

# **CLARION COUNTY**

## **DEPT. OF PUBLIC SAFETY**



# **HAZARD MITIGATION PLAN**

## **JUNE 2023**

The plan can be available in alternate formats, upon request,  
to the Department of Public Safety to maintain compliance  
with the Americans with Disabilities Act.

### Certification of Annual Review Meetings

Year	Date of Meeting	Public Outreach Addressed?	Signature
2020	Nov. 4	Yes	<i>Brett Whitling</i>
2021	Sept. 1	Yes	<i>Brett Whitling</i>

### Record of Changes

Date	Description of Change Made, Mitigation Action Completed, or Public Outreach Performed	Change Made by (Print Name)	Change Made by (Signature)
7/15/22	5-year Plan Revision	Brett Whitling	<i>Brett Whitling</i>
7/26/22	5-year update was facilitated by annual reviews	Brett Whitling	<i>Brett Whitling</i>
3/21/23	Required revisions per FEMA/PEMA requests	Brett Whitling	<i>Brett Whitling</i>

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## Executive Summary

### Introduction

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

The Clarion County Hazard Mitigation Plan was developed to:

1. Identify hazards present in Clarion County.
2. Determine the areas impacted by identified hazards that affect the lives and property of County residents and visitors.
3. Assess what has been and should be done to reduce or eliminate the impact of identified hazards on County residents and visitors.
4. Develop and implementing a hazard mitigation action plan to make County residents and visitors safer in the future.
5. Comply with Commonwealth and federal legislative requirements related to hazard mitigation planning.
6. Demonstrate a firm commitment to hazard mitigation principles.
7. Improve community resiliency following a disaster event.

In Clarion County, natural occurring and human-caused hazards are managed through a system that is based on rights and responsibilities of individuals as well as local and Commonwealth government. Through this system, the Clarion County and its municipalities have created efforts to make communities safer and sustainable for future generations.

Clarion County and its municipalities are required to have a Federal Emergency Management Agency (FEMA)-approved Hazard Mitigation Plan (HMP) to be eligible for disaster recovery assistance and mitigation funding. FEMA approval for the HMP on March 21, 2023 provides the basis for the County and municipalities to receive federal post-disaster recovery and mitigation funds.

### Planning Process

The Clarion County Hazard Mitigation Team (HMT) oversees the plan development, updates, and annual reviews. The team is comprised of Clarion County Commissioners, Clarion County agencies, representatives from municipalities, schools, hospital, human service agencies, insurance agencies, PennWest Clarion and Commonwealth agencies. The plan process starts with reviewing the current plan, gathering information from various agencies to determine and assess hazards and risk areas, meeting with municipalities and schools and allowing multiple opportunities for public comment in order to put together a complete HMP. More information can be found in section 3 on page 36.

### Risk Assessment

The process of hazard identification is to recognize each of the hazards that can occur in Clarion County. The hazard identification process was based on historical data that was gathered from a variety of sources (County archives, historical societies, Internet sites, Pennsylvania Emergency Management Agency [PEMA] publications, and the National Weather Service). Consideration was also given to Clarion County Schools and PennWest Clarion (with an enrollment of 4,600 students). Critical facilities (hospitals, nursing homes, senior housing, etc.) were also considered.

This plan also recognizes the potential threat of climate change and the affect it could have on Clarion County's natural resources and economy. Because the subject is still ambiguous, the considerations and calculations for climate change have been incorporated into the estimates for each hazard and into the mitigation projects.

### **Capability Assessment**

A capability assessment involves an evaluation of the County regarding its governmental structure, political framework, legal jurisdiction, fiscal status, policies and programs, regulations and ordinances, and resource availability. These factors are evaluated with respect to their strengths and weaknesses in preparing for, responding to, and mitigating the effects of the profiled natural hazards. By doing so, the reasonable conclusions represent the relative appropriateness of various hazard mitigation action items that may be identified as part of the hazard mitigation strategy. As such, the capability assessment plays an important role in the hazard mitigation planning process.

Within Pennsylvania, no county-level capability assessment would be complete without considering the constituent municipalities. Local municipalities have their own governing body, enforce their own rules and regulations, purchase their own equipment, maintain their own infrastructure, and manage their own resources. In many ways, the County is only as good as the capabilities of its constituent municipalities. As such, this capability assessment does not consider Clarion County as a lone entity but evaluates it by considering the various characteristics and differences between its 34 constituent municipalities, seven school districts and PennWest Clarion. More information can be found in section 5 on page 95.

### **Mitigation Strategy**

The Plan identifies the six goal statements established by Clarion County, the municipalities, school districts and PennWest Clarion for purposes of this Hazard Mitigation Plan. Each Goal is meant to be general and broad in nature and can only be achieved through the long-term implementation of more specific objectives. The goals below were determined to be those that would have the greatest benefit in hazard reduction to the County.

- Goal 1 - Attempt to reduce the current and future risk of damage from natural occurring and human caused hazards in Clarion County.
- Goal 2 - Reduce the potential impact of natural occurring or human caused disasters on public and private property.
- Goal 3 - Improve upon the protection of the citizens of Clarion County from all-natural occurring and human caused hazards.
- Goal 4 - Reduce or redirect the impact of natural occurring and human caused disasters (especially floods) away from at risk population areas
- Goal 5 - Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.
- Goal 6 - Protect public health, safety, and welfare by increasing the public awareness of existing and potential hazards and by fostering both individual and public responsibility in mitigating risks due to those hazards.

The mitigation strategy in the updated HMP included analysis of a comprehensive range of specific techniques or actions. FEMA and PEMA identify four categories of hazard mitigation techniques.

- **Local plans and regulations:** Government authorities, policies, or codes that influence the way land and buildings are developed and built. Examples include, but are not limited to:

comprehensive plans, subdivision regulations, building codes and enforcement, and NFIP and CRS.

- **Structure and infrastructure:** Modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability. Examples include but are not limited to: acquisition and elevation of structures in flood prone areas, utility undergrounding, structural retrofits, floodwalls and retaining walls, detention and retention structures, and culverts.
- **Natural systems protection:** Actions that minimize damage and losses and preserve or restore the functions of natural systems. Examples include but are not limited to: sediment and erosion control, stream corridor restoration, forest management, conservation easements, and wetland restoration and preservation.
- **Education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate the hazards and may also include participation in national programs. Examples include but are not limited to: radio or television spots, websites with maps and information, provide information and training, NFIP outreach, StormReady, and Firewise Communities.

