee could change, and the annual meetings offer a prime opportunity to orient new members to what mitigation is, how the plan works, etc. The annual meetings thus support a more critical, in-depth formal update process.

### **7.3 Continued Public Involvement**

Residents in Adams County provided comments on hazards and projects via a public survey hosted by the Adams County Office of Planning and Development (see Section 3.4). Residents may also submit comments after participating jurisdictions have adopted the plan (and FEMA has approved it). At that point, residents would direct comments to the ACDES or other planning committee members (and instructions for doing so should be included in press releases encouraging review). As the custodial agency for the plan, the ACDES will log all comments received and ensure that the planning committee reviews them during the next annual meeting (or formal plan update process).

The ACDES will continue to ensure that the current hazard mitigation plan appears on the county's website. Periodically, the ACDES will encourage public review and comment on that plan, partly under the annual review process noted above, but also in general preparedness public information releases. As noted above, in the third year of the plan update cycle, the county will again release a public survey to gauge perceptions on risks throughout the county. The ACDES will serve as the coordinator/custodian of the survey, and the ACDES will provide the results of the mid-cycle survey to the Adams County COG for discussion at the first meeting following the conclusion of the survey.



## 8.0 PLAN ADOPTION

This section serves as a placeholder for copies of resolutions, meeting minutes at which municipalities adopted resolutions, etc.



## APPENDIX A: BIBLIOGRAPHY

This appendix assures proper attribution to the many data sources used throughout the hazard mitigation plan.

Adams County Office of Planning & Development. (n.d.). *Explore Adams*. Online. Retrieved from

<https://adamsgis.maps.arcgis.com/apps/MapSeries/index.html?appid=a0194d4c547e4bdfbdf6c16712ee2ef4>

Adams County Office of Planning & Development. (1990). *Adams County, Pennsylvania comprehensive plan*. Local Government: Gettysburg, PA.

Adams County Office of Planning & Development. (2016). *Adams County Fruitbelt Economic Impact Analysis*. Local Government: Gettysburg, PA.

Adams County Office of Planning & Development. (2002). *Adams County, Pennsylvania water supply and wellhead protection plan*. Local Government: Gettysburg, PA.

Adams Economic Alliance. (2018). Adams County profile. Online. Retrieved from <https://adamsalliance.org/incentives-resources/adams-county-profile/>

AgFax. (2017). Pennsylvania: 14 counties designated natural disaster areas from drought. Online. Retrieved from <https://agfax.com/2017/04/07/pennsylvania-14-counties-designated-natural-disaster-areas-from-drought/>

Baylor College of Medicine. (n.d.). *Introduction to Infectious Diseases*. Online. Retrieved from <https://www.bcm.edu/departments/molecular-virology-and-microbiology/emerging-infections-and-biodefense/introduction-to-infectious-diseases>

Carroll Valley Borough. (2012). *The Borough of Carroll Valley comprehensive plan*. Local Government: Carroll Valley, PA.

Centers for Disease Control and Prevention. (2012). Lesson 1: Introduction to epidemiology, Section 11: Epidemic disease occurrence. *Principles of Epidemiology in Public Health Practice, Third Edition, An Introduction to Applied Epidemiology and Biostatistics*. Online. Retrieved from <https://www.cdc.gov/csels/dsepd/ss1978/lesson1/section11.html>

Centers for Disease Control and Prevention. (2016). CDC's Social Vulnerability Index 2016 Online. Retrieved from [https://svi.cdc.gov/Documents/CountyMaps/2016/Pennsylvania/Pennsylvania2016\\_Adamms.pdf](https://svi.cdc.gov/Documents/CountyMaps/2016/Pennsylvania/Pennsylvania2016_Adamms.pdf)



- Centers for Disease Control and Prevention, The National Institute for Occupational Safety and Health (2016). Cold Stress- Cold Related Illnesses. Retrieved from <https://www.cdc.gov/niosh/topics/coldstress/coldrelatedillnesses.html>
- Centers for Disease Control and Prevention. (2018). *Seasonal Flu vs. Pandemic Flu Infographic*. Online. Retrieved from <https://www.cdc.gov/flu/resource-center/freeresources/graphics/seasonal-vs-pandemic-flu-infographic.htm>
- Centers for Disease Control and Prevention. (2019). National environmental public health tracking network. Online. Retrieved from <https://ephtracking.cdc.gov/DataExplorer/index.html?c=24&i=-1&m=-1#/>
- Centers for Disease Control and Prevention. (2020). Influenza (Flu). Online. Retrieved from <https://www.cdc.gov/flu/index.htm>
- Centers for Disease Control and Prevention, U.S. Environmental Protection Agency, National Oceanic and Atmospheric Agency, and American Water Works Association. (2010). *When every drop counts: protecting public health during drought conditions— a guide for public health professionals*. Atlanta, GA: U.S. HHS.
- (The) Center for Rural Pennsylvania. (2014). Home page. Online. Retrieved from <http://rural.palegislature.us/>
- Central Adams Joint Comprehensive Plan Steering Committee. (2018). *Central Adams joint comprehensive plan*. Local Government: Gettysburg, PA.
- (The) Chesapeake Group. (2016). *Economic impact model for the historic South Mountain Fruit Belt in Adams County Pennsylvania*. Online. Retrieved from [http://www.adamscounty.us/Dept/Planning/Documents/Studies-Publications/Adams\\_Co\\_Fruit\\_Belt\\_Model-91916\\_Final.pdf](http://www.adamscounty.us/Dept/Planning/Documents/Studies-Publications/Adams_Co_Fruit_Belt_Model-91916_Final.pdf)
- Christodouleas, J. P., Forrest, R. D., Ainsley, C. G., Tochner, Z., Hahn, S. M., Glatstein, E. (2011). Short-term and long-term health risks of nuclear-power-plant accidents. *New England Journal of Medicine*. DOI: 10.1056/NEJMra1103676
- Coastal Hazards Research Center, & Center for Sustainable Community Design. (n.d.). Types of mitigation actions. Online. Retrieved from <http://mitigationguide.org/task-6/mitigation-actions/>
- Conewago Township Planning Commission. (2008). *Conewago Township, Adams County comprehensive plan*. Local Government: Conewago Township, PA.
- Cornell University. (2018). Cold snap highlights risks to agriculture of extreme weather. Online. Retrieved from <https://cals.cornell.edu/news/cold-snap-highlights-risks-agriculture-extreme-weather>



- Coppola, D. P. (2015). *Introduction to international disaster management* (3<sup>rd</sup> ed.). Waltham, MA: Butterworth-Heinemann.
- DeJesus, I. (2017). For Gettysburg battlefield, the downside of public's enthusiasm is erosion, damage. *PennLive*. Online. Retrieved from [https://www.pennlive.com/news/2017/04/civil\\_war\\_gettysburg\\_little\\_ro.html](https://www.pennlive.com/news/2017/04/civil_war_gettysburg_little_ro.html)
- destinationgettysburg.com. (2020). Historic South Mountain fruit belt-America's orchard. Online. Retrieved from <https://destinationgettysburg.com/members/historic-south-mountain-fruit-belt-americas-orchard/>
- Douglas, J. (2003). Earthquake ground motion estimation using strong-motion records: A review of equations for the estimation of peak ground acceleration and response spectral ordinates. *Earth Science Reviews*, 61, 43-104. doi:10.1016/S0012-8252(02)00112-5
- Eastern Adams Joint Comprehensive Plan Steering Committee. (2012). *The eastern Adams joint comprehensive plan and Route 197 corridor study*.
- Enders, W., & Olson, E. (2012). Measuring the economic costs of terrorism. *The Oxford Handbook of the Economics of Peace and Conflict*. M. R. Garfinkel & S. Skaperdas, Eds. Online. Retrieved from <https://www.socsci.uci.edu/~mrgarfin/OUP/papers/Enders.pdf>
- Enders, W., Sandler, T., & Parise, G. (1992). An econometric analysis of the impact of terrorism on tourism. *Kyklos*, 45(4), 33-57.
- EWG. (n.d.) Farm subsidy database. Online. Retrieved from <https://farm.ewg.org/region.php?fips=42001&progcode=total>
- Federal Aviation Administration (of the U.S. Department of Transportation). (2018). Aircraft accident and incident notification, investigation, and reporting. FAA Order 8020.11D. Online. Retrieved from [https://www.faa.gov/regulations\\_policies/orders\\_notices/index.cfm/go/document.information/documentID/1033315](https://www.faa.gov/regulations_policies/orders_notices/index.cfm/go/document.information/documentID/1033315)
- Federal Bureau of Investigation. (n.d.). What We Investigate: Terrorism. Online. Retrieved from <https://www.fbi.gov/investigate/terrorism>
- Federal Emergency Management Agency. (n.d.). *Community status book*. Online. Retrieved from <https://www.fema.gov/cis/PA.pdf>
- Federal Emergency Management Agency. (n.d.). Taking shelter from the storm: Building a safe room inside your house. Online. Retrieved from [https://www.fema.gov/pdf/library/ism2\\_s1.pdf](https://www.fema.gov/pdf/library/ism2_s1.pdf)



- Federal Emergency Management Agency. (1997). *Multi-hazard identification and risk assessment: A cornerstone of the national mitigation strategy*. Washington, DC: Federal government.
- Federal Emergency Management Agency. (2004). *Federal guidelines for dam safety: Hazard Potential Classification System for Dams*. Washington, DC: Federal government.
- Federal Emergency Management Agency. (2013). *Local hazard mitigation planning handbook*. Washington, DC: Federal government.
- Federal Emergency Management Agency. (2013). *Mitigation ideas: A resource for reducing risk to natural hazards*. Washington, DC: Federal government.
- Federal Emergency Management Agency. (2019). Hazardous Materials Incidents: Guidance for State, Local, Tribal, Territorial, and Private Sector Partners. Online. Retrieved from [https://www.fema.gov/media-library-data/1566393023589-8134367aaf67f65c7a159453c0b8c27b/Hazardous\\_Materials\\_Incidents.pdf](https://www.fema.gov/media-library-data/1566393023589-8134367aaf67f65c7a159453c0b8c27b/Hazardous_Materials_Incidents.pdf)
- Federal Emergency Management Agency. (2019). *Data visualization: Disaster declarations for states and counties*. Online. Retrieved from <https://www.fema.gov/data-visualization-disaster-declarations-states-and-counties>
- Federal Emergency Management Agency. (2019). HAZUS 4.2. Information regarding program retrieved online from <https://www.fema.gov/hazus>
- Federal Railroad Administration. (2010). Highway-Rail Grade Crossings Resource Guide. Online. Retrieved from <file:///C:/Users/osimpson/Downloads/Grade%20Crossing%20Resource%20Guide%2022015.pdf>
- (The) Gettysburg & Adams County Chamber of Commerce. (n.d.). Tourism. Online. Retrieved from <http://www.gettysburg-chamber.org/business-resources/tourism>
- Gettysburg Tourism Works. (n.d.) The impact of tourism in Adams County. Online. Retrieved from <https://www.gettysburgtourismworks.com/impact-of-tourism-in-adams-county.html>
- Gettysburg Tourism Works. (n.d.) Tourism workforce in Adams County. Online. Retrieved from <https://www.gettysburgtourismworks.com/workforce.html>
- Intergovernmental Panel on Climate Change. (n.d.). Home page. Online. Retrieved from <https://www.ipcc.ch/>
- Keller, E. A., & DeVecchio, D. E. (2015). *National hazards: Earth's processes as hazards, disasters, and catastrophes* (4<sup>th</sup> ed.). Santa Barbara, CA: Pearson.



- Kuwayama, Y. (2019). The economic impacts of drought on U.S. agriculture. *Resources*. Online. Retrieved from <https://www.resourcesmag.org/archives/economic-impacts-drought-us-agriculture/>
- Kochanov, W. E., 1999, Sinkholes in Pennsylvania: Pennsylvania Geological Survey, 4th ser., Educational Series 11, 33 p.
- Mayo Clinic. (2019). *Infectious Diseases*. Online. Retrieved from <https://www.mayoclinic.org/departments-centers/infectious-diseases/sections/overview/ovc-20456906>
- McCarthy, F. X. (2011). *FEMA's disaster declaration process: A primer*. Congressional Research Service, 7-5700. Federal Government: Washington, DC.
- Molinari, N. A., Ortega-Sanchez, I. R., Messonnier, M. L., Thompson, W. W., Wortley, P. M., Weintraub, E., & Bridges, C. B. (2007). The annual impact of seasonal influenza in the US: Measuring disease burden and costs. *Vaccine*, 25(27), 5086-5096. Online. Retrieved from <https://www.ncbi.nlm.nih.gov/pubmed/17544181>
- National Climate Assessment. (2014). Home page. Online. Retrieved from <https://nca2014.globalchange.gov/>
- National Drought Mitigation Center. (n.d.). U.S. drought monitor. Online. Retrieved from <http://droughtmonitor.unl.edu/>
- National Fire Prevention Association. (2008). Hazardous Materials/Weapons of Mass Destruction Response Handbook. Online. Retrieved from [https://www.nfpa.org/~media/Files/forms%20and%20premiums/472%20handbook/NF472HB08\\_P3\\_CHS6.pdf](https://www.nfpa.org/~media/Files/forms%20and%20premiums/472%20handbook/NF472HB08_P3_CHS6.pdf)
- National Interagency Fire Center. (2019). Statistics. Online. Retrieved from [https://www.nifc.gov/fireInfo/fireInfo\\_statistics.html](https://www.nifc.gov/fireInfo/fireInfo_statistics.html)
- National Oceanic & Atmospheric Administration, Earth System Research Laboratory. (n.d.). Location of US climate divisions. Online. Retrieved from <https://www.esrl.noaa.gov/psd/data/usclimdivs/data/map.html#Pennsylvania>
- National Oceanic & Atmospheric Administration, National Centers for Environmental Information. (n.d.) The northeast snowfall impact scale (NESIS). Online. Retrieved from <https://www.ncdc.noaa.gov/snow-and-ice/rsi/nesis>
- National Oceanic & Atmospheric Administration, National Centers for Environmental Information. (2019). Storm events database. Online. Retrieved from <https://www.ncdc.noaa.gov/stormevents/>



- National Oceanic & Atmospheric Administration, National Centers for Environmental Information. (2019). U.S. Billion-Dollar Weather and Climate Disasters. Online. Retrieved from <https://www.ncdc.noaa.gov/billions/summary-stats>
- National Oceanic & Atmospheric Administration, National Severe Storms Laboratory. (n.d.). Severe weather 101: Types of damaging winds. Online. Retrieved from <https://www.nssl.noaa.gov/education/svrwx101/wind/types/>
- National Oceanic & Atmospheric Administration, National Severe Storms Laboratory. (n.d.). Severe weather 101: Winter weather. Online. Retrieved from <https://www.nssl.noaa.gov/education/wvrwx101/winter/>
- National Oceanic & Atmospheric Administration, Storm Prediction Center. (n.d.). Beaufort wind scale. Online. Retrieved from <https://www.spc.noaa.gov/faq/tornado/beaufort.html>
- National Park Service. (2019). National Register of Historic Places. Online. Retrieved from <https://www.nps.gov/subjects/nationalregister/index.htm>
- National Weather Service. (2009). Glossary, severe weather terminology. Online. Retrieved from <https://w1.weather.gov/glossary/index.php?letter=a>
- National Weather Service. (2005). Climate Prediction Center. Online. Retrieved from [https://www.cpc.ncep.noaa.gov/products/analysis\\_monitoring/cdus/palmer\\_drought/wpd\\_aote.shtml](https://www.cpc.ncep.noaa.gov/products/analysis_monitoring/cdus/palmer_drought/wpd_aote.shtml)
- National Weather Service. (n.d.). Enhanced Fujita Scale. Online. Retrieved from [https://www.weather.gov/tae/ef\\_scale](https://www.weather.gov/tae/ef_scale)
- Northwest Adams County Comprehensive Plan Steering Committee. (2010). *Northwest Adams County joint comprehensive plan*.
- Penn State Extension. (n.d.). *A home in the country? Life in Adams County*. College of Agricultural Science, The Pennsylvania State University.
- Pennsylvania Department of Agriculture. (2016). *Pennsylvania Invasive Species Management Plan*. Online. Retrieved from [https://www.agriculture.pa.gov/Plants\\_Land\\_Water/PlantIndustry/GISC/Documents/Five-Year%20Plan%2009.19.17.pdf](https://www.agriculture.pa.gov/Plants_Land_Water/PlantIndustry/GISC/Documents/Five-Year%20Plan%2009.19.17.pdf)
- Pennsylvania Department of Conservation and Natural Resources. (n.d.). Invasive Plants Fact Sheets. Online. Retrieved from <https://www.dcnr.pa.gov/Conservation/WildPlants/InvasivePlants/InvasivePlantFactSheets/Pages/default.aspx>



- Pennsylvania Department of Conservation and Natural Resources. (n.d.). PA Wildfire Summaries, 1979-2018. Online. Retrieved from <https://www.dcnr.pa.gov/Communities/Wildfire/Pages/default.aspx>
- Pennsylvania Department of Environmental Protection. (2012). *Erosion and Sediment Pollution Control Program Manual*. Online. Retrieved from <https://pawccd.org/uploads/3/4/8/2/34827270/363-2134-008.pdf>
- Pennsylvania Department of Health. (n.d.) *Heat-Related Illnesses*. Online. Retrieved from <https://www.health.pa.gov/topics/disease/Pages/Heat-Illness.aspx>
- Pennsylvania Department of Health. (n.d.). *School Immunization Rates*. Online. Retrieved from <https://www.health.pa.gov/topics/programs/immunizations/Pages/Rates.aspx>
- Pennsylvania Department of Health, Bureau of Communicable Diseases. (n.d.). Enterprise Data Dissemination Informatics Exchange. Online. Retrieved from <https://www.phaim1.health.pa.gov/EDD/WebForms/CommDisCnty.aspx>
- Pennsylvania Department of Transportation. (2018). Pennsylvania Crash Facts and Statistics. Online. Retrieved from <https://www.penndot.gov/TravelInPA/Safety/Pages/Crash-Facts-and-Statistics.aspx>
- Pennsylvania Emergency Management Agency. (2013). *Commonwealth of Pennsylvania's all-hazard mitigation planning standard operating guide*. State Government: Harrisburg, PA.
- Pennsylvania Emergency Management Agency. (2018). *2018 State Hazard Mitigation Plan*. State Government: Harrisburg, PA.
- Penn State Extension. (2018). Eliminating soil erosion. Online. Retrieved from <https://extension.psu.edu/eliminating-soil-erosion>
- Phillips, B. D., Thomas, D. S. K., Fothergill, A., & Blinn-Pike, L. (2010). *Social vulnerability to disasters*. New York: CRC.
- Radeloff, V. C., Hammer, R. B., Stewart, S. I., Fried, J. S., Holcomb, S. S., & McKeefry, J. F. (2005). The wildland-urban interface in the United States. *Ecological Applications*, 15(3), 799-805.
- Sagara, A., Fujimoto, N., & Fukuda, K. (1998). Estimation of the economic impacts of Three Mile Island nuclear power plant accident. *Kyushu Daigaku Kogaku Shuho*, 71(6), 591-596.
- Sears, K. (2017). *Weather 101: From Doppler radar and long-range forecasts to the polar vortex and climate change, everything you need to know about the study of weather*. Avon, MA: Adams Media.



- Sloboda, B. W. (2003). Assessing the effects of terrorism on tourism by the use of time series methods. *Tourism Economics*, 9(2), 179-190.
- Southeast Adams County Comprehensive Plan Steering Committee. (2008). *Southeast Adams joint comprehensive plan*.
- Stanford University. (n.d.). National Performance of Dams Program. Online. Retrieved from <http://npdp.stanford.edu/>
- Telles, T. S., Guimaraes, M., Carmela, S., & Dechen, F. (2011). The costs of soil erosion. *Revista Brasileira de Ciencia do Solo*, 35(2). Online. Retrieved from [http://www.scielo.br/scielo.php?script=sci\\_arttext&pid=S0100-06832011000200001](http://www.scielo.br/scielo.php?script=sci_arttext&pid=S0100-06832011000200001)
- Thomas, D., & Phillips, B. D. (2013). *Social vulnerability to disasters* (2 ed.). Boca Raton, FL: CRC.
- Urban Research and Development Corporation. (2003). *Bonneauville Borough and Mount Pleasant Township comprehensive plan*. Local Government: Bethlehem, PA.
- U.S. Army Corps of Engineers. (n.d.). National inventory of dams. Online. Retrieved from <https://nid-test.sec.usace.army.mil/ords/f?p=105:113:3676673998012::NO:::>
- U.S. Army Corps of Engineers. (n.d.). National levee database. Online. Retrieved from <https://levees.sec.usace.army.mil/#/>
- U.S. Census Bureau. (2019). *QuickFacts: Adams County, Pennsylvania; United States*. Online. Retrieved from <https://www.census.gov/quickfacts/fact/table/adamscountypennsylvania.US/PST045219>
- U.S. Department of Agriculture, Agricultural Research Service. (2016). More information about plum pox in the U.S.. Online. Retrieved from <https://www.ars.usda.gov/oc/br/plumpox/more1/>
- U.S. Department of Agriculture, Farm Service Agency. (2019). Disaster designation information. Online. Retrieved from <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/disaster-designation-information/index>
- U.S. Department of Agriculture, Natural Resources Conservation Service (2005). Soil Survey of Adams County, Pennsylvania. Online Retrieved from <http://www.nrcs.usda.gov>
- U.S. Department of Agriculture, Farm Service Agency. (n.d.). Disaster designation information. Online. Retrieved from <https://www.fsa.usda.gov/programs-and-services/disaster-assistance-program/disaster-designation-information/index>
- U.S. Department of Agriculture, Forest Service. (n.d.) National Fire Danger Rating System. Online. Retrieved from



- <https://www.fs.usda.gov/detail/cibola/landmanagement/resourcemanagement/?cid=stelprdb5368839>
- U.S. Department of Agriculture, Natural Resources Conservation Service (Pennsylvania). (2007). Soil erosion on cropland 2007. Online. Retrieved from <https://www.nrcs.usda.gov/wps/portal/nrcs/detail/pa/home/?cid=stelprdb1041887>
- U.S. Department of Agriculture and U.S. Department of the Interior. (2001). Urban wildland interface communities within vicinity of Federal lands that are at high risk from wildfire. Federal Register 66: 751-777.
- U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. (2019). National pipeline mapping system: Public viewer. Online. Retrieved from <https://pvnpm.phmsa.dot.gov/PublicViewer/>
- U.S. Department of Transportation, Pipeline and Hazardous Materials Safety Administration. (2019). Hazmat incident database. Online. Retrieved from <https://www.phmsa.dot.gov/hazmat-program-management-data-and-statistics/data-operations/incident-statistics>
- U.S. Environmental Protection Agency. (n.d.) Toxic Release Inventory Program. Online. Retrieved from <https://www.epa.gov/toxics-release-inventory-tri-program/tri-for-communities>
- U.S. Fish & Wildlife Service, Fish and Aquatic Conservation. (2017). What are aquatic invasive species? Online. Retrieved from <https://www.fws.gov/fisheries/ANS/index.html>
- U.S. Geological Survey. (n.d.). Droughts: Things to know. Online. Retrieved from [https://www.usgs.gov/special-topic/water-science-school/science/droughts-things-know?qt-science\\_center\\_objects=0#what](https://www.usgs.gov/special-topic/water-science-school/science/droughts-things-know?qt-science_center_objects=0#what)
- U.S. Geological Survey. (n.d.). Information by region: Pennsylvania. Online. Retrieved from [https://www.usgs.gov/natural-hazards/earthquake-hazards/science/information-region-pennsylvania?qt-science\\_center\\_objects=0#qt-science\\_center\\_objects](https://www.usgs.gov/natural-hazards/earthquake-hazards/science/information-region-pennsylvania?qt-science_center_objects=0#qt-science_center_objects)
- U.S. Geological Survey. (n.d.). Earthquake hazards: Induced earthquakes. Online. Retrieved from [https://www.usgs.gov/natural-hazards/earthquake-hazards/induced-earthquakes?qt-science\\_support\\_page\\_related\\_con=4#qt-science\\_support\\_page\\_related\\_con](https://www.usgs.gov/natural-hazards/earthquake-hazards/induced-earthquakes?qt-science_support_page_related_con=4#qt-science_support_page_related_con)
- U.S. Global Change Research Program. (n.d.). Home page. Online. Retrieved from <https://www.globalchange.gov/>



U.S. Nuclear Regulatory Commission. (2018). Backgrounder on Emergency Preparedness at Nuclear Power Plants. Online. Retrieved from <https://www.nrc.gov/reading-rm/doc-collections/fact-sheets/emerg-plan-prep-nuc-power.html>

Voss Law Firm. (n.d.). Understanding the TORRO hailstorm intensity scale. Online. Retrieved from <https://www.vosslawfirm.com/blog/understanding-the-torro-hailstorm-intensity-scale.cfm>

Wildlandfirersg.org. (2020). What is the wildland-urban interface? Online. Retrieved from <https://www.wildlandfirersg.org/About/Wildland-Urban-Interface>



## **APPENDIX B: LOCAL MITIGATION PLAN REVIEW TOOL**

This appendix contains a copy of the plan review tool that describes the location of the required sections of the plan per §201.6.



## LOCAL MITIGATION PLAN REVIEW TOOL

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The *Local Mitigation Plan Review Tool* demonstrates how the Local Mitigation Plan meets the regulation in 44 CFR §201.6 and offers States and FEMA Mitigation Planners an opportunity to provide feedback to the community.

- The Regulation Checklist provides a summary of FEMA’s evaluation of whether the Plan has addressed all requirements.
- The Plan Assessment identifies the plan’s strengths as well as documents areas for future improvement.
- The Multi-jurisdiction Summary Sheet is an optional worksheet that can be used to document how each jurisdiction met the requirements of the each Element of the Plan (Planning Process; Hazard Identification and Risk Assessment; Mitigation Strategy; Plan Review, Evaluation, and Implementation; and Plan Adoption).

The FEMA Mitigation Planner must reference this *Local Mitigation Plan Review Guide* when completing the *Local Mitigation Plan Review Tool*.

<b>Jurisdiction:</b> Adams County, PA	<b>Title of Plan:</b> Adams County Hazard Mitigation Plan (2020 Update)	<b>Date of Plan:</b> 2020
<b>Local Point of Contact:</b> Warren P. Bladen		<b>Address:</b> 230 Greenamyer Lane Gettysburg, PA 17325
<b>Title:</b> Director		
<b>Agency:</b> Adams County Department of Emergency Services		
<b>Phone Number:</b> 717-334-8603		<b>E-Mail:</b> wpbladen@adamscounty.us

<b>State Reviewer:</b> Ernie Szabo	<b>Title:</b> State HM Planner	<b>Date:</b> 24 June 20
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<b>FEMA Reviewer:</b> Joshua Norris	<b>Title:</b> Maryland FIT Hazard Mitigation Planner	<b>Date:</b> 9/11/2020
<b>Date Received in FEMA Region</b> <i>(insert #)</i>	July 15, 2020	
<b>Plan Not Approved</b>	Minor Revisions Required.	
<b>Plan Approvable Pending Adoption</b>		
<b>Plan Approved</b>		

**SECTION 1:  
REGULATION CHECKLIST**

**INSTRUCTIONS:** The Regulation Checklist must be completed by FEMA. The purpose of the Checklist is to identify the location of relevant or applicable content in the Plan by Element/sub-element and to determine if each requirement has been ‘Met’ or ‘Not Met.’ The ‘Required Revisions’ summary at the bottom of each Element must be completed by FEMA to provide a clear explanation of the revisions that are required for plan approval. Required revisions must be explained for each plan sub-element that is ‘Not Met.’ Sub-elements should be referenced in each summary by using the appropriate numbers (A1, B3, etc.), where applicable. Requirements for each Element and sub-element are described in detail in this *Plan Review Guide* in Section 4, Regulation Checklist.

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b>ELEMENT A. PLANNING PROCESS</b>				
A1. Does the Plan document the planning process, including how it was prepared and who was involved in the process for each jurisdiction? (Requirement §201.6(c)(1))	Sec. 3.0, pp. 41-50; see Table 3.5-1, p. 50, for municipal participation; App. C	X		
A2. Does the Plan document an opportunity for neighboring communities, local and regional agencies involved in hazard mitigation activities, agencies that have the authority to regulate development as well as other interests to be involved in the planning process? (Requirement §201.6(b)(2))	Sec. 3.4, pp. 47-49; App. C	X		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Sec. 3.4, pp. 47-49; App. C	X		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Sec. 1.4, pp. 2-4; Sec. 5.2.6, pp. 242-247; see also App. E for list of citations used in HIRA	X		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Sec. 7.3, p. 286	X		
A6. Is there a description of the method and schedule for keeping the plan current (monitoring, evaluating and updating the mitigation plan within a 5-year cycle)? (Requirement §201.6(c)(4)(i))	Sec. 7.2, pp. 285-286	X		

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan</b> (section and/or page number)	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
<b><u>ELEMENT A:</u></b>				
<b><u>REQUIRED REVISION</u></b>				
A1. Section 3.1 states that “Latimore Township did not participate in the [Plan] update.” Did this Township participate in the previous Plan update? Does the County plan to engage Latimore Township during the annual plan review(s)? Include information in the Plan explaining why this Township did not participate in Plan development. <b>Latimore Township agreed to participate late in the process per the ACDES Director. See revisions to this effect on p. 41 and p. 49.</b>				
<b><u>RECOMMENDED REVISION</u></b>				
A2. Include a narrative description of the source or a citation to support the statement that “[c]ompared to other areas in the region, Adams County is rural, and residents are proud of that image,” page 13. Was this gleaned from interviews with County Staff, were residents surveyed, or was this question perhaps posed at a public meeting? <b>This sentiment came from a document produced by Penn State Extension. We added a citation to this effect, pointing to Appendix A: Bibliography for the full reference. See p. 17 for the citation.</b>				
<b>ELEMENT B. HAZARD IDENTIFICATION AND RISK ASSESSMENT</b>				
B1. Does the Plan include a description of the type, location, and extent of all natural hazards that can affect each jurisdiction(s)? (Requirement §201.6(c)(2)(i))	Sec. 4.2.2, pp. 53-55 (for list); Sec. 4.3, pp. 55-206 (for profiles)	X		
B2. Does the Plan include information on previous occurrences of hazard events and on the probability of future hazard events for each jurisdiction? (Requirement §201.6(c)(2)(i))	Sec. 4.3, pp. 55-206 (see “Past Occurrences,” “Future Occurrences,” and “Vulnerability Assessment” subsections of each profile)	X		
B3. Is there a description of each identified hazard’s impact on the community as well as an overall summary of the community’s vulnerability for each jurisdiction? (Requirement §201.6(c)(2)(ii))	Sec. 4.3, pp. 55-206 (each profile describes impacts, see “Location & Extent,” “Range & Magnitude,” and “Vulnerability Assessment” subsections of each profile)	X		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Sec. 4.3.4.1, pp. 89-92			X

# 1. REGULATION CHECKLIST

Regulation (44 CFR 201.6 Local Mitigation Plans)

Location in Plan  
(section and/or  
page number)

Met

Not  
Met

## ELEMENT B:

### REQUIRED REVISIONS

B4: Page 90 states that “[t]he Flood Mitigation Assistance (FMA grant and the National Flood Insurance Program (NFIP) both track losses due to flooding. Each agency defines repetitive loss and severe repetitive loss properties slightly differently.” Please address this discrepancy by changing agency to **program** and adding the second parentheses bracket after “FMA.” Both edits made on p. 90.

### RECOMMENDED REVISIONS

B1: For the Dam Failure risk assessment section, include definitions of Significant, High, and Low Hazard Potential and Categories I, II, and III. We added footnote citations from an April 2004 FEMA document on p. 172; we added the FEMA document in question to the bibliography in Appendix A.

B1: Improve the resolution of Figure 4.3.10.1-1. We attempted to improve the resolution on the picture; it is improved (see p. 141), though some of the small text remains difficult to read.

B1: Streamline the formatting of text (such as font and column size) for Table 4.3.9.2-2 Adams County Vaccination Rates, 2015-2019. We updated all fonts to Arial Narrow; however, there was little to be done to allow the chart to fit on one page. See p. 135.

B2: For most hazards, a countywide probability of future hazard events value is provided within the *frequency* row of the Vulnerability Summary tables. Ensure that all hazards clearly express a probability value or estimated occurrence rate and work closely with the municipalities to identify when community-specific probabilities differ from the countywide probabilities. The inclusion of such granular data will improve the utility and implementation of the Plan. Adams County will take this recommendation under advisement during future updates.

B2: Include a map in Section 4.3.7.1 that identifies the location of invasive species (such as those in Tables 4.3.7.3-1 and 4.3.7.3-2) within Adams County and its municipalities. Adams County will take this recommendation under advisement during future updates.

B3: Include damage information concerning each of the Hurricanes that impacted Adams County, as the Plan does for each Thunderstorm Event in Adams County from 1955-2019 (Table 4.3.6.2-1). The narrative preceding Table 4.3.6.2-1 details the three primary hurricanes and tropical storms to impact the area. No change made, but the recommendation will be under advisement during the next update.

B3: Define and introduce the term “fruit belt” referenced on page 12 and consider including Figure 4.3.1.1-1 at the outset of the plan to allow the reader to grasp the Pennsylvania Fruit Belt’s location with respect to Adams County. We added a footnote with a definition on p. 5; we updated Appendix A: Bibliography to include the reference.

## ELEMENT C. MITIGATION STRATEGY

C1. Does the plan document each jurisdiction’s existing authorities, policies, programs and resources and its ability to expand on and improve these existing policies and programs? (Requirement §201.6(c)(3))

Sec. 5.2, pp. 237-242; Table 5.2.6-1, pp. 243-245

X

<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
C2. Does the Plan address each jurisdiction's participation in the NFIP and continued compliance with NFIP requirements, as appropriate? (Requirement §201.6(c)(3)(ii))	Sec. 5.2, pp. 237-238, see Table 5.2-1; Sec. 4.3.4.1, pp. 89-92; Sec. 4.4.3, <i>Flood, Flash Flood, Ice Jam</i> subsection, pp. 211-213	X		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Sec. 6.2; p. 259; see Table 6.1-1 for changes to goals & objectives, pp. 249-250	X		
C4. Does the Plan identify and analyze a comprehensive range of specific mitigation actions and projects for each jurisdiction being considered to reduce the effects of hazards, with emphasis on new and existing buildings and infrastructure? (Requirement §201.6(c)(3)(ii))	Sec. 6.3, pp. 259-262; see Table 6.1-2 for status updates to actions, pp. 252-258	X		
C5. Does the Plan contain an action plan that describes how the actions identified will be prioritized (including cost benefit review), implemented, and administered by each jurisdiction? (Requirement §201.6(c)(3)(iv)); (Requirement §201.6(c)(3)(iii))	Sec. 6.4, pp. 262-283 (see Tables 6.4-2 and 6.4-3 and the surrounding narrative for prioritization explanation, pp. 265-271)	X		
C6. Does the Plan describe a process by which local governments will integrate the requirements of the mitigation plan into other planning mechanisms, such as comprehensive or capital improvement plans, when appropriate? (Requirement §201.6(c)(4)(ii))	Sec. 5.2.6, pp. 242-246	X		

# 1. REGULATION CHECKLIST

Regulation (44 CFR 201.6 Local Mitigation Plans)

Location in Plan  
(section and/or  
page number)

Met Not  
Met

## ELEMENT C:

### REQUIRED REVISIONS

### RECOMMENDED REVISIONS

C1: Include narrative to support the information contained within Table 5.2-1. For instance, explain how each jurisdiction’s Comprehensive Plan, NFIP, Zoning Ordinance, etc., capabilities are demonstrated. In addition, include narrative information regarding the capability deficiencies identified in the table. Adams County hosted a survey of municipalities to capture this information. The narrative that follows on pp. 238-242 provides qualitative information on those capabilities.

C1: According to Table 5.2-1, Adams County and New Oxford Borough do not have NFIP capabilities. Include a mitigation action or actions to address such capability gaps. NFIP concerns are handled at the municipal level in Adams County; Table 5.2-1 updated to reflect this. See p. 237. According to FIRM data, there are no flood hazard areas of concern in New Oxford Borough.

C1: Update the Adams County Asset Inventory Appendix to include data of construction data for each identified asset. Adams County will take this recommendation under advisement during future updates.

C4: Update Action 4.D.8 (“Work with PEMA, FEMA, and the U.S. Department of Homeland Security to stay abreast of developments in procedures for identifying and determining benefits/costs for potential mitigation actions for terrorist activities”) to pertain to all hazards profiled in the Plan as opposed to only Terrorism. Revision made; see p. 282.

C5: Include a mitigation action that supports the enforcement and adoption of building codes (for at least the two most recent editions of International Building Codes). We revised Action 3.A.3, which targeted monitoring municipal ordinances from a mitigation perspective, to include this recommendation. See p. 276.

C6: Update Table 5.2.6-1 Integration of Mitigation Plan Into the Local Planning Framework to include information regarding the status of plan integration actions identified in previous versions of the plan, and additional or updated actions for each of the plans identified. The existing table shows completed actions; Adams County will take this recommendation under advisement during future updates.

## **ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION** (applicable to plan updates only)

D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Sec. 4.4.4, pp. 218-235	X	
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<b>1. REGULATION CHECKLIST</b>		<b>Location in Plan (section and/or page number)</b>	<b>Met</b>	<b>Not Met</b>
<b>Regulation (44 CFR 201.6 Local Mitigation Plans)</b>				
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Sec. 6.1, pp. 248-; see Table 6.1-1 for changes to goals & objectives, pp. 249-250; see Table 6.1-2 for status of mitigation actions, pp. 252-258; see Table 7.1-1 for general plan maintenance efforts, p. 285	X		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Sec. 3.1, pp. 41-43; Sec. 4.1, pp. 51-52; Sec. 5.1, pp. 236-237; Sec. 6.1, pp. 248-258; Sec. 7.1, pp. 284-285	X		
<b><u>ELEMENT D:</u></b>				
<b><u>REQUIRED REVISIONS</u></b>				
<b>ELEMENT E. PLAN ADOPTION</b>				
E1. Does the Plan include documentation that the plan has been formally adopted by the governing body of the jurisdiction requesting approval? (Requirement §201.6(c)(5))	TBD			
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	TBD			
<b><u>ELEMENT E:</u></b>				
<b><u>REQUIRED REVISIONS</u></b>				
<b>ELEMENT F. ADDITIONAL STATE REQUIREMENTS (OPTIONAL FOR STATE REVIEWERS ONLY; NOT TO BE COMPLETED BY FEMA)</b>				
F1.				
F2.				
<b><u>ELEMENT F:</u></b>				
<b><u>REQUIRED REVISIONS</u></b>				

## SECTION 2: PLAN ASSESSMENT

### INSTRUCTIONS:

#### ***Plan Strengths***

The Plan...

- Is well organized.
- Effectively employs maps to visually illustrate hazard risk.
- Includes excellent summary charts at the beginning of each hazard's risk assessment section.
- Connects discrete conversations held during the planning process to mitigation strategies developed.
- Contains a mitigation action plan that addresses each identified hazard.
- Includes Hazard Vulnerability Summaries that provide a clear and comprehensive assessment of risk.
- Clearly provides the methodology for the analysis of each identified hazard's vulnerability across 7 dimensions/considerations.
- Identifies a comprehensive and diverse range of mitigation actions.
  - Notable action: 2.A.2: Identify green infrastructure/low-impact development in Hamilton Township.
- Includes potential loss estimates sections provide excellent data for developing mitigation grant application benefit cost analyses.
- Identifies and assesses a comprehensive list of hazards.
- Utilizes a USDA Resources Conservation Center Soil Survey of Adams County to inform land subsidence and geologic hazards.
- Includes Table 2.2.2-1 which provides a clear depiction and breakdown of Adams County Industry Sectors by Establishments and Employees.
- Integrates information from the Adams County Municipal Solid Waste Management Plan (2019 Update) among other countywide and municipality-specific plans.
- Identifies historical assets in Adams County throughout Section 2.4.3 and notably via the integration of National Register of Historic Places data (Table 2.4.3-1).
- Includes Table 3.4-1 which clearly conveys stakeholder participation and the involvement of neighboring jurisdictions.
- Includes asset inventories for site-specific hazards (Flood, Landslide, Subsidence, and Hazardous Materials)

#### ***Opportunities for Improvement***

- Include an executive summary. **Executive summary added; see pp. iv-vii.**
- Address minor spelling and grammatical errors, including but not limited to the following:
  - o Page 9: Change "Gettysburg **in** the largest municipality by population" to "Gettysburg **is** the largest..." **Revision made; see p. 9.**
  - o Page 38: Change "...and other similar weather events **annual**, perhaps as many as four

- per year.” to “...and other similar weather events **annually**, perhaps as many as four per year.” **Revision made; see p. 38.**
- o Page 53: Change “... or \$354,924.50 **or** Adams County...” to “...or \$354,924.50 **in** Adams County...” **Revision made; see p. 53.**
  - o Page 151: Remove one “also” from the sentence “Figure 4.3.11.2-2 **also** appears in Section 4.3.6 (Hurricane, Tropical Storm, Nor’easter Hazard Profile), but it is **also** relevant to the severe wind discussion.” **Second “also” removed per suggestion; see p. 151.**
  - Update the legend of Figure 2.4.1-1 titled Existing Land Use (2016) to detail what the dark gray patches on the map represent. **Dark gray areas are building footprints; explanatory narrative added to preceding paragraph. See p. 18.**
  - In Section 2.5 Data Sources and Limitation, HAZUS-MH is explained as a valuable planning tool that estimates disaster damages. Add to this section information on Level II and Level III HAZUS-MH analyses that can use higher resolution or engineering data to produce more accurate results. **Notation added per suggestion; see p. 40.**
  - Expand the Planning Team to include at least one representative from each municipality. **Each municipality was invited to participate; Adams County will again invite them to participate as planning team members during future updates.**
  - Update each Public Sentiment Table to more clearly convey the information associated with the blue boxes of the table. For instance, consider separating the last two questions of each table (in the blue boxes) to create an additional table and include columns that more accurately reflect the content to the right of the questions (i.e. “INCREASE,” “NO CHANGE,” and DECREASE” do not express the “Total Responses” as the column title states).
  - Figure 4.3.6.4-1 Age of Housing Units in Adams County provides 2014 estimate data. Update this Figure to include more recent data.
  - Include more information concerning the impact of Nor’easters on Adams County. **Adams County will take this recommendation under advisement during future updates.**
  - Page 98: Include a higher resolution version of Figure 4.3.4.5-2 to more clearly display the Flood Hazard Areas of Adams County. **The narrative refers readers to Appendix D, which contains much more detailed flood hazard area maps. No change; however, Adams County will keep this recommendation under advisement for future updates.**

***Resources for Implementing Your Approved Plan***

- Risk Map Green Infrastructure and Nature-Based Solutions Guidance.
- Hazard Mitigation Assistance (HMA) Mitigation Action Portfolio
- NFIP Guide
- Risk Assessment Guide
- Guide to Expanding Mitigation: Making the Connection with Agriculture
- Guide to Expanding Mitigation: Making the Connection with Public Health
- Guide to Expanding Mitigation: Making the Connection to Municipal Financing
- Guide to Expanding Mitigation: Making the Connection to Arts & Culture
- Guide to Expanding Mitigation: Making the Connection to Electric Power
- Guide to Expanding Mitigation: Making the Connection to Equity
- Guide to Expanding Mitigation: Making the Connection to Transportation

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## **A. Plan Strengths and Opportunities for Improvement**

This section provides a discussion of the strengths of the plan document and identifies areas where these could be improved beyond minimum requirements.

### **Element A: Planning Process**

*How does the Plan go above and beyond minimum requirements to document the planning process with respect to:*

- *Involvement of stakeholders (elected officials/decision makers, plan implementers, business owners, academic institutions, utility companies, water/sanitation districts, etc.);*
- *Involvement of Planning, Emergency Management, Public Works Departments or other planning agencies (i.e., regional planning councils);*
- *Diverse methods of participation (meetings, surveys, online, etc.); and*
- *Reflective of an open and inclusive public involvement process.*

### **Element B: Hazard Identification and Risk Assessment**

*In addition to the requirements listed in the Regulation Checklist, 44 CFR 201.6 Local Mitigation Plans identifies additional elements that should be included as part of a plan's risk assessment. The plan should describe vulnerability in terms of:*

- 1) *A general description of land uses and future development trends within the community so that mitigation options can be considered in future land use decisions;*
- 2) *The types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas; and*
- 3) *A description of potential dollar losses to vulnerable structures, and a description of the methodology used to prepare the estimate.*

*How does the Plan go above and beyond minimum requirements to document the Hazard Identification and Risk Assessment with respect to:*

- *Use of best available data (flood maps, HAZUS, flood studies) to describe significant hazards;*
- *Communication of risk on people, property, and infrastructure to the public (through tables, charts, maps, photos, etc.);*
- *Incorporation of techniques and methodologies to estimate dollar losses to vulnerable structures;*
- *Incorporation of Risk MAP products (i.e., depth grids, Flood Risk Report, Changes Since Last FIRM, Areas of Mitigation Interest, etc.); and*
- *Identification of any data gaps that can be filled as new data became available.*

### **Element C: Mitigation Strategy**

*How does the Plan go above and beyond minimum requirements to document the Mitigation Strategy with respect to:*

- *Key problems identified in, and linkages to, the vulnerability assessment;*
- *Serving as a blueprint for reducing potential losses identified in the Hazard Identification and Risk Assessment;*
- *Plan content flow from the risk assessment (problem identification) to goal setting to mitigation action development;*
- *An understanding of mitigation principles (diversity of actions that include structural projects, preventative measures, outreach activities, property protection measures, post-disaster actions, etc);*
- *Specific mitigation actions for each participating jurisdictions that reflects their unique risks and capabilities;*
- *Integration of mitigation actions with existing local authorities, policies, programs, and resources; and*
- *Discussion of existing programs (including the NFIP), plans, and policies that could be used to implement mitigation, as well as document past projects.*

### **Element D: Plan Update, Evaluation, and Implementation (Plan Updates Only)**

*How does the Plan go above and beyond minimum requirements to document the 5-year Evaluation and Implementation measures with respect to:*

- *Status of previously recommended mitigation actions;*
- *Identification of barriers or obstacles to successful implementation or completion of mitigation actions, along with possible solutions for overcoming risk;*
- *Documentation of annual reviews and committee involvement;*
- *Identification of a lead person to take ownership of, and champion the Plan;*
- *Reducing risks from natural hazards and serving as a guide for decisions makers as they commit resources to reducing the effects of natural hazards;*
- *An approach to evaluating future conditions (i.e. socio-economic, environmental, demographic, change in built environment etc.);*
- *Discussion of how changing conditions and opportunities could impact community resilience in the long term; and*
- *Discussion of how the mitigation goals and actions support the long-term community vision for increased resilience.*

## **B. Resources for Implementing Your Approved Plan**

*Ideas may be offered on moving the mitigation plan forward and continuing the relationship with key mitigation stakeholders such as the following:*

- *What FEMA assistance (funding) programs are available (for example, Hazard Mitigation Assistance (HMA)) to the jurisdiction(s) to assist with implementing the mitigation actions?*
- *What other Federal programs (National Flood Insurance Program (NFIP), Community Rating System (CRS), Risk MAP, etc.) may provide assistance for mitigation activities?*
- *What publications, technical guidance or other resources are available to the jurisdiction(s) relevant to the identified mitigation actions?*
- *Are there upcoming trainings/workshops (Benefit-Cost Analysis (BCA), HMA, etc.) to assist the jurisdictions(s)?*
- *What mitigation actions can be funded by other Federal agencies (for example, U.S. Forest Service, National Oceanic and Atmospheric Administration (NOAA), Environmental Protection Agency (EPA) Smart Growth, Housing and Urban Development (HUD) Sustainable Communities, etc.) and/or state and local agencies?*

**SECTION 3:  
MULTI-JURISDICTION SUMMARY SHEET (OPTIONAL)**

**INSTRUCTIONS:** For multi-jurisdictional plans, a Multi-jurisdiction Summary Spreadsheet may be completed by listing each participating jurisdiction, which required Elements for each jurisdiction were ‘Met’ or ‘Not Met,’ and when the adoption resolutions were received. This Summary Sheet does not imply that a mini-plan be developed for each jurisdiction; it should be used as an optional worksheet to ensure that each jurisdiction participating in the Plan has been documented and has met the requirements for those Elements (A through E).

**Requirements Met (Y/N)** -- **A** = Planning Process; **B** = Hazard Identification & Risk Assessment; **C** = Mitigation Strategy; **D** = Plan Review, Evaluation & Implementation; **E** = Plan Adoption; **F** = State Requirements

MULTI-JURISDICTION SUMMARY SHEET										
#	Jurisdiction Name Jurisdiction Type Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
					A.	B.	C.	D.	E.	F.
1	Abbottstown Borough David W. Bolton	241 High Street Abbottstown, Pa 17301	<a href="mailto:abbottstown@comcast.net">abbottstown@comcast.net</a>	717-259-0965	Y	Y	Y	Y		
2	Arendtsville Borough Jay A. Johnson	1 Chestnut Street, P.O. Box 508 Arendtsville, Pa 17303	<a href="mailto:officemgr@arendtsville.org">officemgr@arendtsville.org</a>	717-677-6009	Y	Y	Y	Y		
3	Bendersville Borough Ricky E. Kime	125 B Rampike Hill Rd, P.O. Box 448 Bendersville, Pa 17306	<a href="mailto:secretary@bendersvilleborough.net">secretary@bendersvilleborough.net</a>	717-677-8112	Y	Y	Y	Y		
4	Berwick Township Billy Scott	85 Municipal Road Hanover, Pa 17331	<a href="mailto:office@berwicktp.org">office@berwicktp.org</a>	717-465-0614	Y	Y	Y	Y		
5	Biglerville Borough Sandra Vazquez	33 Musselman Avenue Biglerville, Pa 17307	<a href="mailto:biglerville@comcast.net">biglerville@comcast.net</a>	717-677-9488	Y	Y	Y	Y		
6	Bonneauville Borough Michael Shanebrook	46 E. Hanover Street Gettysburg, Pa 17325	<a href="mailto:bonnborooffice@embarqmail.com">bonnborooffice@embarqmail.com</a>	717-334-2662	Y	Y	Y	Y		
7	Butler Township Danielle Helwig	2379 Table Rock Road, P.O. Box 339 Biglerville, Pa 17307	<a href="mailto:butlertwp@comcast.net">butlertwp@comcast.net</a>	717-677-6712	Y	Y	Y	Y		

**MULTI-JURISDICTION SUMMARY SHEET**

#	Jurisdiction Name Jurisdiction Type Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
					A.	B.	C.	D.	E.	F.
8	Carroll Valley Borough David A. Hazlett	5685 Fairfield Road Fairfield, Pa 17320	<a href="mailto:manager@carrollvalley.org">manager@carrollvalley.org</a>	717-642-8269	Y	Y	Y	Y		
9	Conewago Township Barbara Krebs	541 Oxford Avenue Hanover, Pa 17331	<a href="mailto:bkrebs@conewagotwp.org">bkrebs@conewagotwp.org</a>	717-637-0411	Y	Y	Y	Y		
10	Cumberland Township David Sanders	1370 Fairfield Road Gettysburg, Pa 17325	<a href="mailto:dave@ivancdutterer.com">dave@ivancdutterer.com</a>	717-334-9724	Y	Y	Y	Y		
11	East Berlin Borough Christopher Warner	128 Water Street East Berlin, Pa 17316	<a href="mailto:eastberlinboro@comcast.net">eastberlinboro@comcast.net</a>	717-259-9224	Y	Y	Y	Y		
12	Fairfield Borough Susan E. Wagle	108 W. Main St., P.O. Box 263 Fairfield, Pa 17320	<a href="mailto:borofairfieldpa@comcast.net">borofairfieldpa@comcast.net</a>	717-642-5640	Y	Y	Y	Y		
13	Franklin Township Susan Plank	55 Scott School Road, P.O. Box 309 Cashtown, Pa 17310	<a href="mailto:info@franklintwp.us">info@franklintwp.us</a>	717-334-4901	Y	Y	Y	Y		
14	Freedom Township Zach Gulden	2184 Pumping Station Road Fairfield, Pa 17320	<a href="mailto:zgulden@freedomtwp.org">zgulden@freedomtwp.org</a>	717-873-0475	Y	Y	Y	Y		
15	Germany Township Susan Hansen	136 Ulricktown Road Littlestown, Pa 17340	<a href="mailto:germanytwp@comcast.net">germanytwp@comcast.net</a>	717-359-7537	Y	Y	Y	Y		
16	Gettysburg Borough Dave Sanders	59 E. High Street Gettysburg, Pa 17325	<a href="mailto:dave@ivancdutterer.com">dave@ivancdutterer.com</a>	717-752-6115	Y	Y	Y	Y		
17	Hamilton Township Timothy D. Beard	272 Mummerts Church Road Abbottstown, Pa 17301	<a href="mailto:saehamilton@twphamilton.com">saehamilton@twphamilton.com</a>	717-259-7237	Y	Y	Y	Y		
18	Hamiltonban Township Robert Gordon	23 Carrolls Tract Road, P.O. Box 526 Fairfield, Pa 17320	<a href="mailto:hamiltonban@embarqmail.com">hamiltonban@embarqmail.com</a>	717-642-8509	Y	Y	Y	Y		
19	Highland Township Mary Sherman	3641 Fairfield Road Gettysburg, Pa 17325	<a href="mailto:highlandtownship@comcast.net">highlandtownship@comcast.net</a>	717-642-8410	Y	Y	Y	Y		
20	Huntington Township Patricia V. Davis	70 Trolley Road, P.O. Box 247 York Springs, Pa 17372	<a href="mailto:huntington@pa.net">huntington@pa.net</a>	717-528-4027	Y	Y	Y	Y		
21	Latimore Township Dan Worley	559 Old US Route 15 York Springs, Pa 17372	<a href="mailto:latimore@latimore.org">latimore@latimore.org</a>	717-528-4614	Y	Y	Y	Y		

**MULTI-JURISDICTION SUMMARY SHEET**

#	Jurisdiction Name Jurisdiction Type Plan POC	Mailing Address	Email	Phone	Requirements Met (Y/N)					
					A.	B.	C.	D.	E.	F.
22	Liberty Township Walter Barlow	39 Topper Road Fairfield, Pa 17320	<a href="mailto:Twp.secretary@comcast.net">Twp.secretary@comcast.net</a>	717-642-3780	Y	Y	Y	Y		
23	Littlestown Borough Charles G. Kellar	41 S. Columbus Avenue Littlestown, Pa 17340	<a href="mailto:ckellar@littlestownboro.org">ckellar@littlestownboro.org</a>	717-359-5101	Y	Y	Y	Y		
24	McSherrystown Borough Scott J. Cook	338 Main Street McSherrystown, Pa 17344	<a href="mailto:mcstownsUPER@comcast.net">mcstownsUPER@comcast.net</a>	717-637-1838	Y	Y	Y	Y		
25	Menallen Township Kenneth C. Wolf	170 Memory Lane Aspers, Pa 17304	<a href="mailto:menallentwp@centurylink.net">menallentwp@centurylink.net</a>	717-677-6635	Y	Y	Y	Y		
26	Mt. Joy Township Sheri Moyer	902 Hoffman Home Road Gettysburg, Pa 17325	<a href="mailto:smoyer@mtjoytwp.us">smoyer@mtjoytwp.us</a>	717-359-4500 Ext. 307	Y	Y	Y	Y		
27	Mt. Pleasant Township Diane L Groft	1035 Beck Road Gettysburg, Pa 17325	<a href="mailto:mptsecretary@comcast.net">mptsecretary@comcast.net</a>	717-624-8049	Y	Y	Y	Y		
28	New Oxford Borough Dorothy M. Robinson	124 North Peters Street New Oxford, Pa 17350	<a href="mailto:borooFnewoxford@comcast.net">borooFnewoxford@comcast.net</a>	717-624-2188	Y	Y	Y	Y		
29	Oxford Township Verna Feeser	557 Poplar Road New Oxford, Pa 17350	<a href="mailto:oxftwp@comcast.net">oxftwp@comcast.net</a>	717-624-2259	Y	Y	Y	Y		
30	Reading Township Kimberly Beard	50 Church Road East Berlin, Pa 17316	<a href="mailto:readingtownship@comcast.net">readingtownship@comcast.net</a>	717-624-4222 Ext. 4	Y	Y	Y	Y		
31	Straban Township David Clapsaddle	1745 Granite Station Road Gettysburg, Pa 17325	<a href="mailto:zoning@strabantownship.com">zoning@strabantownship.com</a>	717-334-4388	Y	Y	Y	Y		
32	Tyrone Township Russell Raub	5280 Old Harrisburg Road York Springs, Pa 17372	<a href="mailto:Tyrone.township@comcast.net">Tyrone.township@comcast.net</a>	717-528-4012	Y	Y	Y	Y		
33	Union Township Carol J. Bollinger	255 Pine Grove Road Hanover, Pa 17331	<a href="mailto:uniontownship@pa.net">uniontownship@pa.net</a>	717-359-7811	Y	Y	Y	Y		
34	York Springs Borough Catherine J. Jonet	311 Main Street York Springs, Pa 17372	<a href="mailto:boroughofyorksprings@comcast.net">boroughofyorksprings@comcast.net</a>	717-528-4032	Y	Y	Y	Y		

## **APPENDIX C: MEETING AND OTHER PARTICIPATION DOCUMENTATION**

This appendix contains evidence of committee, municipal, stakeholder, and public participation in the planning process.



## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #1

### AGENDA

Date: Monday, June 24, 2019  
Time: 2:00 p.m.  
Estimated Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyer Lane  
Gettysburg, PA 17325

1. Welcome and Introductions
2. Hazard Mitigation 101
  - **Background:** FEMA and PEMA Requirements, Applicable Funding Source Eligibility
  - **Overview:** Planning Process
  - **Discussion:** Public Involvement Opportunities
  - **Overview:** Planning Committee Responsibilities
  - **Discussion:** Historic and Cultural Resources Subcommittee
3. Mitigation Goals
  - **Discussion:** What are mitigation goals?
  - **Review:** Mitigation Goals from Previous (2015) Version
  - **Activity:** Setting Goals for the Next Mitigation Planning Cycle
4. Schedule for Next Meetings
5. Adjournment

## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #1

### MINUTES

**Date:** Monday, June 24, 2019  
**Time:** 2:00 p.m.  
**Duration:** 75 minutes  
**Location:** Adams County Emergency Services  
200 Greenamyre Lane  
Gettysburg, PA 17325

The Adams County Planning Committee met for the first time on Monday, June 24, 2019, at the Adams County Emergency Services to initiate the 2019 update for the hazard mitigation plan. Following an introduction from the Adams County Department of Emergency Services Director, JH Consulting, LLC, the consultant hired to assist with the update, led the meeting.

The consultant and committee members introduced themselves by stating their name, agency, or jurisdiction they represent, and if they were on the planning committee previously. From all attendees, less than half were on the committee during the last update. The consultant and planning committee also designated a subcommittee dedicated to historic and cultural resources due to their significant presence in Adams County. Members of the subcommittee include Charles Gable, Gettysburg Borough Manager, and a representative of the Adams County Office of Planning and Development (per Sherri Clayton-Williams).

The consultant gave a brief overview of mitigation, the mitigation plan, the plan update process, and a general timeframe for the update. The mitigation plan will include the description of the planning area and planning process, a hazard risk assessment, an action plan, and an outline for plan maintenance.

The main task of this meeting was to review and update the goals from the previous plan. The consultant then gave committee members a copy of the previous plan's mitigation goals, which focused on each hazard identified in the plan. The committee reviewed each goal and recognized that some mitigation actions could address multiple hazards. Therefore, they



decided to revise the existing goals to address a variety of hazards. The revised goals suggested by the committee include:

1. Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., water, sewer, natural gas, electricity, etc.) from all hazards that could impact the county.
2. Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.
3. Promote disaster resilience in future development through code enforcement.
4. Reduce losses by facilitating a more efficient response through mutual aid, memoranda of understanding, etc.

Public involvement is an integral component of the hazard mitigation planning process. Traditionally, public meetings were the most used method to gather input from the public. The committee recognizes several additional strategies to reach the public, including an online survey and utilizing focus groups that consist of existing community committees and groups. The online public survey will provide information as to which hazards community members are concerned about and their geographic areas of concern. The consultant and the Office of Planning and Development agreed to coordinate on plotting survey responses in a GIS-based map.

The next planning committee will take place in July via web conference.

Attachments:

- First Meeting Presentation
- Draft of the Public Survey
- Previous Plan's Project List
- Sign-In Sheet from Meeting 1



# ADAMS COUNTY HAZARD MITIGATION PLAN 2019 UPDATE



Adams County  
Emergency Services

June 24, 2019 ~ 2:00 PM

230 Greenmyer Lane  
Gettysburg, PA 17325



## WELCOME AND INTRODUCTIONS



## HAZARD MITIGATION 101



Federal Emergency Management Agency (FEMA):

- oversees the hazard mitigation process at the local, regional, state, and national levels, and
- defines mitigation as, “the effort to reduce loss of life and property by lessening the impact of disasters” (FEMA.gov, 2016).



## PLANNING PROCESS

DMA2K ~ Stafford Act, Section 322 ~ 44 CFR 201.6

The  
Hazard  
Mitigation  
Plan

- Planning Process
- Description of the planning area
- Risk Assessment
- Action plan
  - Goals
  - Strategies (projects/actions)
- Plan maintenance
- Appendices



## PLANNING PROCESS

- Tasks and activities
- Contact with jurisdictions and consultant
- Review and approval of drafts

Project start

FEMA approval



In-person meetings ~ Phone calls ~ Workshops  
 Activities ~ Surveys ~ Conference calls ~ Research  
 Mapping ~ Analysis ~ Historical data ~ Reviews  
 Partnerships ~ Plan integration ~ Development

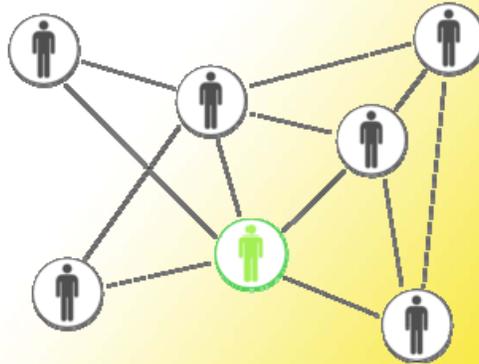


## PUBLIC INVOLVEMENT OPPORTUNITIES

- Surveys
  - Social media
  - Jurisdictional/agency websites
  - Press releases
- Meetings
  - Plan review (mid-point)
  - Plan review (final)
- Other Opportunities (?)
  - Other planning initiatives (CDBG, economic development, etc.)
  - LEPC or other regular EMC meetings



## PLANNING COMMITTEE RESPONSIBILITIES

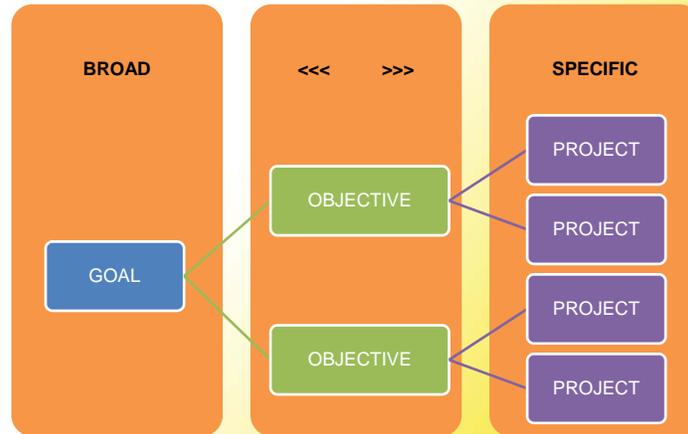


## HISTORICAL & CULTURAL RESOURCES SUB-COMMITTEE

- Interaction
  - Emails and other virtual means
  - Sub-committee meetings immediately preceding or following full committee meetings
- Responsibilities
  - Consider the impact of risks and mitigation projects on historical and cultural resources
  - Create graphic highlights showing the location of clusters of these resources
  - Determine how to integrate historical/cultural considerations into the project prioritization process



## GOALS AND OBJECTIVES



# THANK YOU!



# EXERCISE SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Kick Off Meeting

**Meeting Date:** June 24, 2019

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
Perry Wood	ACS	717-334-7588	pwood@ieee.org
GISMOND STERLICK	WGA	717-339-2440	GSTERLICK@WGA.PA.GOV
SANDI VALQUEZ	Biglerville Bmo	717 677 9488	biglerville@biglerville.pa.gov
Tom BARNER	BERW. CT TWP	717 688 5634	
John Aldridge	Union Township	240-372-8192	jaldsr@eyaloo.com
Tom Leedy	ACDES	717-334-8603	Tleedy@adamscounty.pa.gov
JAMES GRAHAM	CODES & POLICE ABBOTTSTOWN	717 809-2207	Code4@pscodealliance.org
Bob Gordon	Hamilton	717-642-8569	
Pete Dwyer	Fire Chief Irishtown F	443 398 5521	ded21@col.com
Daryl Crum	Adams County Tax Services	717-870-9638	dcrum@adamscounty.us
JOE LACHOWSKI	NATIONAL PARK SERVICE	717-338-4490	JOE.LACHOWSKI@NPS.GOV
Don Beehs	Cumberland	717-334-6485	dbeehs@cumberlandpa.gov
Susan Wagle	Sec / TREE BUD FAIRFIELD	717-642-5640	
Allen White	Red Cross	717-606-2422	allen.white@redcross.org
R.W. GLENNY	CHIEF/GPD	717-331-1160	RGLENNY@GETYSBURGPA.GOV
Charles Gable	Barco Mng. Getysburg	717-334-1160	CGable@GetysburgPA.gov
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JEFF HARVEY	JHC	304-473-1009	jharvey@jhcpreparedness.com
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# EXERCISE SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Kick Off Meeting

**Meeting Date:** June 24, 2019

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
Barb Krebs	Manager Coverage Twp	717-637-0411	bkrebs@coverage4wp.org
GARRY WILT	READING TWP. PC ASST	717-624-4222 x3	READINGTOWNSHIP @COMCAST.NET
NATE BECKER	UASD	677 7191 717 <del>422</del> <del>7191</del>	n.becker@upperadams.org
GARY BULLOCK	EMC READING	717-870-3488	GBULLOCK03@GMAIL.COM
VERONICA LEAN FEEDER	SMA Oxford Twp	717-624-4544	—
Jack KETTERMAN	GERMANY TWP	717-359-4394	JKETTERMAN0551@GMAIL.COM
Don Schmitt	AC/ES ADS	717-880-2687	1k3ads@aarrl.com
DICKY REDMAN	Environment Planner Adams County Office of Planning & Development	717-332-9827	dredman@adamscounty.org
Taula Neiman	Ch. of Clerk, Adams Co	717-332-9820	pneiman@adamscounty.org
Gayle Matthews	Asst. to Mayor	717-752-0063	gayle@Carrollvalley.org
Ken Shafer	Council member Arville	717-398-7782	kshafer@embarqmail.com

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## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #2

### AGENDA

Date: Friday, July 26, 2019  
Time: 2:00 p.m.  
Estimated Duration: 45 minutes  
Location: Teleconference

Please join my meeting from your computer, tablet or smartphone.

<https://global.gotomeeting.com/join/389843205>

You can also dial in using your phone.

United States: [+1 \(312\) 757-3121](tel:+13127573121)

**Access Code: 389-843-205**

1. Welcome and Introductions
2. Review Goals List (see Meeting #1 minutes)
3. Hazard Inclusions
  - Hazards from 2015 Plan
    - Drought (Natural)
    - Earthquake (Natural)
    - Extreme Temperature (Natural)
    - Flood, Flash Flood, Ice Jam (Natural)
    - Hailstorm (Natural)
    - Hurricane, Tropical Storm, Nor'easter (Natural)
    - Invasive Species (Natural)
    - Pandemic and Infectious Disease (Natural)
    - Subsidence, Sinkhole (Natural)
    - Tornado, Wind Storm (Natural)
    - Wildfire (Natural)
    - Winter Storm (Natural)
    - Dam Failure (Technological)
    - Environmental Hazards: Hazmat Release (Technological)
    - Nuclear Incident (Technological)
    - Terrorism (Human-Caused)
    - Transportation Accident (Technological)
  - Open Discussion – Others?
4. Review Public Survey Draft
5. Schedule for Next Meeting
6. Adjournment

**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**PLANNING COMMITTEE MEETING #2**  
**MINUTES**

Date: Friday, July 26, 2019  
Time: 2:00 p.m.  
Duration: 45 minutes  
Location: Teleconference

On Friday, July 26, 2019, the Adams County Hazard Mitigation Plan committee met to discuss goals, hazards, surveys, and the schedule for the next meeting. This was the second meeting in the 2019 update process and was held online via web conference. Unfortunately, the web conferencing service experienced technical difficulties. JH Consulting staff will troubleshoot the issue with the intent of finding a solution prior to the next web conference.

During the first meeting, the committee had discussed the problems that hazards cause to the county and the overall goals that could potentially reduce the negative effects or impacts from them. During that meeting, the committee revised the previous plan's goals. During this meeting, the committee reviewed the four goals from Meeting 1 and approved them as written below.

GOAL 1: Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, etc.) from all hazards that could impact the county.

Goal 2: Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.

GOAL 3: Promote disaster resilience in future development through code enforcement.

GOAL 4: Reduce losses by facilitating a more efficient response through mutual aid, memoranda of understanding, etc.

The next agenda item was to review the list of hazards to include in this update of the plan. Currently, there are 18 hazards listed: drought, earthquake, extreme temperature, flood (includes flash flood and ice jam), hailstorm, hurricane (includes tropical storm and nor'easter), invasive species, landslide/erosion, pandemic and infectious disease,

subsidence and sinkhole, tornado and windstorm, dam failure, hazardous materials release, nuclear incident, terrorism, and transportation accident. The committee received a hazard worksheet via email. The worksheet will give committee members a chance to identify hazard trends and provide feedback on the list of hazards. Committee feedback will be used to generate the final list of hazards, which will be presented at the next meeting. Worksheets should be returned to Jeff Harvey ([jharvey@jhcreparedness.com](mailto:jharvey@jhcreparedness.com)) by Friday, August 9<sup>th</sup>.

To close the meeting, the consultant provided an overview of online surveys to support participation in the plan update. The committee suggested reconsidering some demographic questions (age, education, etc.). The consultant distributed the surveys to the committee for additional comments. Survey comments should be sent with the hazard worksheet by Friday, August 9<sup>th</sup>.

The next meeting will be in-person in late August. The date and time will be forthcoming.

#### Attachments

- Hazards Worksheet
- Public Survey Draft

## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #3

### AGENDA

Date: Monday, September 9, 2019  
Time: 2:00 p.m.  
Estimated Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyre Lane  
Gettysburg, PA 17325

1. Welcome and Introductions
2. Hazard Identification & Risk Assessment Review
  - Workshop time for those that need to complete a hazard worksheet
  - Group discussion on hazard results
3. Public Survey
  - Revised survey draft
  - Mapping/geographic tracking options
4. Goals, Homework for Meeting #4
  - Review goals
  - Introduce “objectives”
5. Web Conferences (debrief Meeting #2)
6. Schedule for Next Meetings
7. Adjournment

**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**PLANNING COMMITTEE MEETING #3**  
**MINUTES**

Date: Monday, September 9, 2019  
Time: 2:00 p.m.  
Duration: 90 minutes  
Location: Adams County Emergency Services  
200 Greenamyer Lane  
Gettysburg, PA, 17325

The Adams County Planning Committee met for the third time in the process to update its hazard mitigation plan on Monday, September 9, 2019, at Adams County Emergency Services. JH Consulting, LLC (JHC), the consultant hired to assist with the update, led the meeting.

The first item on the agenda was discussion about finalizing which hazards to include in the plan. To begin the meeting, committee members were given and encouraged to complete a hazard worksheet if they had not already done so. To complete the hazard discussion, the consultant asked the committee to recall their past experiences with each of the profiled hazards.

- **Dam Failure-** The committee did not recall any past dam failures, but did recall a potentially critical issue in a New Oxford dam. A representative from Waynesboro Borough in Franklin County, owner of the Antietam Dam, contacted the consultant regarding the dam. The structure sits in Hamiltonban Township, and the consultant briefed the committee on a spillway project at that location. The committee expressed concern about recent changes regarding dam regulations in Pennsylvania.
- **Drought-** The committee members recalled the extent of past droughts in their jurisdictions. They indicated that reservoirs had run low in the past, and recalled instances of water shortages, voluntary restriction, and forced restriction imposed during past periods of drought. The committee also indicated that well owners were under the same restrictions as those who use the public water supply, which has caused some confusion in the past. Drought conditions have also affected local commercial and industrial operations through reduced production.

- **Earthquake-** While the majority of the committee recalled experiencing earthquakes, they did not recall any damage associated with them.
- **Environmental Hazard: Hazardous Materials Release-** When asked about past experiences with hazardous materials releases, the committee brought up the various industries in the county that use hazardous materials regularly.
- **Extreme Temperature-** The committee recalled damage due to extreme temperature. The most notable and frequent damage mentioned was crop damage as the result of frost events in late spring.
- **Flood/Flash Flood/Ice Jam-** The committee recalled that some areas of the county, particularly East Berlin, Arendtsville, and Hamiltonban, seem to experience adverse effects of flood events more often than the rest of the county. The most memorable flood events were the June and September 1996 floods that heavily affected Gettysburg and Biglerville. The committee also noted that flash flooding seems to be on the rise in certain areas of the county, and it is causing significant impacts on infrastructure. Committee members also mentioned that the preliminary floodplain maps had been released, but received no public comment despite there being some questions on revised hazard areas.
- **Hailstorm-** The committee indicated that typical hail damage was not common or severe, but when applicable, it included vehicle damage, broken windows, and some roof damage.
- **Hurricane/Tropical Storm/Nor'easter-** Committee members recalled past experiences with hurricane/tropical storm/Nor'easter events. They noted that they experience flooding and heavy snowfall from these events and that some lead to infrastructure damage and power failure.
- **Invasive Species-** When asked if there were any invasive species that concerned them, the committee members provided several examples. Among the most mentioned were wild boars, stink bugs, gypsy moths, deer ticks (potentially spreading Lyme disease), oriental bittersweet, and oak wilt. All of these (excluding deer ticks) were identified as invasive species of concern by the Pennsylvania Department of Agriculture. The committee also expressed concern for the vulnerability of the wine and fruit industries to invasive species.
- **Pandemic and Infectious Disease-** When asked which pandemic and infectious diseases about which they were particularly concerned, committee members mentioned swine flu and avian flu due to the agricultural industry's presence. Other diseases

included West Nile Virus and Rocky Mountain spotted fever due to the number of mosquitos and ticks in the area. The committee also expressed concern about the spread of measles in neighboring counties possibly affecting the Adams County area.

- **Subsidence/Sinkhole-** The committee indicated that several areas of the county are vulnerable to sinkholes and subsidence, and noted the presence of Karst features in the area. They also mentioned that a sinkhole in Conewago Creek caused utility interruptions to some homes.
- **Terrorism-** The committee recalled some instances of civil disturbance and credible terrorism threats in the county. Committee members mentioned that the Civil War reenactment in Gettysburg every five years and the amount of tourism in the county are potential targets for terrorist events. They decided that because the potential for civil disturbance is so large, it should be profiled separately. The committee was also concerned about cyberterrorism and elected for it to be profiled separately as well.
- **Tornado/Windstorm-** When asked about past experiences with severe wind and tornadoes, the committee indicated that there had been significant wind and tornado events in the county, which have caused damage such as roof damage, utility interruptions, and damage to houses and barns.
- **Transportation Accident-** The committee indicated concern for the potential for accidents with several areas of disproportionately heavy traffic due to tourism, and large numbers of commercial vehicles on Route 116 in Bonneauville. Committee members also expressed concern about potential cascading effects of transportation accidents occurring on the rail network.
- **Wildfire-** The consultant reviewed the definition of wildfire with the committee and asked if they could recall any incidents. The committee noted that there were some instances of brush fires that became uncontrolled, and had the potential to cause a hazardous wildfire. Most notable for the committee was a series of five uncontrolled fires that covered 90 acres on Jack's Mountain.
- **Winter Storm-** Winter storms affect every region uniquely. The consultant asked the committee when they would consider snowfall a "winter storm." Members responded that while the county handles snowfall well, multiple events in a short period and snowfall that accumulates to or exceeds 16" can overwhelm response capabilities. Committee members were also concerned about wind creating snow drifts in the northern portion of the county.

The second agenda item was to finalize the public hazard mitigation survey. In addition to comments made in Meeting 2, the committee felt that combining questions three and five (regarding increasing and decreasing hazard events), and amending the instructions to ensure completion would enhance the survey experience. A copy of the finalized survey is attached to the minutes.

The final agenda item was to review the mitigation goals and introduce objectives. Committee members received a copy of the mitigation goals created and documented in Meetings 1 and 2. The consultant explained how these objectives should align with the mitigation goals, and ultimately with mitigation projects.

Attachments:

Sign-In Sheet

Public Hazard Mitigation Survey Draft

List of Previous Mitigation Projects

# SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Meeting # 3

**Meeting Date:** September 9, 2019

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
Pete DuPree	Fire Chief <sup>Irish Fork</sup> FC	443 3985521	dupd21@aol.com
VERA Jean Seeser	EMT Oxford Twp	717 624 4544	oxftwp@comcast.net
Barb Krebs	Coverages Twp	717-632-0411	bkrebs@coveragetwp.org
Billy Rodman	Adams County Planning	717-337-9827	brodman@adamscounty.us
NATE BECKER	UASD	717-677-7191	n.becker@upperadams.org
Don Schmitt	RCS AONES	717-624-5979	R30CS@aol.com
BOB JACKSON	SUPV. DIRECTY	717-642-9886	bjackson@nj.com
Ken Wolf	Sup.	717-677-6635	MenallenTwp@centurylink.com
CLACK KETTERMAN	SUPER.	717-359-4394	CKETTERMAN551@gmail.com
Sheri Moyer	Secretary	717-359-4500	Secretary@mtjoytwp.us
Kimberly Beard	Sec/Treasurer	717-624-4222	Readingtownship@comcast.net
Susan Wagler	"	642-5640	as 6-4
Bob Gowen	Member		
MIKE STAREBUCK	Council President	717-334-2069	starembuck@emil.com
Susan Plank	Franklin	717-334-4900	info@franklintwp.us
John Aldridge	Union	240-372-8192	aldsr1@yahoo.com
JOE LACHOWSKI	NATIONAL PARK SERV.	717 338 4490	Joe.Lachowski@nps.gov
David Laughman	Mayer - Arendtsville	717 677 6009	david@DL3systems.com
WARREN BLADEN	DIRECTOR	717-334-5603	wpbladen@wilson.com



## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #4

### AGENDA

Date: Thursday, November 7, 2019  
Time: 2:00 p.m.  
Estimated Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyre Lane  
Gettysburg, PA 17325

1. Welcome and Introductions
2. Approve Goals
  - Final review from previous meetings
3. Objectives and Countywide Projects
  - Develop objectives to categorize/organize projects
  - Begin brainstorming countywide projects
4. Project Prioritization Criteria
  - Definition
  - Introduce potential criteria
  - Criteria weighting activity
5. Draft Document Review
  - Shared file possibilities (e.g., Dropbox, Google Drive)
6. Schedule for Next Meetings
7. Adjournment

**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**PLANNING COMMITTEE MEETING #4**  
**MINUTES**

Date: Thursday, November 7, 2019  
Time: 2:00 p.m.  
Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyer Lane  
Gettysburg, PA, 17325

The Adams County Planning Committee met for the fourth time on Thursday, November 7, 2019. To begin, the consultant gave the committee an update on the public survey and draft review process. The committee previously received draft hazard profiles by email. There is now a Google Drive set up to allow committee members to review drafts and provide comments.

The first agenda item was to review and finalize the plan goals generated in previous meetings. The committee opted to expand Goal 4. The approved goals are as follows.

1. Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, communications, etc.) from all hazards that could impact the county.
2. Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.
3. Promote disaster resilience in future development through code enforcement.
4. Reduce losses by facilitating a more efficient response to identified hazards.

The next agenda item was to develop objectives and countywide mitigation projects that align with the stated goals. The consultant gave the committee an overview of the structure of goals, objectives, and projects. After the discussion, committee members formulated the following general objectives.

1. Facilitate communication prior to a hazard event by increasing the number of residents receiving emergency notifications.
2. Modernize the communication system used for emergency notifications.
3. Promote education and awareness activities within Adams County.

4. Update municipal floodplain ordinances with recently-updated FEMA flood maps.
5. Identify an Emergency Management Coordinator (EMC) to represent each municipality in Adams County.
6. Ensure that each EMC has appropriate training for their position.

Objectives serve as ways to categorize projects under the four overarching goals. Committee members identified the need to make the objectives measurable, and the consultant agreed with this need, referencing the SMART acronym (**S**imple, **M**easurable, **A**chievable, **R**ealistic, **T**imely) so often associated with objectives. As such, the consultant revised the objectives per SMART categories and assigned the general objectives to goals as follows.

<b>2019 Mitigation Goals and Objectives<sup>1</sup></b>	
<i>Goal 1</i>	<i>Reduce potential injury/death and damage to existing community assets and critical infrastructure (i.e., bridges, water, sewer, natural gas, electricity, communications, etc.) from all hazards that could impact the county.</i>
Objective 1A	Educate citizens annually about the hazard risks they face and personal/household mitigation strategies.
Objective 1B	Modernize the communications system used for emergency communications through training and technological upgrades.
<i>Goal 2</i>	<i>Realize hazard mitigation opportunities through stormwater management and source water protection initiatives.</i>
Objective 2A	Educate stakeholders (e.g., local officials and citizens) annually about the importance of stormwater management and source water protection and their links to hazard mitigation and risk reduction.
<i>Goal 3</i>	<i>Promote disaster resilience in future development through code enforcement.</i>
Objective 3A	Educate citizens annually on compliance with applicable local codes and ordinances.
Objective 3B	Update municipal floodplain ordinances within six months of official updates to flood insurance rate maps (FIRMs).
<i>Goal 4</i>	<i>Reduce losses by facilitating a more efficient response to identified hazards.</i>
Objective 4A	Identify an emergency management coordinator (EMC) to represent all 34 municipalities in Adams County.
Objective 4B	Ensure that 100% of the designated EMCs in Adams County have achieved a minimum baseline of training.
Objective 4C	Facilitate communication prior to a hazard event by increasing the number of residents receiving emergency notifications by 10%.

To facilitate conversation regarding projects, the consultant asked committee members, particularly municipal representatives, to spend time before the next meeting to recall projects their community has completed in recent years or plans to implement within the next few years.

The final agenda item was to introduce project prioritization criteria. The consultant provided the committee with a list of criteria that have been used successfully in past hazard

<sup>1</sup> NOTE: This list is not final.

mitigation plan updates and align with FEMA guidelines. Using a worksheet, each committee member ranked the criteria on a scale from one to ten, with one being the highest priority.

Following the meeting, the consultant used the completed worksheets to calculate the average score for each criterion. The criterion with an average score closest to one ranks as the highest priority and the criterion with the average score closest to ten ranks as the lowest priority.

PRIORITIZATION WORKSHEET RESULTS																	
Criteria	Committee Member Rankings																Average Score
	CM1	CM2	CM3	CM4	CM5	CM6	CM7	CM8	CM9	CM10	CM11	CM12	CM13	CM14	CM15	CM16	
1	1	7	4	9	7	3	4	1	6	10	3	4	8	4	5	1	4.8125
2	4	2	6	1	3	1	3	6	1	5	1	3	1	9	1	2	3.0625
3	6	3	5	5	2	4	1	2	8	2	2	1	9	1	2	10	3.9375
4	8	9	1	6	10	8	10	3	4	9	9	8	4	6	3	7	6.5625
5	7	4	10	3	4	5	2	4	9	6	7	7	3	5	9	3	5.5
6	5	10	9	4	8	6	9	7	3	1	10	5	2	7	4	8	6.125
7	9	8	8	10	5	7	6	5	10	8	8	9	10	10	10	9	8.25
8	10	6	7	7	6	9	5	10	5	7	5	6	6	8	8	5	6.875
9	2	5	3	8	9	2	4	9	7	4	6	10	7	3	7	6	5.75
10	3	1	2	2	1	10	7	8	2	3	4	2	5	2	5	4	3.8125

The following are the resultant criteria, listed in order of priority, with the highest priority criterion listed first.

2. The project aims to protect “functional and access needs” populations
10. The project promotes the modernization and efficiency of information flow
3. The project attempts to reduce the negative impacts of frequent and severe hazards
1. The project addresses more than one hazard at once
5. The project protects the environment
9. The project promotes partnerships within the county
6. The project is easily paid for with local funds or attainable grants
4. The project is easy to implement (most of the population agrees with the project, and it doesn’t have negative political ramifications)
8. The project directly aligns with one or more of the goals set by the committee
7. The project is already scheduled to start or is in process

Attachments:

**1. Previous Mitigation Projects Matrix**

*This MS Excel matrix lists the projects that appeared in the previous version of the Adams County mitigation plan. Municipal representatives can find the projects that apply to them by identifying the projects beside which an "X" appears in the column labeled by their jurisdiction's name.*

**2. Project Examples**

*This attachment lists sample mitigation projects, and JHC derived it from existing DHS/FEMA guidance. Municipal representatives do not have to select projects from these samples; this attachment serves as a resource if municipal representatives are having trouble visualizing applicable projects.*

**3. Mitigation Projects Worksheet**

*Municipal representatives can use this worksheet to document new mitigation projects for the consultant team as well as to identify any efforts the municipality recently completed or is currently undertaking that could contribute to risk reduction and hazard mitigation.*

# SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Meeting # 4

**Meeting Date:** November 7, 2019

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
JAMES GRAHAM	POLICE CHIEF ABBOTTSTOWN	717 451-5737	abbottstown Borough police - depor@comcast
SUSAN PLANK	Franklin Sec/Treas Twp	217 334 4900	info@Franklin twp.us
VERNA LEAN FESSER	Bedford Twp EMA	717 624 4544	BedfordTwp@comcast.net
THOMAS DANNER	Berwick Twp		
Billy Rodman	Adams County Planning	717-337-9827	
Bob Cooper	Hammontown		
Bob Jackson	Liberty		
Thomas Leedy	ACDES/Arendville		
Ron Harris	Chancellor Valley (FRANKLIN)	(301) 606-2021	Mayor Ron Harris @ comcast.net
GEORGE STECKER	WSG/STY/NO SP.	717-339-2440	GSTECKER@WALSH.OLG
SUSAN WAGLE	Sec/Treas Boro of Fairfield	717-642-5640	boro.fairfield.pa@courai.net
JOE LACHOWSKI	NATIONAL PARK SERVICE	717.338.4490	JOE.LACHOWSKI@NPS.GOV
TAMMY KUNKEL	ACDES	717-334-8603	
WARREN BLADEN	DIRECTOR ACDES	717-334-8603	wpbladen@adamscounty.
Olivia Simpson	JHC	931-510-4642	osimpson@jhc preparedness.com
Jack Ketterman	SUPER/GERMANY TWSP	717-359-4394	JKETTERMAN551@GMAIL.COM
Sheri Mayer	Mt. Joy Twp Secretary	717-359-4500	Secretary @ mtjoytwp.us
JEFFERY HARVEY	JHC	304-473-1009	jharvey@jhcpreparedness.com



# ADAMS COUNTY HAZARD MITIGATION PLAN 2019 UPDATE



Adams County  
Emergency Services

November 7, 2019 ~ 2:00 PM

230 Greenmyer Lane  
Gettysburg, PA 17325



## WELCOME AND INTRODUCTIONS



## PROJECT PRIORITIZATION CRITERIA

- Addresses more than one hazard at once.
- Aims to protect the most vulnerable populations.
- Attempts to reduce the negative impacts of frequent hazards.
- Attempts to reduce the negative impacts of severe hazards.
- Easy to implement.
- Protects the environment.
- Easily paid for with local funds, attainable grants, etc.
- Already scheduled to start (or is in process).
- Directly aligns with one or more goals.
- Promotes partnerships within the county.



## WEIGHTING OVERVIEW

- \_\_\_ The project addresses more than one hazard at once
- \_\_\_ The project aims to protect the most vulnerable populations
- \_\_\_ The project attempts to reduce the negative impacts of frequent hazards
- \_\_\_ The project attempts to reduce the negative impacts of severe hazards
- \_\_\_ The project is easy to implement (most of the population agrees with the project and it doesn't have negative political ramifications)
- \_\_\_ The project protects the environment
- \_\_\_ The project is easily paid for with local funds or attainable grants
- \_\_\_ The project is already scheduled to start or is in process
- \_\_\_ The project directly aligns with one or more of the goals set by the committee
- \_\_\_ The project promotes partnerships within the county

- Rank the criteria, with 1 being what is most important to you.
- (JHC) Assign point totals (i.e., a ranking of 1 = 10 points).
- (JHC) Add total points for all criteria.
- (JHC) Average points for each criterion.
- (JHC) Weight criteria by average point totals.



**THANK YOU!**



**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**HISTORICAL AND CULTURAL RESOURCES SUBCOMMITTEE**  
**MINUTES**

Date: Thursday, January 16, 2020  
Time: 1:30 p.m.  
Duration: 45 minutes  
Location: Teleconference  
Attendees: Winona Peterson, Cultural Resources Program Manager (Gettysburg National Military Park/Eisenhower National Historic Site)  
Jeffery Harvey, Preparedness Division Manager (JH Consulting, LLC)  
Olivia Simpson, Analyst (JH Consulting, LLC)  
Unable to Attend: Warren Bladen, Director (Adams County Emergency Management)  
Charles Gable (Gettysburg Borough)  
Joe Lachowski, Chief Ranger (Gettysburg National Military Park/Eisenhower National Historic Site) ~ Sent Ms. Peterson as a proxy.

The Adams County historical/cultural resources subcommittee met via teleconference on Thursday, January 16, 2020. To begin, the consultant asked the committee members to define historical and cultural resources for the county. Cultural resources include tangible resources, including buildings and monuments, but also intangible resources such as the atmosphere evoked by a site.

When asked about community investment in preserving historical and cultural resources, the committee indicated that primarily non-residents of Adams County visit historic sites. There are, however, groups within the county with a vested interest in preservation. The consultant asked the committee which hazards most affect historical and cultural resources in the county. Overall, weather-related hazards such as wind, tornadoes, and flooding seem to most strongly affect historic places. For example, Hurricane Agnes in 1972 destroyed historic covered bridges that were unable to be replaced. As weather patterns have shifted over time, the intensity of weather events has increased, bringing more intense rains and wind events at an increased frequency.

When asked about potential mitigation strategies, the committee indicated that historic documents could be digitized. This would ensure their existence in the digital realm in the event

they were lost in a hazard event. Additionally, historic buildings could be entered into the Historic American Buildings Survey (HABS) in the Library of Congress. The HABS was established to create a public archive of measured drawings, historical reports, and large-format black and white photographs of important and/or representative examples of our built environment. Committee members also suggested multi-jurisdictional prioritization of mitigation projects for historic and cultural sites.

## ADAMS COUNTY HAZARD MITIGATION PLAN PLANNING COMMITTEE MEETING #5

### AGENDA

Date: Thursday, January 23, 2020  
Time: 1:30 p.m.  
Estimated Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyre Lane  
Gettysburg, PA 17325

1. Welcome and Introductions
2. Historical & Cultural Resources Review
  - Broader awareness of mitigation options for historical/cultural resources
  - Community-level prioritization of historical/cultural assets
  - Coordination with SHPO moving forward
3. Punch-List Items for Completion
4. Plan Maintenance Process
  - Annual updates/agendas
  - Integrating mitigation goals into other planning efforts
  - On-going public involvement
5. Draft Document Review
6. Open House/Public Meeting
7. Adjournment

**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**PLANNING COMMITTEE MEETING #5**  
**MINUTES**

Date: Thursday, January 23, 2020  
Time: 1:30 p.m.  
Duration: 90 minutes  
Location: Adams County Emergency Services  
230 Greenamyer Lane  
Gettysburg, PA, 17325

The full Adams County hazard mitigation planning committee met for the fifth time on Thursday, January 23, 2020. This committee meeting doubled as a public meeting. The public session began at 2:30 p.m. (per the published advertisement), and as such, the committee tended to new business within the first hour and reserved the final portion of the meeting for draft review and discussion. Committee business included four primary items: (a) a historical/cultural resources subcommittee meeting, (b) public survey results, (c) the plan maintenance process, and (d) punch-list items for plan completion.

The consultant provided an overview of the historical/cultural resources subcommittee meeting, which occurred via teleconference on Thursday, January 16, 2020. As a result of that discussion, the consultant will ensure that the Eisenhower National Historic Site appears more prominently in the 2020 plan. Further, when reviewing the National Register of Historic Places list for Adams County, one might find it to be rather short. In addition to the numerous artifacts at the battlefield/military park, several listings are historic districts. Those districts include numerous sites not listed individually on the registry. The 2020 update will be sensitive to this fact, as well include the newly-designated Fruit Belt Historic District. Finally, the subcommittee realized the value of undertaking mitigation projects that benefit single historical/cultural assets but felt that engaging municipalities in a process to prioritize assets *within their corporate limits* for protection was a more strategic approach to ensuring risk reduction for those assets. The full committee agreed, and discussion followed about not just tangible historical artifacts or sites, but also events and quality of life features that contribute to the area's culture. To close out the historical/cultural discussion, the consultant asked the committee's preference on the presentation of that material (i.e., interspersed throughout the plan versus a subsection). The committee requested the

information appear as a subsection.

Next, the consultant discussed the plan maintenance process for the 2020-2025 planning cycle by indicating that regulatory agencies prefer a regular periodic meeting schedule. The committee agreed, and after discussion, felt that embedding an annual hazard mitigation planning discussion into a council of governments (COG) meeting would be most beneficial. Further, the committee decided to ask the COG to create a standing hazard mitigation agenda item for all of its meetings. During the third year of the cycle, the Adams County Department of Emergency Services (ACDES) will host an online survey to engage residents. ACDES will present the results of the survey to the COG under the mitigation agenda item during the year in which it collects the data. Generally, the committee felt that the primary task in Year 1 of the planning cycle will be ensuring countywide adoption of the plan; Year 2 will focus on hazard identification and risk analysis; Year 3 will be the public survey; Year 4 will be an update on project implementation; Year 5 will serve as the point at which the county updates the plan. Of course, this schedule is a guide; organic discussions of any topic related to mitigation will ensure the maintenance of the 2020 update.

The consultant then presented the results of the public survey hosted between November 2019 and January 2020. The survey included 150 responses, and approximately six residents utilized the point/click/narrative feature on the map hosted by the Adams County Office of Planning and Development. The consultant explained that the survey results would be provided to the committee (see attached).

Fourth, the consultant presented a punch-list of items necessary for completion of the draft. During the week of January 27, ACDES will continue to post draft materials on its website. Municipalities will have through February 14<sup>th</sup> to review and comment on the drafts. If necessary, the review period can extend to February 21<sup>st</sup>. The ACDES and the consultant will compile and submit the full draft to PEMA during the week following the jurisdictional review. Once the plan receives “approved pending adoption” (APA) status, the consultant will support ACDES and the municipalities in the adoption process.

No members of the public attended the public portion of the meeting. The committee used this time to discuss draft materials with the consultant.

Attachments:

1. Sign-In Sheet
2. Maryland Flood Mitigation Guide for Historic Buildings:  
<https://forum.savingplaces.org/blogs/anthony-veerkamp/2019/05/10/md-flood-mitigation-guide-for-historic-buildings>
3. Public Survey Data Summary

# SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Meeting # 5

**Meeting Date:** January 23, 2020

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
VERONA Jean Feiser	SMA Oxford Twp	717 621 4544	oxftwp@comcast.net
Dave Bohan	Abottstown	(717) 634-8726	dabottstwn@comcast.net
Don Schmitt	ACDES ACS	717 691-5979	K30CS@ARKL.net
Ken Wolf	Menallen TWP	717-677-0635	MenallenTwp@centurylink.net
Susan Plank	Franklin	212-334-4901	
Thomas Leedy	ACDES Arcadia Twp	717-321-0567	
Winona Peterson	CR Program Mgr Gettysburg NMP	717-338-4482	
Susan Wagle	Secretary / Treas. FAIRFIELD BOW	717-642-5640	wagso@fairfieldpa.com
Pete DePre	Irishtown Fire	413 398 5521	depre21@aol.com
JEFFERY HARVEY	JH CONSULTING	304 473 1009	jharvey@jhc.com
Tammy Kunkel	ACDES	717-334-8603	
WARREN BLADEN	ACDES	717-334-8603	wpbladen@edomscounty.net

# SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Meeting # 5

**Meeting Date:** January 23, 2020

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
MIKE SHANE BLOOK	Brownsville Council President	717-334-2069	
JACK KETTERMAN	SUP'R. GERMANY TWP	717-359-4394	@9MAIL.COM JKETTERMAN551
BOB JACKSON	SUPV. LIBERTY	717-642-9886	ydjackson@liberty
BOB GORDON	SUPV. HANOVER	717-642-8037	hgordon@hanover
Scott Small	conewago twp		
DICKY REDMAN	Adams County Planning CHIEF POLICE	717-337-9827	brodman@adamscounty.us
JAMES GRAHAM	ABBOTTSTOWN	717-680-0002	Abbottstown Borough police_depar@comcast.i
Sheri Moyer	secretary MT. JOY TWP	717-359-4500	secretary@mtjoytwp.us
SANDI VAZQUEZ	sec/Tp Biglerville Boro	717-677-9488	biglerville@comcast.net

**ADAMS COUNTY HAZARD MITIGATION PLAN**  
**PUBLIC MEETING**  
**MINUTES**

Date: Thursday, January 23, 2020  
Time: 2:30 p.m.  
Duration: 30 minutes  
Location: Adams County Emergency Services  
230 Greenamyer Lane  
Gettysburg, PA, 17325

Adams County Department of Emergency Services advertised a public meeting for this time to review draft materials of the county's 2020 hazard mitigation plan update. The consultant brought printed copies of the full draft (less the Section 7.0: Plan Maintenance and the appendices) for review. Additionally, the consultant brought education information on hazard mitigation and mitigation planning produced by U.S. DHS FEMA. Significantly, the public meeting was not the only opportunity for residents to participate in the 2020 update. Committee members shared a link to an online survey, which 150 residents took.

Attendance was minimal. No members of the public attended, and as such, attendance consisted of members of the full planning committee.

**Attachments:**

1. Sign-In Sheet<sup>1</sup>

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<sup>1</sup> This sheet is the same one from the committee meeting that began at 1:30 p.m.

# SIGN-IN SHEET

**Project:** Hazard Mitigation Plan Update – Meeting # 5

**Meeting Date:** January 23, 2020

**Facilitator:** JH Consulting, LLC

**Place/Room:** Classroom 1

Name	Title / Organization	Phone/Cellular	E-Mail
VERONA Jean Feiser	SMA Oxford Twp	717 621 4544	oxftwp@comcast.net
Dave Bohan	Abottstown	(717) 634-8726	dbohtstwn@comcast.net
Don Schmitt	ACDES ACS	717 691-5979	K30CS@ARKL.net
Ken Wolf	Menallen TWP	717-677-0635	MenallenTwp@centurylink.net
Susan Plank	Franklin	212-334-4901	
Thomas Leedy	ACDES Arcadia Twp	717-321-0567	
Winona Peterson	CR Program Mgr Gettysburg NMP	717-338-4482	
Susan Wagle	Secretary / Treas. FAIRFIELD BOW	717-642-5640	wagsofairfield@comcast.net
Pete DePre	Irishtown Fire	413 398 5521	depre21@aol.com
JEFFERY HARVEY	JH CONSULTING	304 473 1009	jharvey@jhc...
Tammy Kunkel	ACDES	717-334-8603	
WARREN BLADEN	ACDES	717-334-8603	wpb@bladen@edomscounty.va



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Advertising Clerk  
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County of Adams

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Copy of notice of publication

**NOTICE OF PUBLIC MEETING**

The Adams County Department of Emergency Services, as part of the Adams County Hazard Mitigation Planning Committee, will hold a public meeting on January 23, 2020, in the Adams County Emergency Services Training Facility, Classroom 1, 230 Greenamyer Lane, Gettysburg, Pennsylvania at 2:30 p.m.

The purpose of the meeting is to review updates to the county's hazard mitigation plan. Members of the public will be given the opportunity to comment on the natural and man-made hazards most affecting them.

The Adams County Hazard Mitigation Plan was last updated in 2015 per federal requirements in Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act, as enacted by Section 104 of the Disaster Mitigation Act of 2000.

Questions may be directed to Warren P. Bladen, Director of the Adams County Department of Emergency Services. Interested parties may review an electronic copy of the draft plan at

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Advertising Clerk

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## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: JAMES GRAHAM  
 Jurisdiction: ABBOTSTOWN BOROUGH

Title: CHIEF OF POLICE

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	I INCREASE IN LAST 10 YEARS	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	POTENTIAL FOR DISASTER HAS INCREASED WITH MORE TRAFFIC.
Nuclear Incident	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	POTENTIAL FOR DISASTER HAS INCREASED WITH MORE TRAFFIC.
			2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: \_\_\_\_\_ Thomas Danner \_\_\_\_\_ Title: \_\_\_ Twp Supervisor \_\_\_\_\_  
 Jurisdiction: \_\_\_\_\_ Berwick \_\_\_\_\_

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural		None Reported (NCEI)
Earthquake	Natural	We have had slight earthquakes , I have cracks in my home from one	I
Extreme Temperature	Natural		Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural		Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural		5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	We have had Hurricanes Agnes, Andrew, Sandy	I
Invasive Species	Natural		912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural		N/A
Pandemic and Infectious Disease	Natural		485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	The both Oxford and Berwick Twp have substantial sinks hole around the mining operations in both townships	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural		High Wind: 3 (NCEI)
Wildfire	Natural		None Reported (NCEI)
Winter Storm	Natural		8 (NCEI)
Dam Failure	Human Caused		None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	High pressure gas line leak Hamilton and Berwick	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused		None reported
Terrorism	Human-Caused		None reported
Transportation Accidents	Human-Caused		2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Lightning Strike
- Radon Exposure

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Urban Fire and Explosion
- Utility Interruption
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Susan Plank  
 Jurisdiction: Franklin Township

Title: Secretary/Treasurer

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	n/c	None Reported (NCEI)
Earthquake	Natural	n/c	None reported (USGS)
Extreme Temperature	Natural	n/c	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	n/c	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	n/c	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	n/c	None Reported (NCEI)
Invasive Species	Natural	n/c	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	n/c	N/A
Pandemic and Infectious Disease	Natural	n/c	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	n/c	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	n/c	High Wind: 3 (NCEI)
Wildfire	Natural	n/c	None Reported (NCEI)
Winter Storm	Natural	n/c	8 (NCEI)
Dam Failure	Human Caused		None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	n/c	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	n/c	None reported
Terrorism	Human-Caused	n/c	None reported
Transportation Accidents	Human-Caused	I  High 8 Street/ Chambersburg Rd	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

*nk none*

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

*nk none*

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Minallen Tulp  
 Jurisdiction: \_\_\_\_\_

Title: Ken Wolf - Supervisor

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	<i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	I	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human-Caused	NC	None Available (NPDP)
Environmental Hazards: Hazardous Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Lightning Strike
- Radon Exposure

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Urban Fire and Explosion
- Utility Interruption
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Verna Jean Feeser Title: EMA-Township  
 Jurisdiction: Oxford Township

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	None	None Reported (NCEI)
Earthquake	Natural	None	None reported (USGS)
Extreme Temperature	Natural	N/C	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	Increased road flooding due to excessive rain	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	None	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	None	None Reported (NCEI)
Invasive Species	Natural	None	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	N/A	N/A
Pandemic and Infectious Disease	Natural	None	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	None	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	None	High Wind: 3 (NCEI)
Wildfire	Natural	None	None Reported (NCEI)
Winter Storm	Natural	No change	8 (NCEI)
Dam Failure	Human Caused	None	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	None	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	None	None reported
Terrorism	Human-Caused	None	None reported
Transportation Accidents	Human-Caused	Unknown	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Lightning Strike
- Radon Exposure

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Urban Fire and Explosion
- Utility Interruption
- War and Criminal Activity

**Other Comments:**

None

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Kimberly Beard  
 Jurisdiction: Adams/Reading Township

Title: Secretary/Treasurer

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	<i>Incident Data (2015-present)</i>
Drought	Natural	D	None Reported (NCEI)
Earthquake	Natural	I	None reported (USGS)
Extreme Temperature	Natural	I	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	I	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural		Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	I	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	I	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Lightning Strike
- Radon Exposure

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Urban Fire and Explosion
- Utility Interruption
- War and Criminal Activity

**Other Comments:**

# ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Sheri Moyer Title: Secretary  
 Jurisdiction: Mount Joy Township

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I - 2018 – One storm created flash flooding. 2019 (Jan - July) Two storms caused flash flooding. Several roads were washed out.	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	I – 2018 high winds (unconfirmed tornado) damaged a barn roof (section of roof blown off) and damaged crops on several farms.	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	I – 2018 Hydraulic fluid spill on roadway from forklift hose. Covered approximately a 1/4 mile 2 feet wide. 2019 – Traffic accident with oil and antifreeze leak.	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	2015 = 16 2016 (Increase from 2015) = 20 2017 (Decrease from 2016) = 16 2018 (Decrease from 2017) = 12 2019 (Jan – June) = 10	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Don Schmitt  
Jurisdiction: Adams County DES

Title: ACS Officer

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	I It seems the winters have been getting a little warmer & summers hotter	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Lightning Strike
- Radon Exposure

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination
- Urban Fire and Explosion
- Utility Interruption
- War and Criminal Activity

**Other Comments:**

Over the years this area has experienced many small protests both in Gettysburg and on the National Park battlefield that fortunately didn't escalate. However, looking at what has been occurring in other parts of the country, such as Charlottesville, VA Aug 2018, I feel there is potential we could experience larger civil disturbances here.

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Patricia Smith  
 Jurisdiction: Fairfield Borough

Title: President

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	I	None reported (USGS)
Extreme Temperature	Natural	I	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	I	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	D	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: MIKE SHANE BROOK  
 Jurisdiction: BARNHARTVILLE BOROUGH

Title: Council PRESIDENT

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments <i>Incident Data (2015-present)</i>
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Phyllis Gilbert  
 Jurisdiction: 1 Fairfield Board

Title: Council person

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Caroline & Bob STANLEY Title: Council/ Mayor  
 Jurisdiction: FF

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease (Please provide an explanation for any hazards marked I or D)	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- |  |   |
|--|---|
| <input type="checkbox"/> Expansive Soils | <input type="checkbox"/> Lightning Strike |
| <input type="checkbox"/> Radon Exposure  |   |

*None*

Human-Caused Hazards

- |  |  |
|--|--|
| <input type="checkbox"/> Building or Structure Collapse      | <input type="checkbox"/> Civil Disturbance         |
| <input type="checkbox"/> Disorientation                      | <input type="checkbox"/> Drowning                  |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Urban Fire and Explosion  |
| <input type="checkbox"/> Utility Interruption                | <input type="checkbox"/> War and Criminal Activity |

*None*

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Carroll B. Smith  
 Jurisdiction: Fairfield Borough

Title: Vice President Borough Council

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Camille Colins  
 Jurisdiction: Hampden Barr

Title: Council Person

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural		None reported (USGS)
Extreme Temperature	Natural		Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural		Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural		5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural		None Reported (NCEI)
Invasive Species	Natural		912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural		N/A
Pandemic and Infectious Disease	Natural		485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural		Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural		High Wind: 3 (NCEI)
Wildfire	Natural		None Reported (NCEI)
Winter Storm	Natural		8 (NCEI)
Dam Failure	Human Caused		None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused		Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused		None reported
Terrorism	Human-Caused		None reported
Transportation Accidents	Human-Caused		2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

# ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Bicky Rodman  
 Jurisdiction: (live in Franklin Township) County

Title: Adams County Environmental Planner

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments <i>Incident Data (2015-present)</i>
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	
Drought	Natural	D	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	I	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I fallen I - more tree hazards to bridge infrastructure Flood and Flash Flood - I Ice Jam - NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	I Threat I - this is very concerning RE: crops, esp. this	(NCEI) fruit belt - damages
Hurricane, Tropical Storm, Nor'easter	Natural	effects - I	None Reported (NCEI)
Invasive Species	Natural	I - spotted lantern fly is a huge risk to county	912 Invasive Species (PA DCNR) → fruit belt wine grapes nurseries
Landslide/Erosion	Natural	Landslide - NC Erosion - I	N/A
Pandemic and Infectious Disease	Natural	I	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	Tornado - NC Windstorm - I	High Wind: 3 (NCEI)
Wildfire	Natural	NC most wildfires in PA caused by open	None Reported (NCEI) burning - needs mitigated by state
Winter Storm	Natural	Ice Storms - I downed wires/trees	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	Since Big Millers Chemical Fire - NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.) no open burning of trash debris
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC - mass shooting is a threat	None reported
Transportation Accidents	Human-Caused		2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure *Radon is not threat addressed well on the local level*
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Civil Disturbance *protesting groups come to use the National Park periodically*
- Disorientation
- Drowning
- Mass Food/Animal Feed Contamination *Swine Flu threat*
- Urban Fire and Explosion *aging gas lines*
- Utility Interruption *need to set up more micro grids*
- War and Criminal Activity *these groups ensure hospitals / nursing homes government buildings have*

**Other Comments:**

Who will lead the County in implementing the provisions of the Plan, over the course of the next 5 years?

operational generators sufficient fuel supplies

How can we support each other and rally the troops to actually complete mitigation plans?  
Will the state work with us as a partner?

How can we incorporate some of our Chesapeake Bay Watershed Implementation into this process?

MOSQUITO AND TICK BORNE DISEASES INCREASING

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: \_\_\_\_\_  
 Jurisdiction: \_\_\_\_\_

Title: \_\_\_\_\_

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	D	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	I	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	I	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	-	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	-	None reported
Terrorism	Human-Caused	I	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Jurisdiction: \_\_\_\_\_

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	<i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I - INCREASED FLASH FLOODING WITH RAIN EVENTS THAT ARE HIGH INTENSITY AND SHORT DURATION.	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	I - TOWNSHIP DEALS WITH INVASIVE SPECIES ALONG RIPARIAN CORRIDORS.	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	I - TOWNSHIP DEALS BANK EROSION (IN HIGH FLOW RAIN/FLOOD EVENTS)	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	I - TOWNSHIP DEALS INCREASED DEVELOPMENT AND LARGER RISK FOR SINKHOLES IN KARST GEOLOGICAL AREAS	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Jurisdiction: \_\_\_\_\_

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
* Flood, Flash Flood, Ice Jam	Natural	I	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
* Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	I	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: JOE LACHOWSKI  
 Jurisdiction: NATIONAL PARK SERVICE

Title: CHIEF RANGER

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	<i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: Pete Dalree  
 Jurisdiction: Oxford Twp. Adams County

Title: Fire Chief

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?  NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	Additional Comments <i>Incident Data (2015-present)</i>
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	I	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	I	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	I <i>Chronic wasting disease, beetles</i>	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- |  |   |
|--|---|
| <input type="checkbox"/> Expansive Soils | <input type="checkbox"/> Lightning Strike |
| <input type="checkbox"/> Radon Exposure  |   |

Human-Caused Hazards

- |  |   |
|--|---|
| <input type="checkbox"/> Building or Structure Collapse      | <input checked="" type="checkbox"/> Civil Disturbance |
| <input type="checkbox"/> Disorientation                      | <input type="checkbox"/> Drowning                     |
| <input type="checkbox"/> Mass Food/Animal Feed Contamination | <input type="checkbox"/> Urban Fire and Explosion     |
| <input type="checkbox"/> Utility Interruption                | <input type="checkbox"/> War and Criminal Activity    |

**Other Comments:**

CIVIL WAR SITES HAVE THE POSSIBILITY TO ATTRACT LARGE PROTESTS.