More information can be found in section 6 on page 109.

#### **Plan Locations and Comments**

A copy of the 2023 Hazard Mitigation Plan is available for public review at the Commissioners' Office located in the Clarion County Administrative Building at 330 Main Street, Clarion, PennWest Clarion and all municipal buildings, school district offices within Clarion County.

The plan is also posted on Clarion County website at [www.co.clarion.pa.us](http://www.co.clarion.pa.us). From the Home page, Select Community > Emergency Services > Emergency Management then the pull-down tab for Emergency Management Plan. Select 2023 Hazard Mitigation Plan.

Comments or questions regarding Hazard Mitigation can be sent to Brett Whitling at Clarion County Department of Public Safety by sending an email to [bwhitling@dps.clarion.pa.us](mailto:bwhitling@dps.clarion.pa.us) or calling 814-226-4000 Ext. 1403.

## Introduction

### 1.1. Background

**The Clarion County Hazard Mitigation Plan** is an umbrella plan that encompasses the input of the municipalities, PennWest Clarion, school districts, surrounding counties and the community. Mitigation begins at the local level, in communities, schools, boroughs, and townships where impacts of damaging events are first felt. Local mitigation planning focuses community attention on development issues prior to a disaster, ensuring participation in a more proactive sense. Through participation in the hazard mitigation planning process, local entities will possess the capability to identify, take advantage of, and implement mitigation strategies. Active hazard mitigation in a community also contributes to public safety and welfare, economic development, and environmental protection.

Natural occurring hazards, such as floods, tornadoes, and winter storms, are a part of the world around us. Their occurrence is natural and inevitable, and there is little we can do to control their force and intensity. However, through hazard mitigation planning, we can control what comes afterward. By minimizing the impact of natural occurring hazards upon our built environment, we can prevent such events from resulting in disasters.

“Hazard mitigation” is simply a technical term for reducing risks to people and property from natural occurring and human caused hazards. It includes both structural measures, such as protecting buildings and infrastructure from the forces of wind and water, and non-structural measures, such as natural resource protection and wise floodplain management. These activities can target existing development or seek to protect future development by avoiding any new hazardous construction. It is widely accepted that the most effective mitigation measures are implemented at the local government level, where decisions on the regulation and control of development are ultimately made.

The easiest way for a community to understand the severity about hazard mitigation is through the development and adoption of a local hazard mitigation plan. A mitigation plan will ensure that measures to reduce the present and future vulnerability of a community are thoroughly considered before, during, and after the next disaster strikes. Mitigation planning offers many benefits that include:

- saving lives and property;
- saving money;
- speeding recovery following disasters;
- reducing future vulnerability through wise development/redevelopment;
- expediting both pre-disaster and post-disaster grant funding; and
- demonstrating a firm commitment to improving community health and safety.

Both the Commonwealth of Pennsylvania and the U.S. Congress made the development of a hazard mitigation plan a specific eligibility requirement for any local government applying for mitigation grant funding. Communities with an adopted plan will therefore become “pre-positioned” and more apt to receive any available mitigation funds.

More importantly, mitigation planning has the potential to produce long-term and recurring benefits by breaking the repetitive cycle of disaster loss. A core assumption of mitigation is that current dollars invested in mitigation practices will significantly reduce the demand for future dollars by lessening the amount needed for emergency recovery, repair, and reconstruction. Further, these mitigation practices will enable residents, businesses, and industries to re-establish

themselves in the wake of a disaster, getting the community economy back on track sooner and with less interruption.

Mitigation planning will also lead to benefits that go beyond solely reducing hazard vulnerability. Measures such as the acquisition or regulation of land in known hazard areas can help achieve multiple community goals, such as preserving open space, maintaining environmental health and natural features, and enhancing recreational opportunities.

Clarion County is a rural county in Western Pennsylvania that is particularly vulnerable to the effects of a wide range of natural occurring and human caused hazards. These hazards threaten the life and safety of County residents and have the potential to damage or destroy both public and private property and disrupt the local economy and overall quality of life. The County government, its residents and businesses have in fact suffered disaster losses in years past that exceeded millions of dollars and resulted in the loss of life.

Beginning in the mid-1990's, Clarion County established a firm commitment to reducing the potential for future disaster losses. Following a destructive series of flooding and severe weather, Clarion County municipalities were awarded significant funding to mitigate public property against future storm events.

To cultivate this local commitment to hazard mitigation, Clarion County has prepared this Hazard Mitigation Plan. At its most inner core, the Plan recommends specific actions to combat the forces of nature and protect its residents from hazard losses. These actions go beyond simply recommending structural solutions to reduce existing vulnerability, such as elevation and acquisition projects.

Local policies on community growth and development, incentives for natural resource protection, and public awareness and outreach activities are examples of other actions considered to reduce Clarion County's future vulnerability to natural occurring and human caused hazards. The Plan has been designed to be an active document with implementation and evaluation procedures included to help achieve meaningful objectives and successful outcomes.

The County Hazard Mitigation Team is responsible for the development of the Hazard Mitigation Plan.

Over the course of the last five years, the plan has been reviewed by Clarion County, PennWest Clarion, municipalities and school districts. Meetings were held with members of the Clarion County Hazard Mitigation Team and several officials at both the Commonwealth and local government level were contacted throughout the planning process for specific information and technical expertise.

## **1.2. Purpose**

The Clarion County Hazard Mitigation Plan was developed in accordance with the requirements of the Federal Emergency Management Agency (FEMA) Disaster Mitigation Act of 2000 (DMA 2000), Section 322 local hazard mitigation planning regulations as well as additional guidance documents provided by FEMA. The original plan was developed and approved in 2004; the plan was revised and approved in 2008, 2013 and 2018; this plan represents an updated version of the 2018 plan. The Plan will identify hazards, institute community goals and objectives, and select mitigation strategies and opportunities that are appropriate for Clarion County, Pennsylvania.

The Disaster Mitigation Act of 2000 (DMA 2000), Section 322 requires that local governments (which includes municipalities, counties, school districts and universities), as a condition of receiving federal disaster mitigation funds, have a mitigation plan that describes the process for identifying hazards, creating risk assessment and vulnerability analysis, identifying and prioritizing mitigation strategies, and developing an implementation schedule for the County, municipalities, PennWest Clarion and school districts.

Congress authorized the establishment of a federal grant program to provide financial assistance to states and communities for flood mitigation planning and activities. The Federal Emergency Management Agency (FEMA) has designated this Pre-Disaster Mitigation Assistance (PDM).

The main purpose of this Hazard Mitigation Plan is to implement the mitigation strategies, which Clarion County developed, to tackle the natural occurring and human caused hazards in the County.

This plan contains a list of potential hazard mitigation opportunities (projects) and explains how each opportunity relates to the overall mitigation strategy outlined in the plan.

The plan summarizes the activities outlined above to evaluate the effects of floods, severe snow events, windstorms (tornadoes, straight line, etc.) and other hazards in Clarion County and proposes mitigation activities.

The purpose of this Hazard Mitigation Plan is:

- To protect life, safety, and property by reducing the potential for future damages and economic losses that result from natural occurring and human caused hazards.
- to qualify for additional grant funding, in both the pre-disaster and post-disaster environment.
- to qualify for additional credit under the Community Rating System (CRS).
- to speed recovery and redevelopment following future disaster events.
- to demonstrate a firm local commitment to hazard mitigation principles; and
- to comply with both Commonwealth and federal legislative requirements for local hazard mitigation plans.

### **1.3. Scope**

This All-Hazard Mitigation Plan addresses the natural occurring and human caused hazards determined to be high, moderate, and low risk for Clarion County. The geographic scope for the Hazard Mitigation Plan includes all incorporated and unincorporated areas of Clarion County.

### **1.4. Authority and Reference**

Authority for this plan originates from the following federal sources:

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

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

- Pennsylvania Emergency Management Services Code. Title 35, Pa C.S. Section 7101-7707

- Pennsylvania Municipalities Planning Code of 1968, Act 247 as reenacted and amended by Act 170 of 1988
- Pennsylvania Stormwater Management Act of October 4, 1978. P.L. 864, No. 167

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

- FEMA Getting Started: Building Support for Mitigation Planning
- FEMA Understanding Your Risks: Identifying Hazards and Estimating Losses
- FEMA Developing the Mitigation Plan
- FEMA Bringing the Plan to Life
- Using Benefit-Cost Review in Mitigation Planning
- Integrating Historic Property/Cultural Resource Considerations into Hazard Mitigation Planning
- Integrating Manmade Hazards into Mitigation Planning
- Multijurisdictional Mitigation Planning
- Using the Hazard Mitigation Plan to Prepare Successful Mitigation Projects
- Local Mitigation Planning Handbook
- Local Mitigation Plan Review Guide
- National Fire Incident Reporting System 5.0: Complete Reference Guide
- FEMA Hazard Mitigation Assistance Unified Guidance

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

- PEMA: Hazard Mitigation Planning Made Easy
- PEMA: Mitigation Ideas: Potential Mitigation Measures by Hazard Type: A Mitigation Planning Tool for Communities
- PEMA: Pennsylvania's Hazard Mitigation Planning Standard Operating Guide

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

- NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity of Operations Programs

The following Commonwealth of Pennsylvania document was used to prepare this plan:

- State Water Plan, 2009



## 2. Community Profile

### 2.1. Geography and the Environment

Clarion County is a rural sixth-class county in the west-central part of Pennsylvania. It has a land area of 601 square miles and water area of seven square miles with a population of approximately 37,200. When school is in session at Pennsylvania Western Clarion University (PennWest Clarion, formerly Clarion University) there is an increase in residents by approximately 3,000. However, during the months of May 1<sup>st</sup> – October 31<sup>st</sup> the population increases by 5,000 as people arrive at their summer homes.

Located about 80 miles south of Erie and 65 miles north of Pittsburgh, the County is easily accessible with Interstate 80 bisecting the County from East to West throughout six exits (exit 70 through exit 45.). There are 27.9 miles of interstate highways, 620 miles of state and federal highways and 659 miles of secondary and municipal roads in the County (see Map 1 below).

Map 1

### Clarion County, Pennsylvania Major Traffic Routes







*Interstate 80 Bridge over Clarion River in Monroe Twp.*

The Clarion River spans from the Northeast part of the County to the Western edge. Redbank Creek forms the southern boundary, and the Allegheny River forms a large part of the western boundary. The Clarion River and Allegheny Rivers provide many recreational and scenic areas within the County. These rivers in combination with the County's forest areas, have contributed significantly to the County's economy.

Clarion County has a forest area of over 159,000 acres. The largest stand of virgin white pine east of the Mississippi River is in Cook Forest State Park of which the largest part is in the County. There are 10.03 square miles of state parks and 18,183 acres of state game lands. These areas include facilities for boating, camping, fishing, and hunting, mountain biking and swimming.

## **2.2. Community Facts**

Clarion County, erected on March 11, 1839 from parts of Venango and Armstrong Counties, is named for the Clarion River. Clarion County was the 54<sup>th</sup> county in the Commonwealth to be formed. The history of the County has been dominated by extra active industries. Timber resources of white pine and hemlock rapidly stimulated an influx of population and thus small lumber villages developed along the major streams. The discovery of bituminous coal provided further impetus to settlement and has played an important part in shaping the recent history of the County. Oil and natural gas have, at various times, spurred short-lived economic development. Drilling for natural gas in Marcellus shale had spurred a small growth in the drilling industry and support industries. Bituminous coal, clay and stone products are important yet today.

Agriculture has always been an important element of the County's economy. The market value of products sold for 2017 was \$28 million. There are approximately 594 farms using approximately 100,344 acres with the average size of each farm at 169 acres. These figures are based on the numbers released for year ending, 2017. (This information is current as of July 2019 according to the Department of Agriculture).

Presently, agriculture, including forestry, contributes significantly to the local economy. Many industrial businesses also support the area with the modular home industry, fiberboard, and laminate flooring, PennWest Clarion, health care industry and service industries providing much of the economic basis for the County.

The educational history of Clarion County is also noteworthy. In 1886, Clarion became the location for one of the State Teacher training schools, now PennWest Clarion of Pennsylvania. Featuring an enrollment of approximately 4,600 students (this includes on campus and online) and 700 employees, PennWest Clarion contributes cultural and recreational opportunities to Clarion that would otherwise not exist. PennWest Clarion would be one of the largest municipalities in Clarion County if designated as a municipality.