## ADAMS COUNTY HAZARD MITIGATION PLAN – HAZARDS FOR CONSIDERATION

Name: John Aldridge  
 Jurisdiction: Union Township

Title: Supervisor

Identified Hazards 2015 HMP	Type	Has the frequency of occurrence, magnitude of impact, and/or geographic extent changed in your community?	Additional Comments <i>Incident Data (2015-present)</i>
		NC = No Change, I = Increase, D = Decrease <i>(Please provide an explanation for any hazards marked I or D)</i>	
Drought	Natural	NC	None Reported (NCEI)
Earthquake	Natural	NC	None reported (USGS)
Extreme Temperature	Natural	NC	Extreme Cold: 1 Extreme Heat: 2 (NCEI)
Flood, Flash Flood, Ice Jam	Natural	NC	Flood: 1 Flash Flood: 2 (NCEI)
Hailstorm	Natural	NC	5 (NCEI)
Hurricane, Tropical Storm, Nor'easter	Natural	NC	None Reported (NCEI)
Invasive Species	Natural	NC	912 Invasive Species (PA DCNR)
Landslide/Erosion	Natural	NC	N/A
Pandemic and Infectious Disease	Natural	NC	485 cases of communicable diseases reported to PA Dept. Health 2015-2017
Subsidence, Sinkhole	Natural	NC	Sinkholes: 0 Depressions: 33 (USGS)
Tornado, Windstorm	Natural	NC	High Wind: 3 (NCEI)
Wildfire	Natural	NC	None Reported (NCEI)
Winter Storm	Natural	NC	8 (NCEI)
Dam Failure	Human Caused	NC	None Available (NPDP)
Environmental Hazards: Hazmat Release	Human-Caused	NC	Hazardous material release in prison kitchen (2017), blue substance in Hanover stream (York Co.)
Nuclear Incident	Human-Caused	NC	None reported
Terrorism	Human-Caused	NC	None reported
Transportation Accidents	Human-Caused	NC	2015: 990 2016: 1,018 2017: 1,002 (PennDOT)

We have the biggest standard Bread horse farm in the county Hanover Horse Farms about 3,000 Acres. That is the biggest employer The rest of the Township is Ag with some development around Littlestown, PA.

**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

**Other Comments:**



**Other Hazards:**

Do any of the following hazards, not previously profiled in the hazard mitigation plan, have the potential to affect your municipality (or department) significantly?

Natural Hazards

- Expansive Soils
- Radon Exposure
- Lightning Strike

Human-Caused Hazards

- Building or Structure Collapse
- Disorientation
- Mass Food/Animal Feed Contamination
- Utility Interruption
- Civil Disturbance
- Drowning
- Urban Fire and Explosion
- War and Criminal Activity

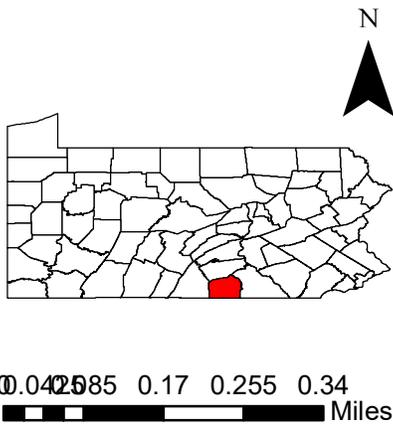
**Other Comments:**

## **APPENDIX D: LOCAL MUNICIPAL FLOOD VULNERABILITY MAPS**

This appendix contains maps of the participating municipalities with special flood hazard areas and community assets identified.



-  Abbottstown Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



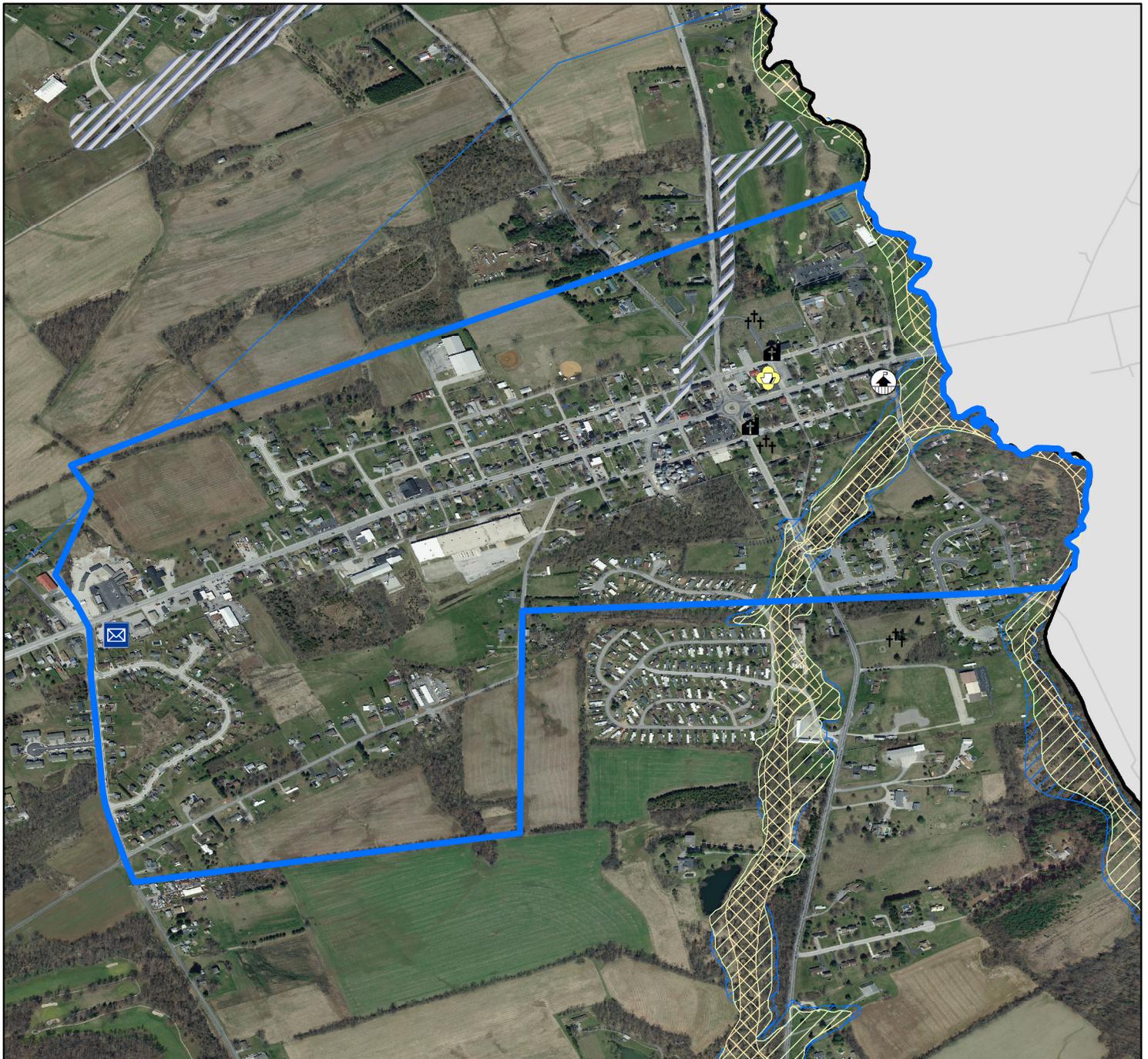
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Abbottstown Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

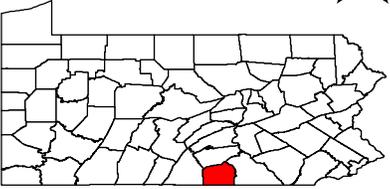


	Abbottstown Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Abbottstown Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA

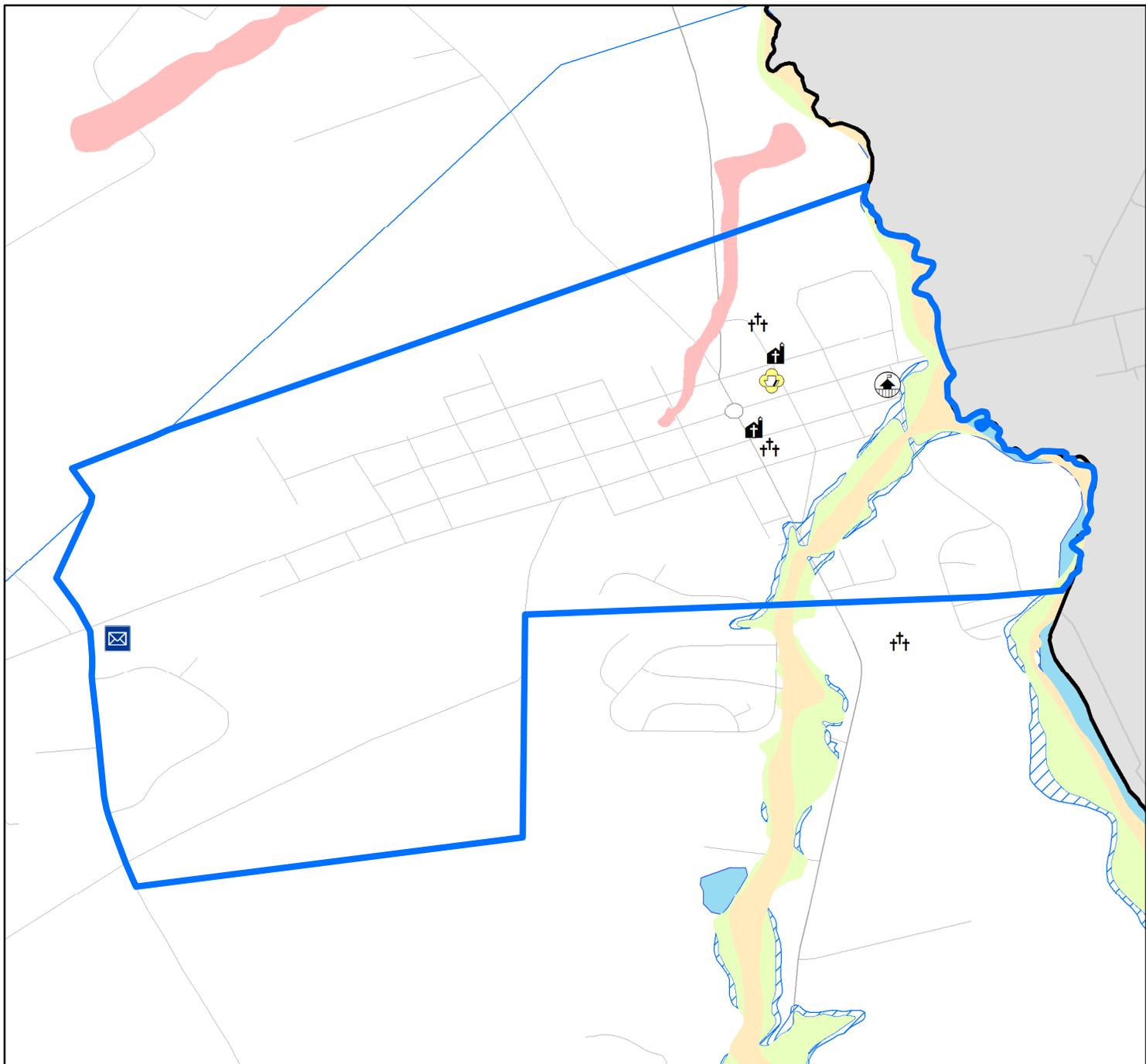
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Miles



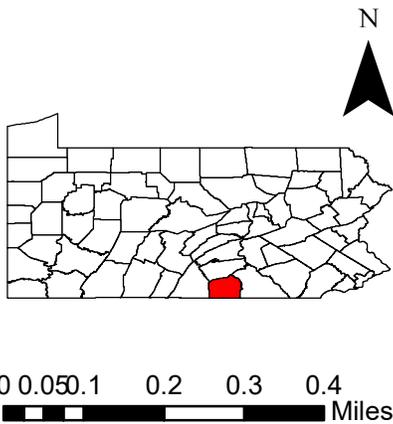


*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*





-  Arendtsville Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Arendtsville Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

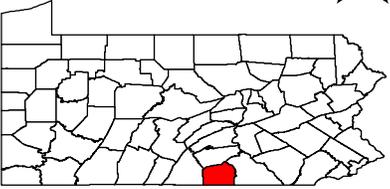


	Arendtsville Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

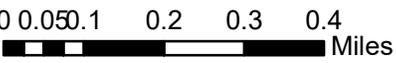
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Arendtsville Borough**

Data Source(s):  
ACOPD, FEMA,  
PASDA

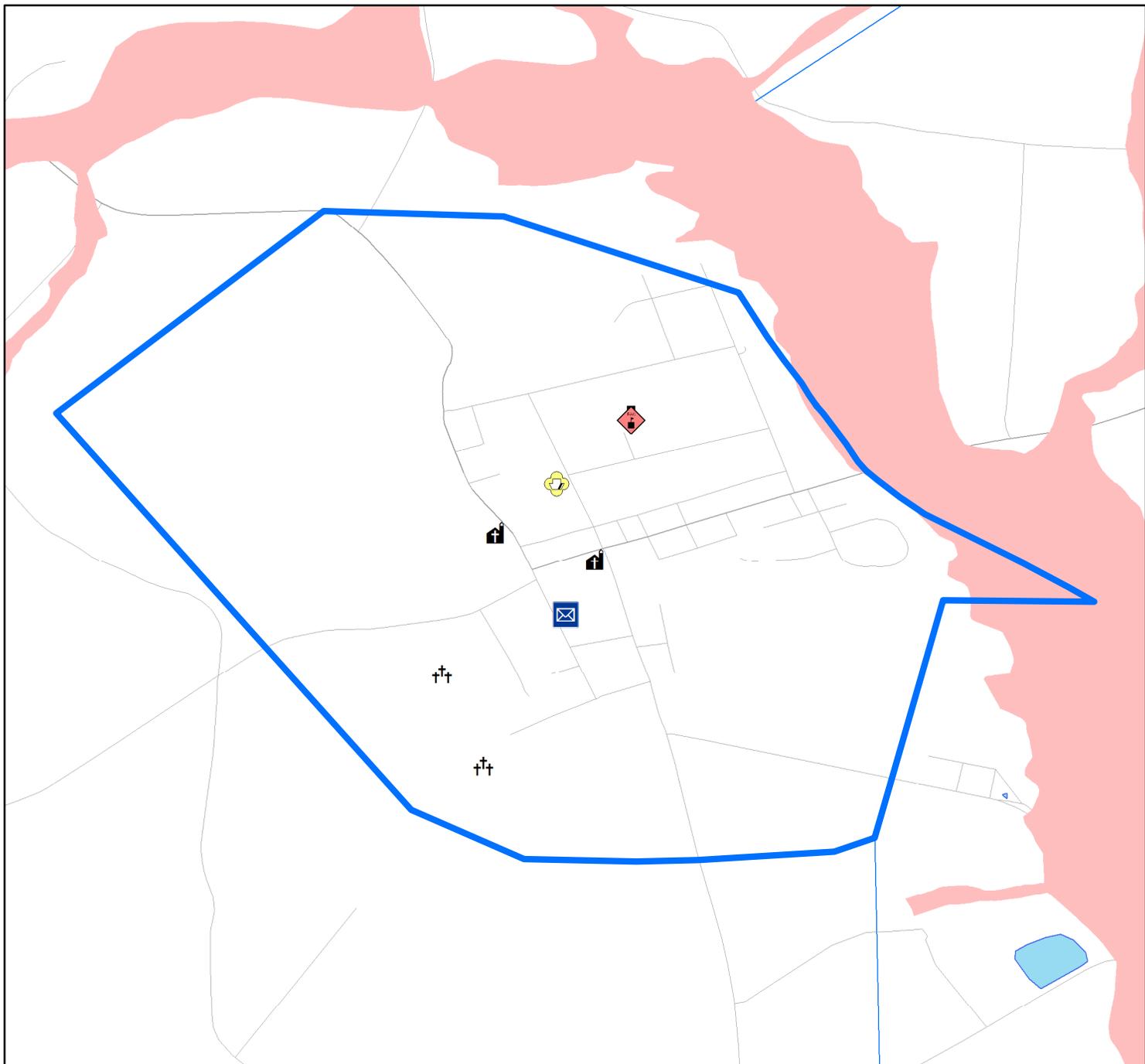
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Miles



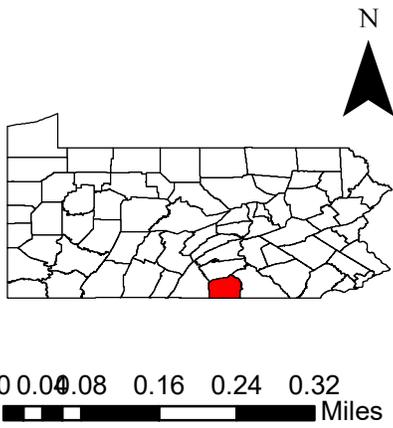


*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*





-  Bendersville Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



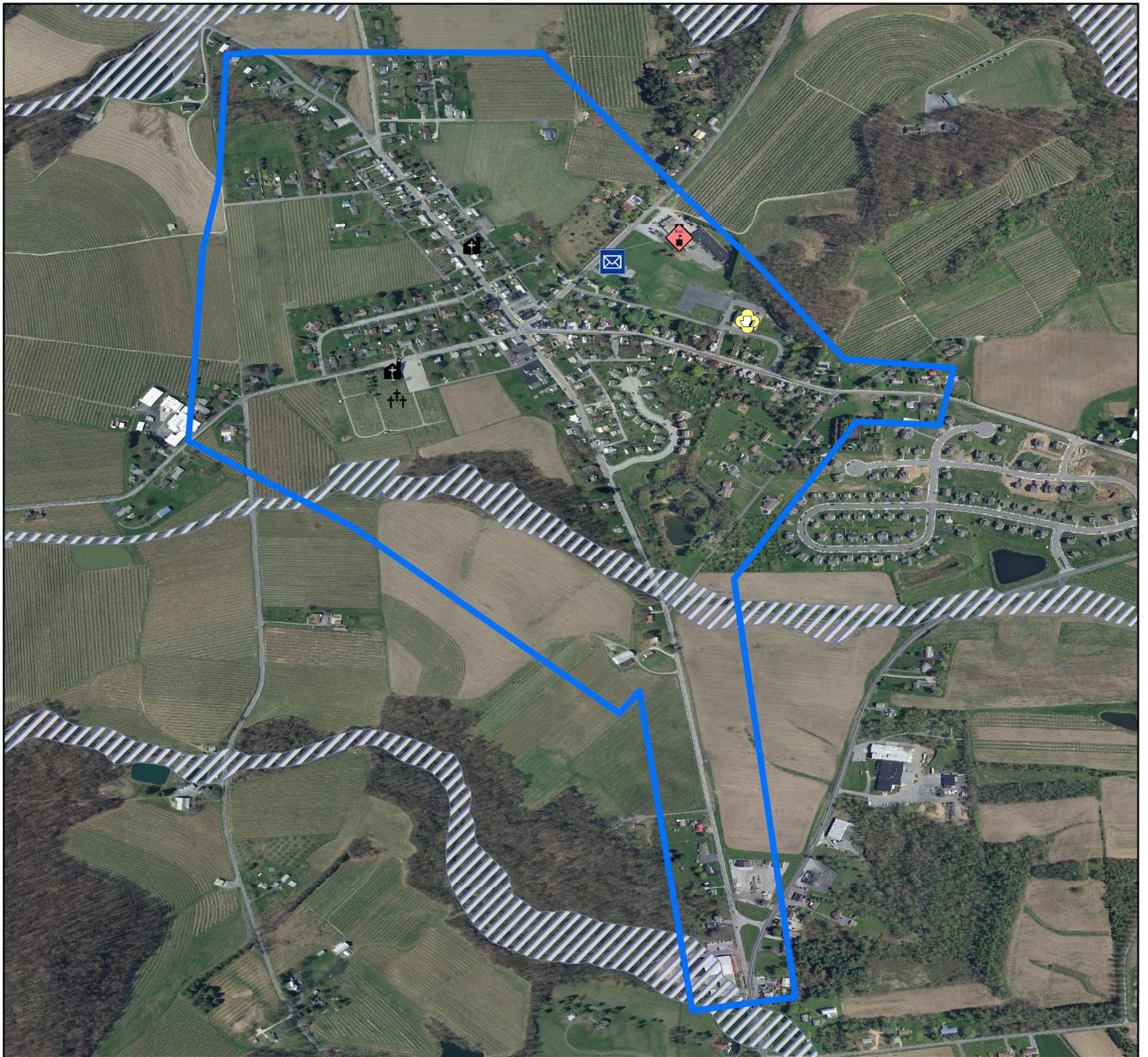
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Bendersville Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

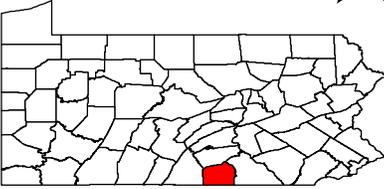


	Bendersville Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

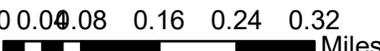
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Bendersville Borough**

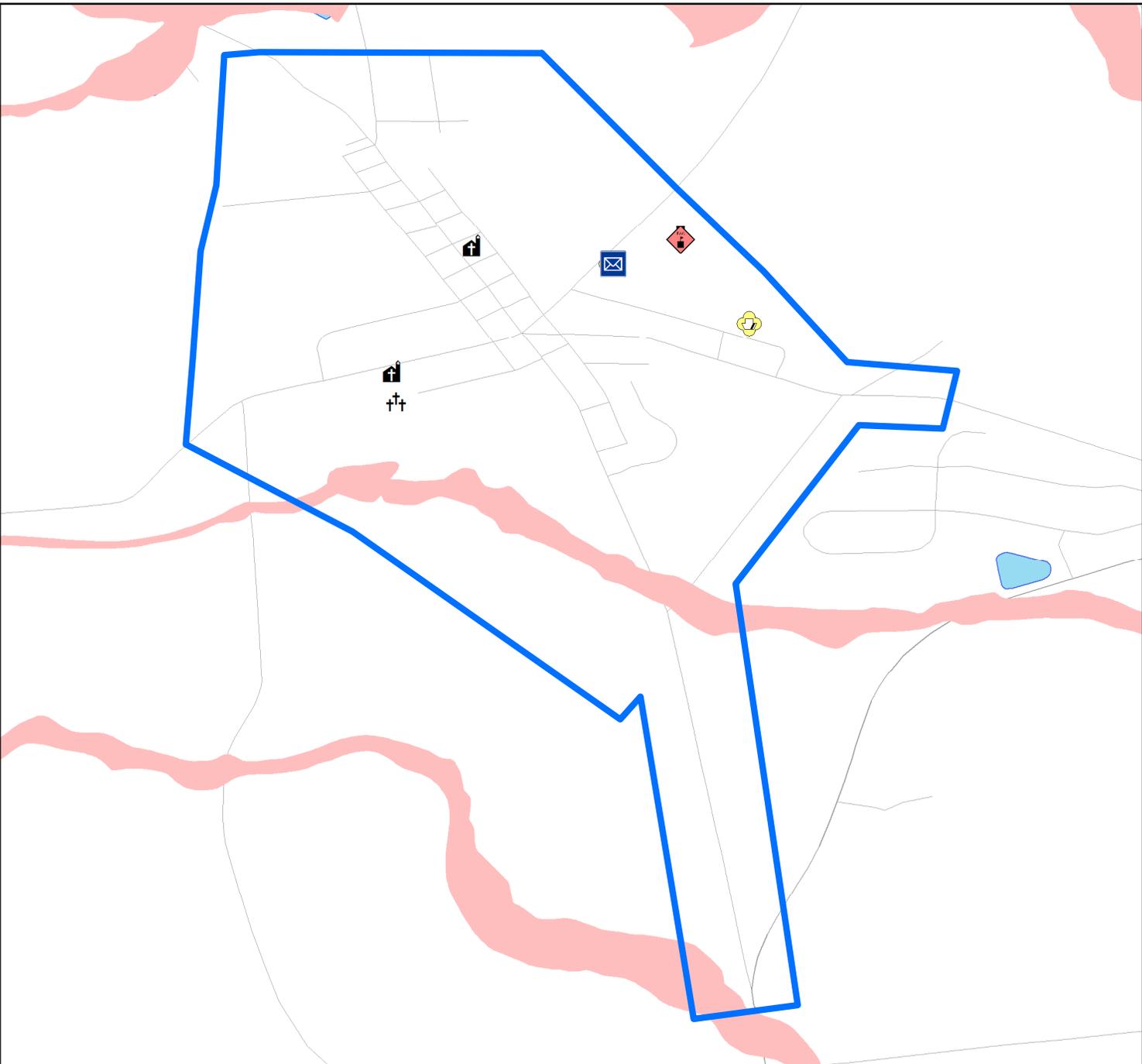
Data Source(s):  
ACOPD, FEMA,  
PASDA

0 0.04 0.08 0.16 0.24 0.32  
Miles



 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 

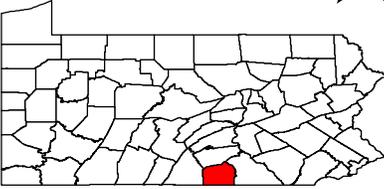


	Berwick Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

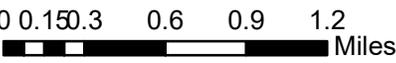
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Berwick Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

0 0.150.3 0.6 0.9 1.2  
Miles



 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 



	Berwick Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

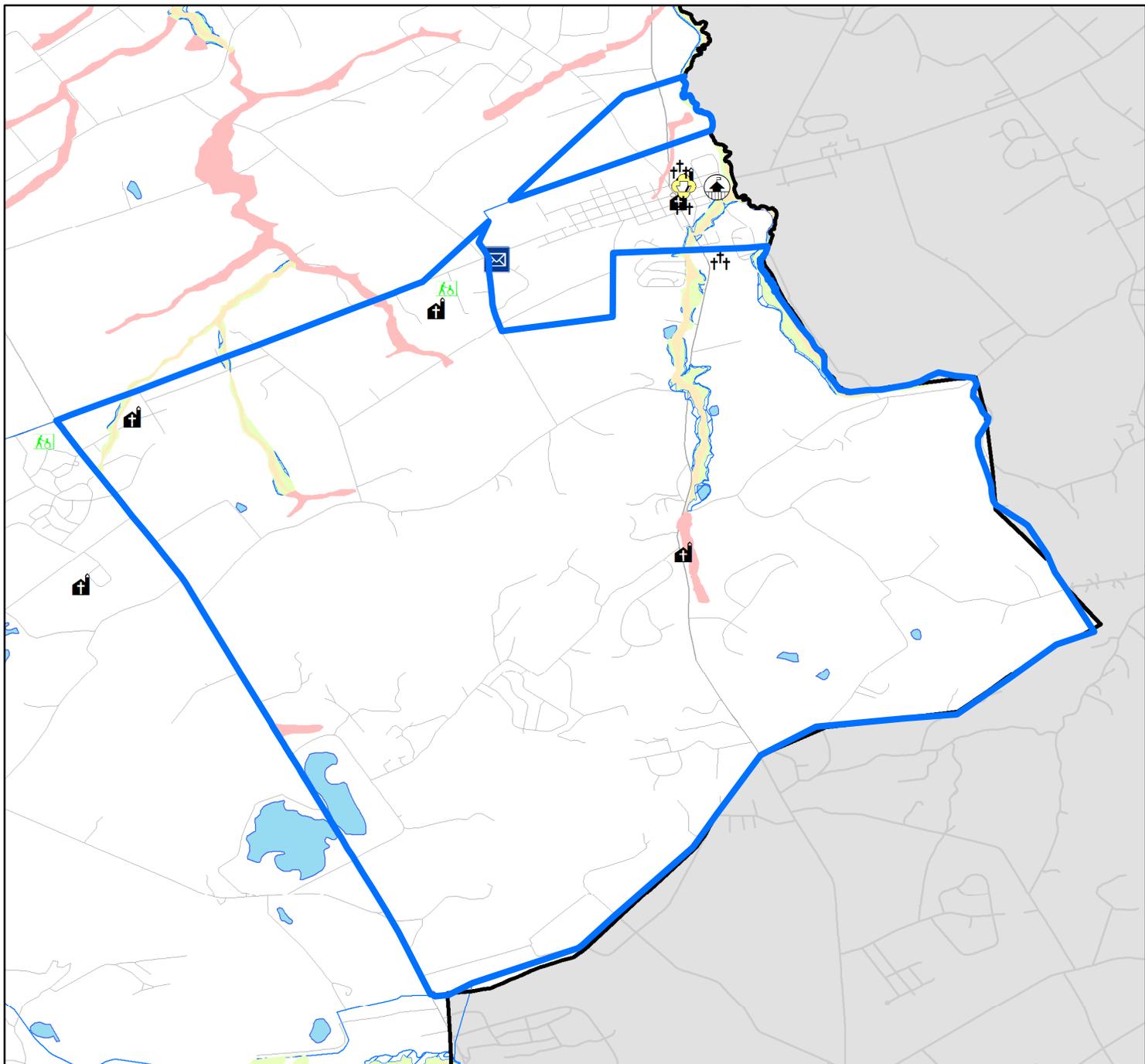
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Berwick Township

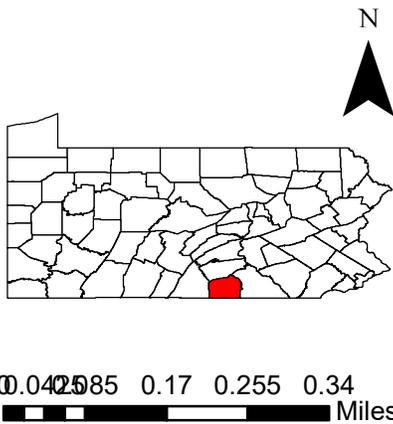
Data Source(s):  
ACOPD, FEMA, PASDA

0 0.150.3 0.6 0.9 1.2 Miles

*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



-  Biglerville Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Biglerville Borough

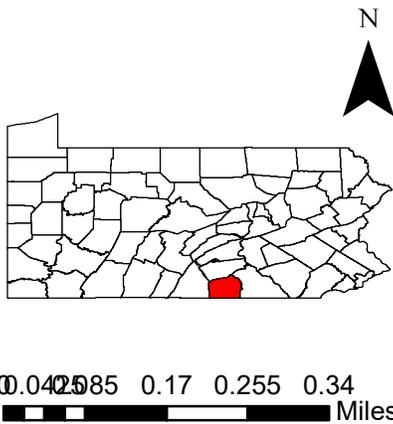
Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



-  Biglerville Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



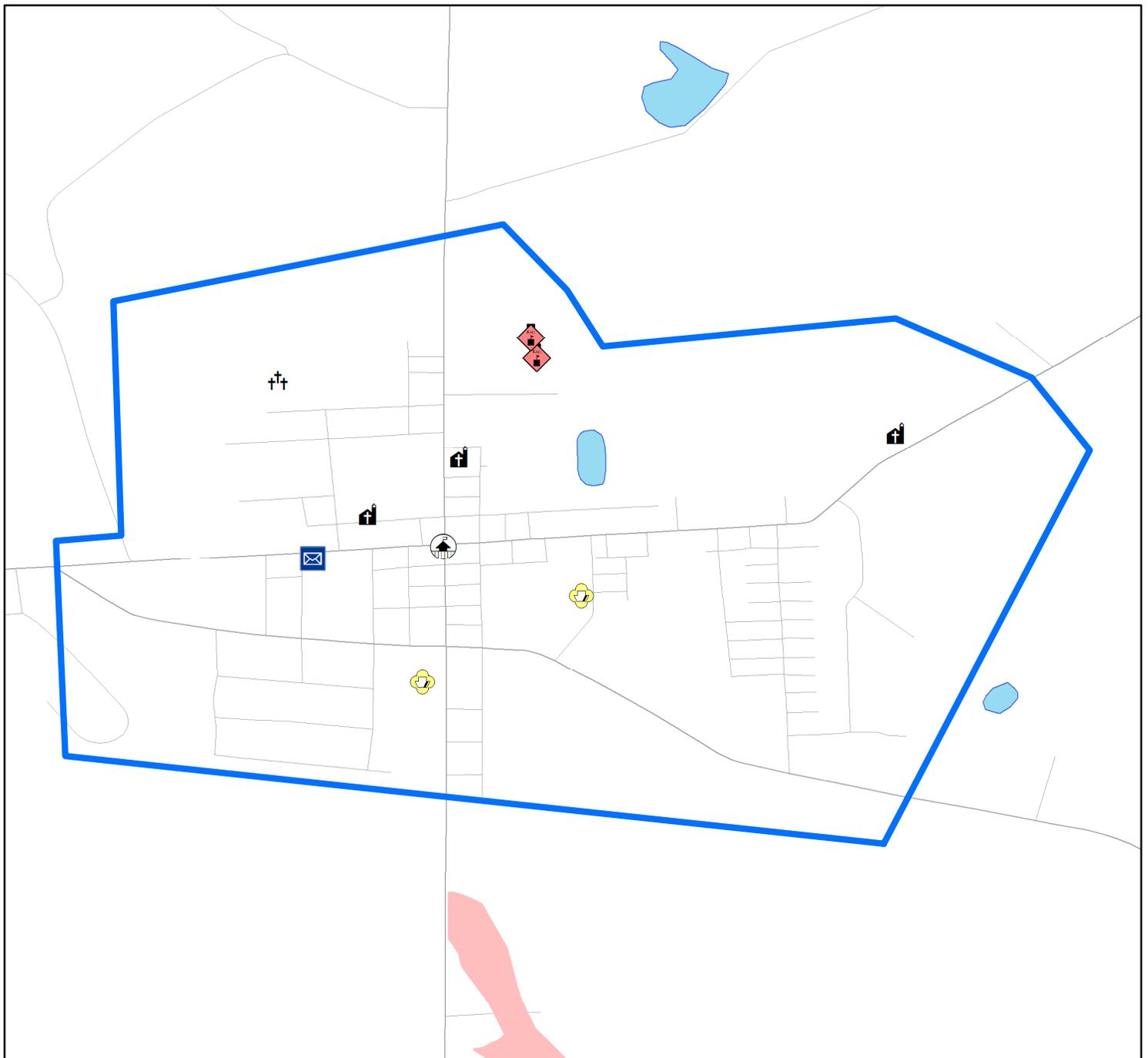
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Biglerville Borough

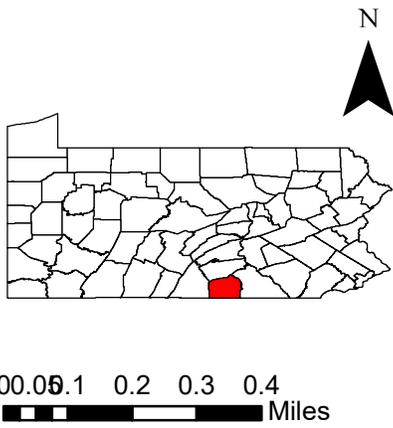
Data Source(s):  
ACOPD, FEMA,  
PASDA



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-  Bonneville Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



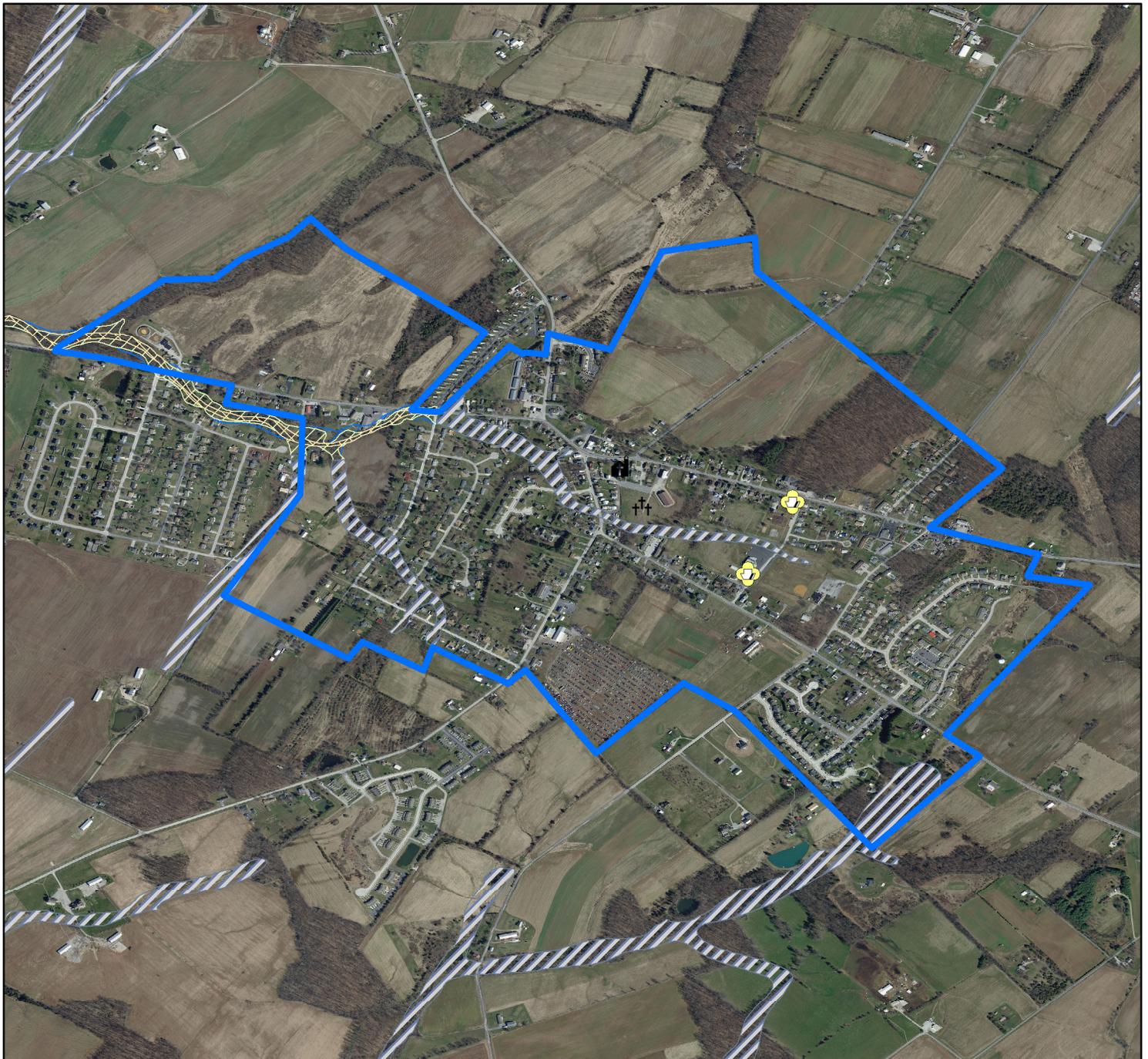
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Bonneville Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

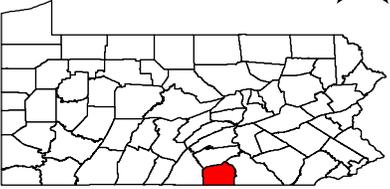


	Bonneauville Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

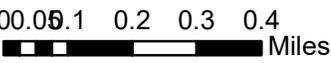
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Bonneauville Borough**

Data Source(s):  
ACOPD, FEMA,  
PASDA

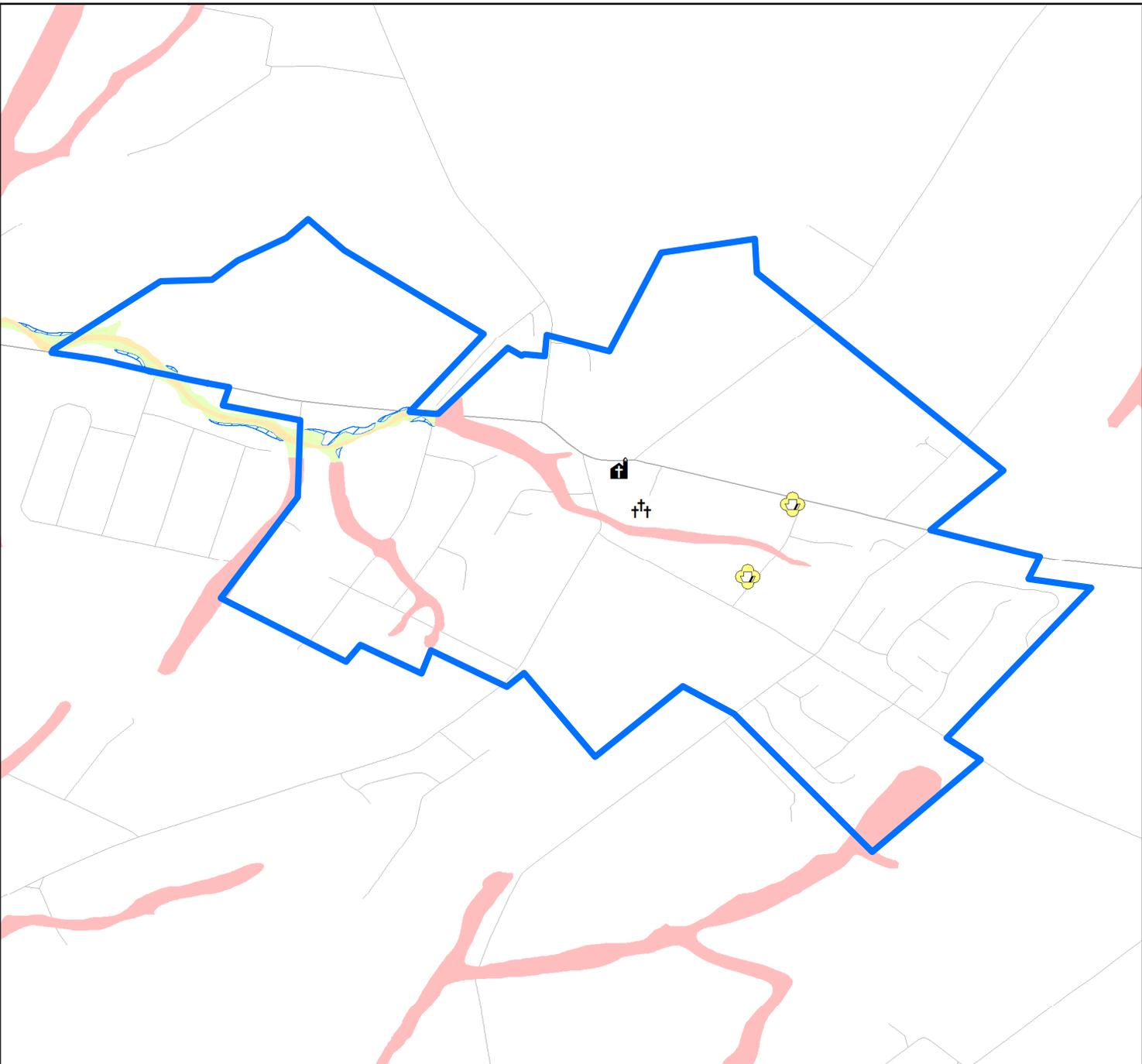
0.0 0.1 0.2 0.3 0.4  
Miles



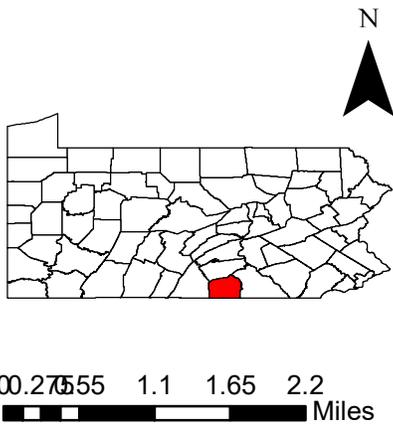


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-  Butler Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



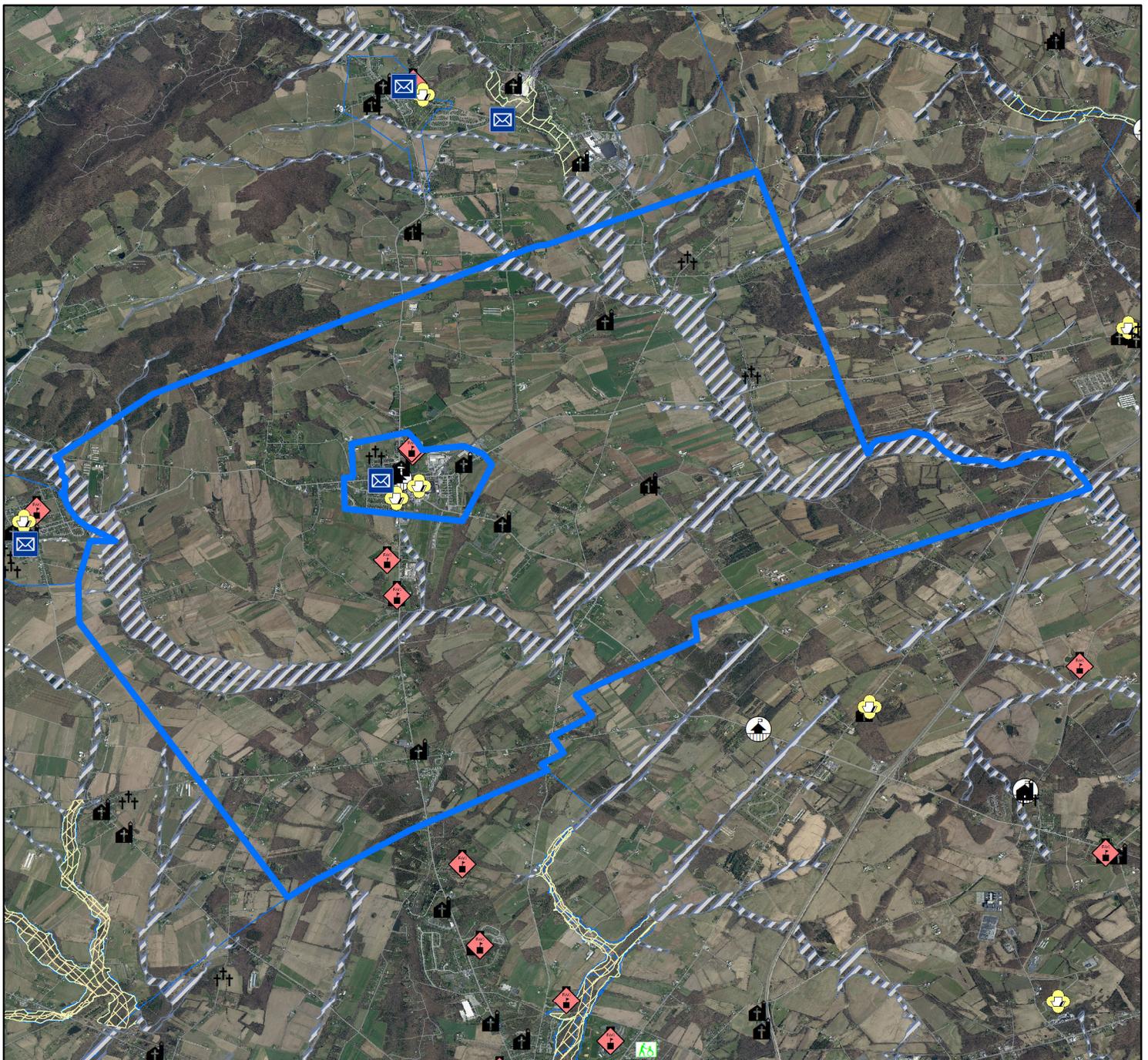
# ADAMS COUNTY HAZARD MITIGATION PLAN

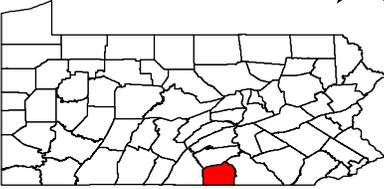
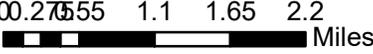
## Flood Vulnerability: Butler Township

Data Source(s):  
ACOPD, FEMA,  
PASDA

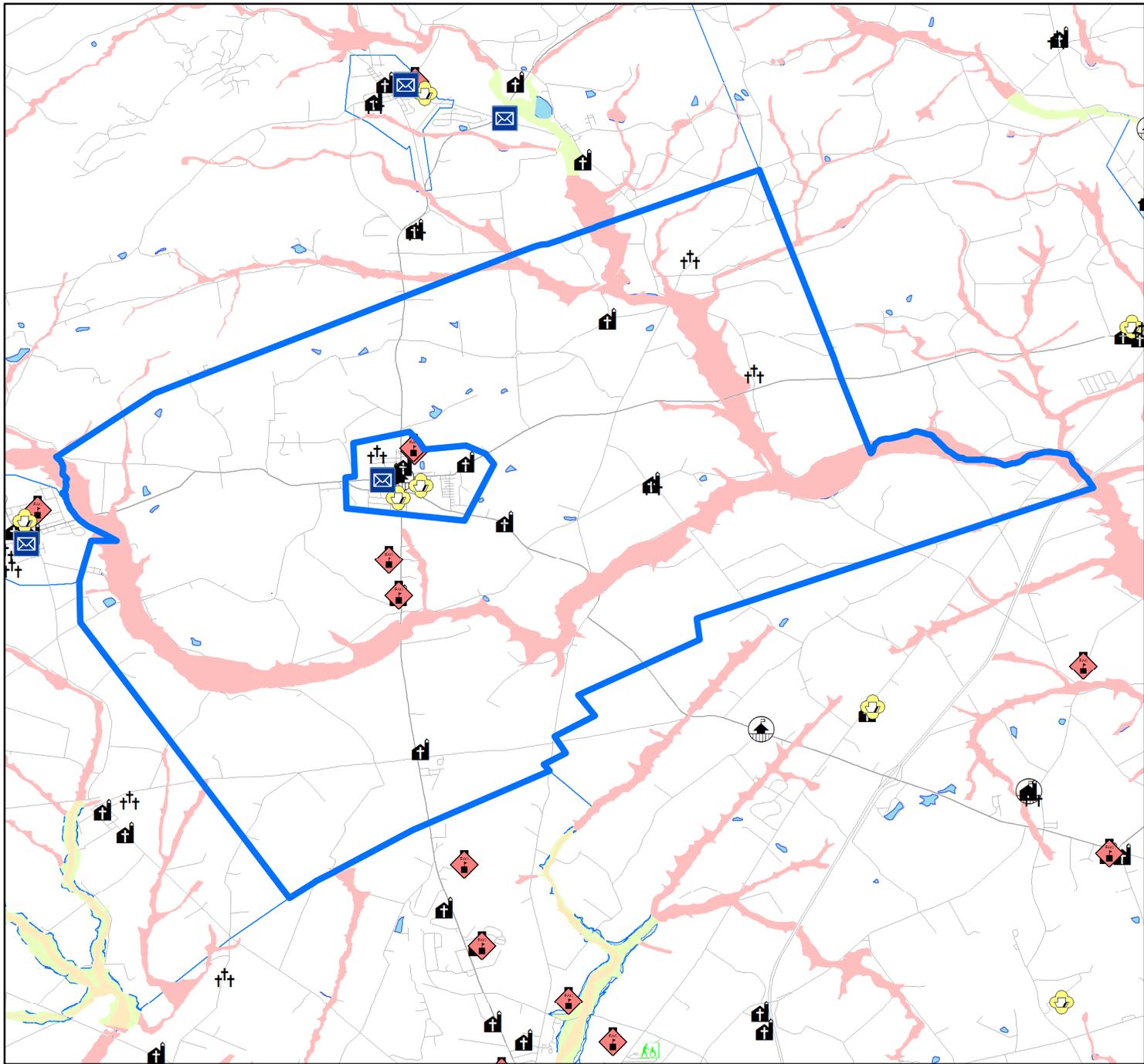


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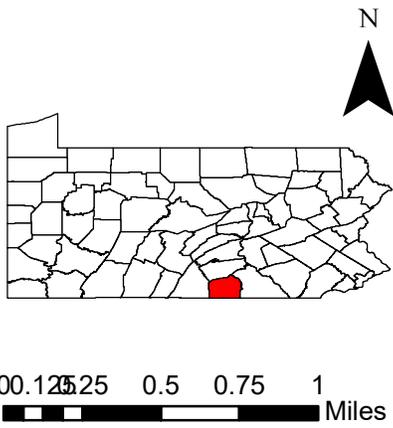


 Butler Township	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1> <h2>Flood Vulnerability: Butler Township</h2> <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Floodway		
 Health & Medical Facilities	 Zone A		
 Cemeteries	 Zone AE		
 Government & Military Facilities	 Zone AO		
	 0.2% Annual Chance		

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-  Carroll Valley Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

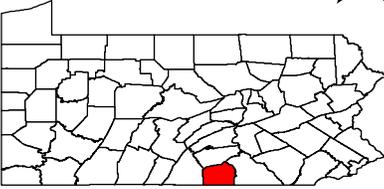
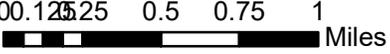
## Flood Vulnerability: Carroll Valley Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



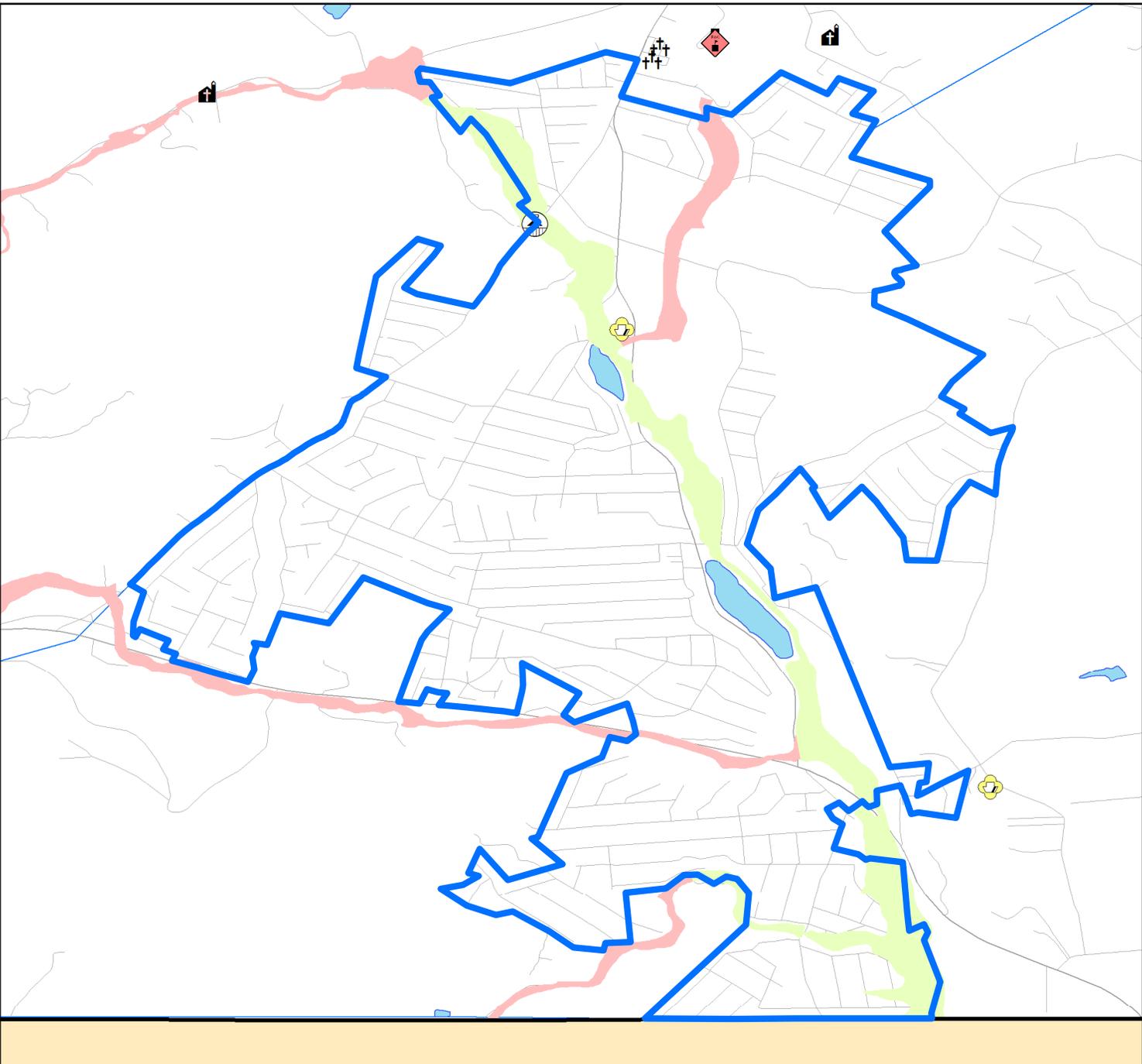
*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