PennWest Clarion stands as not only as the County's largest employer but contributes to the local economy. PennWest Clarion brings opportunity to introduce students and their families to the area and all it has to offer. While this supports local communities, it also increases risk for an emergency.

Clarion County has seven school districts Allegheny-Clarion Valley, Clarion Area, Clarion-Limestone Area, Keystone, North Clarion County, Redbank Valley, and Union. There is also a Career and Technical school, three private schools and many Amish schools.

When Clarion County is mentioned to those living outside the county, several things come to mind:

Cook Forest State Park draws thousands of visitors from out-of-state to enjoy recreation and nature on its tract of 6,000 acres and 8 miles of frontage on the Clarion River. While some may visit for a one-time vacation, many visitors return to the forest or surrounding area on an annual basis. Again, like PennWest Clarion, this contributes to the local economy but does create risk. Due to the natural setting, incidents such as wildfire, lost persons, flood, or flash flood, can create a hazardous situation for visitors. Cellular coverage is also not consistent as many places have weak or no signal.

As mentioned in **Section 2.1**, the Clarion River is very inviting for boating, fishing, and swimming. The Clarion River has National Wild and Scenic River (WSR) designation, which protects and enhances its free-flowing state to promote recreational and scenic values. In 2019, Clarion River was voted as Pennsylvania's River of the year. The U.S. Postal Service offered a limited time stamp as a tribute to this achievement (see photo on right).

Every fall Clarion celebrates the changing of the leaves with the Autumn Leaf Festival put together by the Clarion Area Chamber of Business & Industry. The most famous portion of this week-long event is Crafters' Day where Main Street of Clarion Borough is shut down and filled with over 200 craft booths and an estimated 100,000 people.



*'Clarion River' Forever Stamp by U.S. Postal Service*

Foxburg Country Club, located in Foxburg, is the oldest golf course in continuous in the United States. To commemorate this historical location, the club holds an annual Hickory Championship where the players play with clubs and rules of pre-1900s golf. Clubs being used in the tournament must be made before 1900 or are certified replicas to pre-1900 standards. Other rules include not being allowed to use a tee and players must use sand to prop their ball up for their drives. In attempt to make it feel more authentic, many athletes will dress in outfits that would resemble those worn around 1900. Foxburg Country Club is also home to the American Golf Hall of Fame.

### 2.3. Population and Demographics

A new census was completed in 2020. Per the 2020 Census the population of Clarion County is 37,241. This is a decrease of 6.9% percent from the 2010 Census which showed a population of 39,988. When PennWest Clarion is in session there is an additional 3,000 resident students. The overall population density of the County is 66 persons per square mile. **Clarion County meets the criteria as a “Distressed Area” as defined by the Census Bureau.**

The median household income (in 2019 dollars) is \$46,680. Approximately 12.8 percent of the population lives in poverty.

The population of the County is concentrated around the Borough of Clarion and Clarion and Monroe Townships, which are located center of the County. The remainder of the County is sparsely populated with some concentrations of population along the southern edge and mid-western portion of the County.

**Table 2.3-1 Age Distribution of County Populations, 2020 Census**

Under 5	5-17	18-64	65+	Total Population
1,899	5,065	22,717	7,560	37,241

The median age of Clarion County population is 38.1 with 77 percent of the population over 18 years of age and over 15 percent being 65 years or older.

**Table 2.3-2 2020 Census Population**

	2010 Population	2020 Population	% Change	% over 65	Median income	% in Poverty
United States	308,745,538	331,449,281	7.4	15.6	\$57,652	12.3
Pennsylvania	12,702,379	13,002,700	2.4	17.8	\$56,951	12.5
Clarion County	39,988	37,241	-4.4	19.3	\$44,373	16.1
Ashland Township	1,114	1,119	0.4	12	\$51,184	4.5
Beaver Township	1,761	1,833	4.1	16.4	\$47,422	10.1
Brady Township	55	77	40.0	5.5	\$40,000	14.8
Callensburg Borough	207	191	-8.4	14.7	\$35,000	41.5
Clarion Borough	5,707	5,693	7.3	11.6	\$31,343	34.1
Clarion Township	4,116	3,645	-11.4	15.5	\$39,073	26.4
East Brady Borough	942	904	-4.2	18.3	\$38,929	21.7
Elk Township	1,490	1,434	-3.8	18.3	\$58,092	10.7
Farmington Township	1,934	1,781	-7.9	17.2	\$46,080	12.8
Foxburg Borough	183	173	-5.8	20.8	\$38,750	10.1
Hawthorn Borough	494	456	-8.3	14.2	\$41,364	8.2
Highland Township	525	534	1.7	18.7	\$56,111	12.8
Knox Borough	1,146	1,067	-7.4	22.8	\$46,250	18.5
Knox Township	1,036	996	-3.9	15.9	\$60,000	6.5
Licking Township	536	577	7.6	12.5	\$65,500	6.9
Limestone Township	1,858	1,871	0.7	15.5	\$59,706	6.1
Madison Township	1,207	1,157	-4.1	20	\$38,500	18.4
Millcreek Township	396	365	-7.8	22.2	\$47,031	6.3
Monroe Township	1,544	1,487	-3.7	14.8	\$57,321	12.4
New Bethlehem Boro.	989	893	-8.4	24.6	\$35,208	16.5

Paint Township	1,699	1,645	-3.2	22.5	\$57,500	6.4
Perry Township	947	919	-3.0	17	\$53,333	9.5
Piney Township	453	399	-11.9	34.4	\$44,688	12.7
Porter Township	1,438	1,289	-4.4	17.6	\$51,042	6.5
Redbank Township	1,370	1,332	-2.8	18.2	\$48,833	16.7
Richland Township	494	469	-5.1	18.2	\$46,000	10.2
Rimersburg Borough	951	878	-8.3	15.2	\$26,190	39.6
Salem Township	881	896	1.7	14.8	\$49,803	7.6
Shippenville Borough	480	443	-8.4	14	\$43,438	7.2
Sligo Borough	720	663	-8.6	13.1	\$35,625	19.3
St. Petersburg Boro.	400	367	-9.0	15.8	\$40,536	9.9
Strattanville Borough	550	496	-10.9	13.5	\$44,833	14
Toby Township	991	982	-0.9	17.9	\$46,750	12
Washington Township	1,887	1,865	-1.2	16.7	\$44,522	24.8

## MUNICIPALITY PROFILES

### ASHLAND TOWNSHIP

The Township of Ashland is made up of 22.6 square miles and is in the northeast portion of Clarion County. Keystone School District serve as the public school district. Unincorporated towns include Elmo, Fern, Kossuth, and Ninevah. The Township managed 40.73 miles of road with US-322 and SR-338 also run through the township.

Ashland Township's emergency services are provided by Pennsylvania State Police, Knox Ambulance, and Knox Volunteer Fire Company.

### BEAVER TOWNSHIP

Beaver Township is located in the central-western portion of the county and is just below Ashland Township. Of the township's 33.9 square miles, it consists of 53.6 miles of township road with SR-208 and SR-338 intersecting through it and Interstate-80 horizontally dividing the municipality.

Beaver Township's emergency services are provided by Pennsylvania State Police, Knox Ambulance, and Knox Volunteer Fire Company.

### BRADY TOWNSHIP

Brady Township is Clarion County's smallest township by square miles and population. The 2020 Census population for Brady Township was 53. It maintains 0.45 miles of township road within its 2.2 square mile area. Along SR-68 which passes through the township is the Brady's Bend Overlook which gives sightseers a beautiful view of a horseshoe bend in the Allegheny River. One of Clarion County's communication towers is located at this site.

Brady Township's emergency services are provided by Pennsylvania State Police, East Brady Ambulance, and East Brady Volunteer Fire Department.

### Calensburg Borough

The Borough of Callensburg is located on the central-west side of Clarion County in the middle of Licking Township consisting of 0.14 square miles. Callensburg has SR-58 and SR-368 intersecting through it.

Callensburg Borough's emergency services are provided by Pennsylvania State Police, Southern Clarion County Ambulance Service, and Callensburg Volunteer Fire Department.

### CLARION BOROUGH

Clarion Borough is centrally located in Clarion County and serves as the County Seat with 1.62 square miles. It is the County's most populated municipality with a 2020 Census count of 5,693 and home to PennWest Clarion. Several critical infrastructures are in the Borough such as the Clarion County Courthouse, several other Clarion County government facilities, Clarion Area School District buildings, and Clarion Borough Police Department. State routes 322 and 68 both intersect at Main Street and 5<sup>th</sup> Avenue. This busy intersection is located next to the Clarion County Courthouse. Clarion Borough's northern border follows the Clarion River which is a tributary to the Allegheny River. This section of the river is unique as it is a retention area for the Piney Dam found down the river.



*Clarion Borough's Main Street on a foggy morning*

Clarion Borough hosts majority of events for the annual Autumn Leaf Festival which brings in approximately 200,000 people throughout the week. Its most popular day is Crafter's Day (always on Friday of ALF week) where Main Street is shut down and craft vendors line both sides of the street. Due to its popularity and size of attendance, PEMA and Clarion County EMA remain vigilant of any threats prior and during the weeklong event by planning and coordinating all emergency services for response to an incident.

Clarion Borough's emergency services are provided by Clarion Borough Police Department, PennWest Clarion Public Safety, Pennsylvania State Police, Clarion Hospital EMS, and Clarion Fire & Hose Co. #1.

### CLARION TOWNSHIP

Encompassing Clarion Borough is Clarion Township with a population of 3,852. Although the municipality's boundary lines with Clarion Borough can get complex, residents within Clarion Township's 31.7 square miles are served by Clarion-Limestone School District. The Township managed 41.43 miles of road with SR-322 and SR-68 intersecting and Interstate-80 running across the southern border.

Clarion Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, Strattanville QRS, and Limestone QRS. Fire service is divided between Clarion Fire & Hose Co. #1, Strattanville Volunteer Fire Department, Limestone Fire Co., and Corsica Volunteer Fire Department.

### EAST BRADY BOROUGH

Connected to Clarion County only by Brady Township is East Brady Borough which sits at the most southwestern part of the county. East Brady is surrounded by the Allegheny River on three sides making it a popular place for recreation on and along the river. The borough is made up of 1.11



square miles with a population of 904. SR-68 is the only state road which passes through the borough.

East Brady's claim-to-fame is that it is the hometown to NFL Hall of Famer, Jim Kelly.

East Brady Borough's emergency services are provided by Southern Clarion County Regional Police Department, East Brady Area Ambulance, and East Brady Volunteer Fire Department.

### **ELK TOWNSHIP**

Located north central to the county with Shippenville Borough tucked in the center is Elk Township with a population of 1,396. Township supervisors oversee Elk's 31.3 square miles and 40.9 township roads. SR-322 and SR-208 pass through the township and intersect in Shippenville Borough.

Elk Township's emergency services are provided by Pennsylvania State Police, Shippenville-Elk Ambulance, and Shippenville Volunteer Fire Department.

### **FARMINGTON TOWNSHIP**

Farmington Township is in the northeast corner of Clarion County with 62.6 square miles of land. There is 55.76 miles of township road with SR-66 and SR-36 cross-crossing at the center.



*Henry Run Sawmill Dam in Cook Forest State Park*

Although the township's population is listed as 1,799, the area draws many thousands of visitors and tourists throughout the year as people camp and enjoy recreational activities at Cook Forest State Park which partially resides within the township. While the influx of tourism is appreciated to stimulate the local economy, it does bring its own set of hazards as it is difficult to keep an accurate count on how many people are visiting. Trails and horseback riding are two very popular forms of recreation within Cook Forest. In 2020, Clarion County 9-1-1 received two calls for missing persons within the state park.

Farmington Township's emergency services are provided by Pennsylvania State Police, Shippenville-Elk Ambulance and Clarion Hospital EMS, and Farmington Volunteer Fire Department.

### **FOXBURG BOROUGH**

Tucked between the Allegheny River and the edge of Richland Township sits Foxburg Borough. Although it is a smaller community with a population of only 173 and a footprint of just 0.5 square miles, it draws in a lot of tourism due to its restaurant, hotel, winery, and golf club. SR-58 passes through the borough and leads traffic across the Allegheny River into Venango County.

Due to its geographic location, Foxburg faces several environmental threats. One of these threats comes from being located right along the Allegheny River. Not only is there a threat of flooding, but this section of the river has a history of ice jams. The town sits at the bottom of a hill leaving it susceptible to power failure, should something happen to the single power line for the town.

Although it is unlikely to happen, Foxburg has had trouble maintaining a working tornado siren for several years and only has one working fire hydrant.