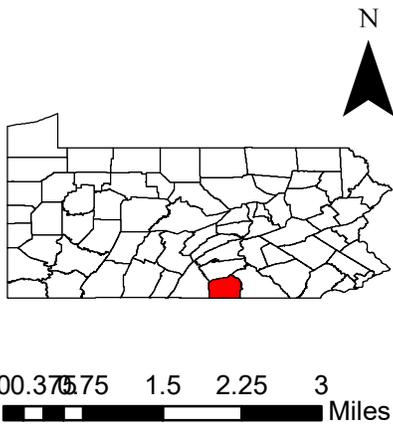
 Carroll Valley Borough	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1> <h2>Flood Vulnerability: Carroll Valley Borough</h2> <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Floodway		
 Health & Medical Facilities	 Zone A		
 Cemeteries	 Zone AE		
 Government & Military Facilities	 Zone AO		
	 0.2% Annual Chance		



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-  Cumberland Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



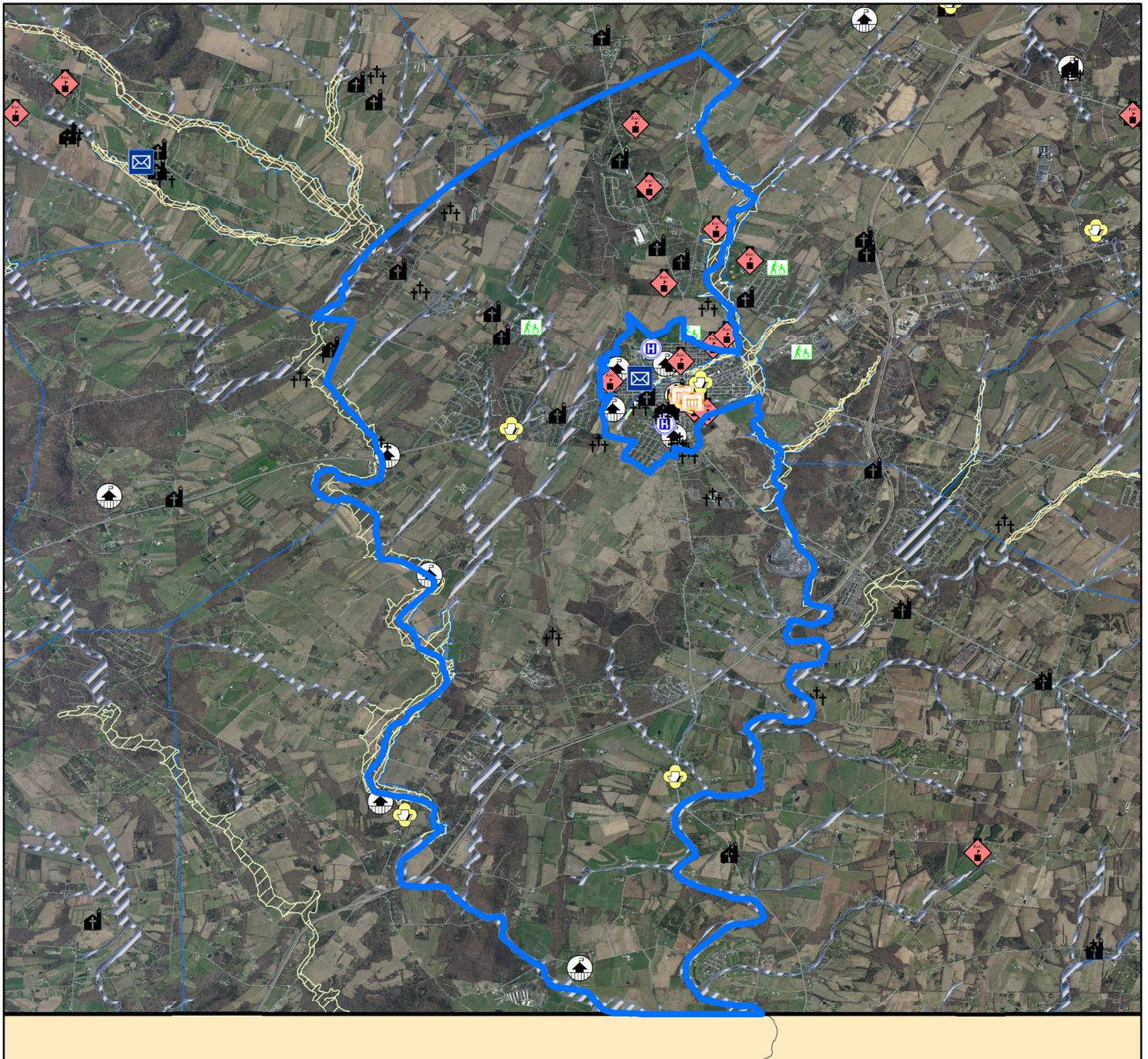
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Cumberland Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



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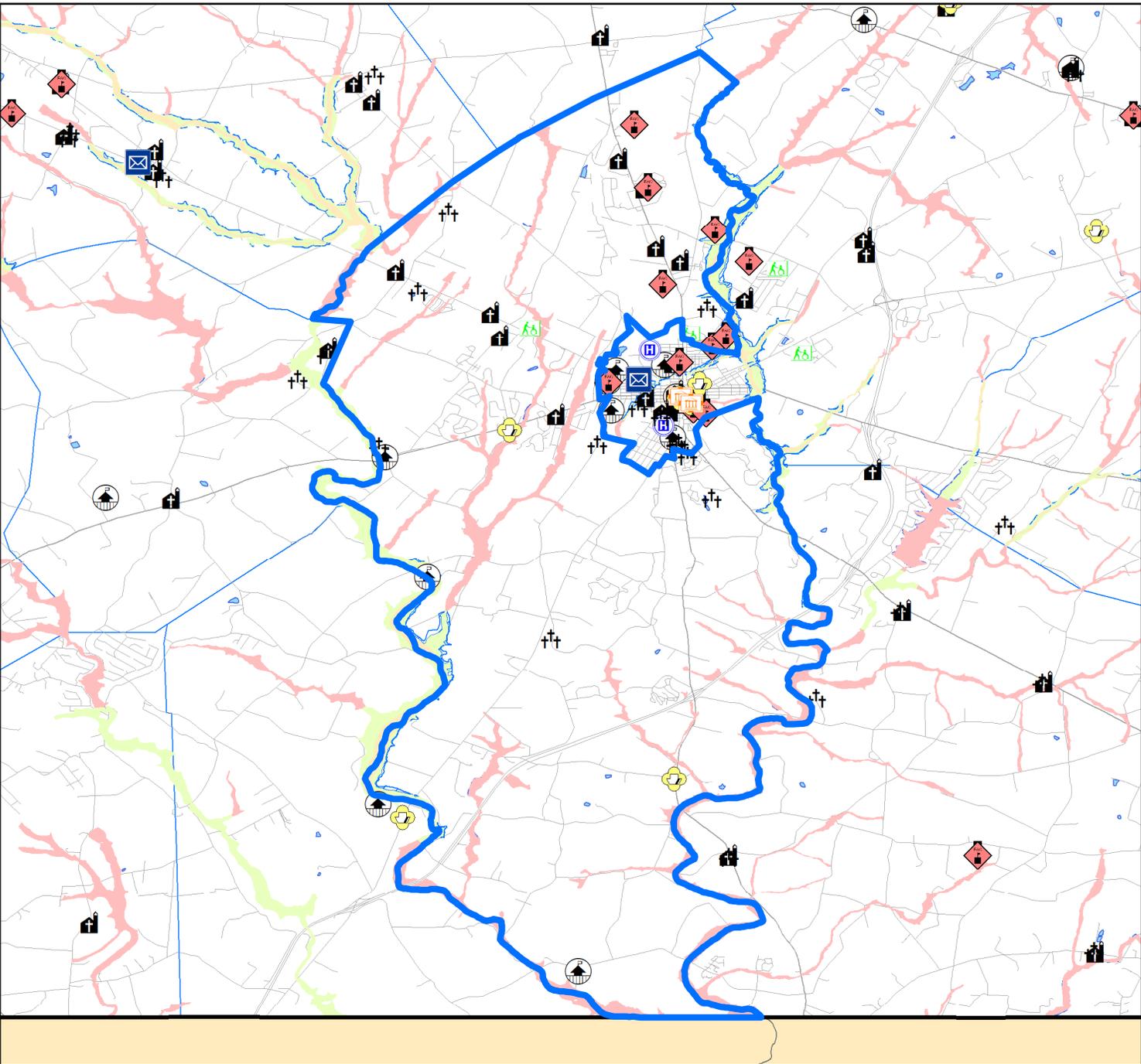
	Cumberland Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

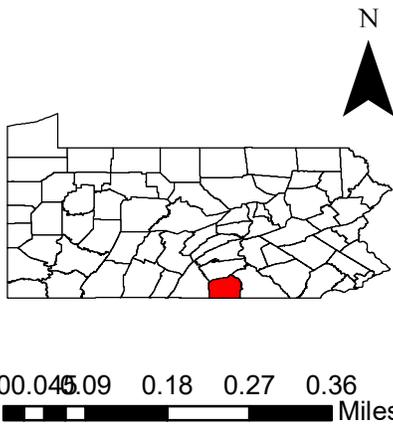
**Flood Vulnerability:  
Cumberland Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

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- |  |                                  |   |                                   |
|--|----------------------------------|---|-----------------------------------|
|  | East Berlin Borough              |  | Nursing, Personal Care Facilities |
|  | Educational Facilities           |  | Churches                          |
|  | Emergency Services Facilities    |  | Historic/Cultural Site            |
|  | Mail & Shipping Facilities       |  | Floodway                          |
|  | Health & Medical Facilities      |  | Zone A                            |
|  | Cemeteries                       |  | Zone AE                           |
|  | Government & Military Facilities |  | Zone AO                           |
|  |                                  |  | 0.2% Annual Chance                |



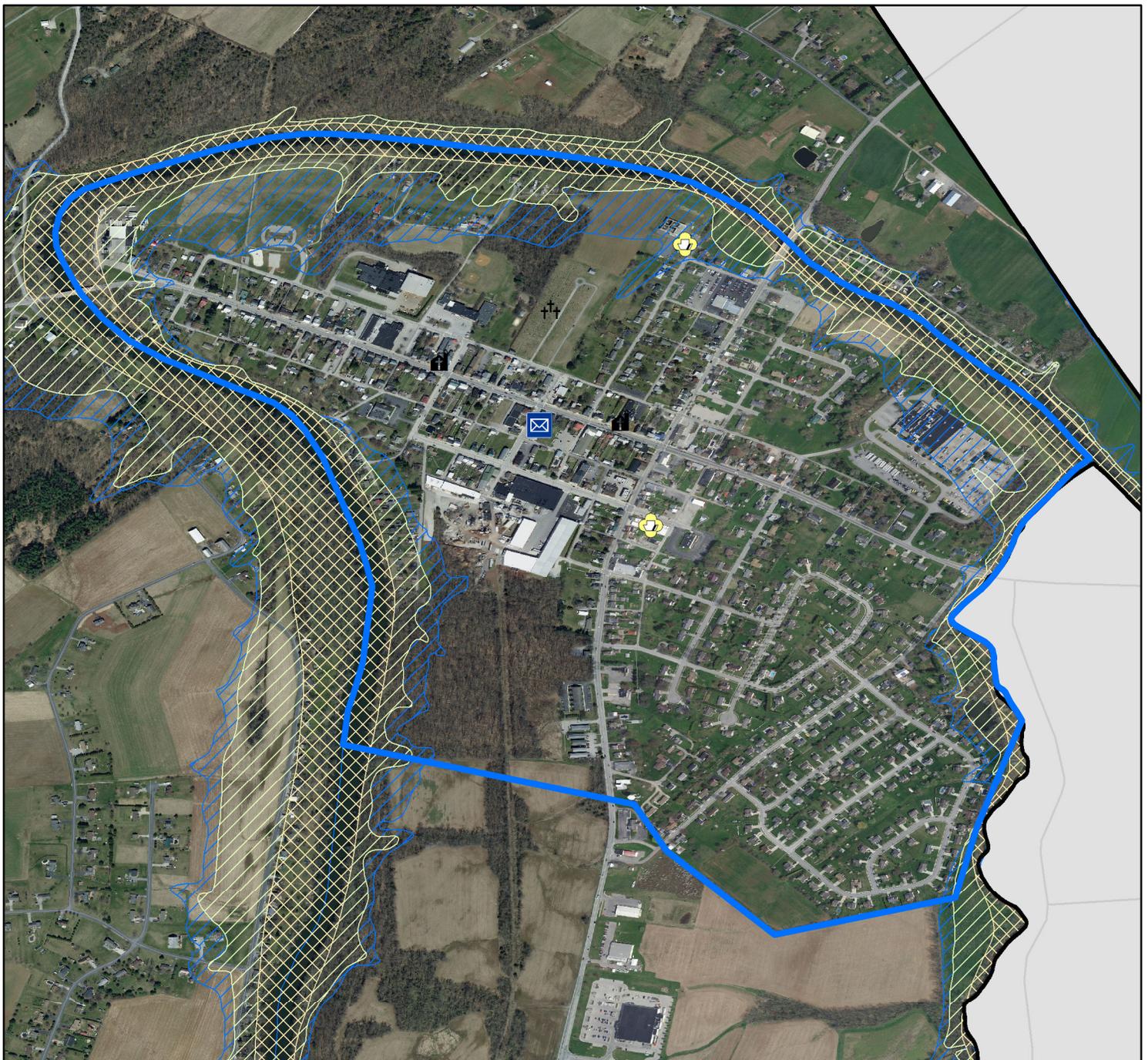
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: East Berlin Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



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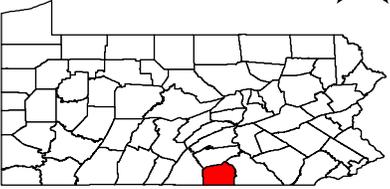


	East Berlin Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

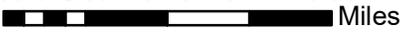
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
East Berlin Borough**

Data Source(s):  
ACOPD, FEMA,  
PASDA

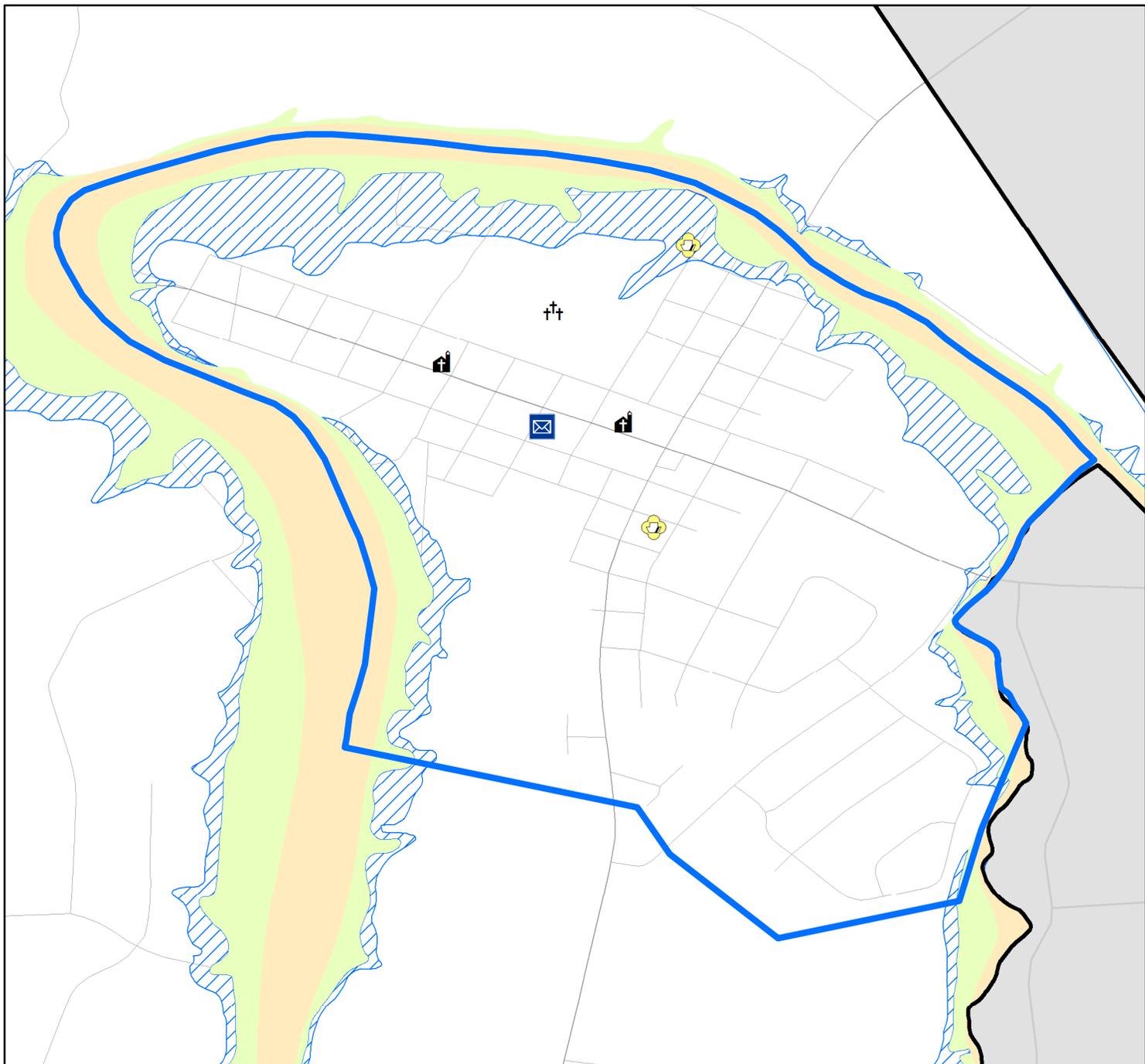
0.04 0.09 0.18 0.27 0.36  
Miles



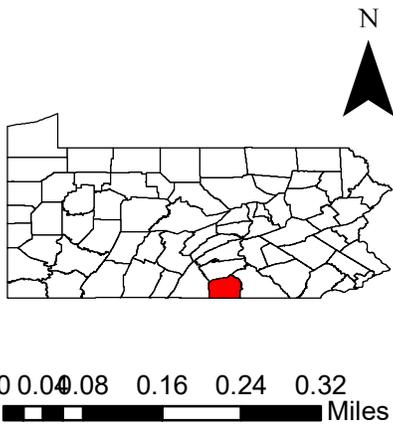


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-  Fairfield Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



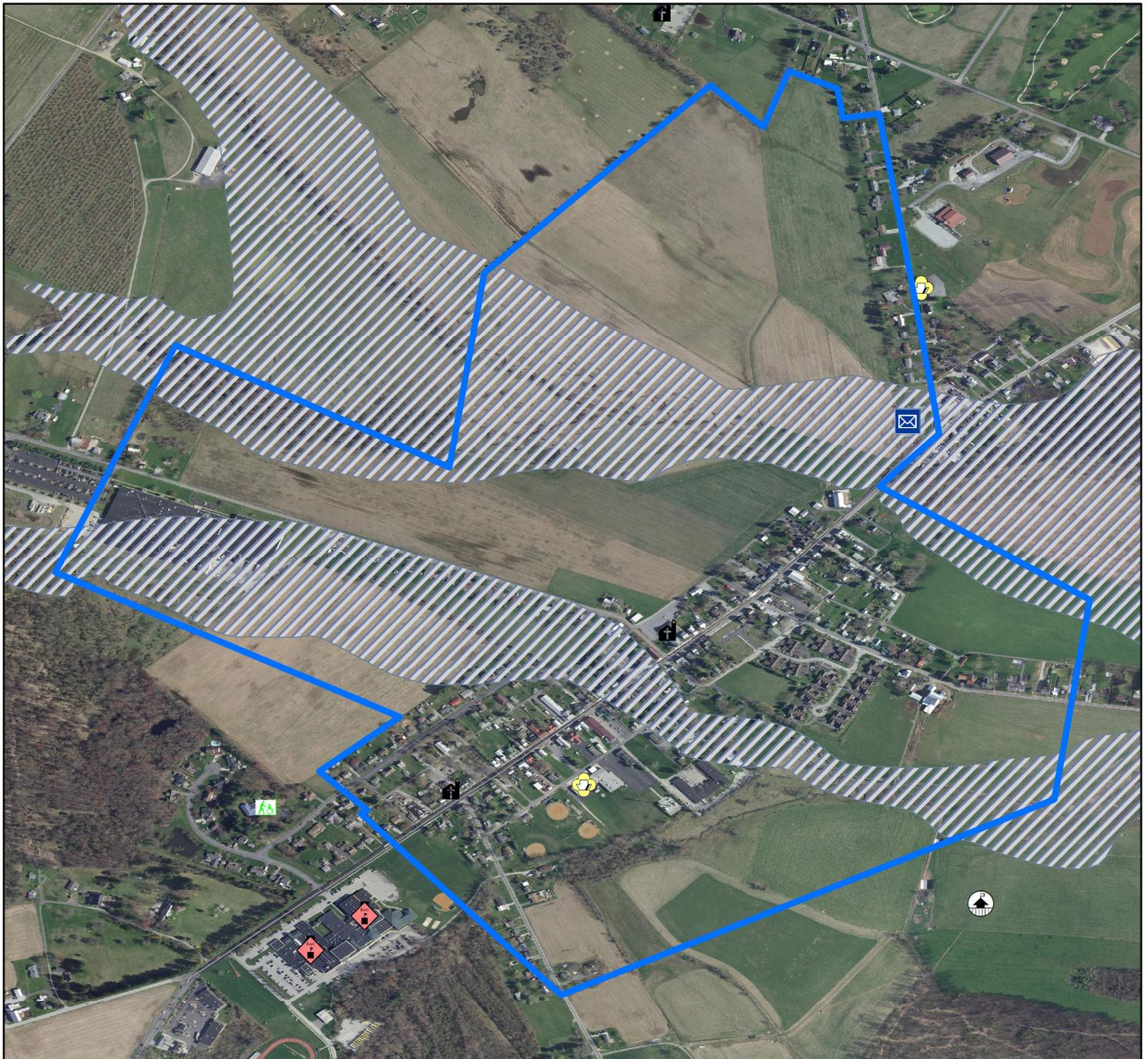
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Fairfield Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



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	Fairfield Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

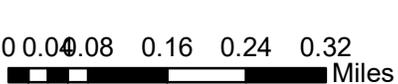
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Fairfield Borough

Data Source(s):  
ACOPD, FEMA, PASDA



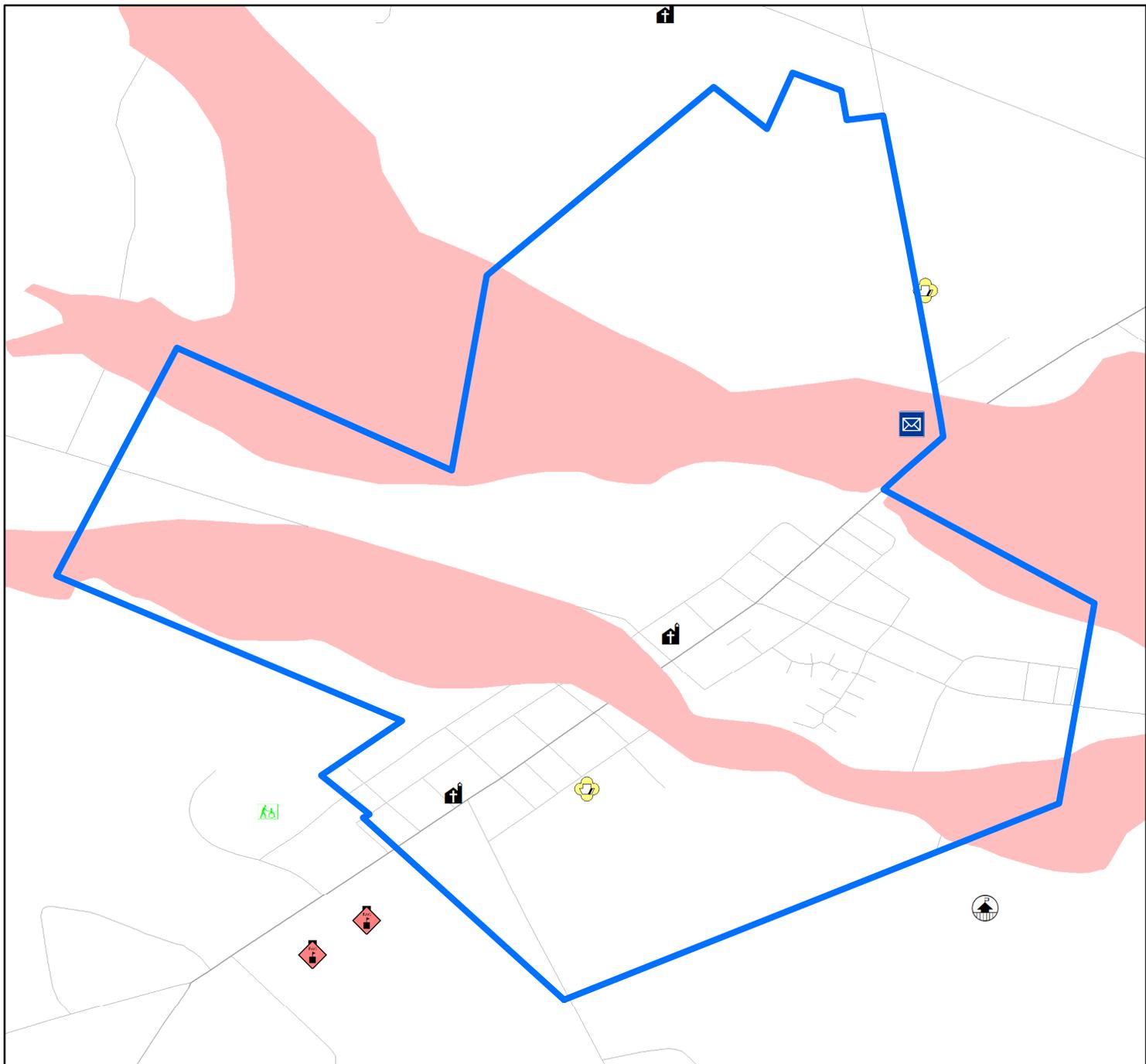

0 0.04 0.08 0.16 0.24 0.32 Miles





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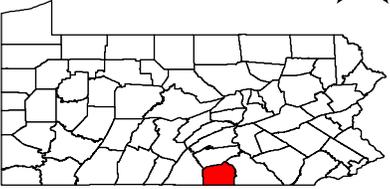


	Franklin Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

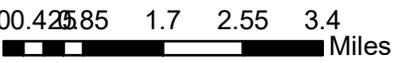
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Franklin Township**

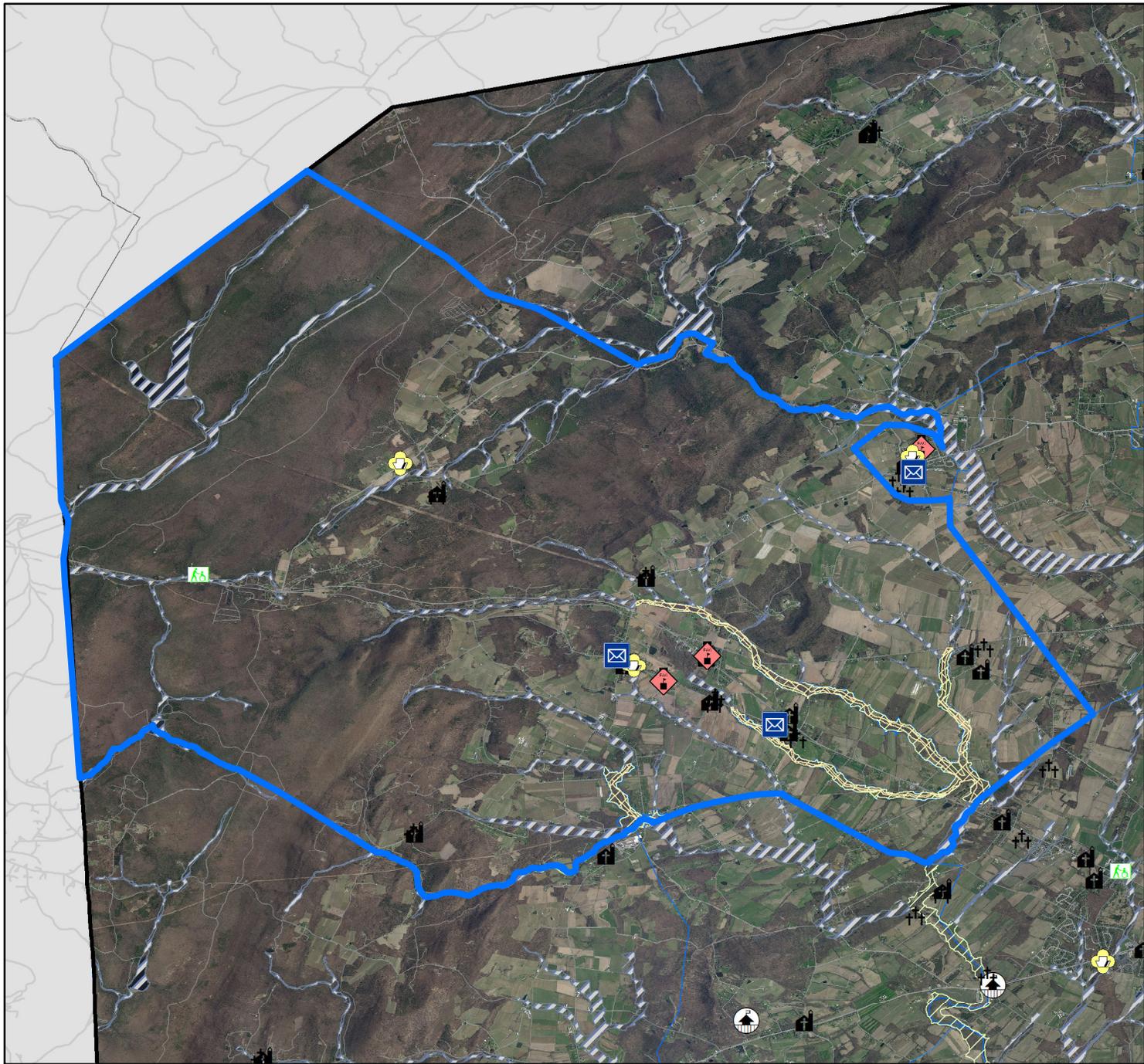
Data Source(s):  
ACOPD, FEMA,  
PASDA

0.42 0.85 1.7 2.55 3.4  
Miles



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	Franklin Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

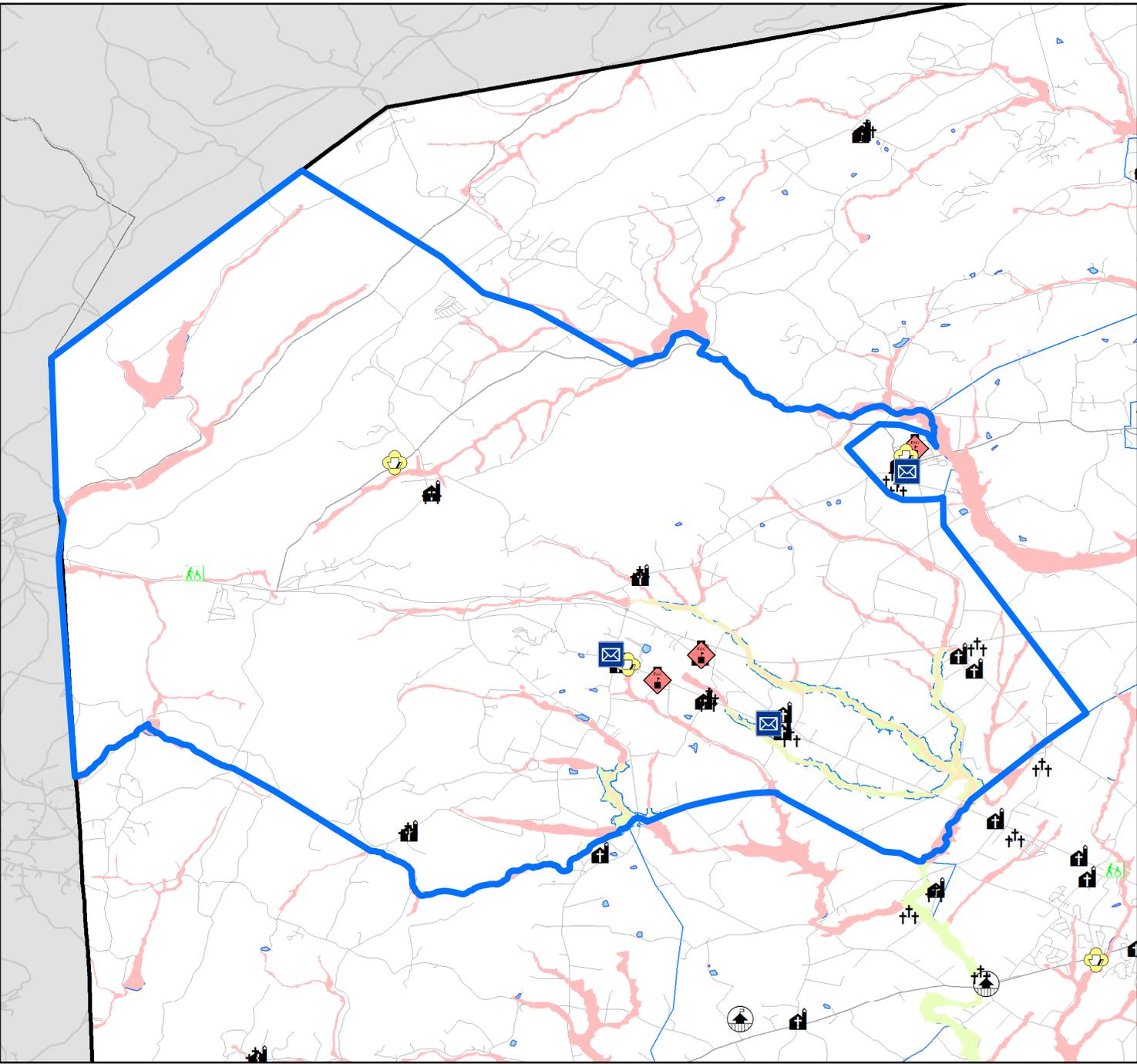
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Franklin Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

0.4 0.85 1.7 2.55 3.4  
Miles

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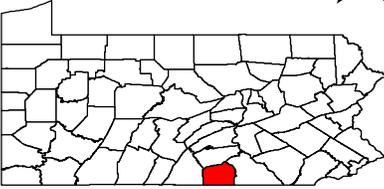


	Freedom Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

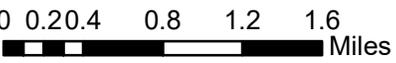
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Freedom Township**

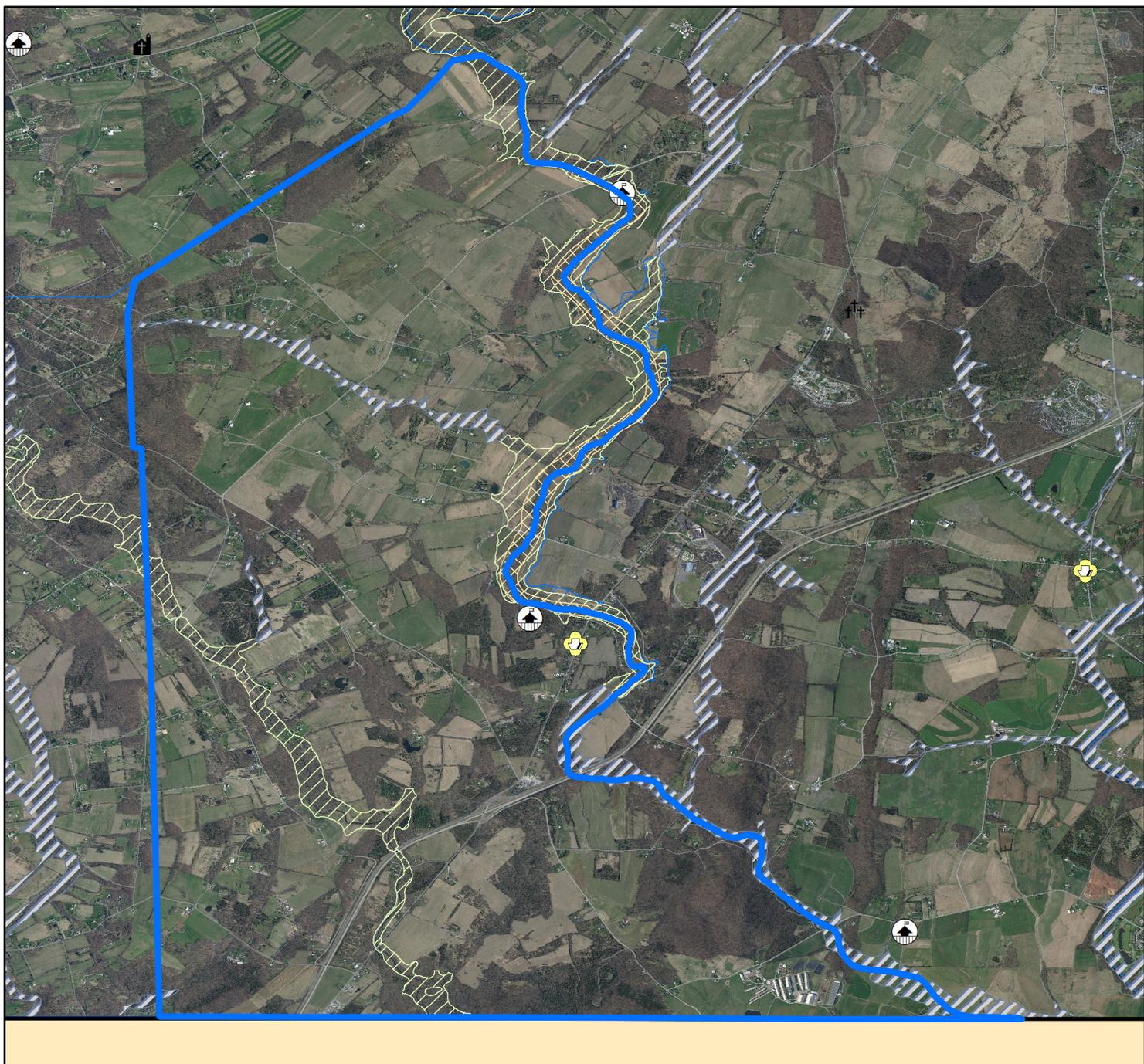
Data Source(s):  
ACOPD, FEMA,  
PASDA

0 0.2 0.4 0.8 1.2 1.6 Miles



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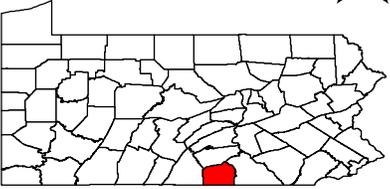


	Freedom Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

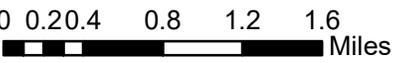
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Freedom Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

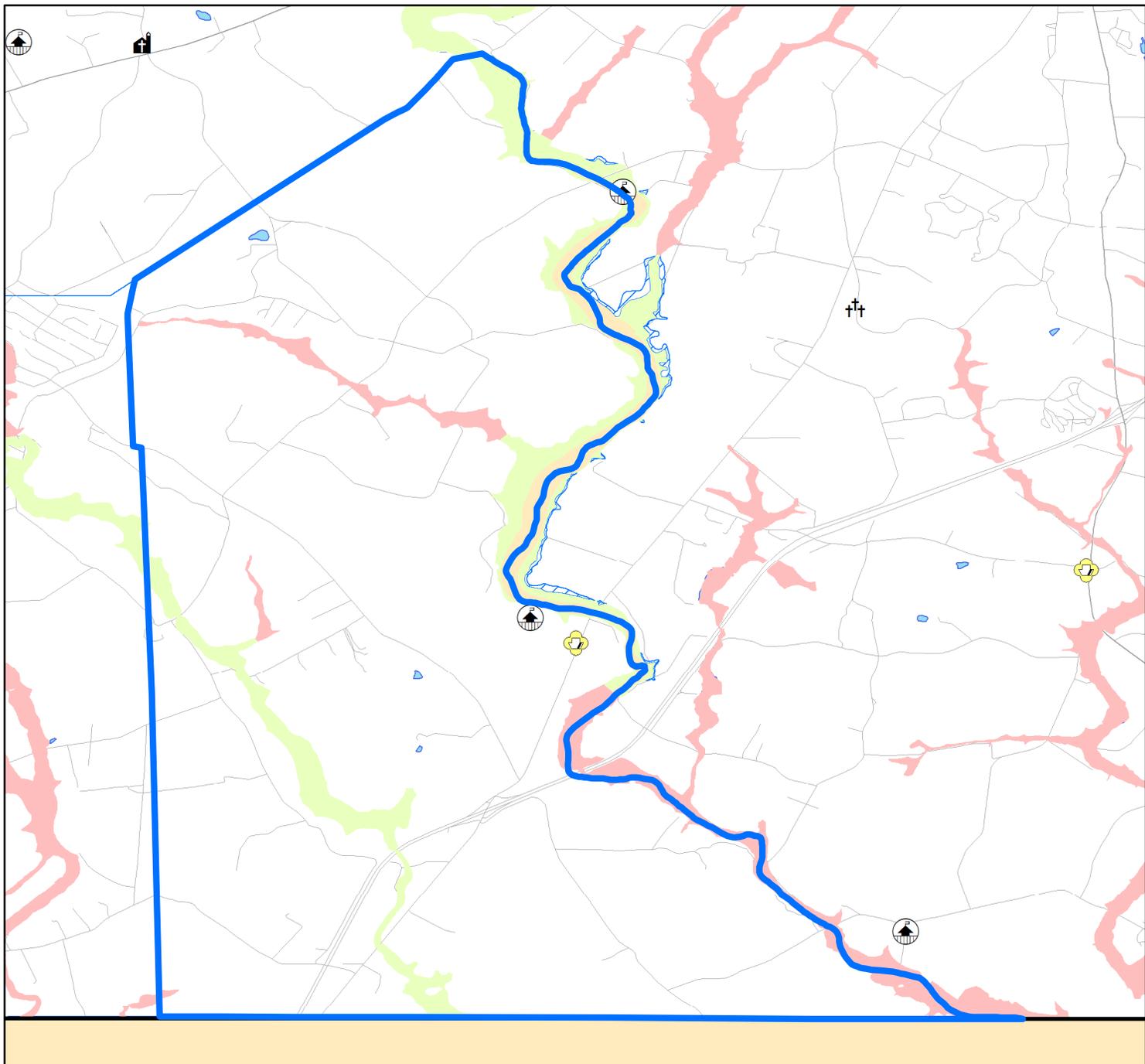
0 0.2 0.4 0.8 1.2 1.6 Miles



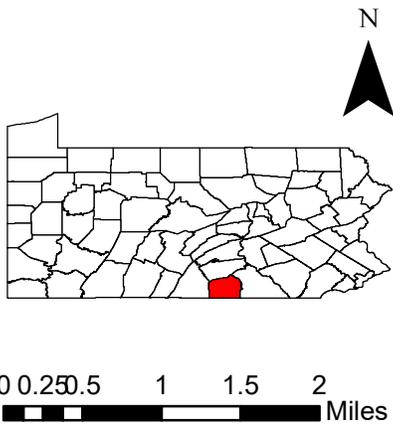


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-  Germany Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



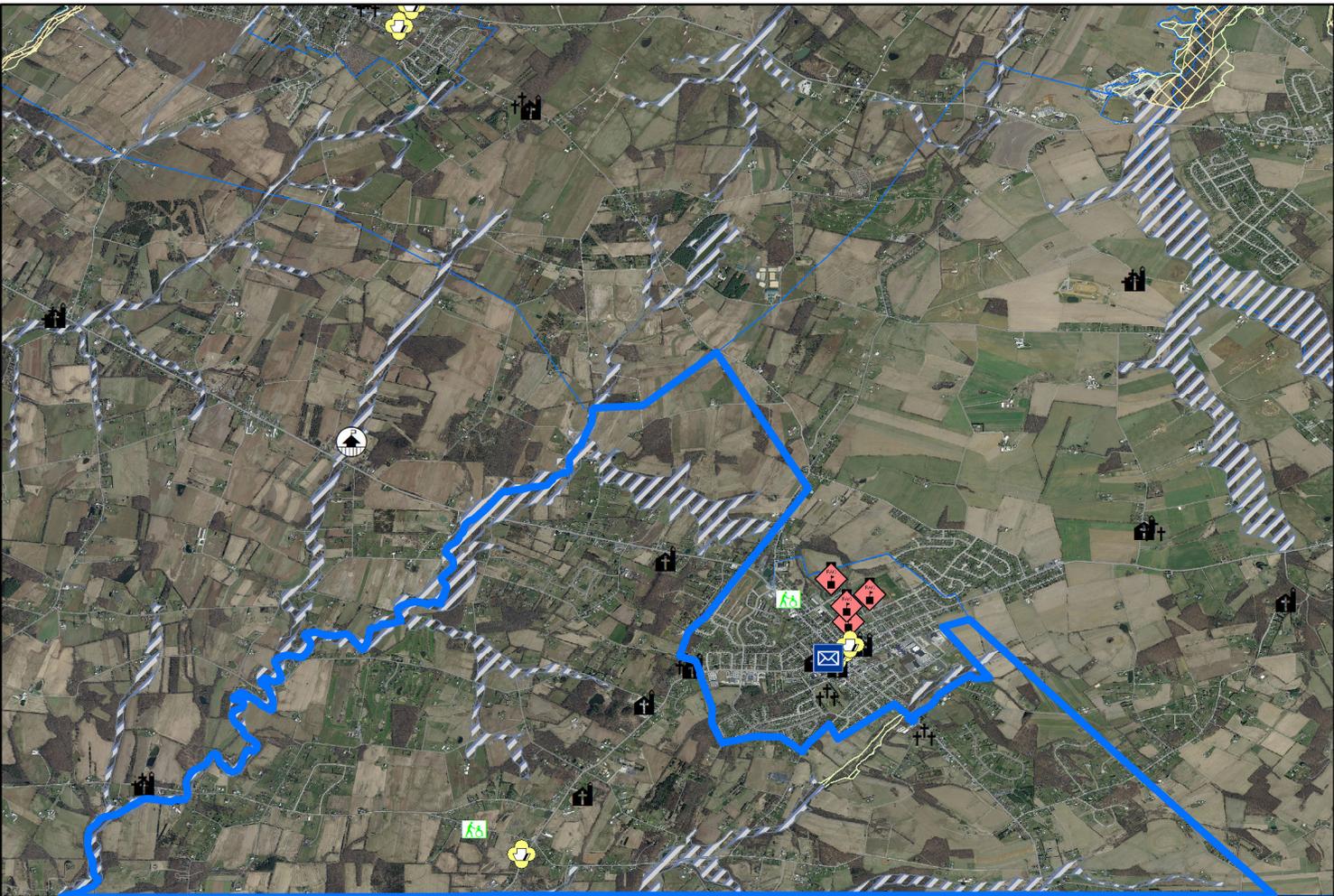
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Germany Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



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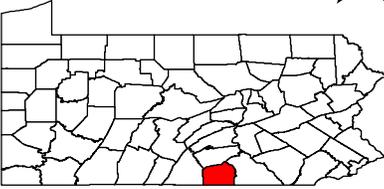
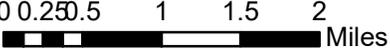


	Germany Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Germany Township**

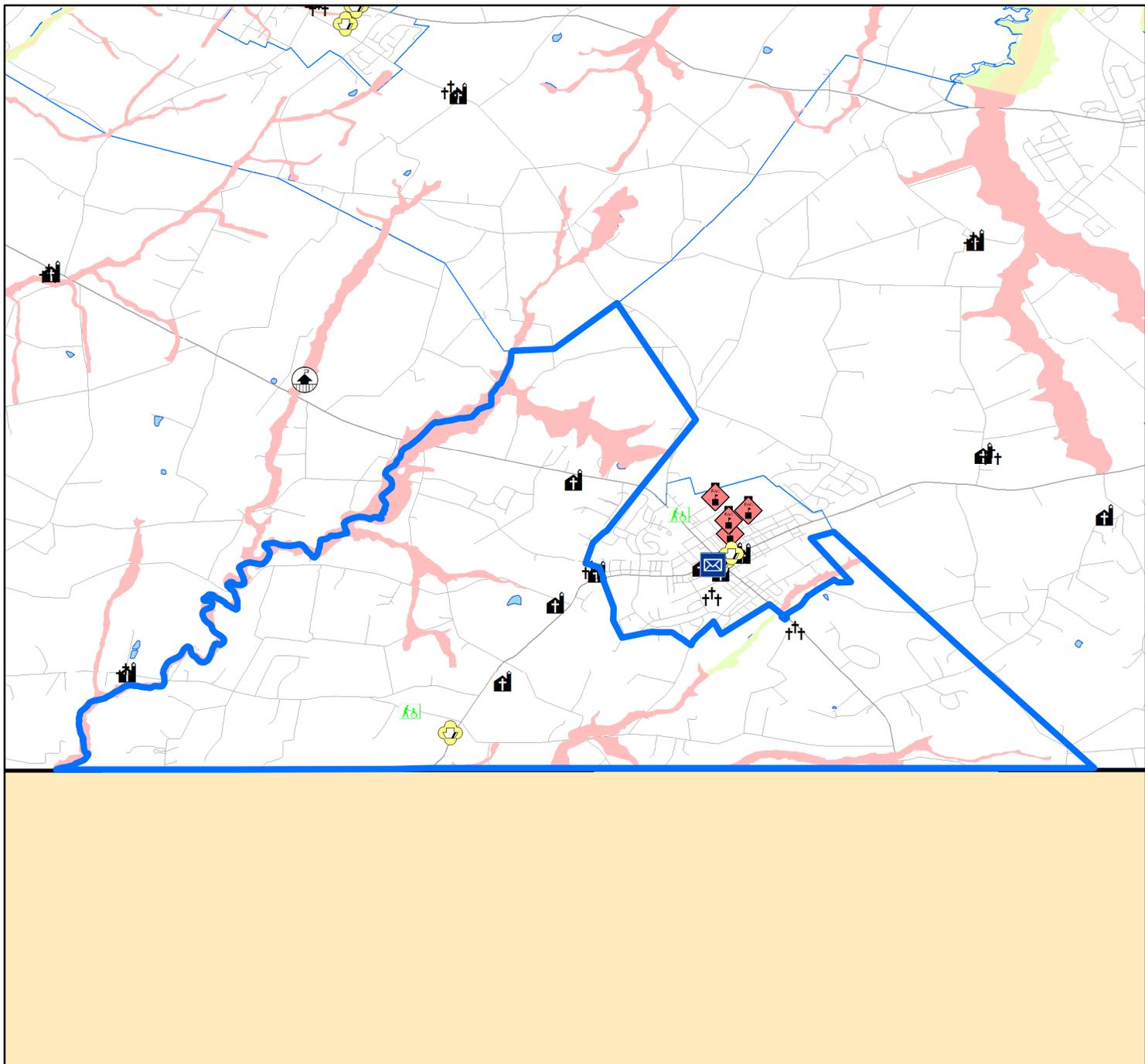
Data Source(s):  
ACOPD, FEMA,  
PASDA

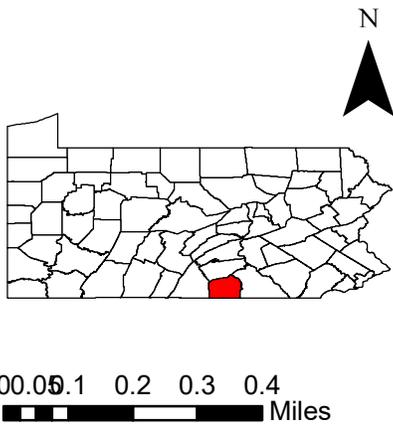


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-  Gettysburg Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



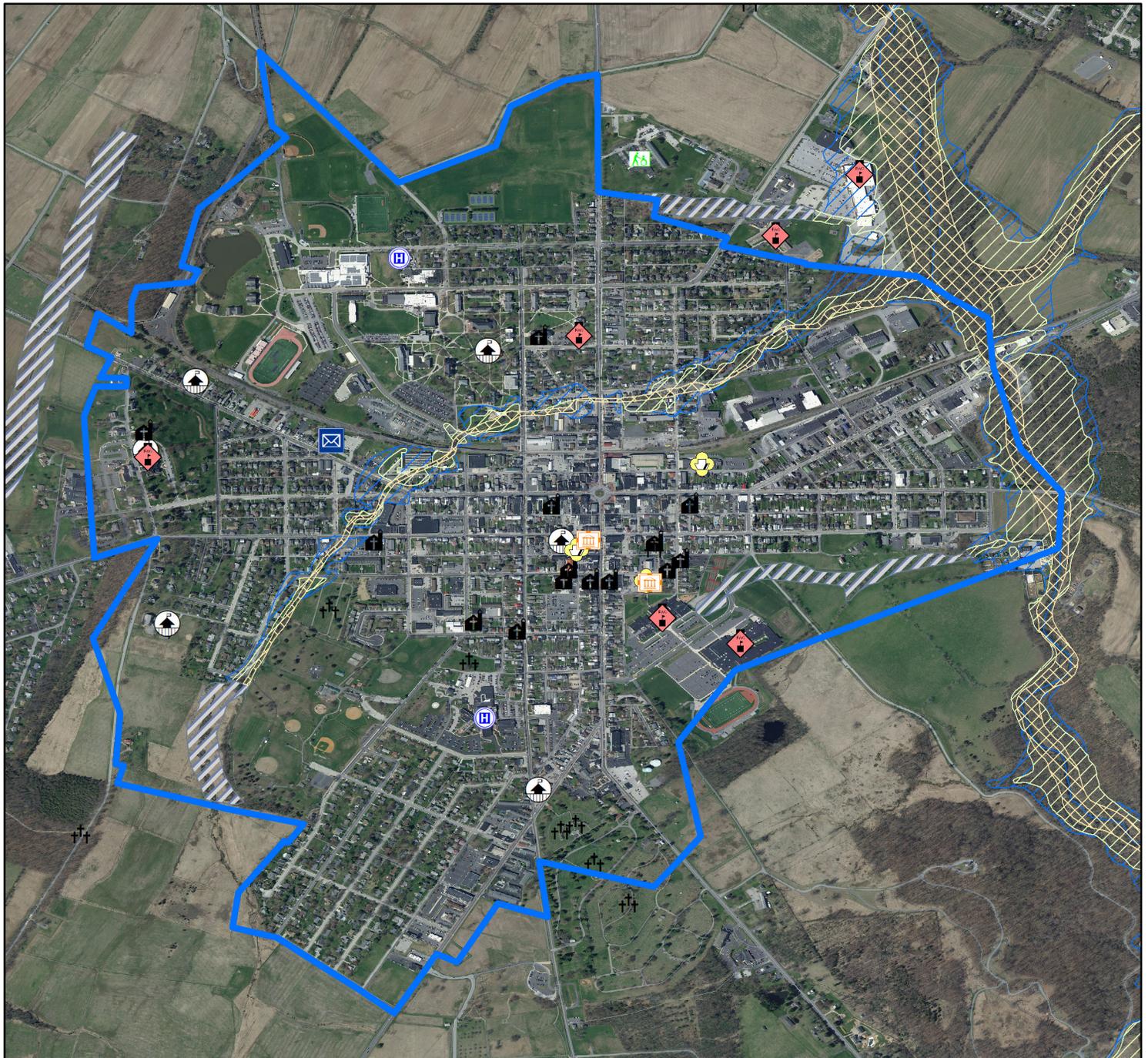
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Gettysburg Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