Foxburg Borough's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, and Parker Volunteer Fire Department (Venango County). Foxburg used to have its own volunteer fire company but closed its doors around 2010.

### **HAWTHORN BOROUGH**

Hawthorn Borough sits on the southeastern border of Clarion County along the Redbank Creek with a population of 456. Within its 1.08 square miles, SR-28 follows the path of the creek leading travelers from neighboring borough New Bethlehem through Redbank Township and onto Jefferson County. Although the town is somewhat remote, the Redbank Valley Intermediate School resides within the borough. It also holds the annual Clarion County Fair which brings in several thousand people.

Hawthorn Borough's emergency services are provided by Southern Clarion County Regional Police, Clarion Hospital EMS, Hawthorn Fire QRS, and Hawthorn Volunteer Fire Department.

### **HIGHLAND TOWNSHIP**

Highland Township is located northeastern part of the county, north of the Clarion River and Clarion Borough with 19.3 square miles and a population of 501. Township supervisors manage the municipality's 20.15 miles of township road. Highland Township is Clarion County's only municipality that does not have a state road going through it. Despite this, Miola Road runs from the border of Clarion Borough until it meets with SR-36 in Farmington Township. This road is popular for travelers heading from Clarion Borough to Cook Forest. Because of this travel route, Highland Township is popular for its various campgrounds which become very busy during the summer and fall months.

Highland Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS and Clarion Fire & Hose Co. #1 and Farmington Volunteer Fire Company.

### **KNOX BOROUGH**

Knox Borough lies at the northern part of Beaver Township. Its residents make up a population of 1,067 within its 0.57 acres. SR-208 winds through the town with a right and left-turn. The middle section of these turns makes up for the business district of Knox Borough's Main Street. Keystone School District's High School is located on the southeastern part of the borough while its Elementary School is located across the borough's border in Beaver Township.

Knox Borough's emergency services are provided by Knox Borough Police Department, Knox Ambulance, and Knox Volunteer Fire Department.

### **KNOX TOWNSHIP**

Knox Township is located in the north central part of Clarion County. This Township's 17.2 square miles of land is populated by 981 residents. Township supervisors are responsible for maintaining 19.35 miles of township road and has SR-66 passing vertically through the township. Running alongside of SR-66 which vertically passes through the township is a former railroad which has been converted into a paved trail.

Knox Township's emergency services are provided by Pennsylvania State Police, Shippenville-Elk Ambulance, Clarion Hospital EMS, Shippenville-Elk Volunteer Fire Department, Washington Volunteer Fire Department, and Farmington Volunteer Fire Department.

**LICKING TOWNSHIP**

The Township of Licking is located centrally-west within the County and borders Callensburg Borough. The Township's population consists of 536 residents within the 17.8 square miles of land. Aside from the 26.69 miles of township road, SR-368 and SR-58 meet centrally just outside of Callensburg Borough's border.

Licking Township's emergency services are provided by Pennsylvania State Police, Southern Clarion County Ambulance Service, Knox Ambulance, Callensburg Volunteer Fire Department, and Knox Volunteer Fire Department.

**LIMESTONE TOWNSHIP**

Limestone Township is located along the eastern border of Clarion County between Clarion and Redbank townships. Of the 1,736 residents, students attend Clarion-Limestone School District. There is 37.7 square miles of land and 79.01 miles of township roads. SR-66 runs vertically through the Township and is one of the heavier traveled roads as it eventually leads to Interstate-80 and Clarion Borough right next to PennWest Clarion.

Limestone Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, and Limestone Volunteer Fire Department.

**MADISON TOWNSHIP**

Madison Township is in the southeastern corner of Clarion County and acts as the gateway to Brady Township and East Brady Borough. Madison Township is populated with 1,124 residents within its 27.9 area square miles. The Township manages 41.11 miles of road with state routes 68 and 861 passing through the center and east side of the township.

Madison Township's emergency services are provided by Pennsylvania State Police, Southern Clarion County Ambulance Service, East Brady Volunteer Fire Department, and Rimersburg Hose Co.

**MILLCREEK TOWNSHIP**

Millcreek Township sits centrally on the Eastern border of Clarion County with the village Fisher located in the middle. Although the 2020 Census reported Millcreek's population as 370, it is difficult to maintain an accurate number as many camps are scattered throughout the township. It was reported by Strattanville Volunteer Fire Department's Chief that they are seeing more mobile campers spending time deep in the woods which exacerbates the chance to ensure the public's safety. Like Farmington, the uncontrolled fluctuation of people within the township throughout the year increases the risk of maintaining safety. Should an incident occur, gathering information from local officials or residents will be crucial to operations.

Millcreek Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, Millcreek Township Volunteer Fire Department and Strattanville Volunteer Fire Department.

**MONROE TOWNSHIP**

Monroe Township is centrally located beneath Clarion Township. Although most of Monroe Township's 29.7 square miles is rural and farmland, most people recognize it for the businesses located off Interstate-80's Exit 62. Outside of the Township's 1,487 residents, this is one of Clarion County's most visited municipalities as it contains retail shops, fast food, restaurants, gas



stations, several medical facilities, and an emergency room. Monroe Township has 49 miles of road with Interstate 80 and State Route 68 intersecting through the municipality.

The economy off Exit 62 is a continually growing economy with opportunity for growth and expansion. A ready-to build business park is located on the southern side of Interstate 80 with potential commercial businesses in the works.

Monroe Township's Exit 62 is recognized as a hub for potential threats and dangers such as trucks hauling hazardous materials on Interstate 80, terroristic acts, and possible reports of human trafficking. Butler Health's Clarion Hospital also sits close to the Interstate. Not only does the emergency room reside at this critical infrastructure but is also home to an emergency medical helicopter.

Monroe Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, and Clarion Fire & Hose Co. #1.

### **NEW BETHLEHEM**

A major contributor to New Bethlehem Borough's success in tourism and self-sustaining community is based on its geography – which is also what makes this Borough a prominent focus in Clarion County for mitigating hazards. New Bethlehem acts as a gateway and pass through for travel to central Clarion County and Brookville County (Jefferson County). Aside from housing a Tier II facility, the Smucker's peanut butter plant, flooding is a high-risk hazard not only because of potential threats but because its history of flooding. New Bethlehem is located on the southcentral border of Clarion County. Its southern border is framed by Redbank Creek while Leisure Run travels down the center of this community.

July 19, 1996 is an infamous day for New Bethlehem. After having several days of heavy rain, an earthen dam on a reservoir near Brookville, PA gave way, causing water to flow downstream and cover much of New Bethlehem's business district. The flood stage for New Bethlehem is 17 feet; National Weather Service records shows that water levels on Redbank Creek reached 23.9 feet. No deaths from the flooding but the town was hit with substantial damage including several structures to be demolished.



*The 1996 flood raised water levels to over 23 feet.*

July 19, 2019, the 23<sup>rd</sup> anniversary of the 1996 flood, New Bethlehem and its neighbors Porter and Redbank townships were hit with a flash flood causing Leisure Run to flood and cause substantial damage. This flood, caused by a flash flood through debris-laden water, caused damage to residential structures, commercial structures, and a public-school building.

The result of both floods has increased the likelihood of another flood as no hazard mitigation has taken place. Clarion County EMA remains watchful of conditions during calls for heavy rains and for ice dams in the winter.

New Bethlehem is populated by 893 residents within .47 square miles. State Routes 66, 28 and 861 all intersect near the heart of the town. New Bethlehem's emergency services are provided

by Southern Clarion County Regional Police Department, Pennsylvania State Police, Clarion Hospital EMS, and New Bethlehem Fire Department.

### **PAINT TOWNSHIP**

Paint Township is centrally located just above Clarion Borough and Clarion Township with 1,645 residents. Within the 20.8 square miles resides 1,645 people. Paint Township has 21.47 miles of road to maintain; SR-66 and SR-322 which intersect in the heart of the township as well as Interstate 80 passing through. I-80 also advertises Paint Township's Exit 60 as the way to Cook Forest State Park. The intersection at 66 and 322 is one of the county's busiest intersections. Paint Township also leads the County with the most manufacturing industry sites. The mobile home plants, fiberboard plant, laminate flooring plant, garbage, and recycling center, and more, all play a major contribution to the amount of traffic at this intersection. Due to the high volume of commercial, tourists, and local vehicles, the intersection and surrounding area has a higher risk of vehicle accidents.

Paint Township is also home to Clarion County's new 9-1-1 Dispatch Center and EMA office. This facility has tentative plans to be used by state and federal departments for storage and distribution.

Paint Township's emergency services are provided by Pennsylvania State Police, Shippensburg / Elk Township's Volunteer Fire Department, and Shippensburg / Elk Ambulance Service.

### **PERRY TOWNSHIP**

Perry Township sits on the southeastern edge of Clarion County with 30.3 area square miles. Out of the 21.47 miles of road, SR-368 is the only road not maintained by the township.

Perry Township's emergency services are provided by Pennsylvania State Police, Perry Township Volunteer Fire Department, and Southern Clarion County Ambulance Service.

### **PINEY TOWNSHIP**

The Township of Piney is located centrally-west within the County. The Township's population consists of 399 residents within the 17.9 square miles of land. Aside from the 30.47 miles of township road, SR-68 passes through to meet the border of Sligo Borough.

Piney Township's emergency services are provided by Pennsylvania State Police, Southern Clarion County Ambulance Service, Clarion Hospital EMS, and Sligo Volunteer Fire Department.

### **PORTER TOWNSHIP**

With 44.5 area square miles, Porter Township is on the southern border of Clarion County encompassing New Bethlehem Borough. This township is populated by 1,289 residents. Porter has 70.38 township roads to maintain also with SR-861 and SR-66 both stemming from New Bethlehem Borough.

Following along SR-66 is Leisure Run which was a major contributor to the 2019 flood in New Bethlehem. The flooding caused significant damage to SR-66, structures, homes, and displaced mobile homes from their foundation.

Piney Township's emergency services are provided by Pennsylvania State Police, Clarion Hospital EMS, Southern Clarion County Ambulance Service, New Bethlehem Fire Department, Rimersburg Hose Co., and Limestone Fire Co.

**REDBANK TOWNSHIP**

Redbank is named for the Redbank Creek which spans the southern edge of Clarion County. It is located on the southwestern corner of Clarion County. Within its 30.1 area square miles is 1,332 residents and 54.45 miles of township road. SR-28 runs along the southern border along the Redbank Creek and leads to Jefferson County (west) and SR-536 extends from Armstrong County (south) to end at SR-28.

There are several structures along the Redbank Creek bank including the Redbank Valley High School. Although the building is listed outside of the flood hazard area, the parking lot and football field are within the hazard zone.

Redbank Township's emergency services are provided Pennsylvania State Police, Clarion Hospital EMS, New Bethlehem Fire Department, Hawthorn Volunteer Fire Department, Limestone Volunteer Fire Company, and Summerville Volunteer Fire Department.

**RICHLAND TOWNSHIP**

Richland Township is located on centrally on the east border of Clarion County with 15.7 area square miles. Within the township sits Saint Petersburg and Foxburg boroughs. Although the population is only 469, this township receives a lot of traffic pass-thru as I-80 runs through the north, as well as State Routes 478, 38, 58, and 338 leaving township supervisors 22.76 miles of township road to manage. Allegheny-Clarion Valley School District is also located within the township.

Richland Township's emergency services are provided by Pennsylvania State Police, Emlenton EMS, Saint Petersburg Fire Department, Emlenton Volunteer Fire Department, and Knox Volunteer Fire Department.

**RIMERSBURG BOROUGH**

Rimersburg Borough is located along the border between Toby and Madison townships with a population of 878. This community has an annual Cookie Dayz Cruise-In celebration which temporarily closes SR-68 which spans the Borough from north to south. SR-861 begins off SR-68 which travel to New Bethlehem Borough. Union School Districts are also within Rimersburg.

Rimersburg Borough's emergency services are provided by Southern Clarion County Regional Police Department, Pennsylvania State Police, Rimersburg Hose Company, and Southern Clarion County Ambulance Service.

**SALEM TOWNSHIP**

Salem Township is located on the western edge of Clarion County with 896 residents. Salem Township contains no boroughs or unincorporated towns within its boundary. The Township manages 39.12 miles of roads within the 16.3 area square miles. PennDOT manages SR-208 which cuts through the middle of the township and SR-38 which enters and exits a short distance on the western side.

Salem Township's emergency services are provided by Pennsylvania State Police, Knox Volunteer Fire Department, Emlenton Volunteer Fire Department, and Knox Ambulance.