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	Gettysburg Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

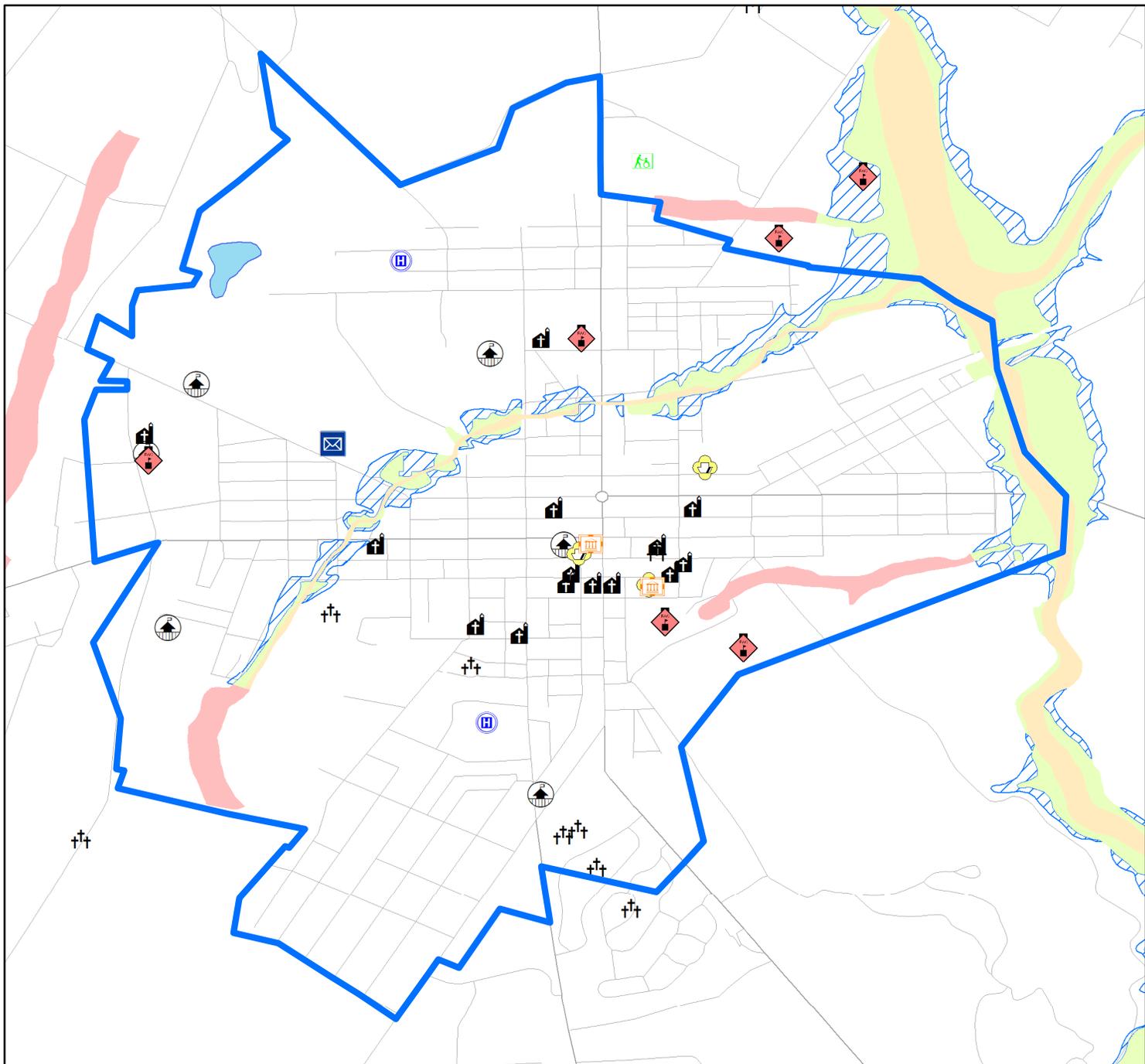
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Gettysburg Borough

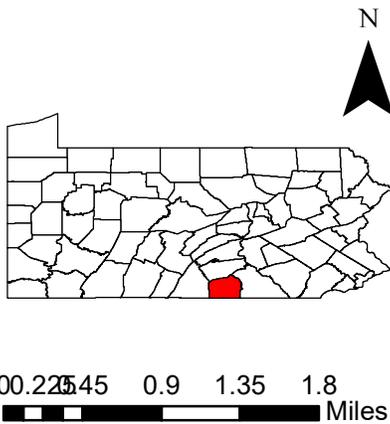
Data Source(s):  
ACOPD, FEMA,  
PASDA

0.0 0.1 0.2 0.3 0.4  
Miles

*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



-  Hamilton Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Hamilton Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

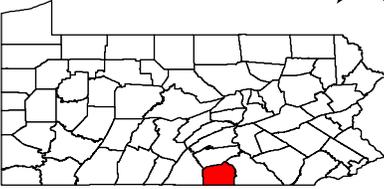


	Hamilton Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

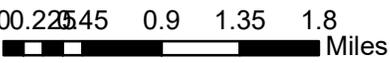
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Hamilton Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

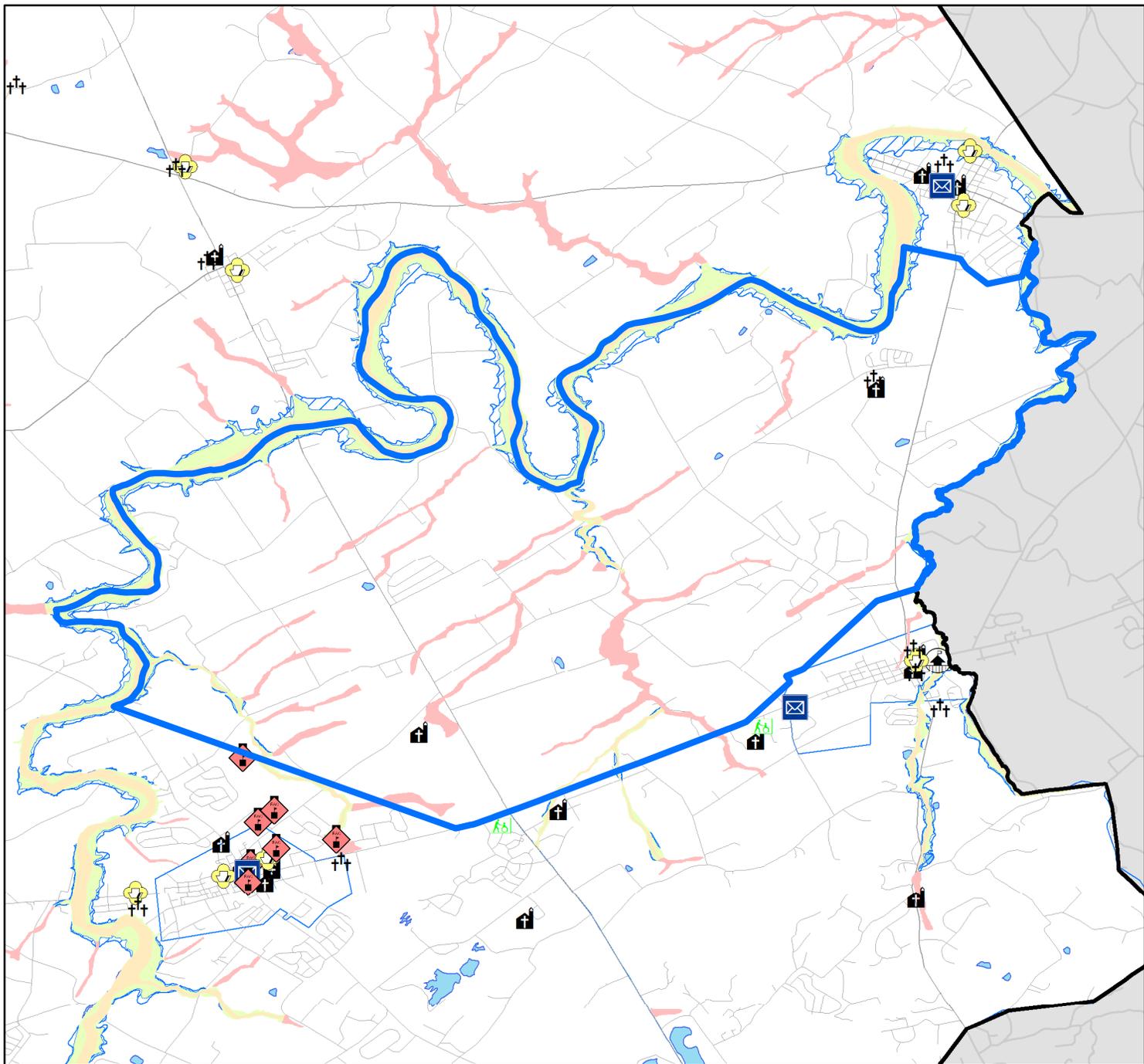
0.2 0.45 0.9 1.35 1.8  
Miles





*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



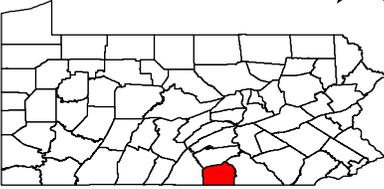


	Hamiltonban Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

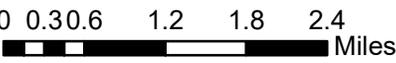
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Hamiltonban Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

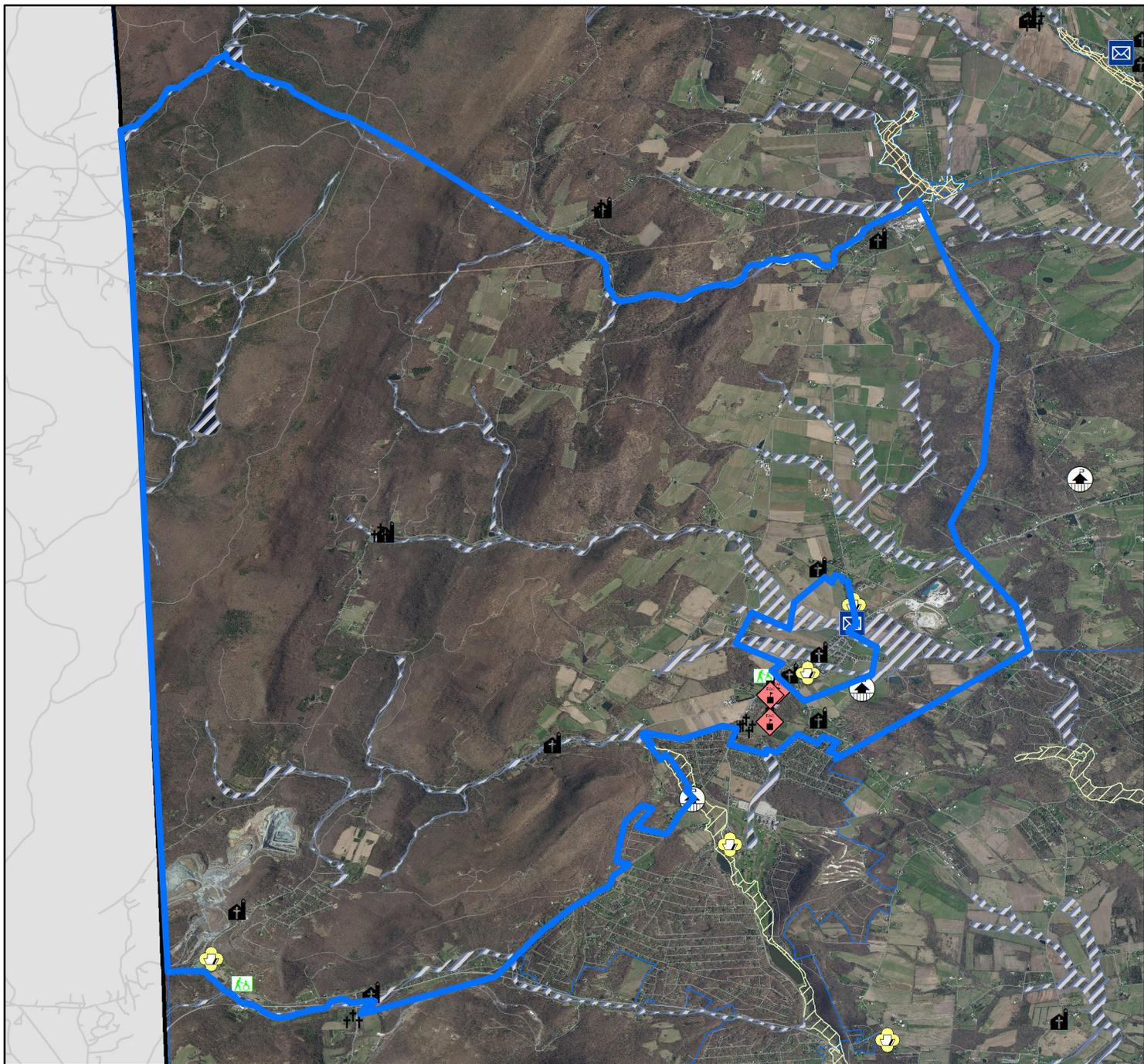
0 0.3 0.6 1.2 1.8 2.4  
Miles





*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



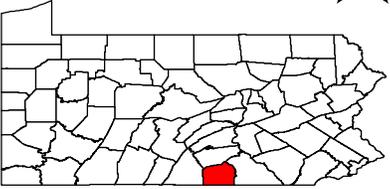


	Hamiltonban Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

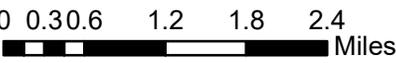
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Hamiltonban Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

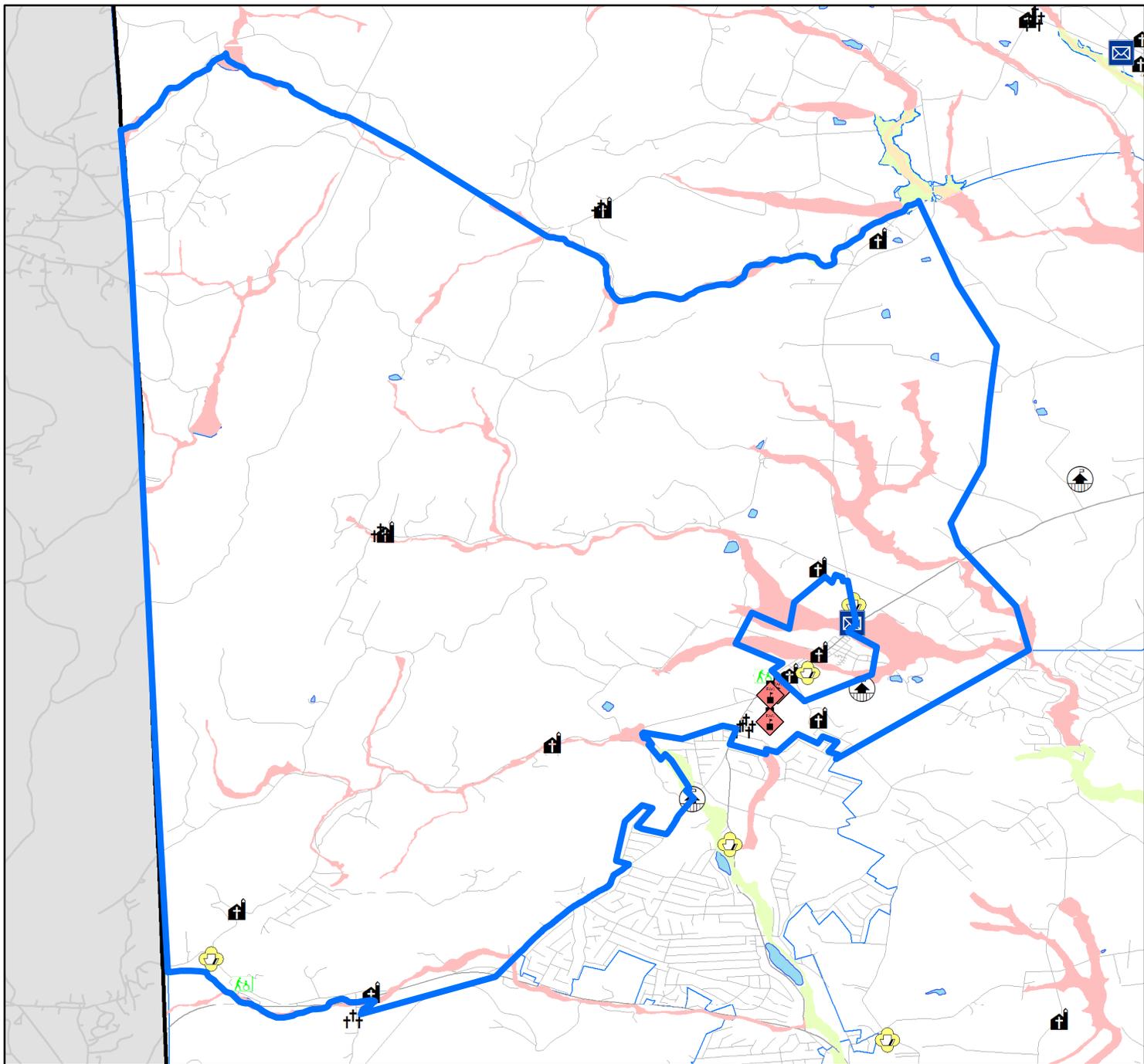
0 0.3 0.6 1.2 1.8 2.4  
Miles

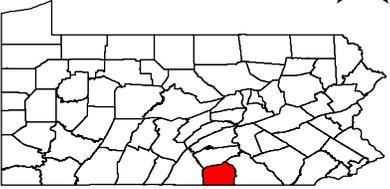
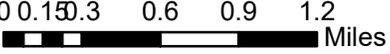


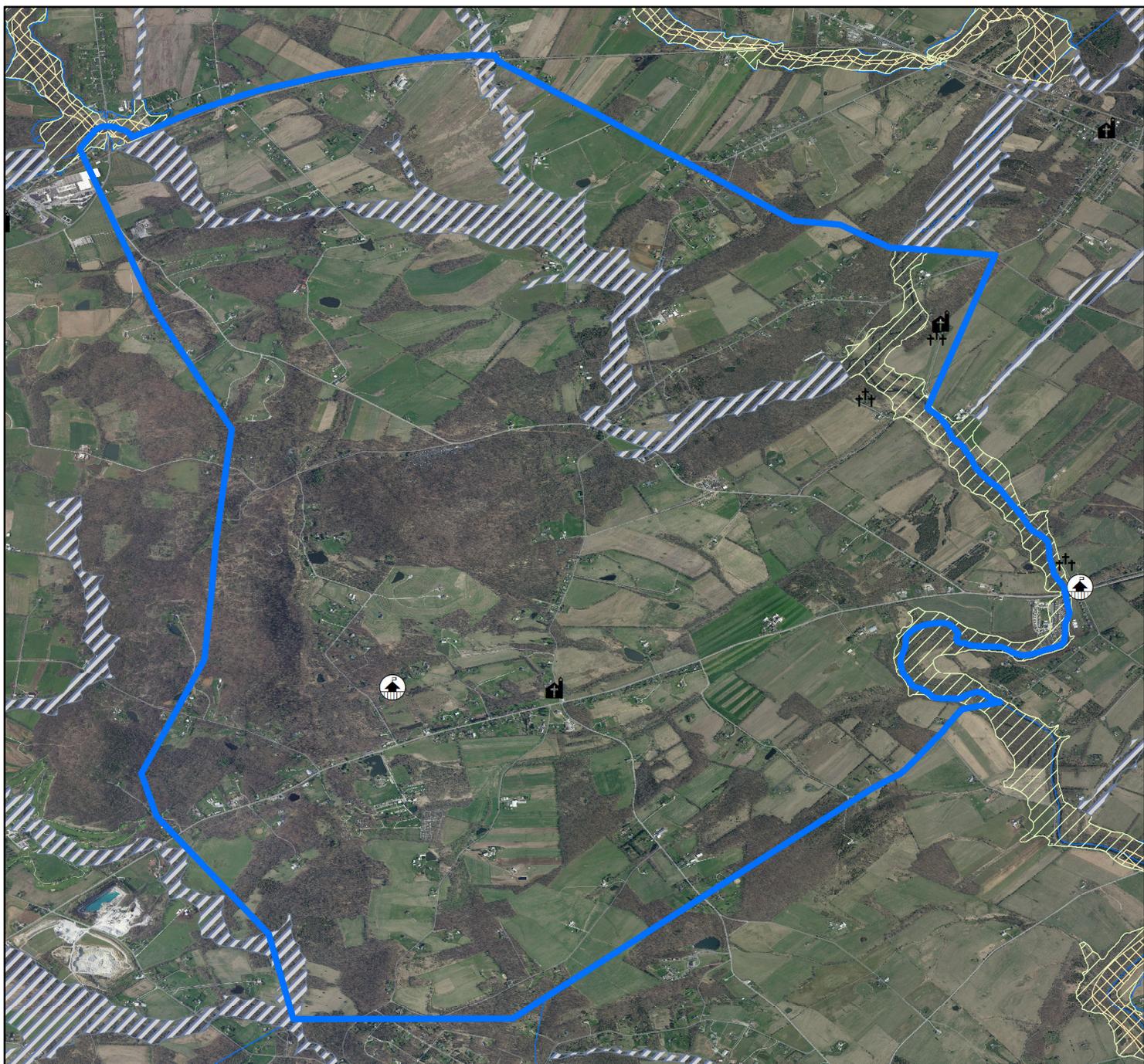


*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*





	Highland Township		Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1>  <h2>Flood Vulnerability: Highland Township</h2>
	Educational Facilities		Churches		
	Emergency Services Facilities		Historic/Cultural Site		
	Mail & Shipping Facilities		Floodway		 <p><i>DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.</i></p> 
	Health & Medical Facilities		Zone A		
	Cemeteries		Zone AE		
	Government & Military Facilities		Zone AO		
			0.2% Annual Chance		

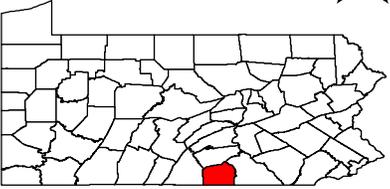


	Highland Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

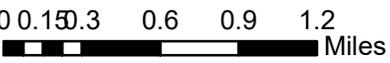
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Highland Township**

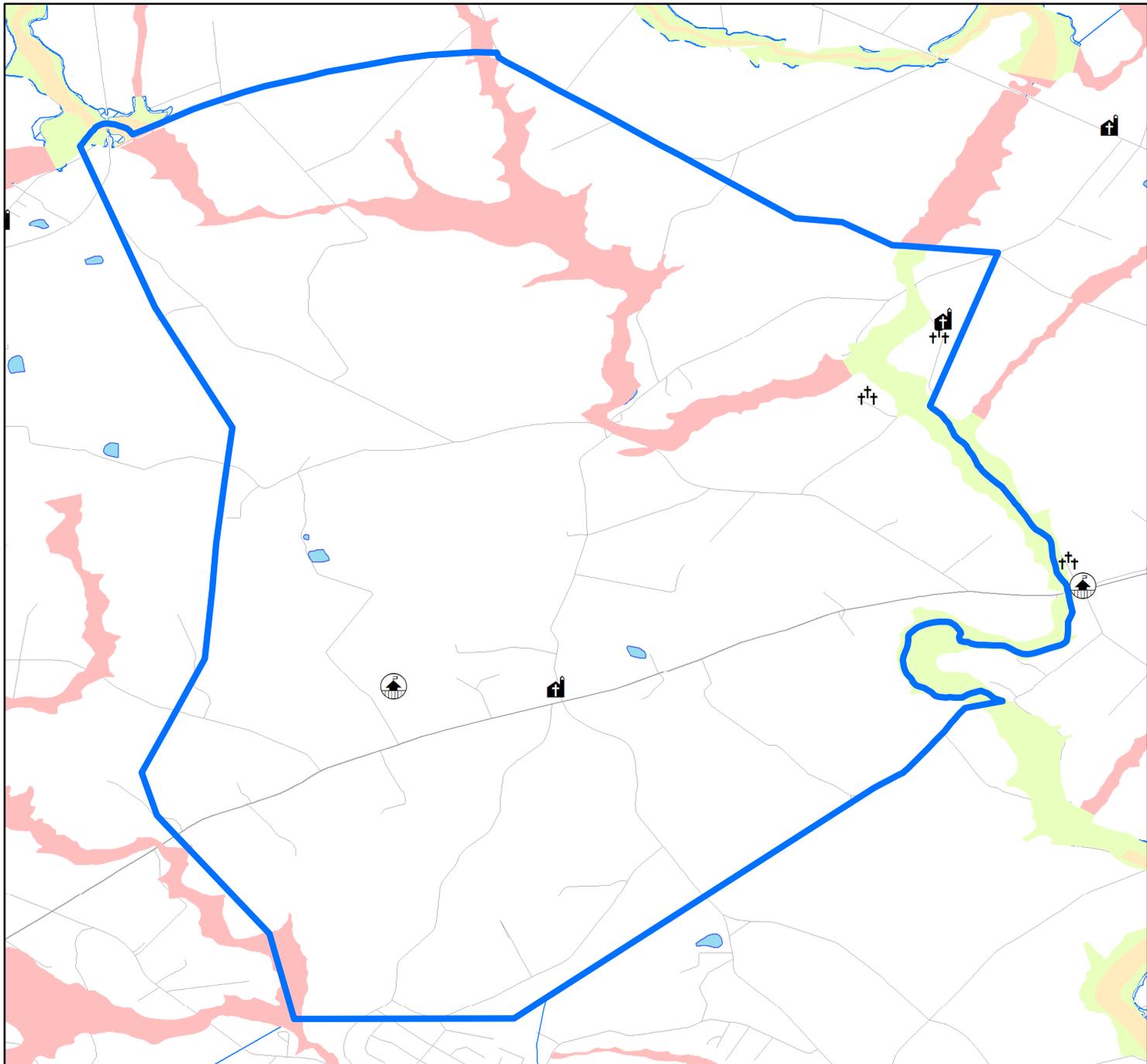
Data Source(s):  
ACOPD, FEMA,  
PASDA

0 0.15 0.3 0.6 0.9 1.2  
Miles



 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 

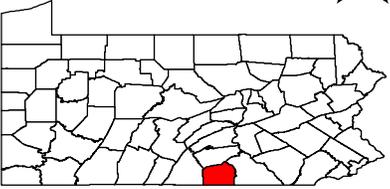
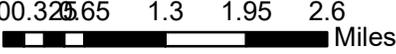


	Huntington Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

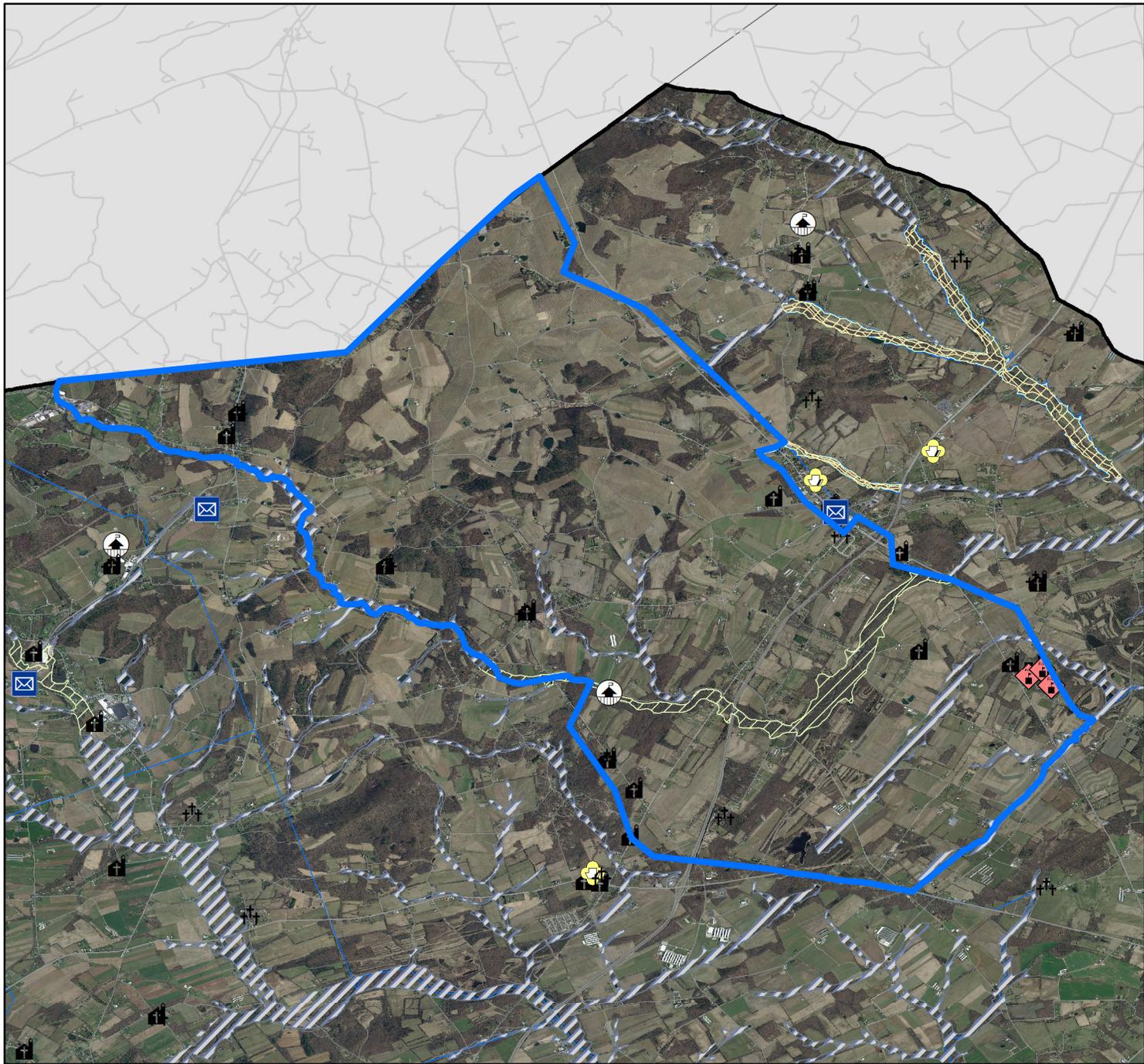
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Huntington Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 



	Huntington Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

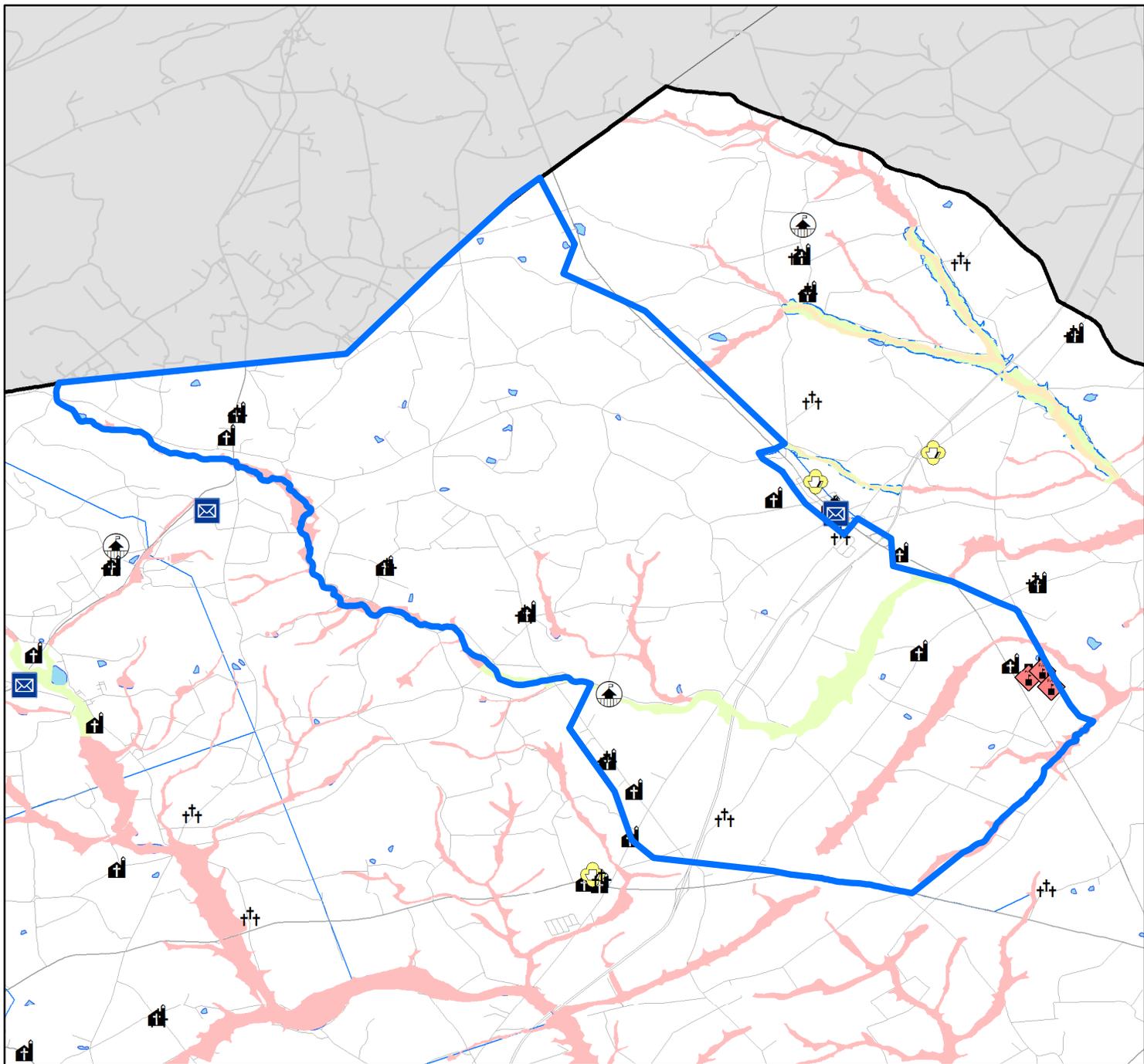
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Huntington Township

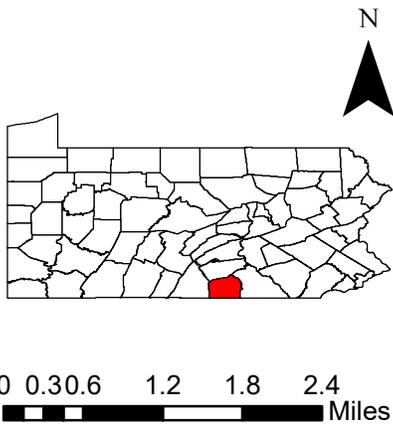
Data Source(s):  
ACOPD, FEMA,  
PASDA

0.32 0.65 1.3 1.95 2.6 Miles

*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



-  Latimore Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



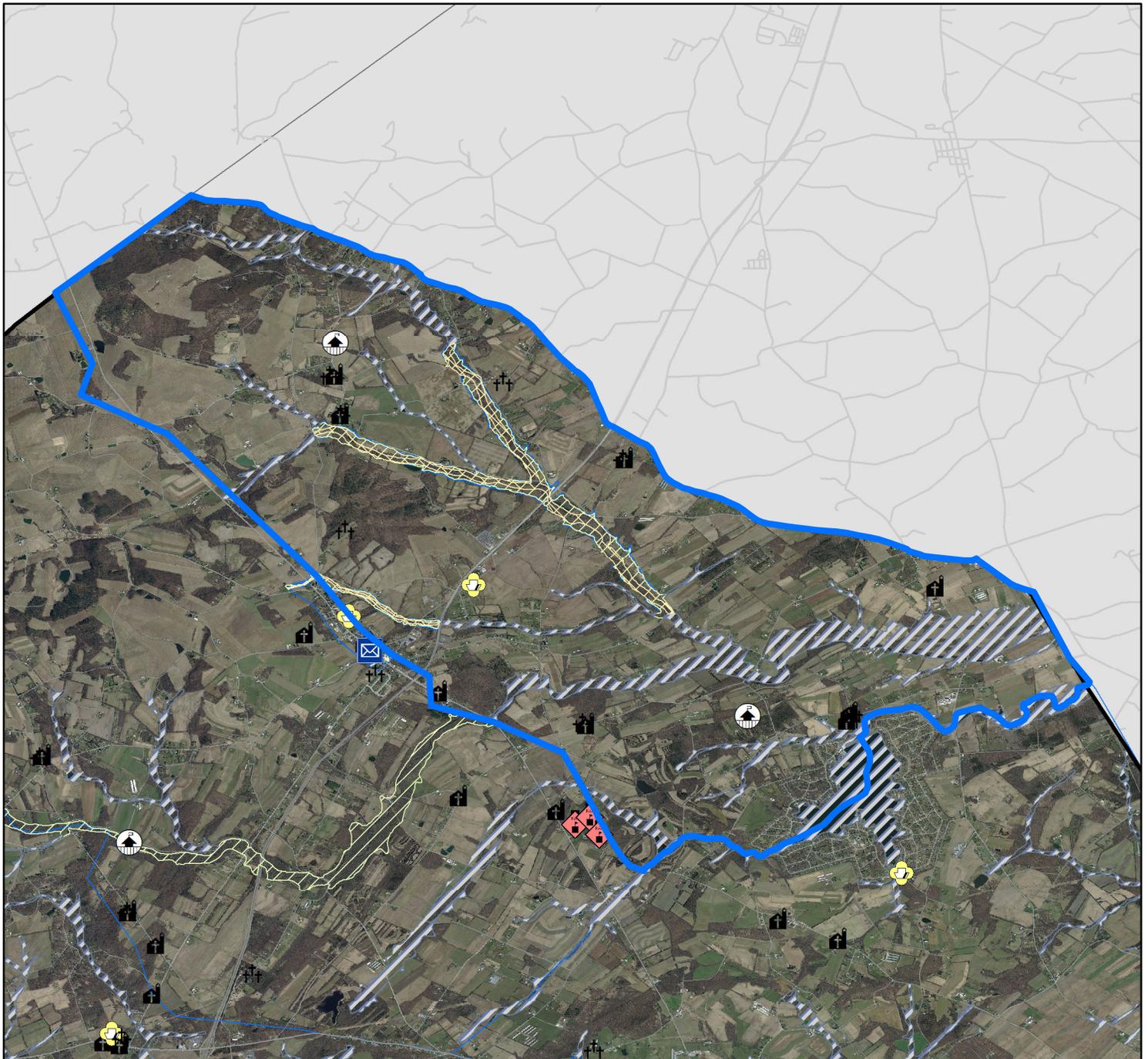
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Latimore Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



	Latimore Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

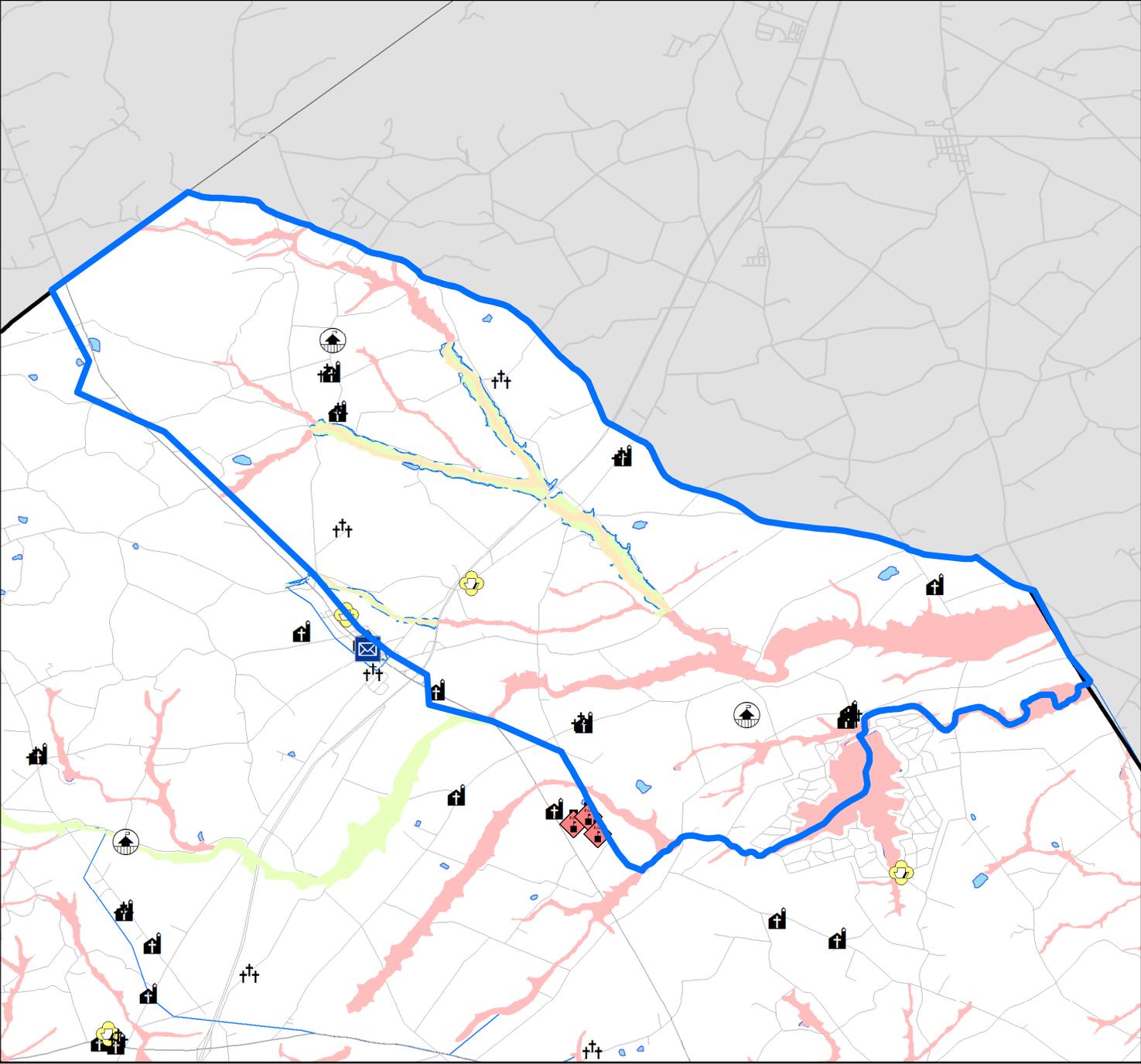
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

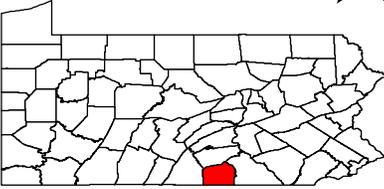
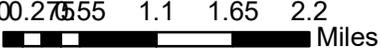
**Flood Vulnerability:  
Latimore Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

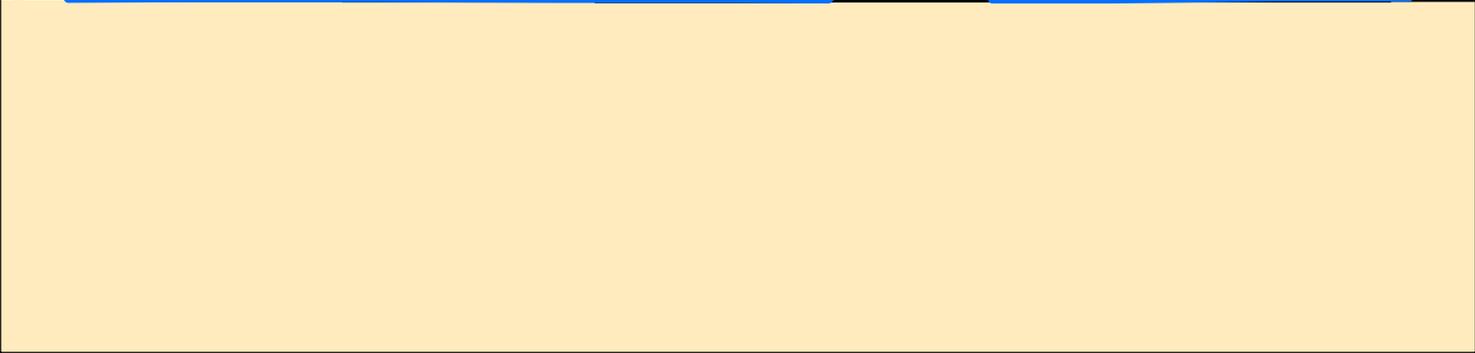
0 0.3 0.6 1.2 1.8 2.4 Miles

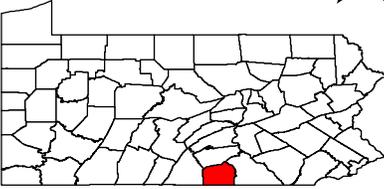
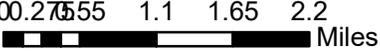
**DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.



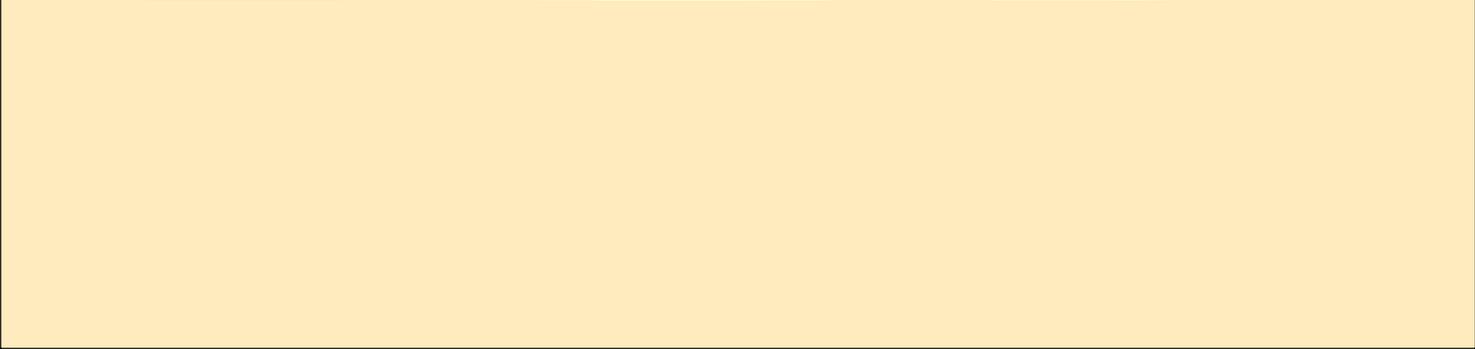
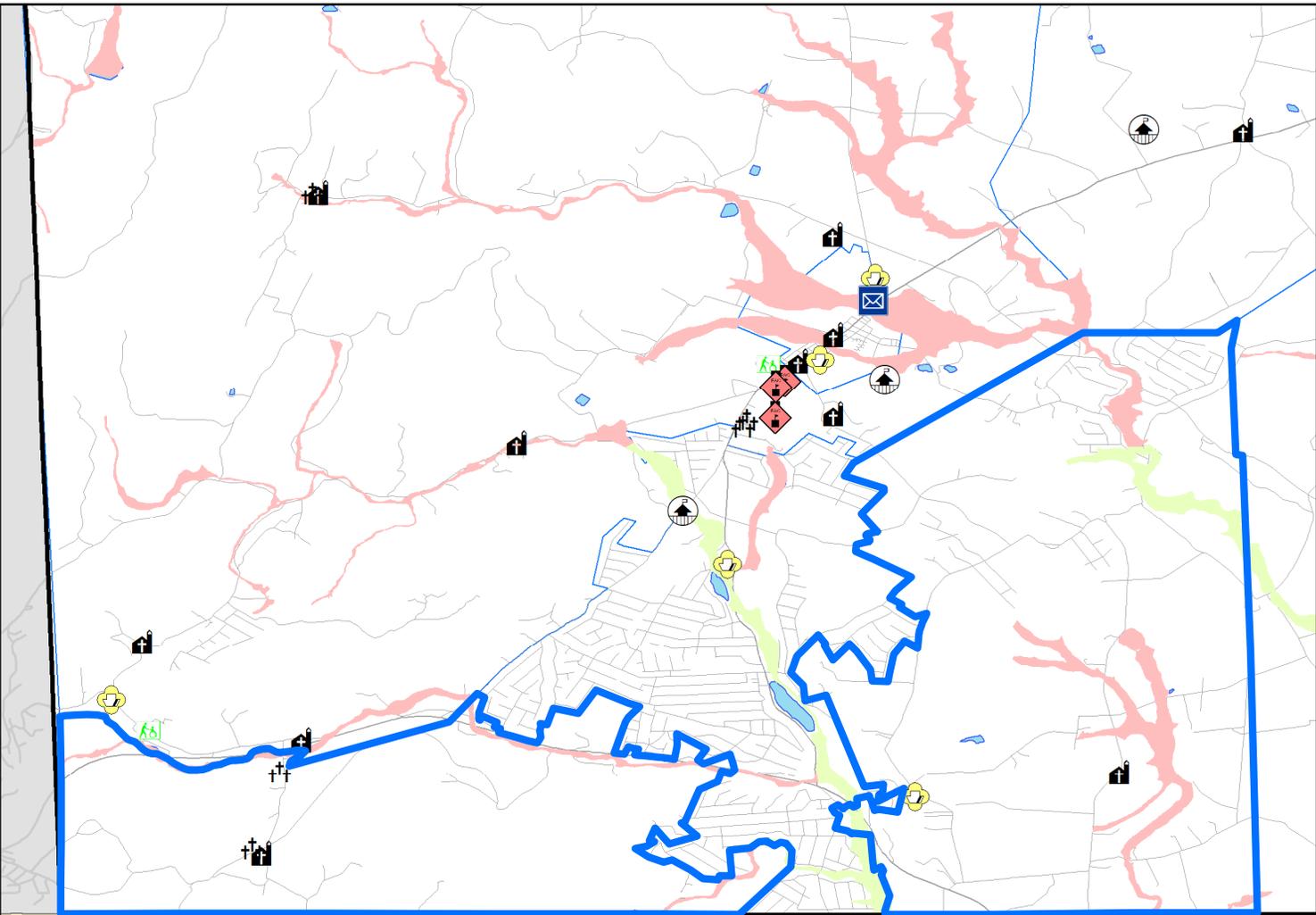
 Liberty Township	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1>  <h2>Flood Vulnerability: Liberty Township</h2>  <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Zone A		
 Health & Medical Facilities	 Zone AE		
 Cemeteries	 Zone AO		
 Government & Military Facilities	 0.2% Annual Chance		

 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 

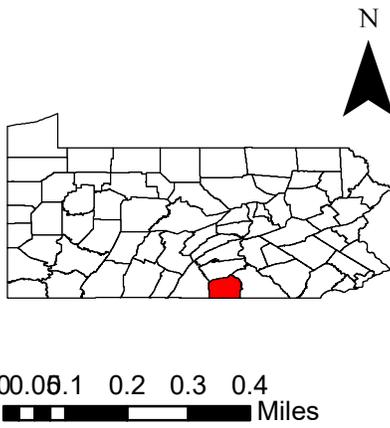


 Liberty Township	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1> <h2>Flood Vulnerability: Liberty Township</h2> <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Floodway		
 Health & Medical Facilities	 Zone A		
 Cemeteries	 Zone AE		
 Government & Military Facilities	 Zone AO		
	 0.2% Annual Chance		

 **DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes. 



-  Littletown Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Littlestown Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

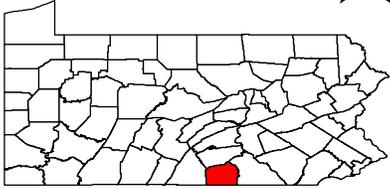


	Littlestown Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

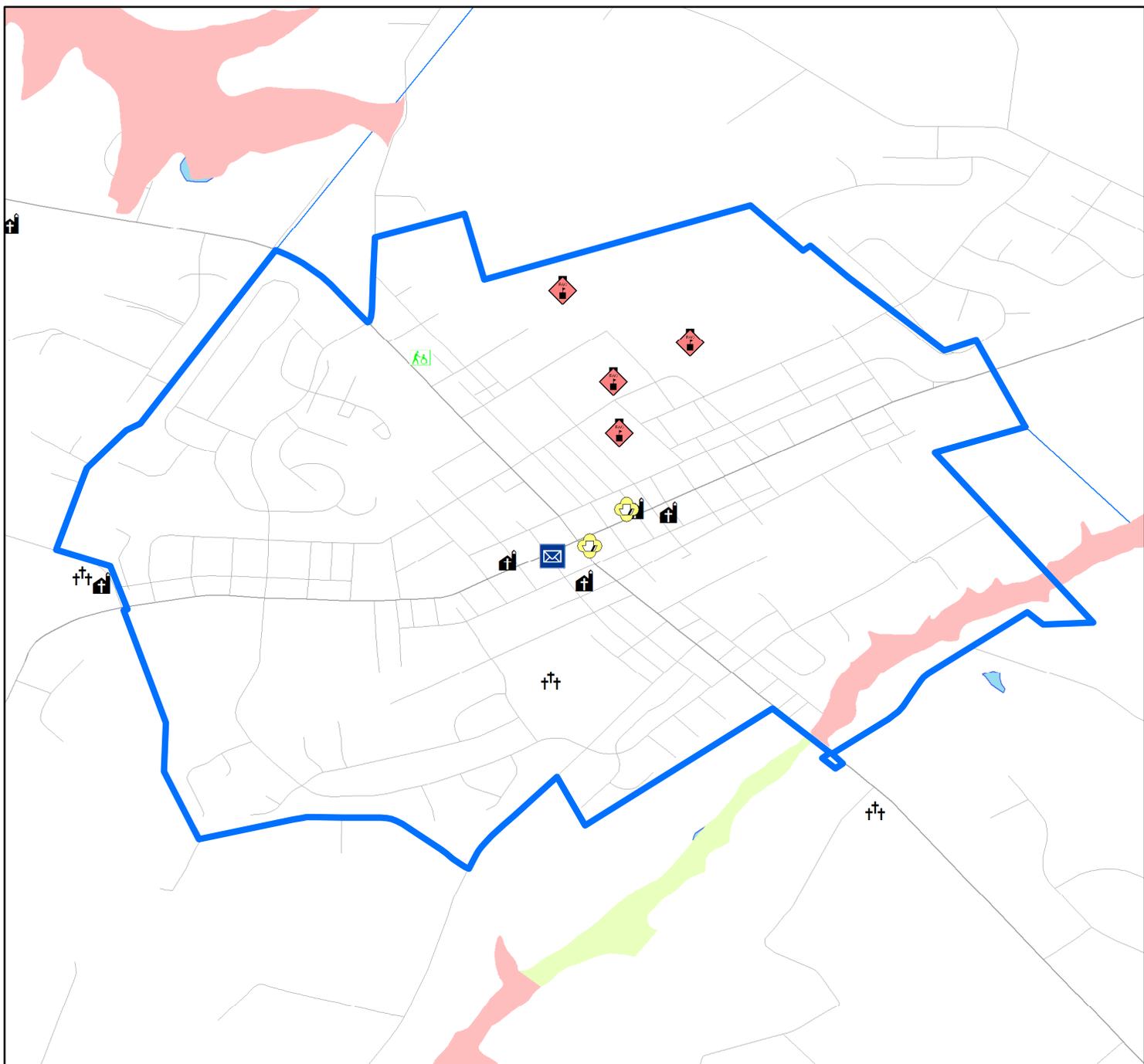
**Flood Vulnerability:  
Littlestown Borough**

Data Source(s):  
ACOPD, FEMA,  
PASDA

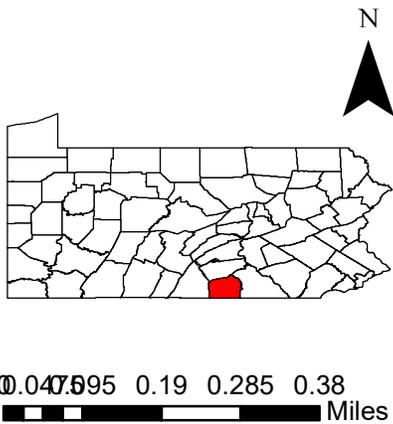


0.0 0.1 0.2 0.3 0.4  
Miles

 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 



-  McSherrystown Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



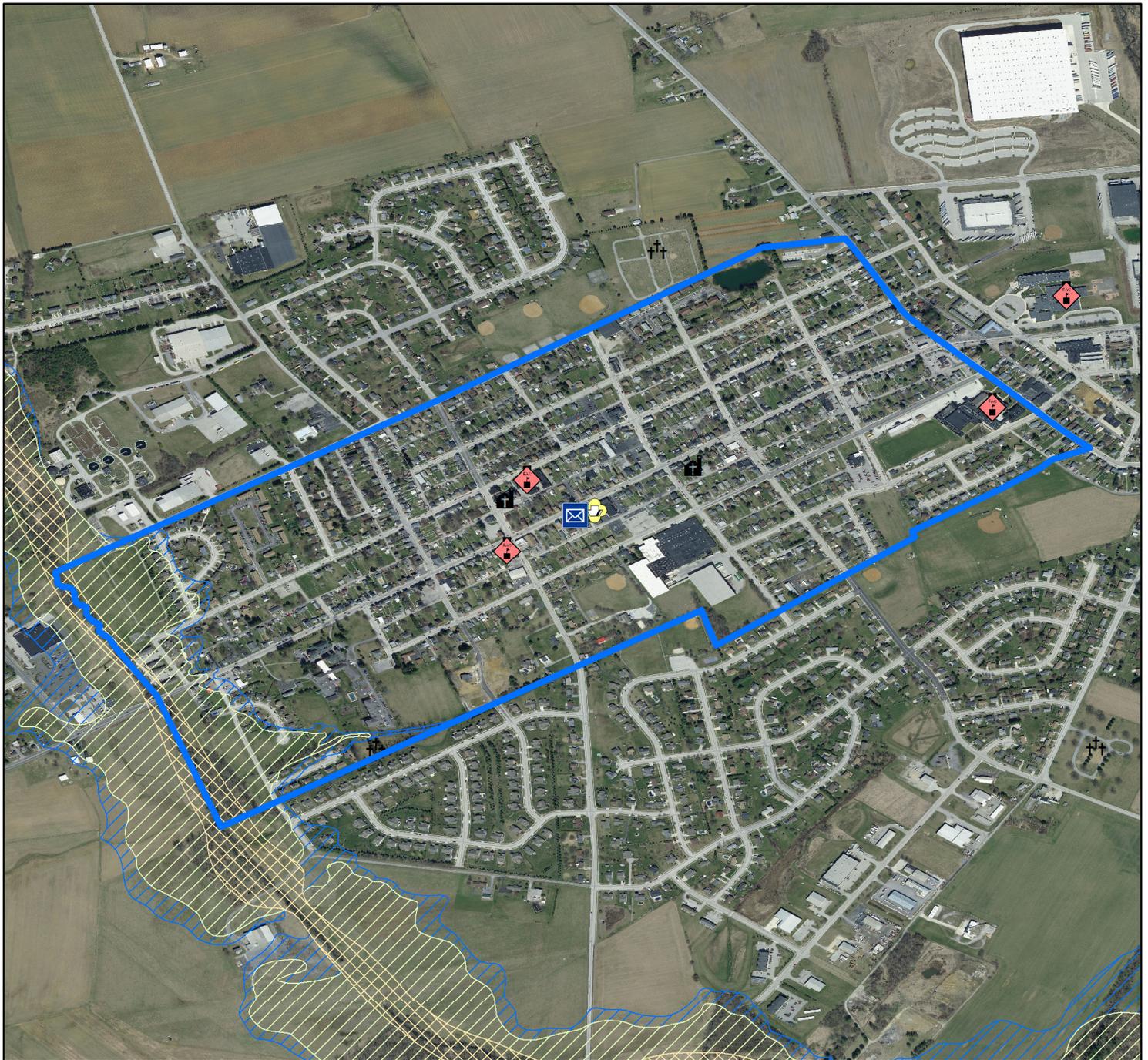
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: McSherrystown Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

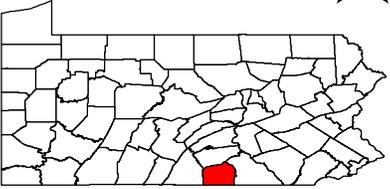


	McSherrystown Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

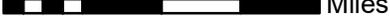
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
McSherrystown  
Borough**

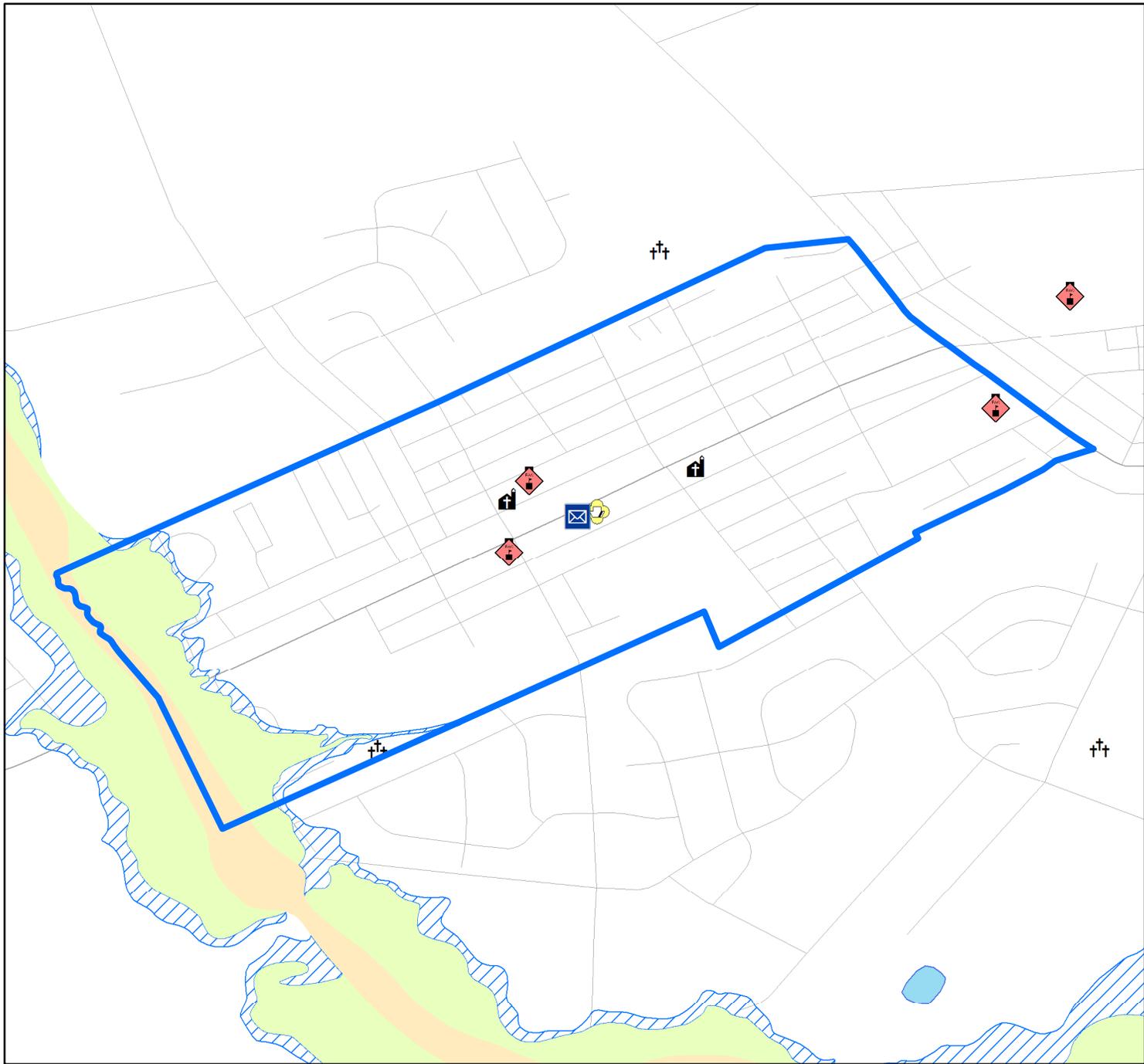
Data Source(s):  
ACOPD, FEMA,  
PASDA

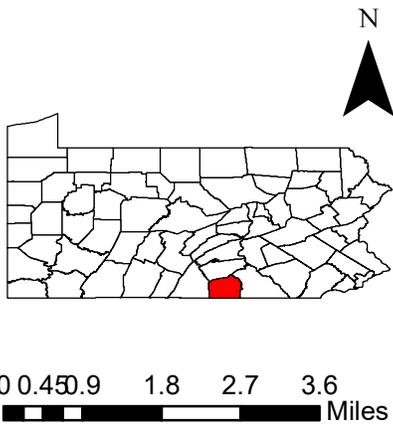
0.047595 0.19 0.285 0.38  
Miles



 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 



-  Menallen Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



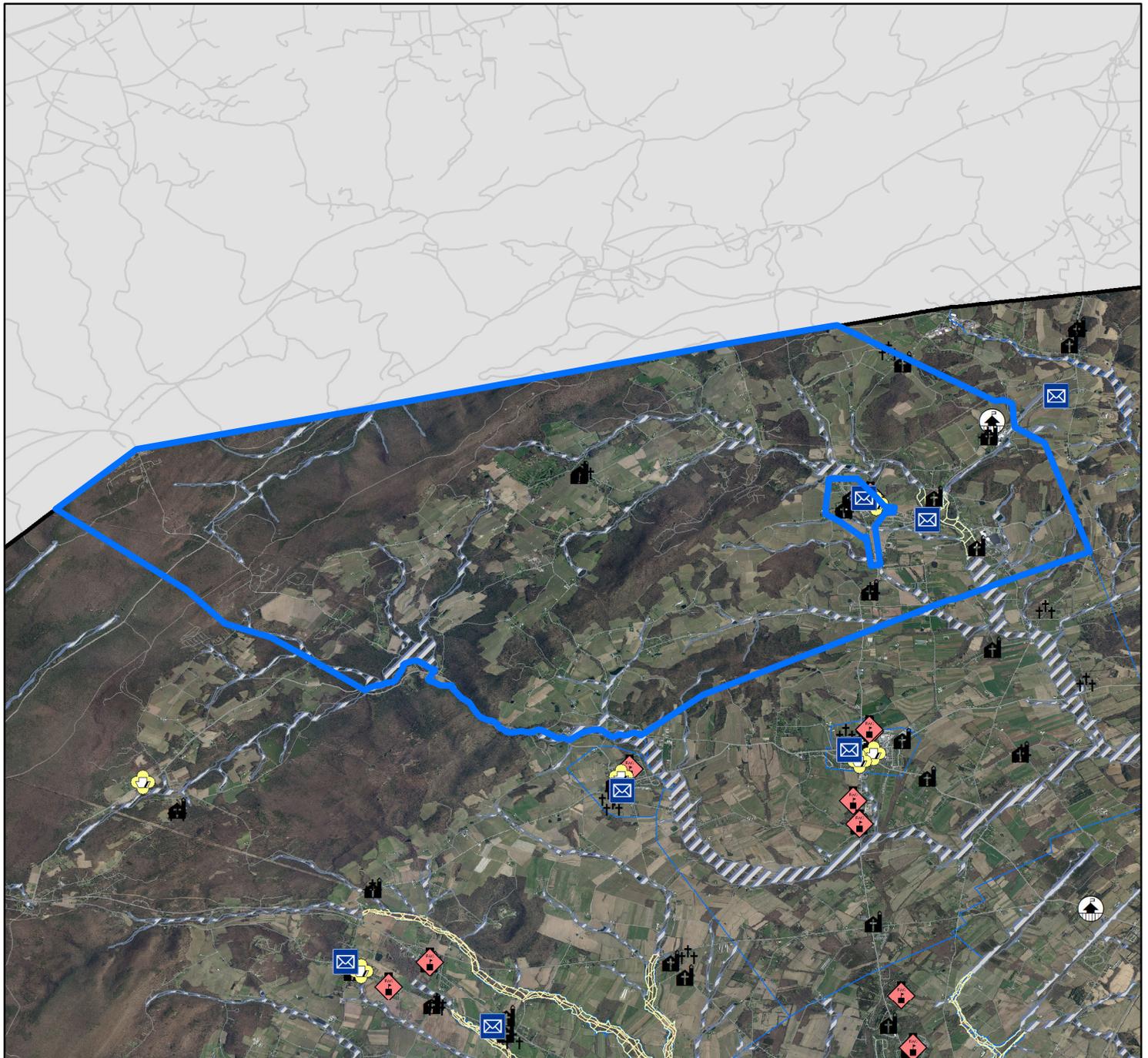
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Menallen Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

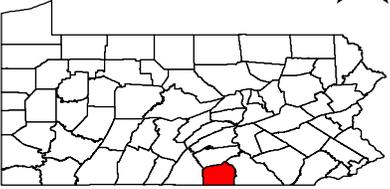


	Menallen Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

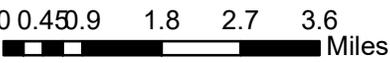
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Menallen Township**

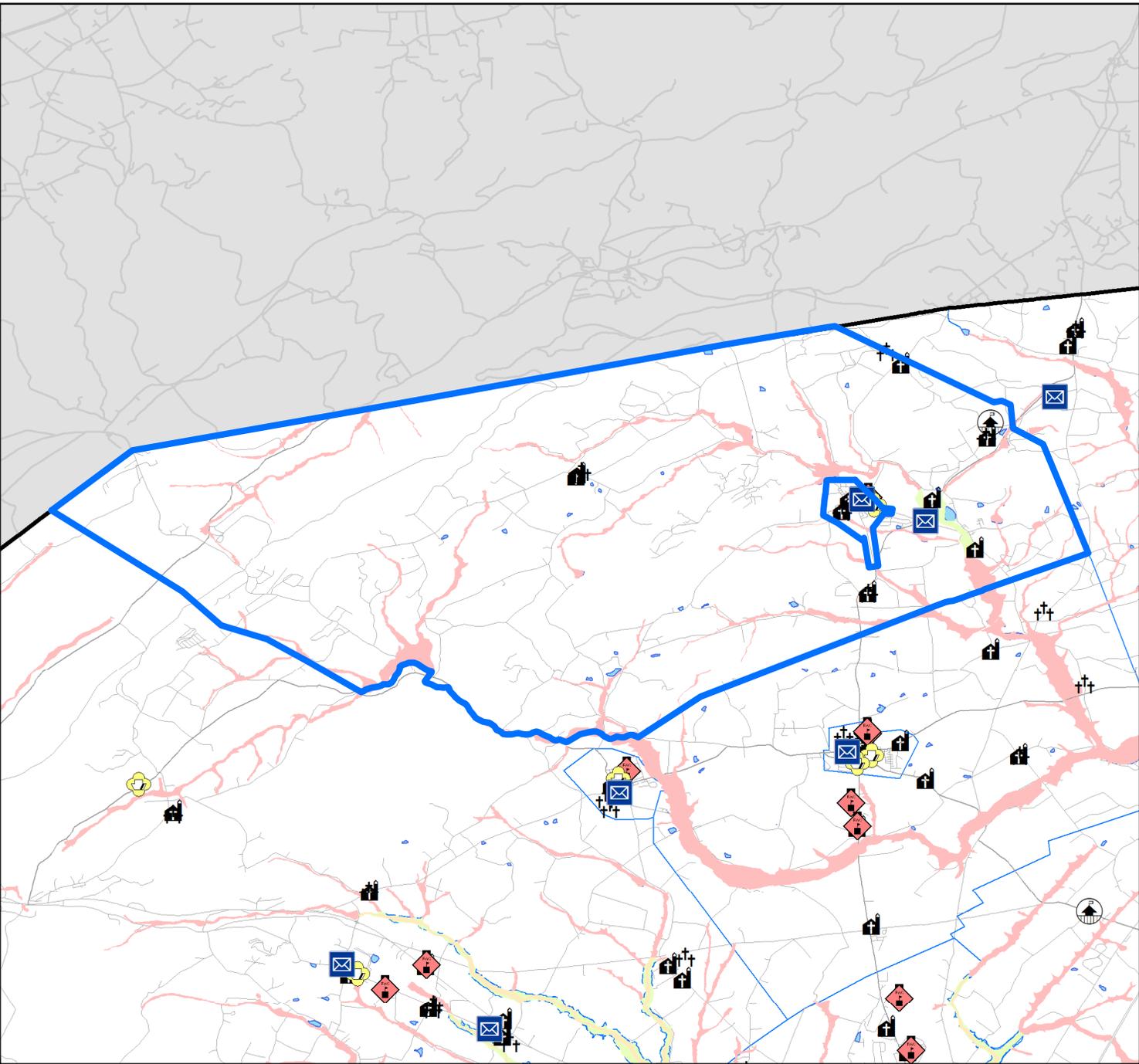
Data Source(s):  
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PASDA

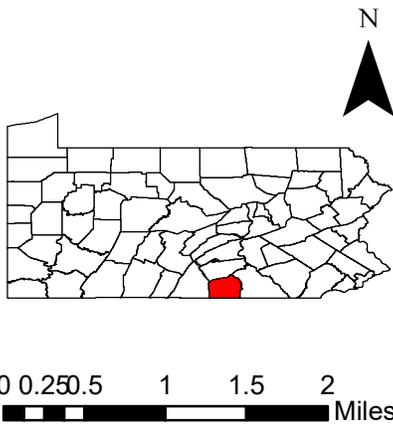
0 0.45 0.9 1.8 2.7 3.6  
Miles



 **DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes. 



-  Mount Joy Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



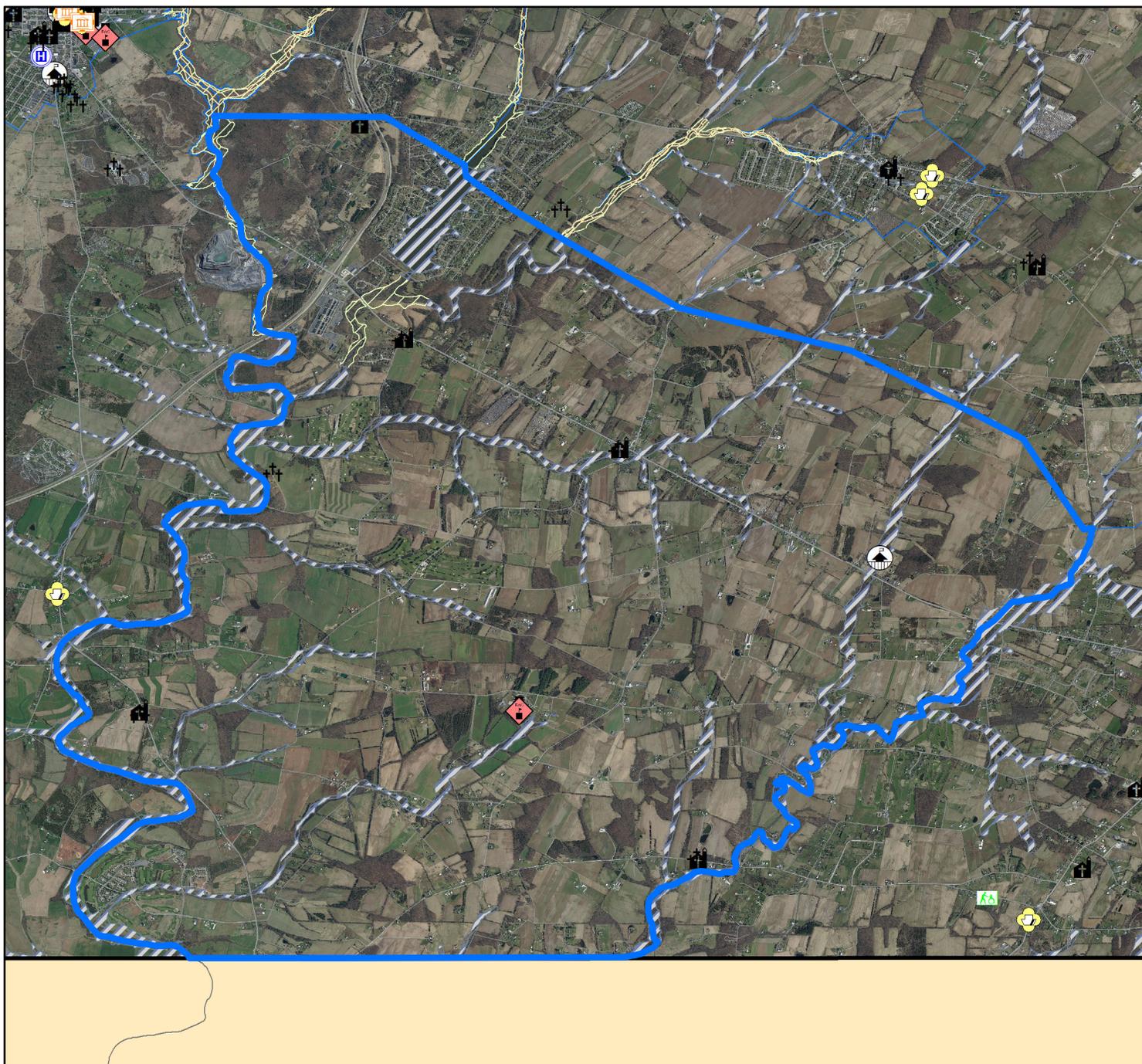
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Mt. Joy Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



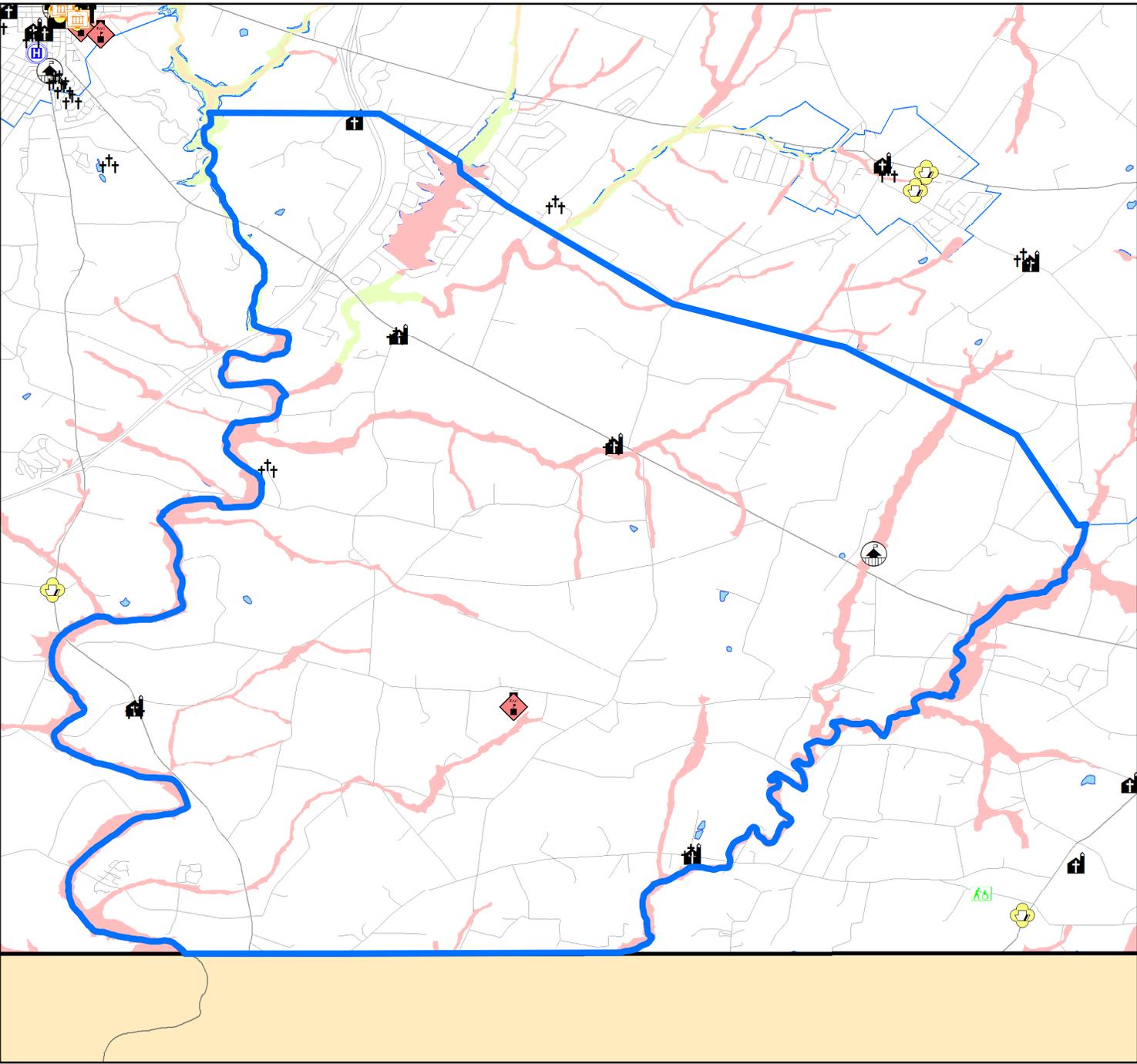
	Mount Joy Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

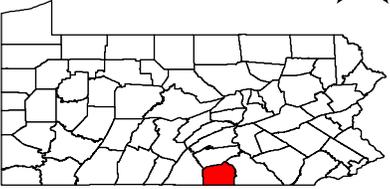
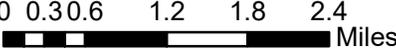
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

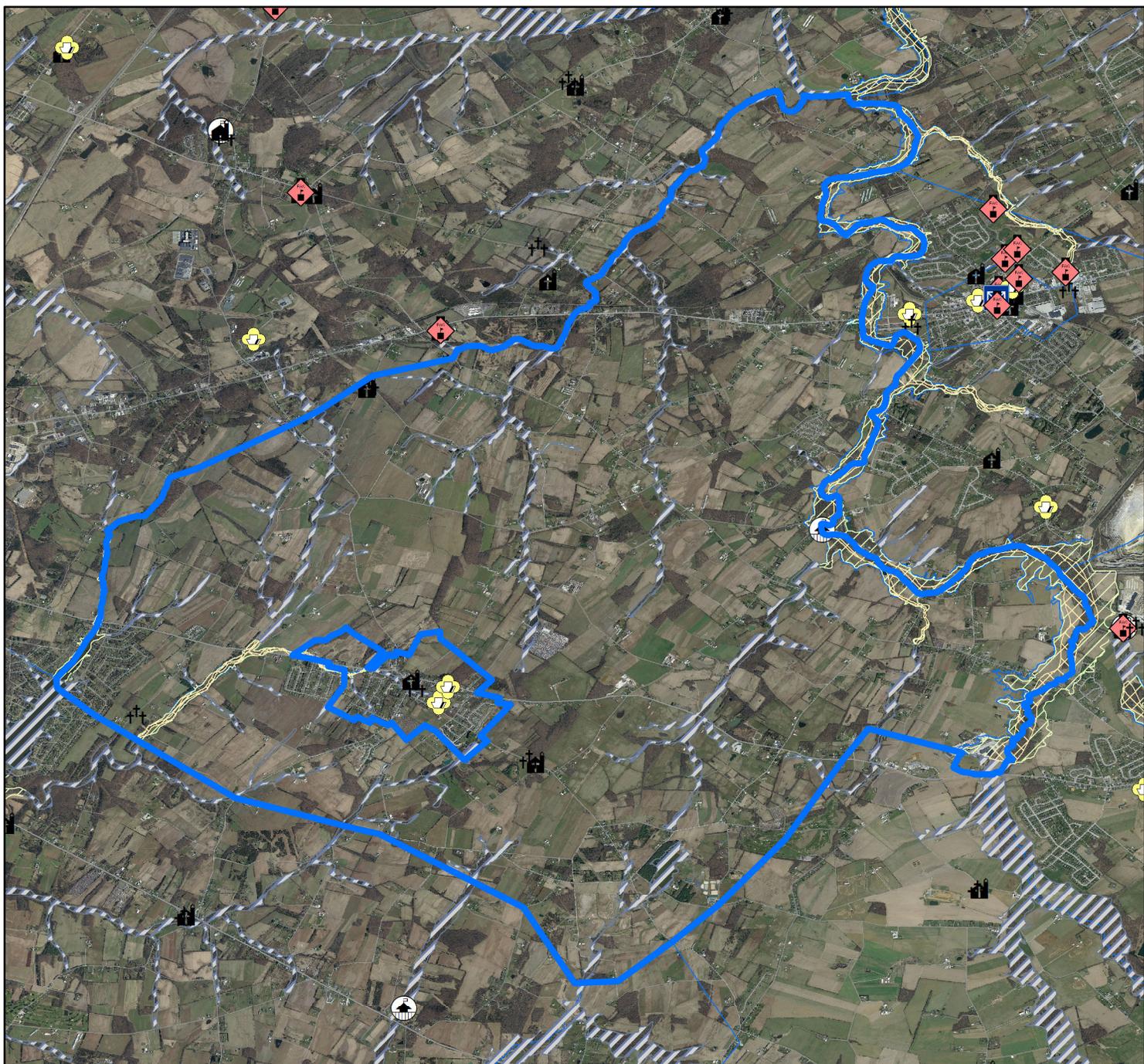
**Flood Vulnerability:  
Mt. Joy Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

**DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.



 Mount Pleasant Township	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1> <h2>Flood Vulnerability: Mt. Pleasant Township</h2> <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Floodway		
 Health & Medical Facilities	 Zone A	 <p><i>DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.</i></p> 	
 Cemeteries	 Zone AE		
 Government & Military Facilities	 Zone AO		
	 0.2% Annual Chance		

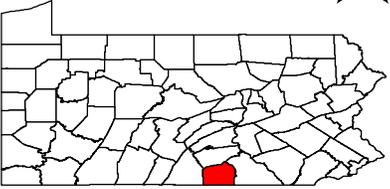
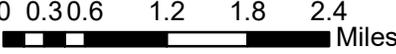


	Mount Pleasant Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Mt. Pleasant Township**

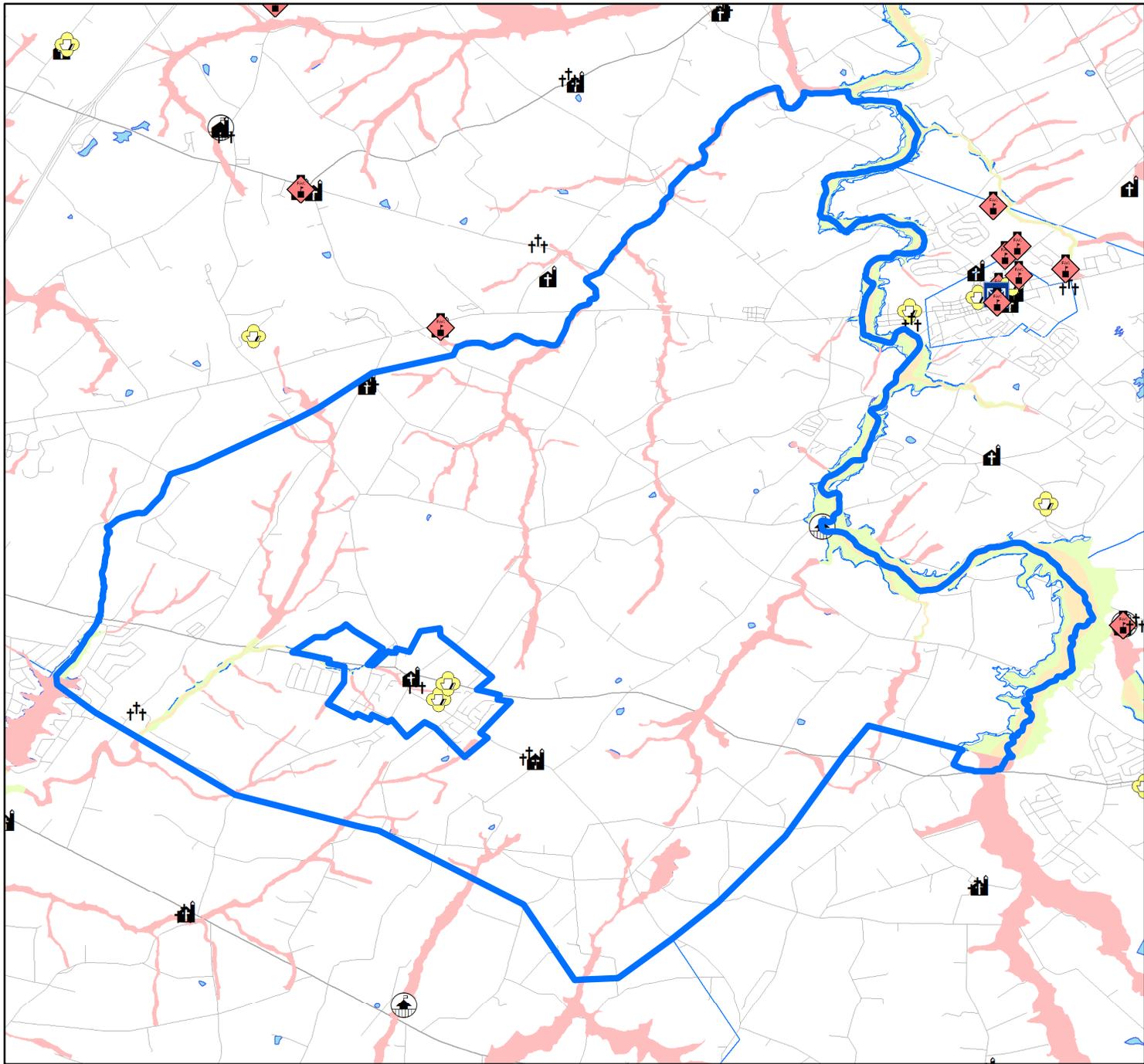
Data Source(s):  
ACOPD, FEMA,  
PASDA

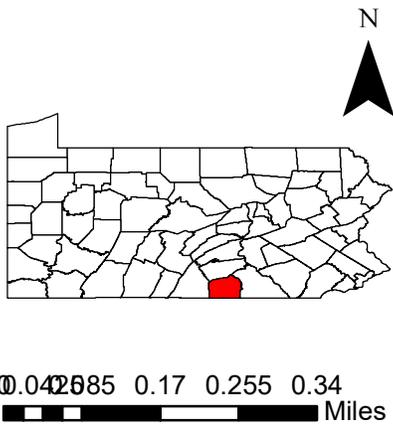


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-  New Oxford Borough
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



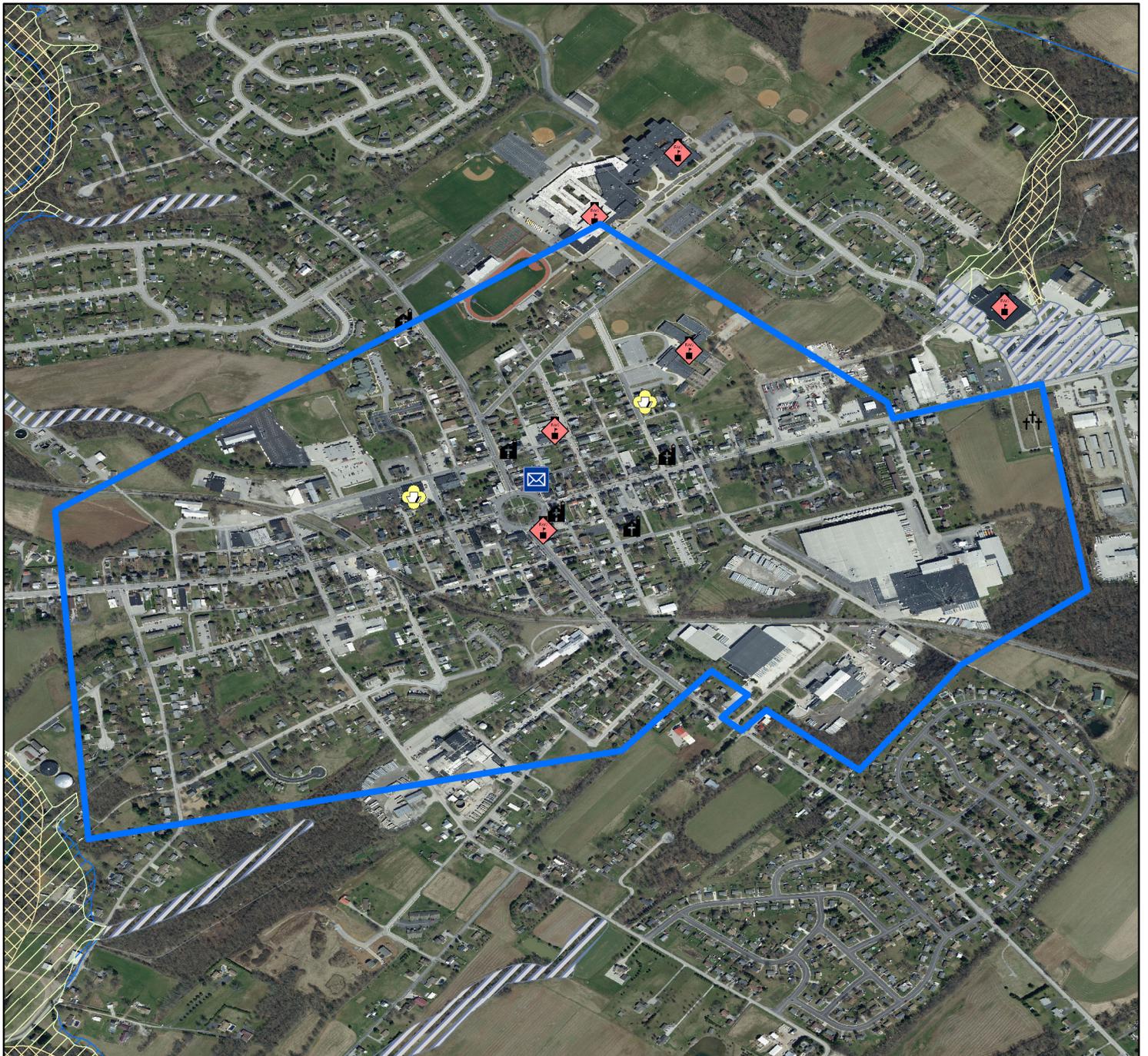
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: New Oxford Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

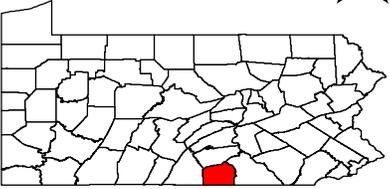


	New Oxford Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

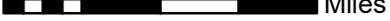
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: New Oxford Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA

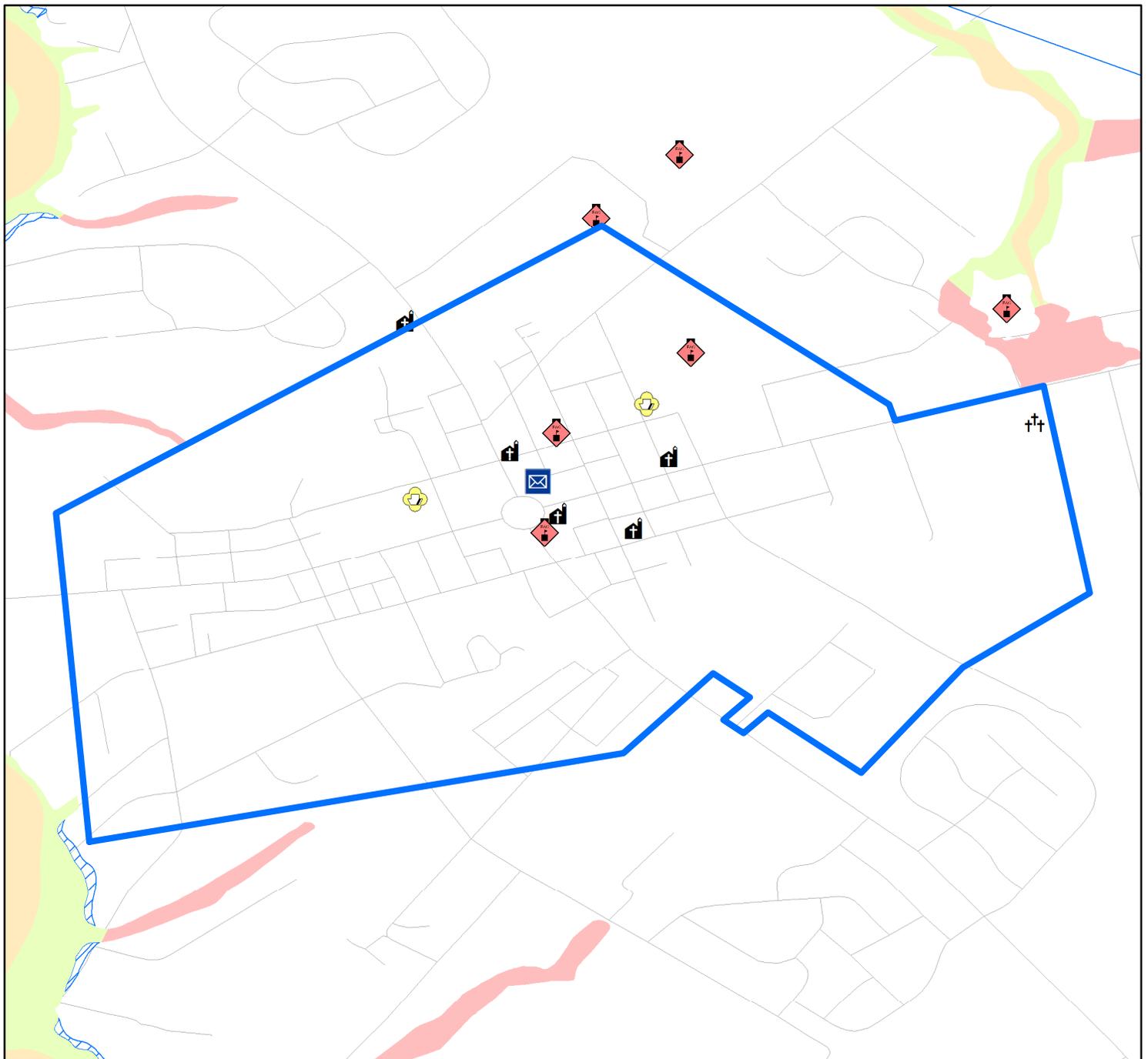
0.042 0.085 0.17 0.255 0.34 Miles





*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*





	Oxford Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

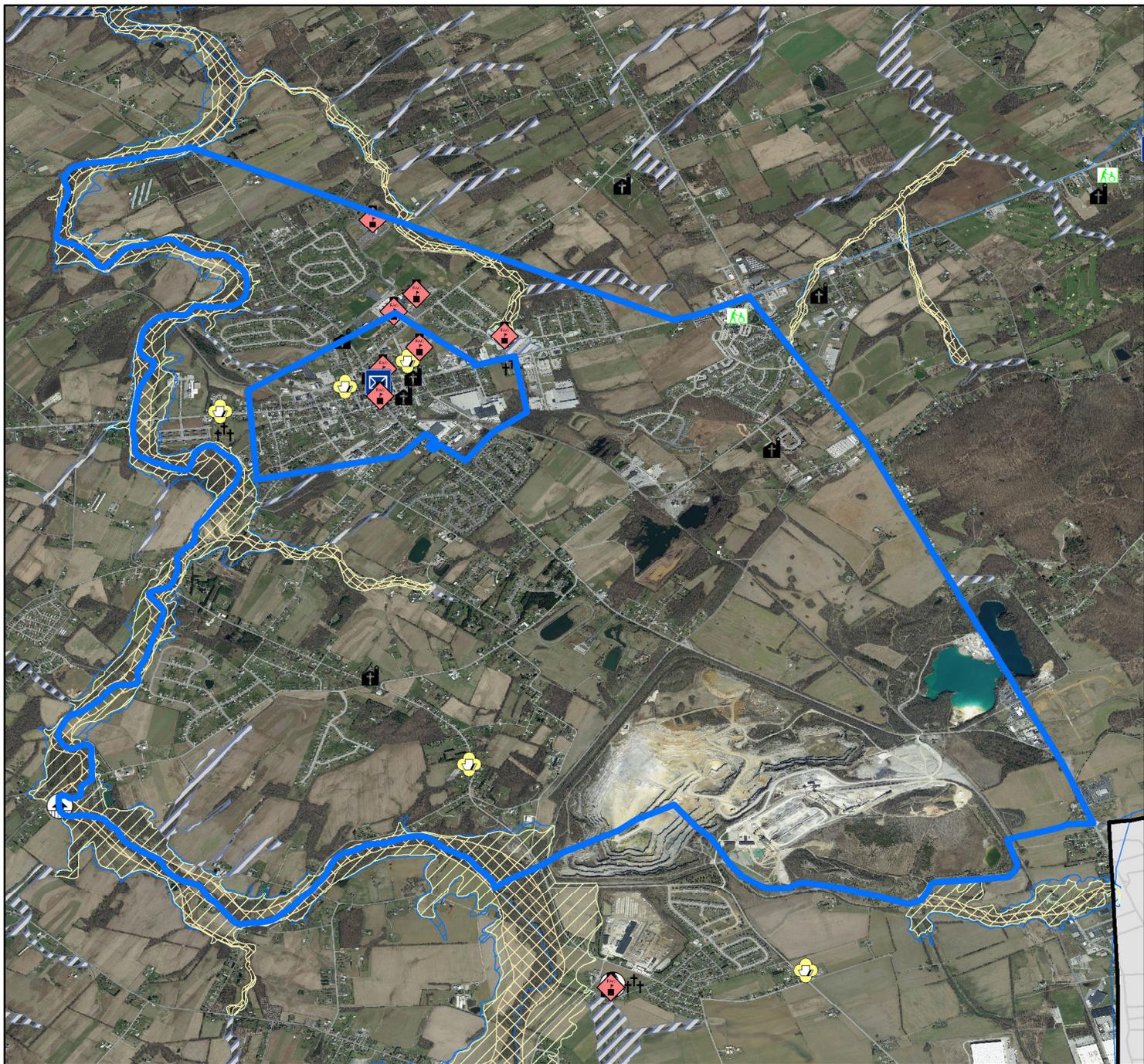
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Oxford Township

Data Source(s):  
ACOPD, FEMA,  
PASDA

0.0 0.3 0.6 0.9 1.2 Miles

*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



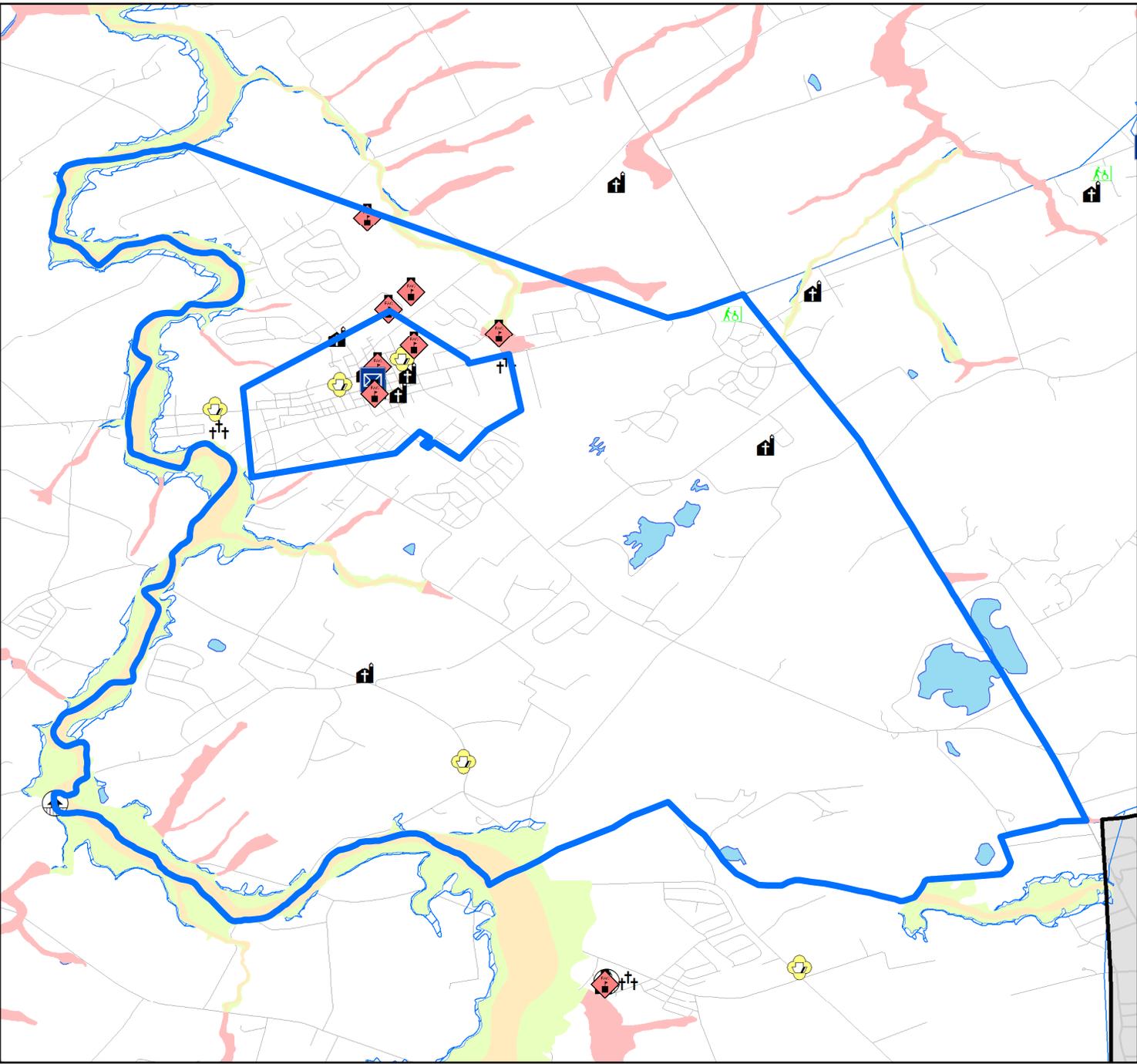
	Oxford Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

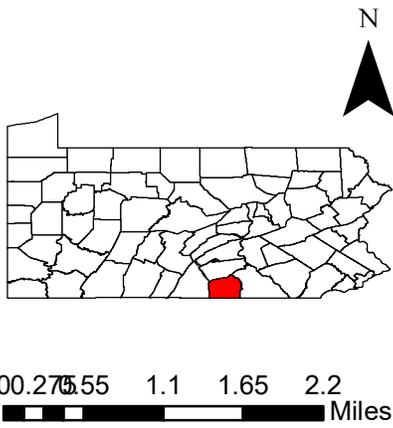
**Flood Vulnerability:  
Oxford Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

**DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.



-  Reading Township
-  Educational Facilities
-  Emergency Services Facilities
-  Mail & Shipping Facilities
-  Health & Medical Facilities
-  Cemeteries
-  Government & Military Facilities
-  Nursing, Personal Care Facilities
-  Churches
-  Historic/Cultural Site
-  Floodway
-  Zone A
-  Zone AE
-  Zone AO
-  0.2% Annual Chance



# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Reading Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

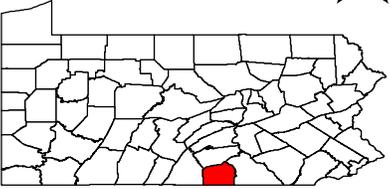


	Reading Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

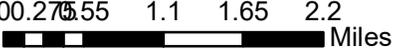
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Reading Township**

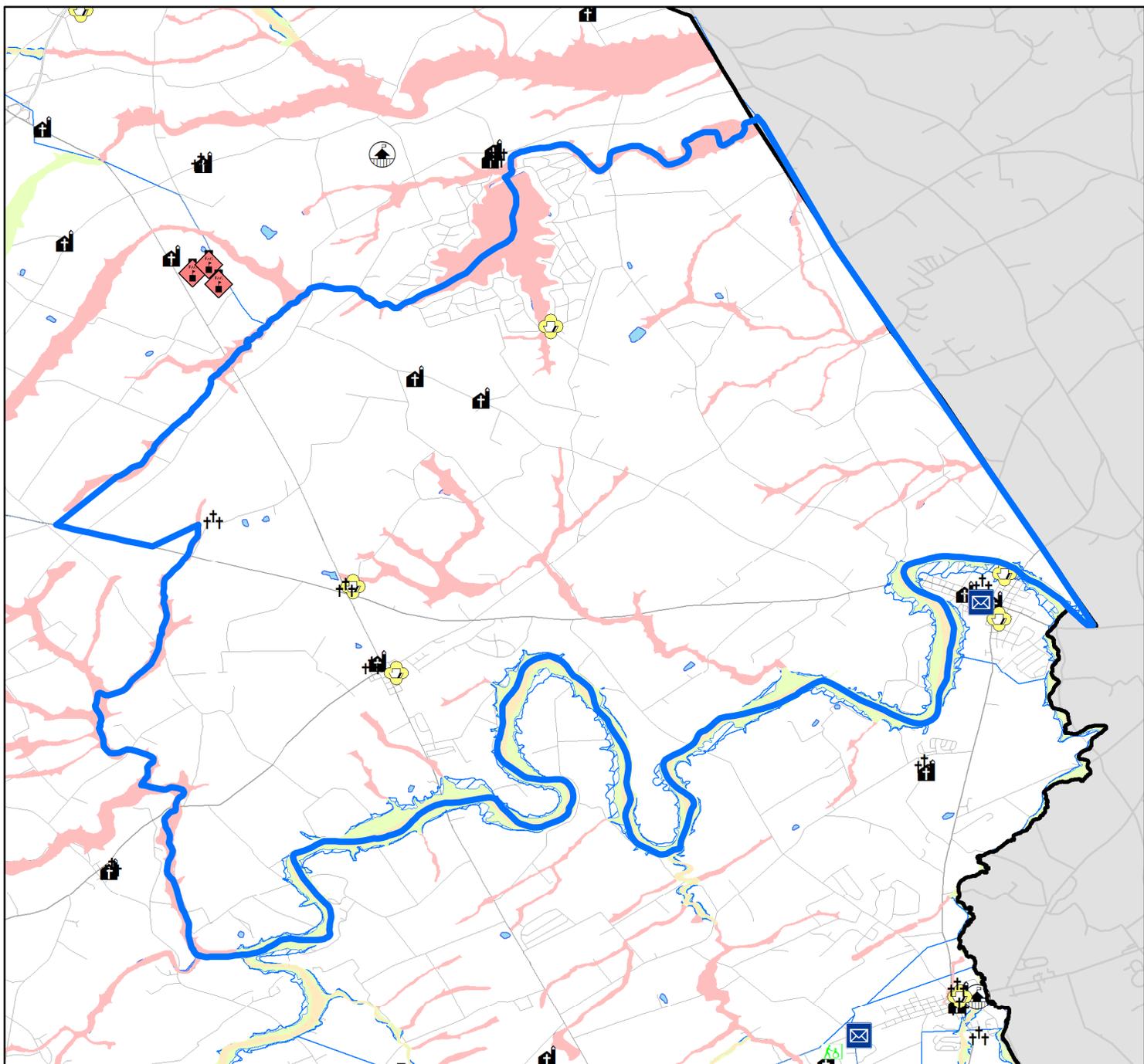
Data Source(s):  
ACOPD, FEMA,  
PASDA

0.275 0.55 1.1 1.65 2.2 Miles



 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 

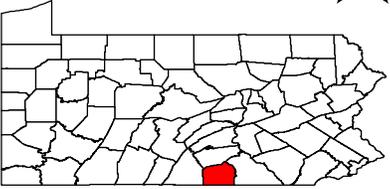


	Straban Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

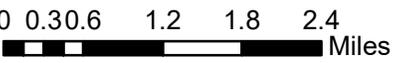
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Straban Township**

Data Source(s):  
ACOPD, FEMA,  
PASDA

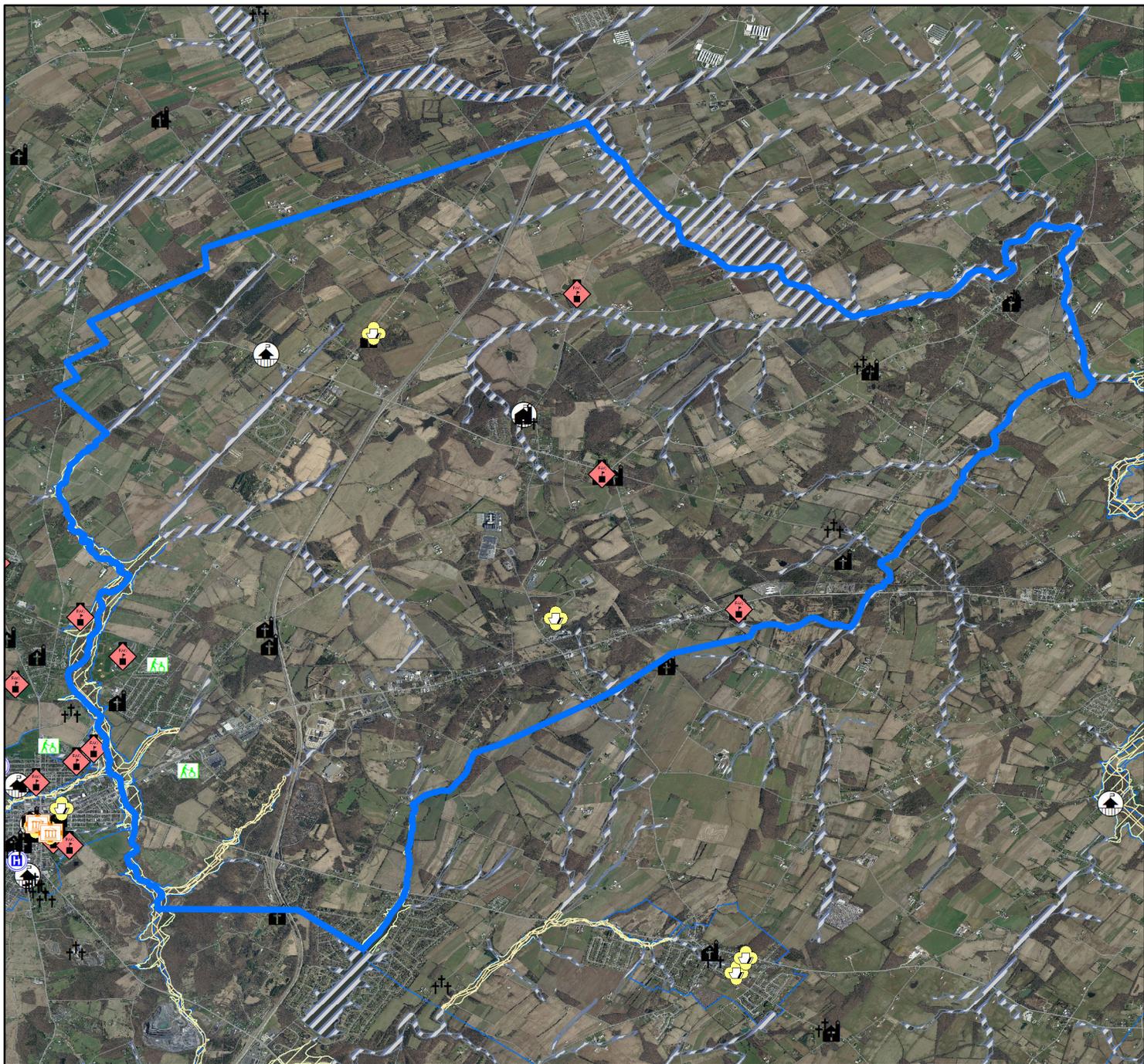
0 0.30.6 1.2 1.8 2.4 Miles





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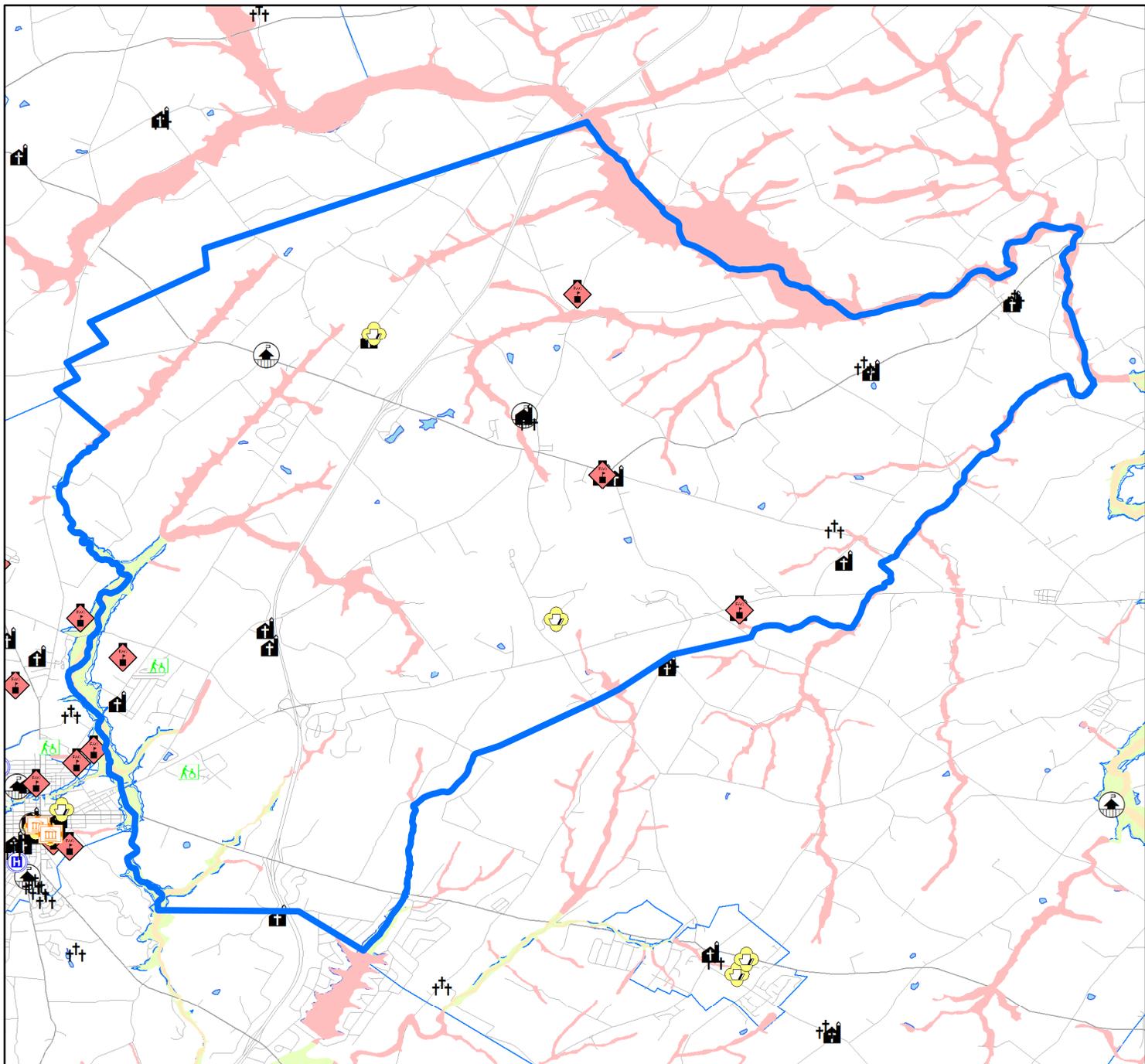
	Straban Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

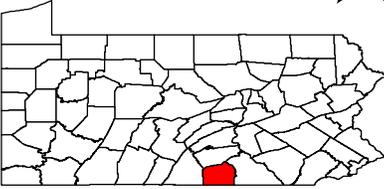
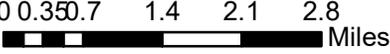
**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
Straban Township**

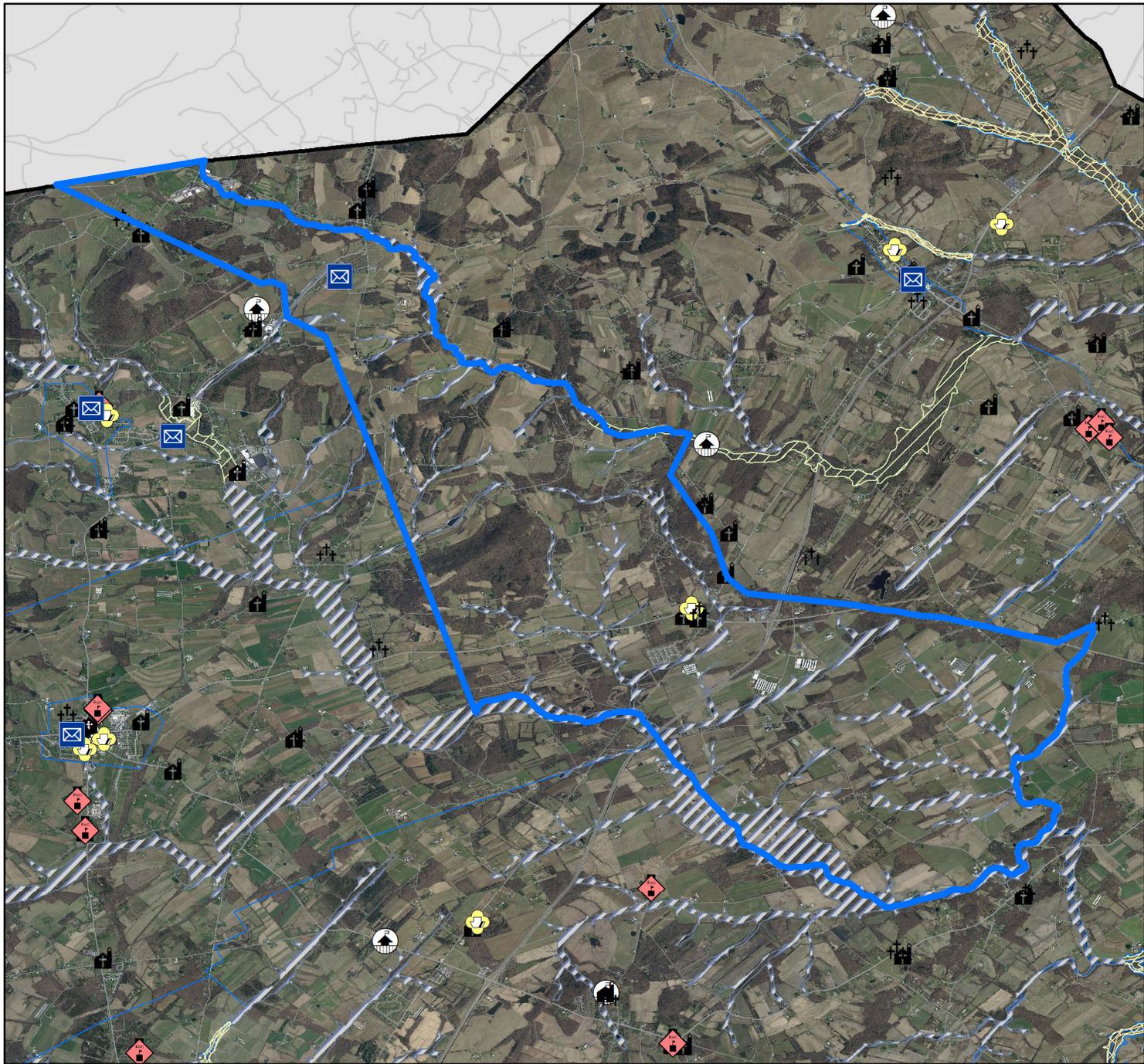
Data Source(s):  
ACOPD, FEMA,  
PASDA

**DISCLAIMER:** Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.



 Tyrone Township	 Nursing, Personal Care Facilities	 	<h1>ADAMS COUNTY HAZARD MITIGATION PLAN</h1> <h2>Flood Vulnerability: Tyrone Township</h2> <p>Data Source(s): ACOPD, FEMA, PASDA</p>
 Educational Facilities	 Churches		
 Emergency Services Facilities	 Historic/Cultural Site		
 Mail & Shipping Facilities	 Floodway		
 Health & Medical Facilities	 Zone A		
 Cemeteries	 Zone AE		
 Government & Military Facilities	 Zone AO		
	 0.2% Annual Chance		

 *DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.* 



	Tyrone Township		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

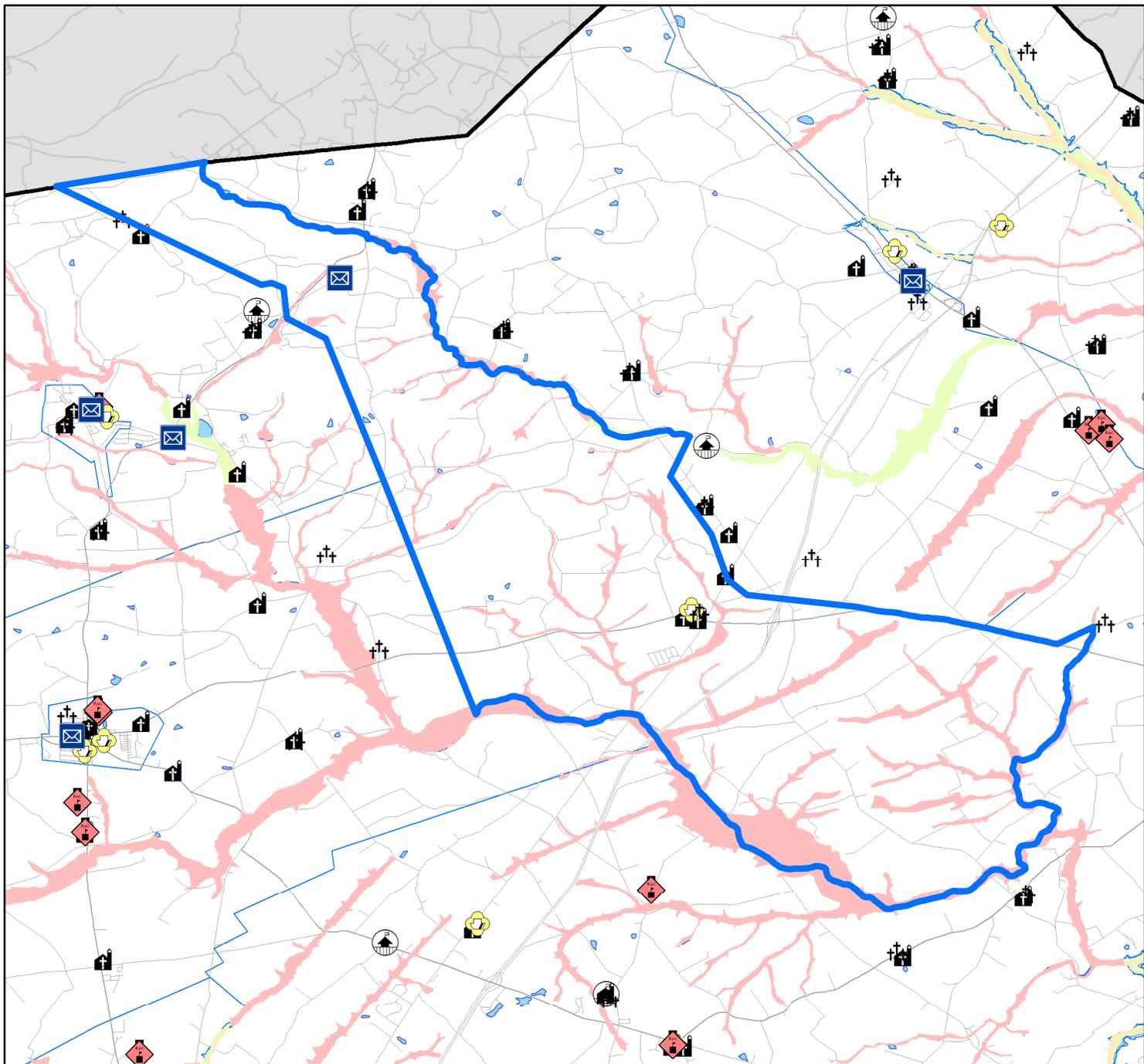
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Tyrone Township

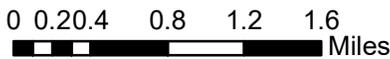
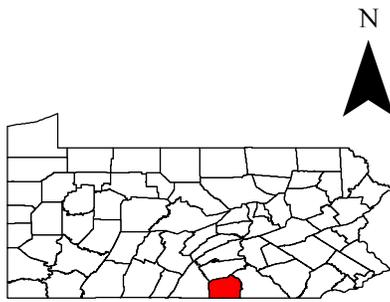
Data Source(s):  
ACOPD, FEMA, PASDA

0 0.35 0.7 1.4 2.1 2.8 Miles

*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*



- |   |                                  |   |                                   |
|---|----------------------------------|---|-----------------------------------|
|   | Union Township                   |  | Nursing, Personal Care Facilities |
|  | Educational Facilities           |  | Churches                          |
|  | Emergency Services Facilities    |  | Historic/Cultural Site            |
|  | Mail & Shipping Facilities       |  | Floodway                          |
|  | Health & Medical Facilities      |  | Zone A                            |
|  | Cemeteries                       |  | Zone AE                           |
|  | Government & Military Facilities |  | Zone AO                           |
|   |                                  |  | 0.2% Annual Chance                |



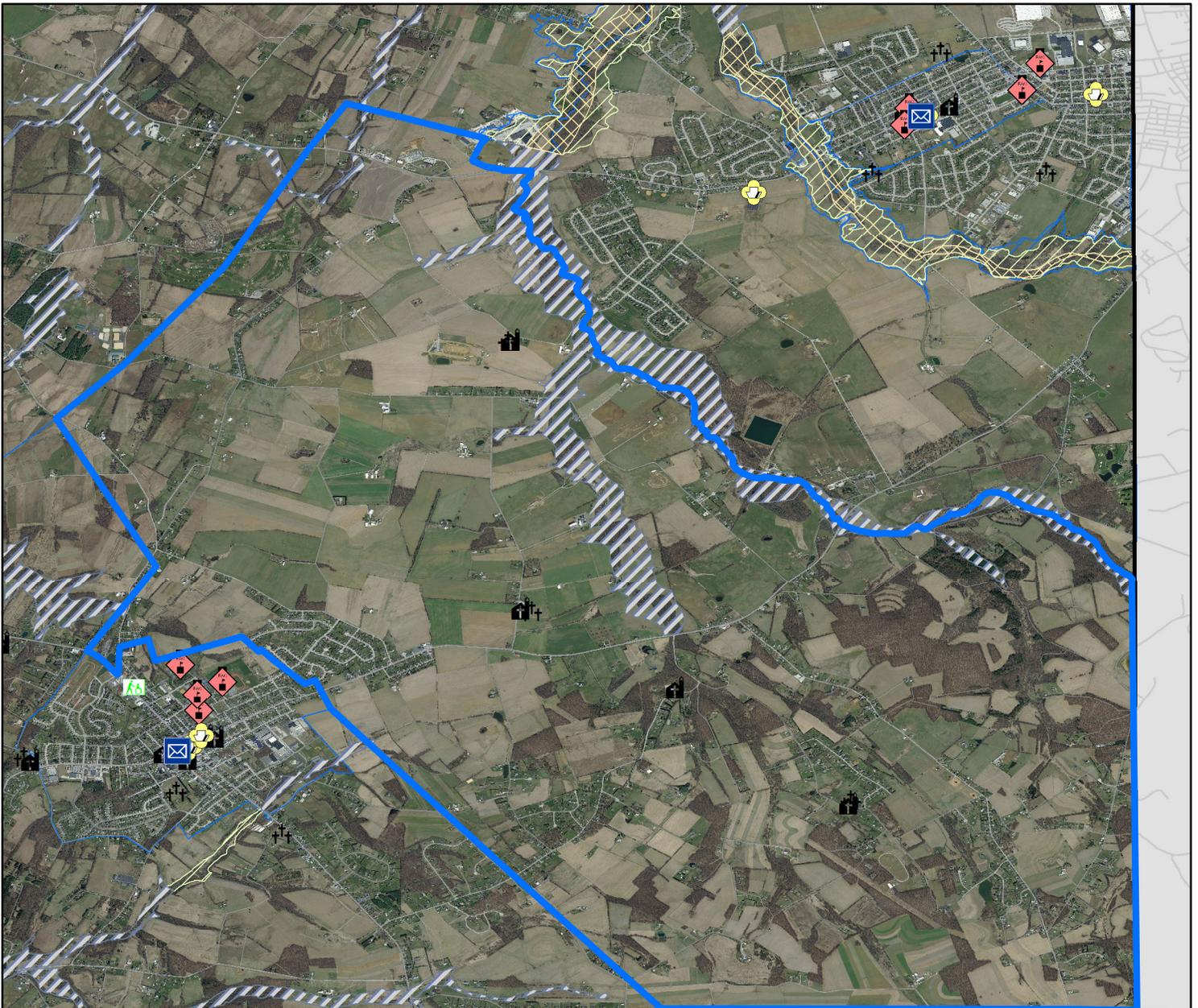
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Union Township

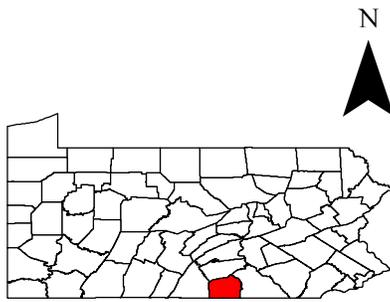
Data Source(s):  
ACOPD, FEMA,  
PASDA



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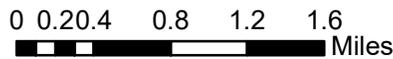
- |   |                                  |   |                                   |
|---|----------------------------------|---|-----------------------------------|
|   | Union Township                   |  | Nursing, Personal Care Facilities |
|  | Educational Facilities           |  | Churches                          |
|  | Emergency Services Facilities    |  | Historic/Cultural Site            |
|  | Mail & Shipping Facilities       |  | Floodway                          |
|  | Health & Medical Facilities      |  | Zone A                            |
|  | Cemeteries                       |  | Zone AE                           |
|  | Government & Military Facilities |  | Zone AO                           |
|   |                                  |  | 0.2% Annual Chance                |



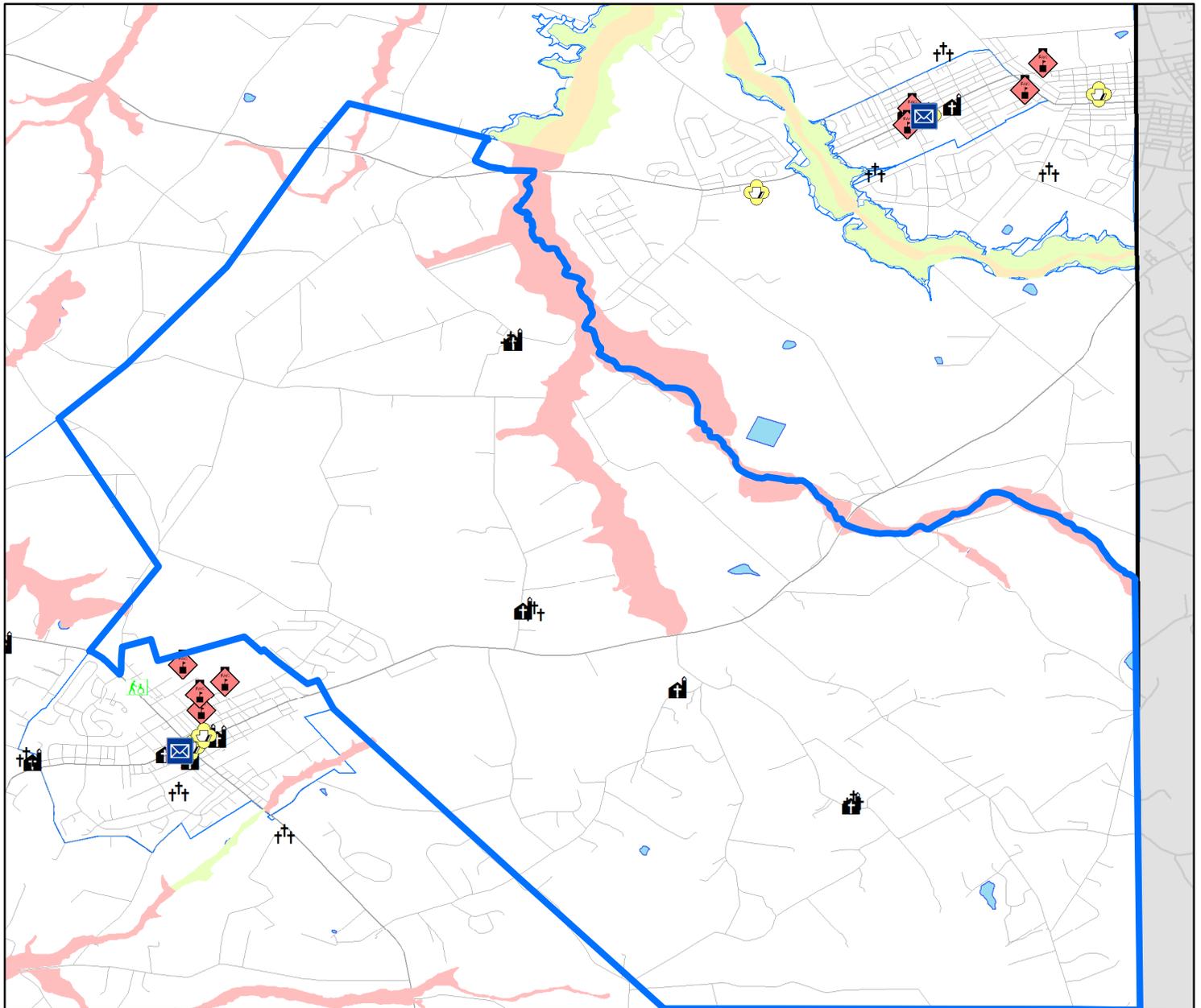
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: Union Township

Data Source(s):  
ACOPD, FEMA,  
PASDA



*DISCLAIMER: Data is meant for use as reference only. Some sources may be intended to be used at national or regional scales and are thus used beyond their original intent for demonstrative purposes.*

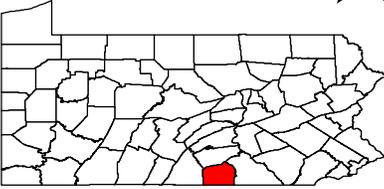


	York Springs Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

**ADAMS COUNTY  
HAZARD  
MITIGATION PLAN**

**Flood Vulnerability:  
York Springs Borough**

Data Source(s):  
ACOPD, FEMA,  
PASDA

0 0.06 0.12 0.18 0.24  
Miles





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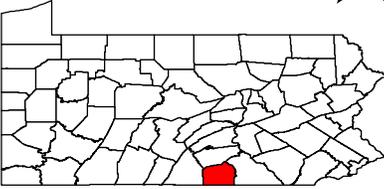


	York Springs Borough		Nursing, Personal Care Facilities
	Educational Facilities		Churches
	Emergency Services Facilities		Historic/Cultural Site
	Mail & Shipping Facilities		Floodway
	Health & Medical Facilities		Zone A
	Cemeteries		Zone AE
	Government & Military Facilities		Zone AO
			0.2% Annual Chance

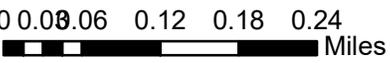
# ADAMS COUNTY HAZARD MITIGATION PLAN

## Flood Vulnerability: York Springs Borough

Data Source(s):  
ACOPD, FEMA,  
PASDA

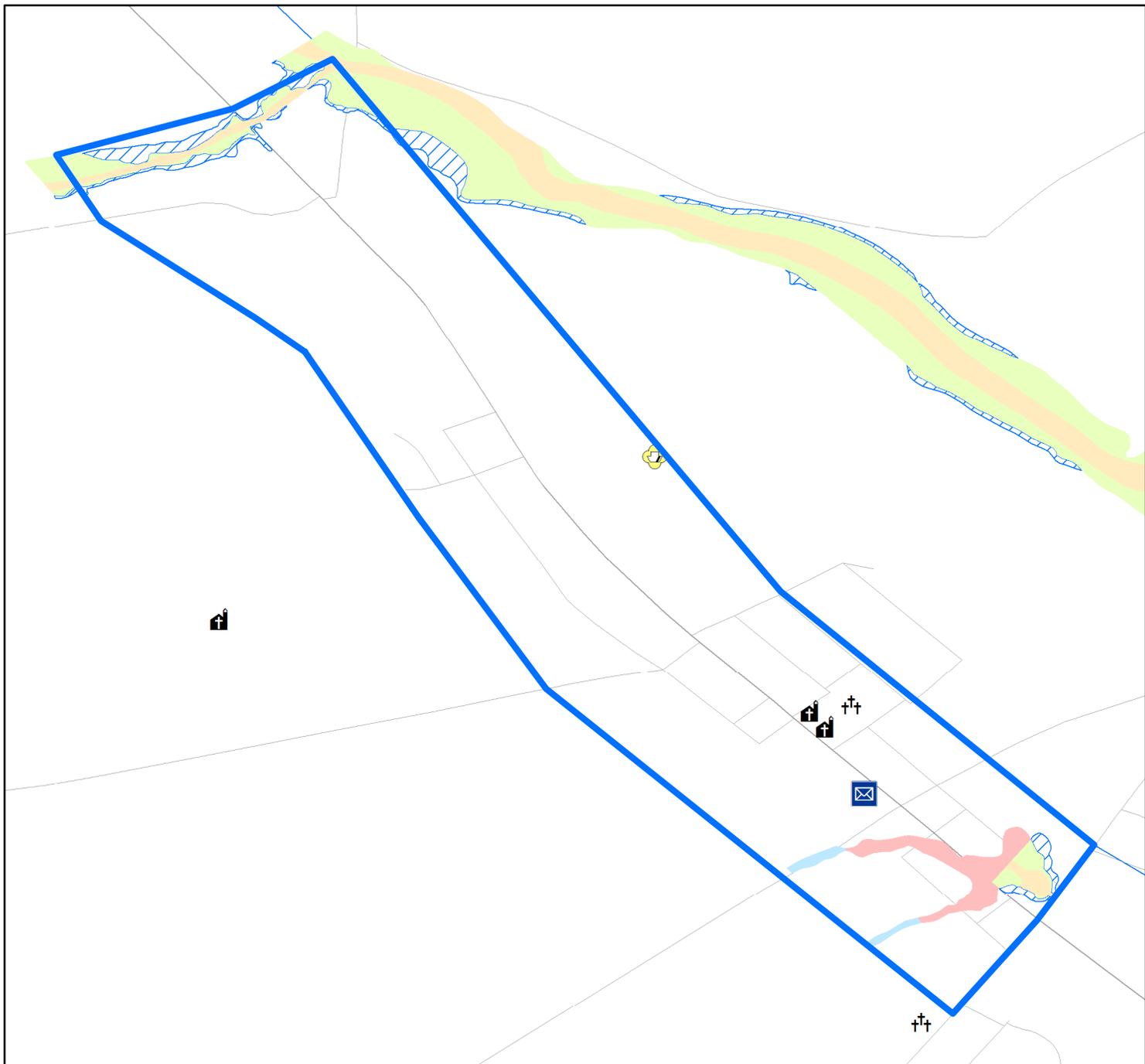



0 0.06 0.12 0.18 0.24 Miles



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## APPENDIX E: CRITICAL FACILITIES

This appendix contains information regarding the community assets and critical facilities, such as critical facilities, critical infrastructure, historic properties, commercial/industrial facilities, etc., to include their location with respect to identified hazard areas, in Adams County. “Assets” contribute directly to the quality of life in the community as well as ensure its continued operation. This plan characterizes “assets” under the following headings.

- **People:** Areas of greater population density as well as populations with unique vulnerabilities or diminished response and recovery capabilities. Examples include areas of concentrated populations, areas catering to tourists (i.e., visiting) populations, facilities housing or serving functional and access needs populations and facilities that provide health or social services.
- **Economy:** Important economic drivers specific to the community. Examples include major employers and commercial centers.
- **Built Environment:** Existing structures, infrastructure systems, critical facilities, and cultural resources. The following table includes examples of built environment categories.

Table AE-1

BUILT ENVIRONMENT ASSETS			
<i>Existing Structures</i>	<i>Infrastructure</i>	<i>Critical Facilities</i>	<i>Cultural Resources</i>
<ul style="list-style-type: none"> <li>• Commercial Buildings</li> <li>• Industrial buildings</li> <li>• Single &amp; multi-family residential buildings</li> </ul>	<ul style="list-style-type: none"> <li>• Water &amp; wastewater</li> <li>• Power utilities</li> <li>• Transportation (roads, railways, waterways)</li> <li>• Communication systems/centers</li> <li>• Energy pipelines and storage</li> </ul>	<ul style="list-style-type: none"> <li>• Hospitals and medical facilities</li> <li>• Police and fire stations</li> <li>• Emergency operations centers</li> <li>• Evacuation shelters</li> <li>• Schools</li> <li>• Airport/heliports</li> </ul> <p>HIGH POTENTIAL LOSS FACILITIES</p> <ul style="list-style-type: none"> <li>• Nuclear power plants</li> <li>• Dams</li> <li>• Military &amp; civil defense installations</li> <li>• Locations housing hazardous materials</li> </ul>	<ul style="list-style-type: none"> <li>• Historical assets</li> <li>• Museums</li> <li>• Unique geologic sites</li> <li>• Concert halls</li> <li>• Parks</li> <li>• Stadia</li> </ul>

- **Natural Environment:** Resources that are important to the community identity and quality of life, as well as those that support the local economy through agriculture, tourism, and



recreation. Examples include areas that can provide protective functions that reduce the magnitude of hazard events and critical habitat areas and other environmental features that are important to protect.

Total Critical Facilities

Figure AE-2 is a map of the facilities listed on Adams County's asset inventory. Table AE-3 then lists and categorizes them.



Figure AE-2

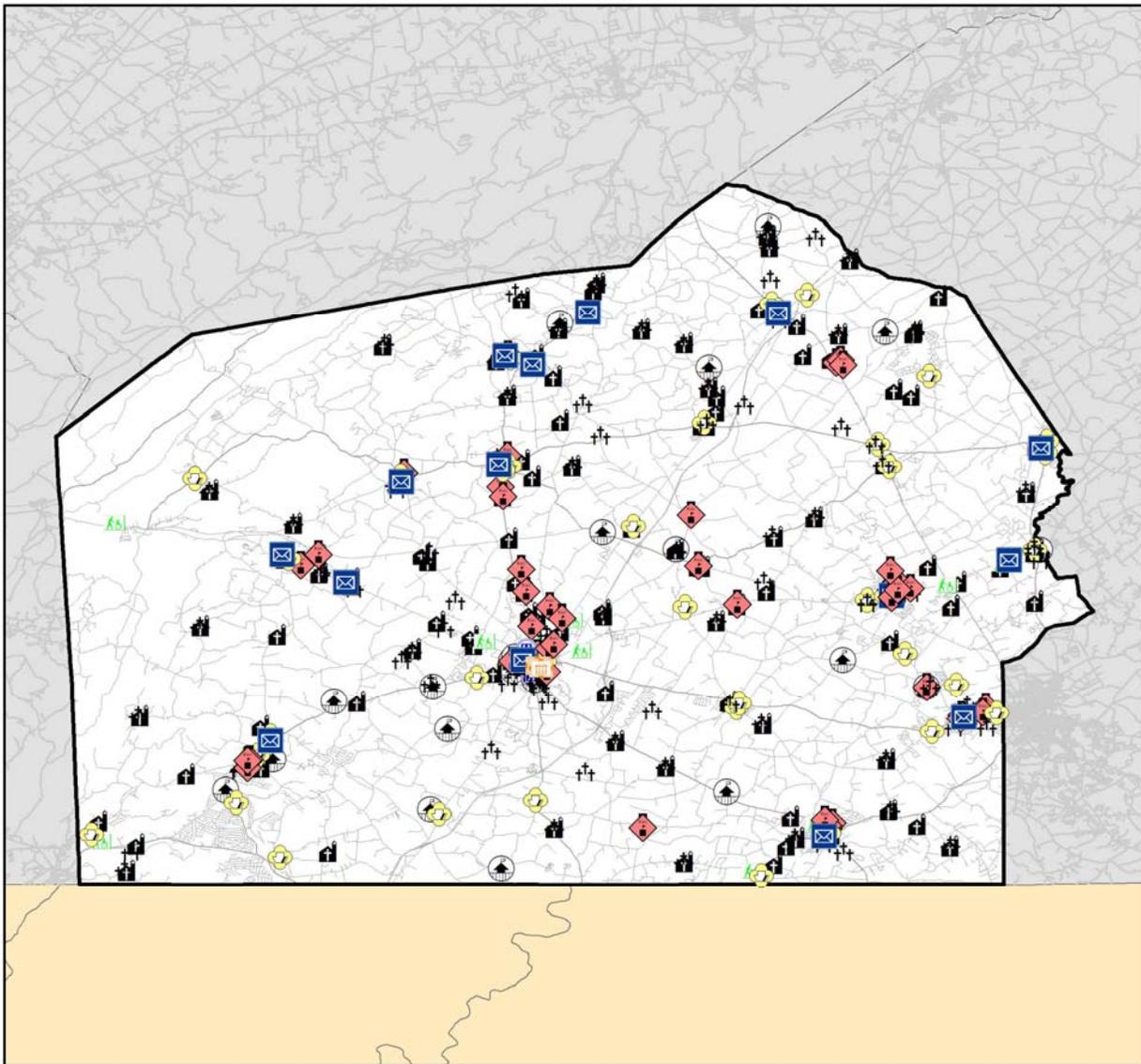
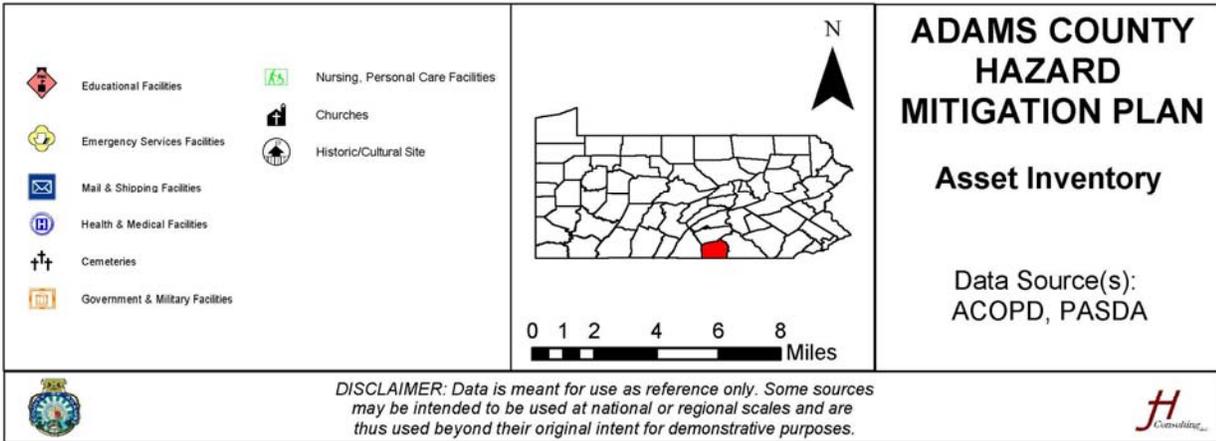


Table AE-3

ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Abbottstown Post Office	680 West King Street	Abbottstown	PA	17301					X
Academy for Media Production	238 Main Street	McSherrystown	PA	17344	X				
Ace Emergency Medical Services	4940 York Road	New Oxford	PA	17350	X				
Adams County Adult Correctional Complex	45 Major Bell Lane	Gettysburg	PA	17325			X		
Adams County Christian Academy	1865 Biglerville Road	Gettysburg	PA	17325	X				
Adams County Courthouse	111 Baltimore Street	Gettysburg	PA	17325			X		
Adams County Sheriff's Office	117 Baltimore Street Suite 103	Gettysburg	PA	17325	X				
Alloway Creek Intermediate School	162 Newark Street	Littlestown	PA	17340	X				
Alpha Fire Company 1 Station 20	40 East King Street	Littlestown	PA	17340	X				
Amos Tabernacle Church of God In Christ	2525 Mummersburg Road	Gettysburg	PA	17325		X			
Annunciation Blessed Virgin Mary School	316 North Street	McSherrystown	PA	17344	X				
Annunciation of Blessed Virgin Mary Cemetery	North Fifth Street	McSherrystown	PA	17344		X			
Annunciation of the Blessed Virgin Mary Catholic Parish	26 N. Third Street	McSherrystown	PA	17344		X			
Apostolic Church of Greenstone	2509 Iron Springs Road	Fairfield	PA	17320		X			
Arendtsville Community Fire Company Station 5	48 Pearl Street	Arendtsville	PA	17307	X				
Arendtsville Elementary School	136 Fohl Street	Arendtsville	PA	17303	X				
Arendtsville Post Office	26 South High Street	Arendtsville	PA	17303					X
Aspers Post Office	420 Aspers - Bendersville Road	Aspers	PA	17304					X
Assembly of Pentecostal Church	1450 Gun Club Road	York Springs	PA	17372		X			
Barlow Volunteer Fire Company Station 22	2005 Taneytown Road	Gettysburg	PA	17325	X				
Barts - Centenary United Methodist Church Cemetery	Barts Church Road	Hanover	PA	17331		X			
Barts Centenary United Methodist Church	50 E. King Street	Littlestown	PA	17340		X			



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Barts United Brethren Church	50 E. King Street	Littlestown	PA	17340		X			
Basilica of the Sacred Heart of Jesus	30 Basilica Drive	Hanover	PA	17331		X			
Benders Lutheran Church	1385 Rentzel Road	Biglerville	PA	17307		X			
Benders Lutheran Church Cemetery	Rentzel Road	Biglerville	PA	17307		X			
Bendersville Borough Police Department	125 B Rampike Hill Road	Bendersville	PA	17306	X				
Bendersville Cemetery	Cemetery Lane	Aspers	PA	17304		X			
Bendersville Community Fire Company Station 7	144 Park Street	Aspers	PA	17304	X				
Bendersville Elementary School	137 Rampike Hill Road	Bendersville	PA	17306	X				
Bendersville Lutheran Parish	126 Church Street	Bendersville	PA	17306		X			
Bendersville Post Office	125 Rampike Hill Road	Bendersville	PA	17306					X
Bendersville United Methodist Church	131 N. Main Street	Bendersville	PA	17306		X			
Bermudian God's Missionary Church	1416 Braggstown Road	East Berlin	PA	17316		X			
Bermudian Springs Elementary School	7335 Carlisle Pike	York Springs	PA	17372	X				
Bermudian Springs High School	7335 Carlisle Pike	York Springs	PA	17372	X				
Bermudian Springs Middle School	7335 Carlisle Pike	York Springs	PA	17372	X				
Bethel Assembly of God Church	1125 Frederick Pike	Littlestown	PA	17340		X			
Bethel Mennonite Church	2335 Biglerville Road	Gettysburg	PA	17325		X			
Bethlehem Church Cemetery	Old Carlisle Road	Aspers	PA	17304		X			
Bible Brethren Church	1012 Abbottstown Pike	Hanover	PA	17331		X			
Bible Fellowship Church of Adams County	895 Coleman Road	Gettysburg	PA	17325		X			
Biglerville Cemetery	Cemetery Road	Biglerville	PA	17307		X			
Biglerville Elementary School	3270 Biglerville Road	Biglerville	PA	17307	X				
Biglerville High School	161 North Main Street	Biglerville	PA	17307	X				
Biglerville Hose Truck Company 1 Station 6	111 South Main Street	Biglerville	PA	17307	X				
Biglerville Police Department	33 Musselman Avenue	Biglerville	PA	17307	X				
Biglerville Post Office	2 High Street	Biglerville	PA	17307					X



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Blacks Cemetery	405 Belmont Road	Gettysburg	PA	17325		X			
Bonneauville Community Fire Company	10 Elm Avenue	Gettysburg	PA	17325	X				
Bonneauville Police Department	46 East Hanover Street	Gettysburg	PA	17325	X				
Buchanan Valley Volunteer Fire Department Station 27	1180 Buchanan Valley Road	Orrtanna	PA	17353	X				
Butler Township Friends Cemetery	Center Mills Road	Aspers	PA	17304		X			
Calvary Baptist Church	2939 Table Rock Road	Biglerville	PA	17307		X			
Carroll Valley Police Department	5685 Fairfield Road	Carroll Valley	PA	17320	X				
Cashtown Community Fire Department Station 4	1069 Old Route 30	Cashtown	PA	17310	X				
Cashtown Post Office	372 High Street	Cashtown	PA	17310					X
Centenary United Methodist Church	99 N. Main Street	Biglerville	PA	17307		X			
Chapel Hill Church of God	4495 Oxford Road	York Springs	PA	17372		X			
Chestnut Grove Lutheran Church	1136 Mountain Road	York Springs	PA	17372		X			
Chestnut Grove Lutheran Church Cemetery	1136 Mountain Road	York Spring	PA	17372		X			
Christ Chapel Foursquare Church	225 New Chester Road	Gettysburg	PA	17325		X			
Christ Lutheran Church	30 Chambersburg Street	Gettysburg	PA	17325		X			
Christ Lutheran Church	1420 Center Mills Road	Aspers	PA	17304		X			
Christ United Church of Christ	131 Christ Church Road	Littlestown	PA	17340		X			
Christ United Church of Christ Cemetery	131 Christ Church Road	Littlestown	PA	17340		X			
Church Of Jesus Christ of Latter Day Saints	1170 Kohler Mill Road	New Oxford	PA	17350		X			
Church of the Brethren	1710 Biglerville Road	Gettysburg	PA	17325		X			
Clines United Methodist Church	495 Clines Church Road	Aspers	PA	17304		X			
Clines United Methodist Church Cemetery	495 Clines Church Road	Aspers	PA	17304		X			
Comfort Care	235 Franklin Street	Fairfield	PA	17320	X				
Cornerstone Worship Center	888 Coleman Road	Gettysburg	PA	17325		X			
Conewago Chapel Basilica Cemetery	Basilica Drive	Hanover	PA	17331		X			



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Conewago Township Elementary School	1189 West Elm Avenue	Hanover	PA	17331	X				
Conewago Township Police Department	541 Oxford Avenue	Hanover	PA	17331	X				
Conewago Valley Intermediate School	175 Seven Hundred Road	New Oxford	PA	17350	X				
Cross Keys Fellowship Church	785 Berlin Road	New Oxford	PA	17350		X			
Cross Keys Village The Brethren Home Community	2990 Carlisle Pike	New Oxford	PA	17350	X				
Cumberland Township Police Department	1370 Fairfield Road	Gettysburg	PA	17325	X				
Dal-Tile Corp Lincolnway East Plant	2938 York Road	Gettysburg	PA	17325			X		
Delone Catholic High School	140 South Oxford Avenue	McSherrystown	PA	17344	X				
East Berlin Police Department	128 Water Street	East Berlin	PA	17316	X				
East Berlin Post Office	214 Third Street	East Berlin	PA	17316					X
East Berlin Union Cemetery	North Avenue	East Berlin	PA	17316		X			
Eastern Adams Regional Police Department	110 North Berlin Avenue	New Oxford	PA	17350	X				
Emanuel Reformed Church Cemetery	East Fleet Street	Abbottstown	PA	17301		X			
Emmanuel United Church of Christ	Center Square	Abbottstown	PA	17301		X			
Emory United Methodist Church	35 Center Square	New Oxford	PA	17350		X			
Evergreen Cemetery	799 Baltimore Street	Gettysburg	PA	17325		X			
Fairfield Area Elementary School	4842 Fairfield Road	Fairfield	PA	17320	X				
Fairfield Area High School	4840 Fairfield Road	Fairfield	PA	17320	X				
Fairfield Area Middle School	4840 Fairfield Road	Fairfield	PA	17320	X				
Fairfield Fire and Emergency Medical Services Station 2	106 Steelman Street	Fairfield	PA	17320	X				
Fairfield Mennonite Church	201 W. Main Street	Fairfield	PA	17320		X			
Fairfield Post Office	6 Carrolls Tract Road	Fairfield	PA	17320					X
Fairfield Union Cemetery	Fairfield Road	Fairfield	PA	17320		X			
Fairview Cemetery	Cemetery Road	Arendtsville	PA	17303		X			
Faith Baptist Church	760 Germany Road	East Berlin	PA	17316		X			
Family Life Worship Center Church of God	233 Carlisle Street	New Oxford	PA	17350		X			



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Fellowship Baptist Church	110 Mount Hope Road	Fairfield	PA	17320		X			
First Baptist Church	1015 Chambersburg Road	Gettysburg	PA	17325		X			
First Baptist Church of Littlestown	5015 Baltimore Pike	Littlestown	PA	17340		X			
First Evangelical Lutheran Church	200 Lincolnway East	New Oxford	PA	17350		X			
Fisher - Sieber Health Center	West Broadway	Gettysburg	PA	17325	X				
Flohers Evangelical Lutheran Church	P.O. Box 32	McKnightstown	PA	17343		X			
Flohers Lutheran Church Cemetery	Flohers Church Road	Biglerville	PA	17307		X			
Forest Lane Mennonite School	850 Red Bridge Road	Gettysburg	PA	17325	X				
Fountaindale Union - Wesley Chapel Cemetery	Harbaugh Valley Road	Fairfield	PA	17320		X			
Fountaindale Volunteer Fire Company	1340 Old Waynesboro Road	Fairfield	PA	17320	X				
Fountaindale Volunteer Fire Company Station 3	1340 Old Waynesboro Road	Fairfield	PA	17320	X				
Franklin Township Elementary School	870 Old Route 30	Cashtown	PA	17310	X				
Freedom Christian School	3185 York Road	Gettysburg	PA	17325	X				
Freedom Valley Worship Center	3185 York Road	Gettysburg	PA	17325		X			
Full Gospel Lighthouse	5 White Church Road	Gettysburg	PA	17325		X			
G.A.R. Post	53 E. Middle Street	Gettysburg	PA	17325		X			
Gardners Cemetery	955 Mountain Road	York Springs	PA	17372		X			
Gardners Church	955 Mountain Road	York Springs	PA	17372		X			
Gardners Post Office	110 Upper Bermudian Road	Gardners	PA	17324					X
Genesis - Gettysburg Center	867 York Road	Gettysburg	PA	17325	X				
German Society Lutheran Calvinist Cemetery	Flohers Church Road	Biglerville	PA	17307		X			
Gettysburg Area High School	1130 Old Harrisburg Road	Gettysburg	PA	17325	X				
Gettysburg Area Middle School	37 Lefever Street	Gettysburg	PA	17325	X				
Gettysburg Baptist Church	95 Fairview Road	Gettysburg	PA	17325		X			
Gettysburg Bible Baptist Church	3003 Old Harrisburg Road	Gettysburg	PA	17325		X			
Gettysburg Boro Police Department	59 East High Street	Gettysburg	PA	17325	X				



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Gettysburg Church of Christ	60 Fairview Road	Gettysburg	PA	17325		X			
Gettysburg College	300 North Washington Street	Gettysburg	PA	17325			X		
Gettysburg College Christ Chapel	300 N. Washington Street	Gettysburg	PA	17325		X			
Gettysburg Congregation of Jehovah's Witnesses	1274 Highland Avenue Road	Gettysburg	PA	17325		X			
Gettysburg Fire Department Station 1	35 North Stratton Street	Gettysburg	PA	17325	X				
Gettysburg Foursquare Church	330 W. Middle Street	Gettysburg	PA	17325		X			
Gettysburg Harvest Field Church of the Nazarene	1110 Fairfield Road	Gettysburg	PA	17325		X			
Gettysburg Montessori Charter School	888 Coleman Road	Gettysburg	PA	17325	X				
Gettysburg Municipal Building	59 East High Street	Gettysburg	PA	17325	X				
Gettysburg National Cemetery	791 Baltimore Street	Gettysburg	PA	17325		X			
Gettysburg National Cemetery Annex	791 Baltimore Street	Gettysburg	PA	17325		X			
Gettysburg Post Office	115 Buford Avenue	Gettysburg	PA	17325					X
Gettysburg Presbyterian Church	208 Baltimore Street	Gettysburg	PA	17325		X			
Gettysburg Seventh - day Adventist Church School	1493 Biglerville Road	Gettysburg	PA	17325	X				
Gettysburg Seventh Day Adventist School/Church	1493 Biglerville Road	Gettysburg	PA	17325	X				
Gettysburg United Methodist Church	30 W. High Street	Gettysburg	PA	17325		X			
Golden Living Center	741 Chambersburg Road	Gettysburg	PA	17325	X				
Grace Baptist Church	2430 Tract Road	Fairfield	PA	17320		X			
Grace Bible Chapel	5575 Oxford Road	Gardners	PA	17324		X			
Grace Bible Chapel Cemetery	Oxford Road	Gardners	PA	17324		X			
Grace Lutheran Cemetery	3055 Baltimore Pike	Gettysburg	PA	17325		X			
Grace Lutheran Church	3045 Baltimore Pike	Gettysburg	PA	17325		X			
Great Conewago Presbyterian Church Cemetery	Presbyterian Church Road	Gettysburg	PA	17325		X			
Greater Conewago Presbyterian Church	174 Red Brick Road	Gettysburg	PA	17325		X			
Greenmount Cemetery	Chambersburg Street	Arendtsville	PA	17307		X			



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Greenmount Community Volunteer Fire Company Station 23	3095 Emmitsburg Road	Gettysburg	PA	17325	X				
Hamiltonban Township Police Department	23 Carrolls Tract Road	Fairfield	PA	17320	X				
Hampton Fire Company Station 10	5371 Carlisle Pike	New Oxford	PA	17350	X				
Hampton Meeting House Cemetery	5815 Carlisle Pike	East Berlin	PA	17316		X			
Hampton Union Cemetery	Carlisle Pike	New Oxford	PA	17350		X			
Hanover Mennonite School	1140 High Street	Hanover	PA	17331	X				
Harrisburg Area Community College - Gettysburg Campus	731 Old Harrisburg Road	Gettysburg	PA	17325			X		
Harvest Chapel	6947 York Road	Abbottstown	PA	17301		X			
Heidlersburg Cemetery	Heidlersburg Road	Gettysburg	PA	17325		X			
Heidlersburg Fire Company Station 25	2720 Heidlersburg Road	Gettysburg	PA	17325	X				
Heidlersburg United Brethren Church	2736 Heidlersburg Road	Gettysburg	PA	17325		X			
Heritage Assembly of God	1575 Chambersburg Road	Gettysburg	PA	17325		X			
Herr's Ridge Mennonite Church	1270 Herrs Ridge Road	Gettysburg	PA	17325		X			
Hillside Personal Care	1175 Old Waynesboro Road	Fairfield	PA	17320	X				
Hoffman Academy	815 Orphanage Road	Littlestown	PA	17340	X				
Holy Trinity Church Cemetery	216 Main Street	York Springs	PA	17372		X			
Holy Trinity Lutheran Church	216 Main Street	York Springs	PA	17372		X			
Hostetters Meeting House	537 Hostetters Road	Hanover	PA	17331		X			
Hostetters Meeting House Cemetery	Hostetters Road	Hanover	PA	17331		X			
Huntington Friends Meeting House	300 Quaker Church Road	York Springs	PA	17372		X			
Huntington Quaker Meeting House Cemetery	300 Quaker Church Road	York Spring	PA	17372		X			
Idaville Church of the United Brethren In Christ	3590 Carlisle Road	Gardners	PA	17324		X			
Idaville United Methodist Cemetery	3725 Carlisle Road	Gardners	PA	17324		X			
Idaville United Methodist Church	3725 Carlisle Road	Gardners	PA	17324		X			



ADAMS COUNTY ASSET INVENTORY									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Iglesia Cristiana Manantial De Vida	150 Little Avenue	New Oxford	PA	17350		X			
Immaculate Conception Catholic Church	102 Carlisle Street	New Oxford	PA	17350		X			
Immaculate Conception Catholic Church	256 Tract Road	Fairfield	PA	17320		X			
Immaculate Conception Catholic Church Cemetery	York Road	New Oxford	PA	17350		X			
Immaculate Conception School	101 North Peter Street	New Oxford	PA	17350	X				
Irishtown Fire Company Station 14	934 Irishtown Road	New Oxford	PA	17350	X				
Iron Springs Brethren Church	855 Iron Springs Road	Fairfield	PA	17320		X			
Jacobs Church	495 Harbaugh Valley Road	Fairfield	PA	17320		X			
Jacobs Church Cemetery	Harbaugh Valley Road	Fairfield	PA	17320		X			
James Gettys Elementary School	898 Biglerville Road	Gettysburg	PA	17325	X				
Jesus Is Lord Christian Academy	3425 Chambersburg Road	Biglerville	PA	17307	X				
Jesus Is Lord Ministries International	3425 Chambersburg Road	Biglerville	PA	17307		X			
Jireh Christian Day School	3086 Biglerville Road	Biglerville	PA	17307	X				
Jireh Independent Baptist Church	3086 Biglerville Road	Biglerville	PA	17307		X			
Kingsdale Volunteer Fire Company	1789 Frederick Pike	Littlestown	PA	17340	X				
Knouse Foods Coop, Inc. Gardners Plant	450 Gardners Station Road	Gardners	PA	17324			X		
Knouse Foods Coop, Inc. Orrtanna Plant	1505 Orrtanna Road	Orrtanna	PA	17353			X		
Knouse Foods Coop, Inc. Peach Glen Plant	800 Peach Glen-Idaville Road	Peach Glen	PA	17375			X		
Knouse Foods Coop, Inc. Biglerville Plant	53 E. Hanover Street	Biglerville	PA	17307			X		
Knouse Foods Coop, Inc. Mountain Orchard Cold Storage	1425 Center Mills Road	Aspers	PA	17304			X		
Lake Meade Fire and Rescue Station 26	492 Lake Meade Drive	East Berlin	PA	17316	X				
Latimore Mennonite Church	1455 Old Route 15	York Springs	PA	17372		X			
Latimore Mennonite Meetinghouse Cemetery	Old Harrisburg Road	York Springs	PA	17372		X			



ADAMS COUNTY ASSET INVENTORY									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Liberty Fire Company 1 Station 11	101 East Locust Street	East Berlin	PA	17316	X				
Liberty Township Police Department	39 Topper Road	Fairfield	PA	17320	X				
Lighthouse Baptist Church	80 Apple Avenue	Gettysburg	PA	17325		X			
Lincoln Cemetery	Cemetery Alley	Gettysburg	PA	17325		X			
Lincoln Elementary School	98 Lefever Street	Gettysburg	PA	17325	X				
Lincoln Intermediate Unit Number 12	65 Billerbeck Street	New Oxford	PA	17350	X				
Littlestown Chapel of Outreach for Christ	1144 Bollinger Road	Littlestown	PA	17340		X			
Littlestown Foundry, Inc.	150 Charles Street	Littlestown	PA	17340			X		
Littlestown Police Department	10 South Queen Street	Littlestown	PA	17340	X				
Littlestown Post Office	24 West King Street	Littlestown	PA	17340					X
Littlestown Senior High School	200 East Myrtle Street	Littlestown	PA	17340	X				
Living Faith Evangelical Church	1490 Frederick Pike	Littlestown	PA	17340		X			
Living Hope Presbyterian Church	155 Early Avenue	Gettysburg	PA	17325		X			
Lobach - Bushey Cemetery	669 Bushey School Road	York Springs	PA	17372		X			
Lower Bermudian Lutheran Church	2409 Lake Meade Road	East Berlin	PA	17316		X			
Lower Bermudian Lutheran Church Cemetery	2409 Lake Meade Road	East Berlin	PA	17316		X			
Lower Marsh Creek Presbyterian Cemetery	375 Byers Lane	Gettysburg	PA	17325		X			
Lower Marsh Creek Presbyterian Church	1865 Knoxlyn Road	Gettysburg	PA	17325		X			
Lutheran Theological Seminary at Gettysburg	61 Seminary Ridge	Gettysburg	PA	17325			X		
Lutheran Theological Seminary Chapel	61 Seminary Ridge	Gettysburg	PA	17325		X			
Luz Alegria y Esperanza Brethren In Christ (or BIC)	8273 Carlisle Pike	York Springs	PA	17372		X			
Maple Avenue Middle School	75 Maple Avenue	Littlestown	PA	17340	X				
Martin's Care Home	159 Kingsdale Road	Littlestown	PA	17340	X				
McClelland Cemetery	Black Horse Tavern Road	Gettysburg	PA	17325		X			
McKnightstown Cemetery	82 Old Route 30	Biglerville	PA	17307		X			
McKnightstown Post Office	245 Old State Highway 30	McKnightstown	PA	17343					X



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
McSherrystown Police Department	336 Main Street	McSherrystown	PA	17344	X				
McSherrystown Post Office	328 Main Street	McSherrystown	PA	17344					X
Memorial Baptist Church	1096 Biglerville Road	Gettysburg	PA	17325		X			
Menallen Friends Cemetery	1107 Carlisle Road	Aspers	PA	17304		X			
Menallen Friends Meeting House	1107 Carlisle Road	Biglerville	PA	17307		X			
Methodist Episcopal Church Cemetery	53 East Middle Street	Gettysburg	PA	17325		X			
Midway Ambulance Service	202 Linden Avenue	Hanover	PA	17331	X				
Morning Glory Assisted Living	419 N. Queen Street	Littlestown	PA	17340	X				
Morning Hour Chapel	491 Germany Road	East Berlin	PA	17316		X			
Motts, LLP	45 Aspers-North Road	Aspers	PA	17304			X		
Mount Calvary Methodist Cemetery	Cashtown Road	Orrtanna	PA	17307		X			
Mount Carmel Cemetery	Cemetery Street	Littlestown	PA	17340		X			
Mount Carmel United Methodist Church Cemetery	1455 Mount Carmel Road	Orrtanna	PA	17353		X			
Mount Hope United Methodist Church Cemetery	1945 Mount Hope Road	Fairfield	PA	17320		X			
Mount Olive Cemetery	Abbottstown Pike	Abbottstown	PA	17301		X			
Mount Olivet United Church of Christ Cemetery	Two Churches Road	East Berlin	PA	17316		X			
Mount Tabor Cemetery	1310 Mount Tabor Road	Gardners	PA	17324		X			
Mt. Calvary United Methodist Church	P.O. Box 301	Bendersville	PA	17306		X			
Mt. Carmel United Methodist Church	P.O. Box 122	Orrtanna	PA	17353		X			
Mt. Hope United Methodist Church	P.O. Box 122	Orrtanna	PA	17353		X			
Mt. Joy Lutheran Church	2615 Taneytown Road	Gettysburg	PA	17325		X			
Mt. Olivet United Brethren Church of Christ	325 Centre Mills Road	Aspers	PA	17304		X			
Mt. Olivet United Church of Christ	265 Two Churches Road	East Berlin	PA	17316		X			
Mummasburg Mennonite Cemetery	1962 Goldenville Road	Gettysburg	PA	17325		X			
Mummert Meeting House	391 Mummerts Church Road	New Oxford	PA	17350		X			
Mummerts Meetinghouse Cemetery	Mummerts Church Road	Abbottstown	PA	17301		X			



ADAMS COUNTY ASSET INVENTORY									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
New Life Outreach Ministries	278 S. Franklin Street	Gettysburg	PA	17325		X			
New Oxford Cemetery	4929 York Road	New Oxford	PA	17350		X			
New Oxford Community Fire Company	21 North Bolton Street	New Oxford	PA	17350	X				
New Oxford Elementary School	116 North Berlin Avenue	New Oxford	PA	17350	X				
New Oxford Middle School	130 Berlin Road	New Oxford	PA	17350	X				
New Oxford Post Office	4 Center Square	New Oxford	PA	17350					X
New Oxford Senior High School	130 Berlin Road	New Oxford	PA	17350	X				
Northern Low Dutch Cemetery	Swift Run Road	New Oxford	PA	17325		X			
Oak Lawn Memorial Gardens	1380 Chambersburg Road	Gettysburg	PA	17325		X			
Old Alms House Cemetery	Howard Avenue	Gettysburg	PA	17325		X			
Old White Episcopal Church Cemetery	White Church Road	York Springs	PA	17372		X			
Open Arms Christian Fellowship	5410 Old Harrisburg Road	York Springs	PA	17372		X			
Orchard Springs Fellowship	2140 Carlisle Road	Aspers	PA	17304		X			
Orrtanna United Methodist Church	P.O. Box 122	Orrtanna	PA	17353		X			
Oxford Christian Academy	29 Center Square	New Oxford	PA	17350	X				
Peace Light Brethren in Christ Church	2793 Chambersburg Road	Biglerville	PA	17307		X			
Pennsylvania State Police Troop H Gettysburg Station	3033 Old Harrisburg Road	Gettysburg	PA	17325	X				
Pfoutz Meeting House Cemetery	Black Horse Tavern Road	Gettysburg	PA	17325		X			
Pine Bank Cemetery	Cemetery Road	Gettysburg	PA	17325		X			
Plainville Brands, LLC	304 S. Water Street	New Oxford	PA	17350			X		
Presbyterian Cemetery	Old Harrisburg Road	York Springs	PA	17372		X			
Prince of Peace Episcopal Church	20 W. High Street	Gettysburg	PA	17325		X			
Reading Township Police Department	50 Church Road	East Berlin	PA	17316	X				
Redeemers United Church of Christ	107 E. King Street	Littlestown	PA	17340		X			
Rock Chapel Cemetery	4730 Oxford Road	York Springs	PA	17372		X			
Rock Chapel Church	840 Trolley Road	York Springs	PA	17372		X			



ADAMS COUNTY ASSET INVENTORY									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Rolling Acres Elementary School	150 East Myrtle Street	Littlestown	PA	17340	X				
Round Hill Presbyterian Churchyard	Round Hill Road	East Berlin	PA	17316		X			
Sacred Heart School	55 Basilica Drive	Hanover	PA	17331	X				
Saint Aloysius Cemetery	Bittle Road	Littlestown	PA	17340		X			
Saint Francis Xavier Cemetery	West High Street	Gettysburg	PA	17325		X			
Saint Francis Xavier School	465 Table Rock Road	Gettysburg	PA	17325	X				
Saint Ignatius Loyola Catholic Church Cemetery	Church Road	Orrtanna	PA	17353		X			
Saint James Reformed Cemetery	1210 Harney Road	Littlestown	PA	17340		X			
Saint John's Lutheran Cemetery	German Street	Abbottstown	PA	17301		X			
Saint John's Lutheran Cemetery	Saint Johns Road	Littlestown	PA	17340		X			
Saint John's United Church of Christ Cemetery	Hunterstown-Hampton Road	New Oxford	PA	17350		X			
Saint Joseph Academy Cemetery	90 Main Street	McSherrystown	PA	17344		X			
Saint Joseph the Worker Catholic Church Cemetery	8 East Hanover Street	Gettysburg	PA	17325		X			
Saint Luke Lutheran Church Cemetery	330 White Hall Road	Gettysburg	PA	17325		X			
Saint Mary's Cemetery	Fairfield Road	Fairfield	PA	17320		X			
Saint Paul Lutheran Church Cemetery	1535 Hunterstown-Hampton Road	New Oxford	PA	17350		X			
Saint Vincent's Catholic Cemetery	South Jefferson Street	Hanover	PA	17331		X			
Salem United Methodist Church	224 Low Dutch Road	Gettysburg	PA	17325		X			
Salem United Methodist Church Cemetery	224 Low Dutch Road	Gettysburg	PA	17325		X			
Serene Manor	7007 York Road	Abbottstown	PA	17301	X				
Seventh-Day Adventist Church	7499 Carlisle Pike	York Springs	PA	17372		X			
Soldiers National Cemetery at Gettysburg	National Cemetery Drive	Gettysburg	PA	17325		X			
Sonlight Christian Fellowship	180 Brickyard Road	New Oxford	PA	17350		X			
Southeastern Adams Volunteer Emergency Services Station 29	5865 Hanover Road	Hanover	PA	17331	X				



ADAMS COUNTY ASSET INVENTORY									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Southern Low Dutch Cemetery	Willow Road	Gettysburg	PA	17325		X			
Specialty Granules, LLC	1455 Old Waynesboro Road	Blue Ridge Summit	PA	17214			X		
Spiritrust Lutheran - The Village at Gettysburg	1075 Old Harrisburg Road	Gettysburg	PA	17325			X		
St. Aloysius Parish	29 S. Queen Street	Littlestown	PA	17340		X			
St. Francis Xavier Church	25 W. High Street	Gettysburg	PA	17235		X			
St. Ignatius Loyola Parish	1095 Orrtanna Road	Orrtanna	PA	17353		X			
St. James Lutheran Church	P.O. Box 4596	Gettysburg	PA	17325		X			
St. James Lutheran Church of Wenksville	2017 Wenksville Road	Wenksville	PA			X			
St. James United Church of Christ	1200 Harney Road	Littlestown	PA	17340		X			
St. John's Lutheran Church	13 E. Main Street	Fairfield	PA	17320		X			
St. John's Evangelical Lutheran Church	5450 Carlisle Pike	New Oxford	PA	17350		X			
St. John's Evangelical Lutheran Church	665 St. Johns Road	Littlestown	PA	17340		X			
St. John's Evangelical Lutheran Church	100 E. Water Street	Abbottstown	PA	17301		X			
St. John's United Church of Christ	149 Old Route 30	McKnightstown	PA	17343		X			
St. John's United Church of Christ	2243 Hunterstown-Hampton Road	New Oxford	PA	17350		X			
St. Joseph the Worker Catholic Church	12 E. Hanover Street	Gettysburg	PA	17325		X			
St. Luke Lutheran Church	330 White Hall Road	Littlestown	PA	17340		X			
St. Mark Lutheran Church	2780 Heidlersburg Road	Gettysburg	PA	17325		X			
St. Paul African Methodist Episcopal Zion Church	269 S. Washington Street	Gettysburg	PA	17325		X			
St. Paul The Pines Lutheran Church	1535 Hunterstown-Hampton Road	New Oxford	PA	17350		X			
St. Paul United Church of Christ	20 S. Peter Street	New Oxford	PA	17350		X			
St. Paul's Lutheran Church	414 Main Street	McSherrystown	PA	17344		X			
St. Paul's Lutheran Church	61 W. King Street	Littlestown	PA	17340		X			
St. Paul's Lutheran Church	25 Franklin Street	Biglerville	PA	17307		X			
Sunny Side Cemetery	105 Sunny Side Cemetery Road	York Springs	PA	17372		X			
The Episcopal Church	220 Main Street	York Springs	PA	17372		X			



ADAMS COUNTY ASSET INVENTORY									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Infrastructure	Existing Buildings
Transitions Healthcare, formerly Green Acres	595 Biglerville Road	Gettysburg	PA	17325	X				
Trinity Evangelical Lutheran Church	38 N. High Street	Arendtsville	PA	17303		X			
Trinity Evangelical Lutheran Church	117 W. King Street	East Berlin	PA	17316		X			
Trinity United Church of Christ	300 E. York Street	Biglerville	PA	17307		X			
Trinity United Church of Christ	60 E. High Street	Gettysburg	PA	17325		X			
Trinity United Church of Christ	1126 Old Route 30	Cashtown	PA	17310		X			
Unitarian Universalists OF Gettysburg	136 S. Stratton Street	Gettysburg	PA	17325		X			
United Hook and Ladder Abbottstown Station 33	38 East King Street	Abbottstown	PA	17301	X				
Upper Adams Middle School	161 North Main Street	Biglerville	PA	17307	X				
Upper Bermudian Church Cemetery	Ground Oak Church Road	Gardners	PA	17324		X			
Upper Bermudian Lutheran Church	185 Ground Oak Church Road	Gardners	PA	17324		X			
Vida Charter School	120 East Broadway	Gettysburg	PA	17325	X				
WellSpan Gettysburg Hospital	147 Gettys Street	Gettysburg	PA	17325	X				
Wenksville Cemetery	Middle Road	Aspers	PA	17304		X			
Wenksville United Methodist Church	2010 Wenksville Road	Biglerville	PA	17307		X			
Wesley Chapel United Methodist Church	654 Old Waynesboro Road	Fairfield	PA	17320		X			
White Church Cemetery	5 White Church Road	Gettysburg	PA	17325		X			
York Springs Fire Company 1 Station 9	312 Main Street	York Springs	PA	17372	X				
York Springs Police Department	559 Old US Route 15	York Springs	PA	17372	X				
York Springs Post Office	203 Main Street	York Springs	PA	17372					X
York Springs United Methodist Church	840 Trolley Road	York Springs	PA	17372		X			
Zion United Church of Christ	22 Gettysburg Street	Arendtsville	PA	17303		X			
Zwingli Reformed Church of East Berlin	403 W. King Street	East Berlin	PA	17316		X			



Assets Vulnerable to Site-Specific Hazards

The remainder of this appendix consists of tables that identify which assets (from the above list) are in the risk areas for site-specific hazards (e.g., flood, flash flood, ice jam; landslide; subsidence, sinkhole; and hazardous materials release). See Section 4.3: Hazard Profiles for information on the hazards. Adams County ran a GIS-based analysis on the assets in the risk areas for the dam failure hazard; that analysis did not yield assets in those areas.

**Table AE-4**

ADAMS COUNTY ASSETS IN SPECIAL FLOOD HAZARD AREAS									
Name	Address	City	State	Zip	Critical Facilities	Existing Buildings	Zone A	Zone AE	0.2% chance
East Berlin Police Department	128 Water Street	East Berlin	PA	17316	X				X
Fairfield Post Office	6 Carrolls Tract Road	Fairfield	PA	17320		X	X		
Harrisburg Area Community College - Gettysburg Campus	731 Old Harrisburg Road	Gettysburg	PA	17325	X				X

**Table AE-5**

ADAMS COUNTY ASSETS IN LANDSLIDE HAZARD AREAS									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	Existing Buildings	Known Landslide	Soil Types w/ Erosion Hazard
Apostolic Church of Greenstone	2509 Iron Springs Road	Fairfield	PA	17320		X			X
Arendtsville Community Fire Company Station 5	48 Pearl Street	Arendtsville	PA	17307	X				X
Arendtsville Elementary School	136 Fohl Street	Arendtsville	PA	17303	X				X
Arendtsville Post Office	26 South High Street	Arendtsville	PA	17303			X		X
Bermudian God's Missionary Church	1416 Braggstown Road	East Berlin	PA	17316		X			X



ADAMS COUNTY ASSETS IN LANDSLIDE HAZARD AREAS									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	Existing Buildings	Known Landslide	Soil Types w/ Erosion Hazard
Bermudian Springs Elementary School	7335 Carlisle Pike	York Springs	PA	17372	X				X
Biglerville Cemetery	Cemetery Road	Biglerville	PA	17307		X			X
Biglerville Elementary School	3270 Biglerville Road	Biglerville	PA	17307	X				X
Cashtown Community Fire Department Station 4	1069 Old Route 30	Cashtown	PA	17310	X				X
Cashtown Post Office	372 High Street	Cashtown	PA	17310			X		X
Chestnut Grove Lutheran Church	1136 Mountain Road	York Springs	PA	17372		X			X
Chestnut Grove Lutheran Church Cemetery	1136 Mountain Road	York Spring	PA	17372		X			X
Christ Chapel Foursquare Church	225 New Chester Road	Gettysburg	PA	17325		X			X
Christ United Church of Christ	131 Christ Church Road	Littlestown	PA	17340		X			X
Christ United Church of Christ Cemetery	131 Christ Church Road	Littlestown	PA	17340		X			X
Church Of Jesus Christ of Latter Day Saints	1170 Kohler Mill Road	New Oxford	PA	17350		X			X
Clines United Methodist Church	495 Clines Church Road	Aspers	PA	17304		X			X
Clines United Methodist Church Cemetery	495 Clines Church Road	Aspers	PA	17304		X			X
Conewago Chapel Basilica Cemetery	Basilica Drive	Hanover	PA	17331		X			X
Conewago Valley Intermediate School	175 Seven Hundred Road	New Oxford	PA	17350	X				X
Cornerstone Worship Center	888 Coleman Road	Gettysburg	PA	17325		X			X
Cross Keys Fellowship Church	785 Berlin Road	New Oxford	PA	17350		X			X
Cross Keys Village The Brethren Home Community	2990 Carlisle Pike	New Oxford	PA	17350	X				X
East Berlin Union Cemetery	North Avenue	East Berlin	PA	17316		X			X
Eastern Adams Regional Police Department	110 North Berlin Avenue	New Oxford	PA	17350	X				X
Family Life Worship Center Church of God	233 Carlisle Street	New Oxford	PA	17350		X			X
Fairview Cemetery	Cemetery Road	Arendtsville	PA	17303		X			X



ADAMS COUNTY ASSETS IN LANDSLIDE HAZARD AREAS									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	Existing Buildings	Known Landslide	Soil Types w/ Erosion Hazard
First Baptist Church of Littlestown	5015 Baltimore Pike	Littlestown	PA	17340		X			X
Flohers Evangelical Lutheran Church	P.O. Box 32	McKnightstown	PA	17343		X			X
Flohers Lutheran Church Cemetery	Flohers Church Road	Biglerville	PA	17307		X			X
Forest Lane Mennonite School	850 Red Bridge Road	Gettysburg	PA	17325	X				X
Fountaindale Union - Wesley Chapel Cemetery	Harbaugh Valley Road	Fairfield	PA	17320		X			X
Fountaindale Volunteer Fire Company	1340 Old Waynesboro Road	Fairfield	PA	17320	X				X
Fountaindale Volunteer Fire Company Station 3	1340 Old Waynesboro Road	Fairfield	PA	17320	X				X
Franklin Township Elementary School	870 Old Route 30	Cashtown	PA	17310	X				X
Gardners Cemetery	955 Mountain Road	York Springs	PA	17372		X			X
Gardners Church	955 Mountain Road	York Springs	PA	17372		X			X
Genesis - Gettysburg Center	867 York Road	Gettysburg	PA	17325	X				X
German Society Lutheran Calvinist Cemetery	Flohers Church Road	Biglerville	PA	17307		X			X
Gettysburg Baptist Church	95 Fairview Road	Gettysburg	PA	17325		X			X
Gettysburg Church of Christ	60 Fairview Road	Gettysburg	PA	17325		X			X
Gettysburg Montessori Charter School	888 Coleman Road	Gettysburg	PA	17325	X				X
Grace Lutheran Cemetery	3055 Baltimore Pike	Gettysburg	PA	17325		X			X
Grace Lutheran Church	3045 Baltimore Pike	Gettysburg	PA	17325		X			X
Greenmount Cemetery	Chambersburg Street	Arendtsville	PA	17307		X			X
Harvest Chapel	6947 York Road	Abbottstown	PA	17301		X			X
Hillside Personal Care	1175 Old Waynesboro Road	Fairfield	PA	17320	X				X
Hoffman Academy	815 Orphanage Road	Littlestown	PA	17340	X				X
Hostetters Meeting House	537 Hostetters Road	Hanover	PA	17331		X			X
Immaculate Conception Catholic Church Cemetery	York Road	New Oxford	PA	17350		X			X
Jacobs Church	495 Harbaugh Valley Road	Fairfield	PA	17320		X			X
Jacobs Church Cemetery	Harbaugh Valley Road	Fairfield	PA	17320		X			X



ADAMS COUNTY ASSETS IN LANDSLIDE HAZARD AREAS									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	Existing Buildings	Known Landslide	Soil Types w/ Erosion Hazard
Jesus Is Lord Christian Academy	3425 Chambersburg Road	Biglerville	PA	17307	X				X
Jesus Is Lord Ministries International	3425 Chambersburg Road	Biglerville	PA	17307		X			X
Jireh Christian Day School	3086 Biglerville Road	Biglerville	PA	17307	X				X
Jireh Independent Baptist Church	3086 Biglerville Road	Biglerville	PA	17307		X			X
Latimore Mennonite Meetinghouse Cemetery	Old Harrisburg Road	York Springs	PA	17372		X			X
Lobach - Bushey Cemetery	669 Bushey School Road	York Springs	PA	17372		X			X
McClelland Cemetery	Black Horse Tavern Road	Gettysburg	PA	17325		X			X
McKnightstown Cemetery	82 Old Route 30	Biglerville	PA	17307		X			X
McKnightstown Post Office	245 Old State Highway 30	McKnightstown	PA	17343			X		X
Menallen Friends Cemetery	1107 Carlisle Road	Aspers	PA	17304		X			X
Menallen Friends Meeting House	1107 Carlisle Road	Biglerville	PA	17307		X			X
Mount Hope United Methodist Church Cemetery	1945 Mount Hope Road	Fairfield	PA	17320		X			X
Mummerts Meetinghouse Cemetery	Mummerts Church Road	Abbottstown	PA	17301		X			X
New Oxford Cemetery	4929 York Road	New Oxford	PA	17350		X			X
New Oxford Elementary School	116 North Berlin Avenue	New Oxford	PA	17350	X				X
New Oxford Middle School	130 Berlin Road	New Oxford	PA	17350	X				X
Pine Bank Cemetery	Cemetery Road	Gettysburg	PA	17325		X			X
Rock Chapel Church	840 Trolley Road	York Springs	PA	17372		X			X
Saint John's Lutheran Cemetery	Saint Johns Road	Littlestown	PA	17340		X			X
Saint Joseph Academy Cemetery	90 Main Street	McSherrystown	PA	17344		X			X
Salem United Methodist Church	224 Low Dutch Road	Gettysburg	PA	17325		X			X
Salem United Methodist Church Cemetery	224 Low Dutch Road	Gettysburg	PA	17325		X			X
Sonlight Christian Fellowship	180 Brickyard Road	New Oxford	PA	17350		X			X
St. John's Evangelical Lutheran Church	665 St. Johns Road	Littlestown	PA	17340		X			X



ADAMS COUNTY ASSETS IN LANDSLIDE HAZARD AREAS									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	Existing Buildings	Known Landslide	Soil Types w/ Erosion Hazard
St. John's United Church of Christ	149 Old Route 30	McKnightstown	PA	17343		X			X
Trinity Evangelical Lutheran Church	38 N. High Street	Arendtsville	PA	17303		X			X
York Springs Police Department	559 Old US Route 15	York Springs	PA	17372	X				X
York Springs United Methodist Church	840 Trolley Road	York Springs	PA	17372		X			X

Since the GIS mapping specifically targeting subsidence-prone areas represented point files, planners cross-referenced those assets in the development areas noted as subsidence-prone in Section 4.4 above.

Table AE-6

ADAMS COUNTY ASSETS IN SUBSIDENCE-PRONE AREAS									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	Existing Buildings	Over Noted Karst	Development Overlay
Annunciation of Blessed Virgin Mary Cemetery	North Fifth Street	McSherrystown	PA	17344		X			X
Basilica of the Sacred Heart of Jesus	30 Basilica Drive	Hanover	PA	17331		X			X
Carroll Valley Police Department	5685 Fairfield Road	Carroll Valley	PA	17320	X				X
Comfort Care	235 Franklin Street	Fairfield	PA	17320	X				X
Conewago Chapel Basilica Cemetery	Basilica Drive	Hanover	PA	17331		X			X
Conewago Township Elementary School	1189 West Elm Avenue	Hanover	PA	17331	X				X
Conewago Township Police Department	541 Oxford Avenue	Hanover	PA	17331	X				X



ADAMS COUNTY ASSETS IN SUBSIDENCE-PRONE AREAS									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	Existing Buildings	Over Noted Karst	Development Overlay
Fairfield Area High School	4840 Fairfield Road	Fairfield	PA	17320	X				X
Fairfield Area Middle School	4840 Fairfield Road	Fairfield	PA	17320	X				X
Fairfield Fire and Emergency Medical Services Station 2	106 Steelman Street	Fairfield	PA	17320	X				X
Fairfield Mennonite Church	201 W. Main Street	Fairfield	PA	17320		X			X
Fairfield Post Office	6 Carrolls Tract Road	Fairfield	PA	17320			X		X
Fairfield Union Cemetery	Fairfield Road	Fairfield	PA	17320		X			X
Sacred Heart School	55 Basilica Drive	Hanover	PA	17331	X				X
Saint Joseph Academy Cemetery	90 Main Street	McSherrystown	PA	17344		X			X
Saint Mary's Cemetery	Fairfield Road	Fairfield	PA	17320		X			X
Saint Vincent's Catholic Cemetery	South Jefferson Street	Hanover	PA	17331		X			X
Southeastern Adams Volunteer Emergency Services Station 29	5865 Hanover Road	Hanover	PA	17331	X				X

Table AE-7

ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Abbottstown Post Office	680 West King Street	Abbottstown	PA	17301				X	X
Academy for Media Production	238 Main Street	McSherrystown	PA	17344	X				X
Ace Emergency Medical Services	4940 York Road	New Oxford	PA	17350	X				X
Adams County Adult Correctional Complex	45 Major Bell Lane	Gettysburg	PA	17325			X		X
Adams County Christian Academy	1865 Biglerville Road	Gettysburg	PA	17325	X				X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Adams County Courthouse	111 Baltimore Street	Gettysburg	PA	17325			X		X
Adams County Sheriff's Office	117 Baltimore Street Suite 103	Gettysburg	PA	17325	X				X
Alloway Creek Intermediate School	162 Newark Street	Littlestown	PA	17340	X				X
Alpha Fire Company 1 Station 20	40 East King Street	Littlestown	PA	17340	X				X
Amos Tabernacle Church of God In Christ	2525 Mummersburg Road	Gettysburg	PA	17325		X			X
Annunciation Blessed Virgin Mary School	316 North Street	McSherrystown	PA	17344	X				X
Annunciation of Blessed Virgin Mary Cemetery	North Fifth Street	McSherrystown	PA	17344		X			X
Annunciation of the Blessed Virgin Mary Catholic Parish	26 N. Third Street	McSherrystown	PA	17344		X			X
Apostolic Church of Greenstone	2509 Iron Springs Road	Fairfield	PA	17320		X			X
Arendtsville Community Fire Company Station 5	48 Pearl Street	Arendtsville	PA	17307	X				X
Arendtsville Elementary School	136 Fohl Street	Arendtsville	PA	17303	X				X
Arendtsville Post Office	26 South High Street	Arendtsville	PA	17303				X	X
Aspers Post Office	420 Aspers - Bendersville Road	Aspers	PA	17304				X	X
Barlow Volunteer Fire Company Station 22	2005 Taneytown Road	Gettysburg	PA	17325	X				X
Barts United Brethren Church	50 E. King Street	Littlestown	PA	17340		X			X
Bendersville Community Fire Company Station 7	144 Park Street	Aspers	PA	17304	X				X
Bermudian Springs Elementary School	7335 Carlisle Pike	York Springs	PA	17372	X				X
Bermudian Springs High School	7335 Carlisle Pike	York Springs	PA	17372	X				X
Bermudian Springs Middle School	7335 Carlisle Pike	York Springs	PA	17372	X				X
Bethel Assembly of God Church	1125 Frederick Pike	Littlestown	PA	17340		X			X
Bethel Mennonite Church	2335 Biglerville Road	Gettysburg	PA	17325		X			X
Bethlehem Church Cemetery	Old Carlisle Road	Aspers	PA	17304		X			X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Bible Brethren Church	1012 Abbottstown Pike	Hanover	PA	17331		X			X
Bible Fellowship Church of Adams County	895 Coleman Road	Gettysburg	PA	17325		X			X
Biglerville Cemetery	Cemetery Road	Biglerville	PA	17307		X			X
Biglerville Elementary School	3270 Biglerville Road	Biglerville	PA	17307	X				X
Biglerville High School	161 North Main Street	Biglerville	PA	17307	X				X
Biglerville Hose Truck Company 1 Station 6	111 South Main Street	Biglerville	PA	17307	X				X
Biglerville Police Department	33 Musselman Avenue	Biglerville	PA	17307	X				X
Biglerville Post Office	2 High Street	Biglerville	PA	17307				X	X
Bonneauville Community Fire Company	10 Elm Avenue	Gettysburg	PA	17325	X				X
Bonneauville Police Department	46 East Hanover Street	Gettysburg	PA	17325	X				X
Buchanan Valley Volunteer Fire Department Station 27	1180 Buchanan Valley Road	Orrtanna	PA	17353	X				X
Butler Township Friends Cemetery	Center Mills Road	Aspers	PA	17304		X			X
Calvary Baptist Church	2939 Table Rock Road	Biglerville	PA	17307		X			X
Carroll Valley Police Department	5685 Fairfield Road	Carroll Valley	PA	17320	X				X
Centenary United Methodist Church	99 N. Main Street	Biglerville	PA	17307		X			X
Christ Chapel Foursquare Church	225 New Chester Road	Gettysburg	PA	17325		X			X
Christ Lutheran Church	30 Chambersburg Street	Gettysburg	PA	17325		X			X
Christ Lutheran Church	1420 Center Mills Road	Aspers	PA	17304		X			X
Christ United Church of Christ	131 Christ Church Road	Littlestown	PA	17340		X			X
Christ United Church of Christ Cemetery	131 Christ Church Road	Littlestown	PA	17340		X			X
Church of the Brethren	1710 Biglerville Road	Gettysburg	PA	17325		X			X
Clines United Methodist Church	495 Clines Church Road	Aspers	PA	17304		X			X
Clines United Methodist Church Cemetery	495 Clines Church Road	Aspers	PA	17304		X			X
Comfort Care	235 Franklin Street	Fairfield	PA	17320	X				X
Cornerstone Worship Center	888 Coleman Road	Gettysburg	PA	17325		X			X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Conewago Township Elementary School	1189 West Elm Avenue	Hanover	PA	17331	X				X
Cross Keys Fellowship Church	785 Berlin Road	New Oxford	PA	17350		X			X
Cross Keys Village The Brethren Home Community	2990 Carlisle Pike	New Oxford	PA	17350		X			X
Cumberland Township Police Department	1370 Fairfield Road	Gettysburg	PA	17325	X				X
Delone Catholic High School	140 South Oxford Avenue	McSherrystown	PA	17344	X				X
East Berlin Police Department	128 Water Street	East Berlin	PA	17316	X				X
East Berlin Post Office	214 Third Street	East Berlin	PA	17316				X	X
East Berlin Union Cemetery	North Avenue	East Berlin	PA	17316		X			X
Eastern Adams Regional Police Department	110 North Berlin Avenue	New Oxford	PA	17350	X				X
Emanuel Reformed Church Cemetery	East Fleet Street	Abbottstown	PA	17301		X			X
Emmanuel United Church of Christ	Center Square	Abbottstown	PA	17301		X			X
Emory United Methodist Church	35 Center Square	New Oxford	PA	17350		X			X
Evergreen Cemetery	799 Baltimore Street	Gettysburg	PA	17325		X			X
Fairfield Area Elementary School	4842 Fairfield Road	Fairfield	PA	17320	X				X
Fairfield Area High School	4840 Fairfield Road	Fairfield	PA	17320	X				X
Fairfield Area Middle School	4840 Fairfield Road	Fairfield	PA	17320	X				X
Fairfield Fire and Emergency Medical Services Station 2	106 Steelman Street	Fairfield	PA	17320	X				X
Fairfield Mennonite Church	201 W. Main Street	Fairfield	PA	17320		X			X
Fairfield Post Office	6 Carrolls Tract Road	Fairfield	PA	17320				X	X
Fairfield Union Cemetery	Fairfield Road	Fairfield	PA	17320		X			X
Fairview Cemetery	Cemetery Road	Arendtsville	PA	17303		X			X
Family Life Worship Center Church of God	233 Carlisle Street	New Oxford	PA	17350		X			X
Fellowship Baptist Church	110 Mount Hope Road	Fairfield	PA	17320		X			X
First Baptist Church	1015 Chambersburg Road	Gettysburg	PA	17325		X			X
First Baptist Church of Littlestown	5015 Baltimore Pike	Littlestown	PA	17340		X			X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
First Evangelical Lutheran Church	200 Lincolnway East	New Oxford	PA	17350		X			X
Fisher - Sieber Health Center	West Broadway	Gettysburg	PA	17325	X				X
Flohrs Evangelical Lutheran Church	P.O. Box 32	McKnightstown	PA	17343		X			X
Flohrs Lutheran Church Cemetery	Flohrs Church Road	Biglerville	PA	17307		X			X
Fountaindale Union - Wesley Chapel Cemetery	Harbaugh Valley Road	Fairfield	PA	17320		X			X
Fountaindale Volunteer Fire Company	1340 Old Waynesboro Road	Fairfield	PA	17320	X				X
Fountaindale Volunteer Fire Company Station 3	1340 Old Waynesboro Road	Fairfield	PA	17320	X				X
Freedom Christian School	3185 York Road	Gettysburg	PA	17325	X				X
Freedom Valley Worship Center	3185 York Road	Gettysburg	PA	17325		X			X
Full Gospel Lighthouse	5 White Church Road	Gettysburg	PA	17325		X			X
G.A.R. Post	53 E. Middle Street	Gettysburg	PA	17325		X			X
Gardners Post Office	110 Upper Bermudian Road	Gardners	PA	17324				X	X
Genesis - Gettysburg Center	867 York Road	Gettysburg	PA	17325	X				X
German Society Lutheran Calvinist Cemetery	Flohrs Church Road	Biglerville	PA	17307		X			X
Gettysburg Area High School	1130 Old Harrisburg Road	Gettysburg	PA	17325	X				X
Gettysburg Area Middle School	37 Lefever Street	Gettysburg	PA	17325	X				X
Gettysburg Baptist Church	95 Fairview Road	Gettysburg	PA	17325		X			X
Gettysburg Bible Baptist Church	3003 Old Harrisburg Road	Gettysburg	PA	17325		X			X
Gettysburg Boro Police Department	59 East High Street	Gettysburg	PA	17325	X				X
Gettysburg Church of Christ	60 Fairview Road	Gettysburg	PA	17325		X			X
Gettysburg College	300 North Washington Street	Gettysburg	PA	17325			X		X
Gettysburg College Christ Chapel	300 N. Washington Street	Gettysburg	PA	17325		X			X
Gettysburg Congregation of Jehovah's Witnesses	1274 Highland Avenue Road	Gettysburg	PA	17325		X			X
Gettysburg Fire Department Station 1	35 North Stratton Street	Gettysburg	PA	17325	X				X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Gettysburg Foursquare Church	330 W. Middle Street	Gettysburg	PA	17325		X			X
Gettysburg Harvest Field Church of the Nazarene	1110 Fairfield Road	Gettysburg	PA	17325		X			X
Gettysburg Montessori Charter School	888 Coleman Road	Gettysburg	PA	17325	X				X
Gettysburg Municipal Building	59 East High Street	Gettysburg	PA	17325	X				X
Gettysburg National Cemetery	791 Baltimore Street	Gettysburg	PA	17325		X			X
Gettysburg National Cemetery Annex	791 Baltimore Street	Gettysburg	PA	17325		X			X
Gettysburg Post Office	115 Buford Avenue	Gettysburg	PA	17325				X	X
Gettysburg Presbyterian Church	208 Baltimore Street	Gettysburg	PA	17325		X			X
Gettysburg Seventh Day Adventist School/Church	1493 Biglerville Road	Gettysburg	PA	17325	X				X
Gettysburg United Methodist Church	30 W. High Street	Gettysburg	PA	17325		X			X
Golden Living Center	741 Chambersburg Road	Gettysburg	PA	17325	X				X
Grace Lutheran Cemetery	3055 Baltimore Pike	Gettysburg	PA	17325		X			X
Grace Lutheran Church	3045 Baltimore Pike	Gettysburg	PA	17325		X			X
Great Conewago Presbyterian Church Cemetery	Presbyterian Church Road	Gettysburg	PA	17325		X			X
Greater Conewago Presbyterian Church	174 Red Brick Road	Gettysburg	PA	17325		X			X
Greenmount Cemetery	Chambersburg Street	Arendtsville	PA	17307		X			X
Greenmount Community Volunteer Fire Company Station 23	3095 Emmitsburg Road	Gettysburg	PA	17325	X				X
Hamiltonban Township Police Department	23 Carrolls Tract Road	Fairfield	PA	17320	X				X
Hampton Fire Company Station 10	5371 Carlisle Pike	New Oxford	PA	17350	X				X
Hampton Meeting House Cemetery	5815 Carlisle Pike	East Berlin	PA	17316		X			X
Hampton Union Cemetery	Carlisle Pike	New Oxford	PA	17350		X			X



ADAMS COUNTY ASSETS IN GENERAL HAZMAT RISK AREAS (i.e., Buffers from Transportation Routes)									
<i>Name</i>	<i>Address</i>	<i>City</i>	<i>State</i>	<i>Zip</i>	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Harrisburg Area Community College - Gettysburg Campus	731 Old Harrisburg Road	Gettysburg	PA	17325			X		X
Harvest Chapel	6947 York Road	Abbottstown	PA	17301		X			X
Heidlersburg Cemetery	Heidlersburg Road	Gettysburg	PA	17325		X			X
Heidlersburg Fire Company Station 25	2720 Heidlersburg Road	Gettysburg	PA	17325	X				X
Heidlersburg United Brethren Church	2736 Heidlersburg Road	Gettysburg	PA	17325		X			X
Heritage Assembly of God	1575 Chambersburg Road	Gettysburg	PA	17325		X			X
Herr's Ridge Mennonite Church	1270 Herrs Ridge Road	Gettysburg	PA	17325		X			X
Hillside Personal Care	1175 Old Waynesboro Road	Fairfield	PA	17320	X				X
Holy Trinity Church Cemetery	216 Main Street	York Springs	PA	17372		X			X
Idaville Church of the United Brethren In Christ	3590 Carlisle Road	Gardners	PA	17324		X			X
Idaville United Methodist Cemetery	3725 Carlisle Road	Gardners	PA	17324		X			X
Idaville United Methodist Church	3725 Carlisle Road	Gardners	PA	17324		X			X
Iglesia Cristiana Manantial De Vida	150 Little Avenue	New Oxford	PA	17350		X			X
Immaculate Conception Catholic Church	102 Carlisle Street	New Oxford	PA	17350		X			X
Immaculate Conception Catholic Church	256 Tract Road	Fairfield	PA	17320		X			X
Immaculate Conception Catholic Church Cemetery	York Road	New Oxford	PA	17350		X			X
Immaculate Conception School	101 North Peter Street	New Oxford	PA	17350	X				X
Iron Springs Brethren Church	855 Iron Springs Road	Fairfield	PA	17320		X			X
James Gettys Elementary School	898 Biglerville Road	Gettysburg	PA	17325	X				X
Jesus Is Lord Christian Academy	3425 Chambersburg Road	Biglerville	PA	17307	X				X
Jesus Is Lord Ministries International	3425 Chambersburg Road	Biglerville	PA	17307		X			X
Jireh Christian Day School	3086 Biglerville Road	Biglerville	PA	17307	X				X



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Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Jireh Independent Baptist Church	3086 Biglerville Road	Biglerville	PA	17307		X			X
Latimore Mennonite Church	1455 Old Route 15	York Springs	PA	17372		X			X
Latimore Mennonite Meetinghouse Cemetery	Old Harrisburg Road	York Springs	PA	17372		X			X
Liberty Fire Company 1 Station 11	101 East Locust Street	East Berlin	PA	17316	X				X
Liberty Township Police Department	39 Topper Road	Fairfield	PA	17320	X				X
Lighthouse Baptist Church	80 Apple Avenue	Gettysburg	PA	17325		X			X
Lincoln Cemetery	Cemetery Alley	Gettysburg	PA	17325		X			X
Lincoln Elementary School	98 Lefever Street	Gettysburg	PA	17325	X				X
Lincoln Intermediate Unit Number 12	65 Billerbeck Street	New Oxford	PA	17350	X				X
Littlestown Chapel of Outreach for Christ	1144 Bollinger Road	Littlestown	PA	17340		X			X
Littlestown Police Department	10 South Queen Street	Littlestown	PA	17340	X				X
Littlestown Post Office	24 West King Street	Littlestown	PA	17340				X	X
Littlestown Senior High School	200 East Myrtle Street	Littlestown	PA	17340	X				X
Living Faith Evangelical Church	1490 Frederick Pike	Littlestown	PA	17340		X			X
Living Hope Presbyterian Church	155 Early Avenue	Gettysburg	PA	17325		X			X
Lower Marsh Creek Presbyterian Church	1865 Knoxlyn Road	Gettysburg	PA	17325		X			X
Lutheran Theological Seminary at Gettysburg	61 Seminary Ridge	Gettysburg	PA	17325			X		X
Lutheran Theological Seminary Chapel	61 Seminary Ridge	Gettysburg	PA	17325		X			X
Luz Alegria y Esperanza Brethren In Christ (or BIC)	8273 Carlisle Pike	York Springs	PA	17372		X			X
Maple Avenue Middle School	75 Maple Avenue	Littlestown	PA	17340	X				X
Martin's Care Home	159 Kingsdale Road	Littlestown	PA	17340	X				X
McClelland Cemetery	Black Horse Tavern Road	Gettysburg	PA	17325		X			X
McKnightstown Cemetery	82 Old Route 30	Biglerville	PA	17307		X			X
McKnightstown Post Office	245 Old State Highway 30	McKnightstown	PA	17343				X	X



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Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
McSherrystown Police Department	336 Main Street	McSherrystown	PA	17344	X				X
McSherrystown Post Office	328 Main Street	McSherrystown	PA	17344				X	X
Memorial Baptist Church	1096 Biglerville Road	Gettysburg	PA	17325		X			X
Menallen Friends Cemetery	1107 Carlisle Road	Aspers	PA	17304		X			X
Menallen Friends Meeting House	1107 Carlisle Road	Biglerville	PA	17307		X			X
Methodist Episcopal Church Cemetery	53 East Middle Street	Gettysburg	PA	17325		X			X
Midway Ambulance Service	202 Linden Avenue	Hanover	PA	17331	X				X
Morning Glory Assisted Living	419 N. Queen Street	Littlestown	PA	17340	X				X
Mount Calvary Methodist Cemetery	Cashtown Road	Orrtanna	PA	17307		X			X
Mount Carmel Cemetery	Cemetery Street	Littlestown	PA	17340		X			X
Mt. Calvary United Methodist Church	P.O. Box 301	Bendersville	PA	17306		X			X
Mt. Joy Lutheran Church	2615 Taneytown Road	Gettysburg	PA	17325		X			X
Mt. Olivet United Brethren Church of Christ	325 Centre Mills Road	Aspers	PA	17304		X			X
Mummert Meeting House	391 Mummerts Church Road	New Oxford	PA	17350		X			X
Mummerts Meetinghouse Cemetery	Mummerts Church Road	Abbottstown	PA	17301		X			X
New Life Outreach Ministries	278 S. Franklin Street	Gettysburg	PA	17325		X			X
New Oxford Cemetery	4929 York Road	New Oxford	PA	17350		X			X
New Oxford Community Fire Company	21 North Bolton Street	New Oxford	PA	17350	X				X
New Oxford Elementary School	116 North Berlin Avenue	New Oxford	PA	17350	X				X
New Oxford Middle School	130 Berlin Road	New Oxford	PA	17350	X				X
New Oxford Post Office	4 Center Square	New Oxford	PA	17350				X	X
New Oxford Senior High School	130 Berlin Road	New Oxford	PA	17350	X				X
Oak Lawn Memorial Gardens	1380 Chambersburg Road	Gettysburg	PA	17325		X			X
Old Alms House Cemetery	Howard Avenue	Gettysburg	PA	17325		X			X
Old White Episcopal Church Cemetery	White Church Road	York Springs	PA	17372		X			X



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Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Orchard Springs Fellowship	2140 Carlisle Road	Aspers	PA	17304		X			X
Orrtanna United Methodist Church	P.O. Box 122	Orrtanna	PA	17353		X			X
Oxford Christian Academy	29 Center Square	New Oxford	PA	17350	X				X
Peace Light Brethren in Christ Church	2793 Chambersburg Road	Biglerville	PA	17307		X			X
Pennsylvania State Police Troop H Gettysburg Station	3033 Old Harrisburg Road	Gettysburg	PA	17325	X				X
Presbyterian Cemetery	Old Harrisburg Road	York Springs	PA	17372		X			X
Prince of Peace Episcopal Church	20 W. High Street	Gettysburg	PA	17325		X			X
Reading Township Police Department	50 Church Road	East Berlin	PA	17316	X				X
Redeemers United Church of Christ	107 E. King Street	Littlestown	PA	17340		X			X
Rolling Acres Elementary School	150 East Myrtle Street	Littlestown	PA	17340	X				X
Round Hill Presbyterian Churchyard	Round Hill Road	East Berlin	PA	17316		X			X
Saint Aloysius Cemetery	Bittle Road	Littlestown	PA	17340		X			X
Saint Francis Xavier Cemetery	West High Street	Gettysburg	PA	17325		X			X
Saint John's Lutheran Cemetery	German Street	Abbottstown	PA	17301		X			X
Saint John's Lutheran Cemetery	Saint Johns Road	Littlestown	PA	17340		X			X
Saint John's United Church of Christ Cemetery	Hunterstown-Hampton Road	New Oxford	PA	17350		X			X
Saint Joseph Academy Cemetery	90 Main Street	McSherrystown	PA	17344		X			X
Saint Joseph the Worker Catholic Church Cemetery	8 East Hanover Street	Gettysburg	PA	17325		X			X
Saint Mary's Cemetery	Fairfield Road	Fairfield	PA	17320		X			X
Saint Paul Lutheran Church Cemetery	1535 Hunterstown-Hampton Road	New Oxford	PA	17350		X			X
Saint Vincent's Catholic Cemetery	South Jefferson Street	Hanover	PA	17331		X			X
Salem United Methodist Church	224 LOW Dutch Road	Gettysburg	PA	17325		X			X



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Name	Address	City	State	Zip	Critical Facilities	Cultural Resources	High-Potential Loss	Existing Buildings	Hazmat Risk Area (General)
Salem United Methodist Church Cemetery	224 Low Dutch Road	Gettysburg	PA	17325		X			X
Serene Manor	7007 York Road	Abbottstown	PA	17301	X				X
Seventh-Day Adventist Church	7499 Carlisle Pike	York Springs	PA	17372		X			X
Soldiers National Cemetery at Gettysburg	National Cemetery Drive	Gettysburg	PA	17325		X			X
Sonlight Christian Fellowship	180 Brickyard Road	New Oxford	PA	17350		X			X
Southeastern Adams Volunteer Emergency Services Station 29	5865 Hanover Road	Hanover	PA	17331	X				X
Spiritrust Lutheran - The Village at Gettysburg	1075 Old Harrisburg Road	Gettysburg	PA	17325			X		X
St. Aloysius Parish	29 S. Queen Street	Littlestown	PA	17340		X			X
St. Francis Xavier Church	25 W. High Street	Gettysburg	PA	17235		X			X
St. James Lutheran Church	P.O. Box 4596	Gettysburg	PA	17325		X			X
St. John's Lutheran Church	13 E. Main Street	Fairfield	PA	17320		X			X
St. John's Evangelical Lutheran Church	5450 Carlisle Pike	New Oxford	PA	17350		X			X
St. John's United Church of Christ	2243 Hunterstown-Hampton Road	New Oxford	PA	17350		X			X
St. Joseph the Worker Catholic Church	12 E. Hanover Street	Gettysburg	PA	17325		X			X
St. Mark Lutheran Church	2780 Heidlersburg Road	Gettysburg	PA	17325		X			X
St. Paul African Methodist Episcopal Zion Church	269 S. Washington Street	Gettysburg	PA	17325		X			X
St. Paul The Pines Lutheran Church	1535 Hunterstown-Hampton Road	New Oxford	PA	17350		X			X
St. Paul United Church of Christ	20 S. Peter Street	New Oxford	PA	17350		X			X
St. Paul's Lutheran Church	414 Main Street	McSherrystown	PA	17344		X			X
St. Paul's Lutheran Church	61 W. King Street	Littlestown	PA	17340		X			X
St. Paul's Lutheran Church	25 Franklin Street	Biglerville	PA	17307		X			X
The Episcopal Church	220 Main Street	York Springs	PA	17372		X			X
Transitions Healthcare, formerly Green Acres	595 Biglerville Road	Gettysburg	PA	17325	X				X
Trinity Evangelical Lutheran Church	117 W. King Street	East Berlin	PA	17316		X			X



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Trinity United Church of Christ	60 E. High Street	Gettysburg	PA	17325		X			X
Unitarian Universalists OF Gettysburg	136 S. Stratton Street	Gettysburg	PA	17325		X			X
United Hook and Ladder Abbottstown Station 33	38 East King Street	Abbottstown	PA	17301	X				X
Upper Adams Middle School	161 North Main Street	Biglerville	PA	17307	X				X
Vida Charter School	120 East Broadway	Gettysburg	PA	17325	X				X
WellSpan Gettysburg Hospital	147 Gettys Street	Gettysburg	PA	17325	X				X
Wesley Chapel United Methodist Church	654 Old Waynesboro Road	Fairfield	PA	17320		X			X
White Church Cemetery	5 White Church Road	Gettysburg	PA	17325		X			X
York Springs Fire Company 1 Station 9	312 Main Street	York Springs	PA	17372	X				X
York Springs Police Department	559 Old US Route 15	York Springs	PA	17372	X				X
York Springs Post Office	203 Main Street	York Springs	PA	17372				X	X
York Springs United Methodist Church	840 Trolley Road	York Springs	PA	17372		X			X
Zion United Church of Christ	22 Gettysburg Street	Arendtsville	PA	17303		X			X
Zwingli Reformed Church of East Berlin	403 W. King Street	East Berlin	PA	17316		X			X