**SHIPPENVILLE BOROUGH**

Shippenville Borough resides in the center of Elk Township near the center of Clarion County. Although the Borough only has 443 residents, it sees a high amount of traffic as SR-322 and SR-208 intersect through the Borough.

Shippenville Borough's emergency services are provided by Pennsylvania State Police, Shippenville Volunteer Fire Department, and Knox Ambulance.

### **SLIGO BOROUGH**

Sligo Borough's borders touch three townships: Piney, Licking, and Toby townships. With state routes 58 and 68 intersecting in Sligo, the 663 residents experience a high amount of traffic as this borough acts as a pass through for many travelers being the primary route for anyone traveling to or from East Brady Borough to Clarion. Critical infrastructures include the wastewater management system and Sligo Elementary School. Although no reports or emergency declarations have been made, several areas of the borough experiences damage from flash floods every couple of years from Licking Creek and Little Licking Creek. Licking Creek floods during heavy rains causing significant flood damage to approximately ten houses as well as a lift station for the wastewater pump station. The flooding stretches for one-half mile. Little Licking Creek floods during heavy rains causing flood damage to approximately 20 residential structures and properties and one commercial structures. The flooding stretches for three-quarters mile and runs over Colerain Street (SR-68), Licking, and Penn streets. These issues can be mitigated by removing debris from the streams, but the project was halted due to DEP regulations.

Sligo Borough's emergency services are provided by Pennsylvania State Police, Sligo Volunteer Fire Department, and Southern Clarion County Ambulance Service.

### **SAINT PETERSBURG BOROUGH**

Like Foxburg Borough, Saint Petersburg Borough resides within Richland Township. It's 367 residents primarily live along or within two blocks of state routes 58 and 478 which connect in the Borough. Saint Petersburg has been in the process of building a new water treatment facility which is anticipated to be fully operational by the end of 2022.

Saint Petersburg's emergency services are provided by Pennsylvania State Police, Saint Petersburg Fire Department, and Clarion Hospital EMS.

### **STRATTANVILLE BOROUGH**

Strattanville Borough rests in the middle of Clarion Township and is only a few miles from Clarion Borough with a population of 496. Although there is no critical infrastructure within the borough, it experiences traffic passing through on SR-322. Travelers also pass through Strattanville as they make their way to camps located in Fisher (unincorporated town in Millcreek Township). The mobile home plant, New Era Modulares, does reside in the southern side of Strattanville.

Strattanville Borough's emergency services are provided by Pennsylvania State Police, Strattanville Volunteer Fire Department, and Clarion Hospital EMS.

### **TOBY TOWNSHIP**

Toby Township is located in the southwest region of Clarion County with 29.1 area square miles with 982 residents. Outside of the 51.96 miles of township road, SR-68 runs through Toby Township connecting Sligo and Rimersburg boroughs.

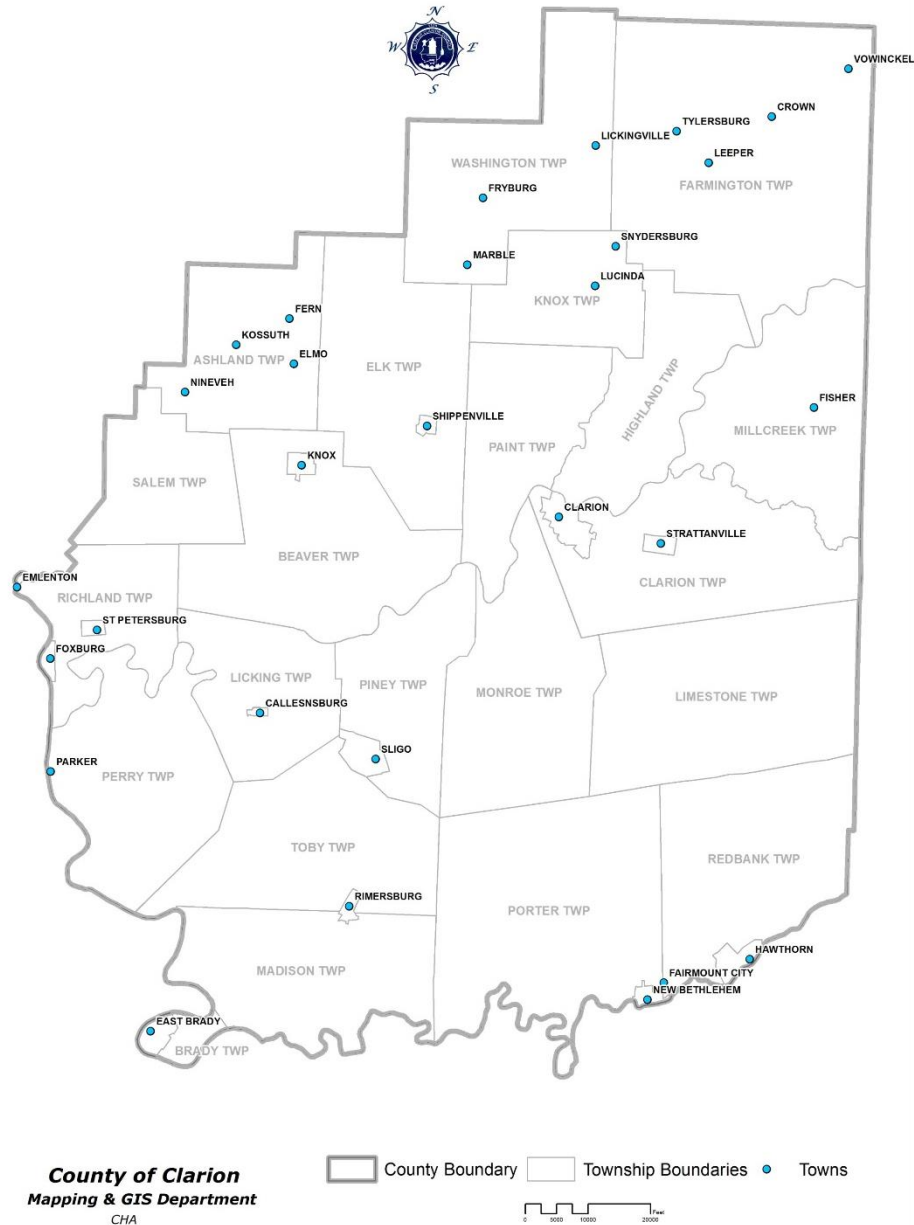
Toby Township's emergency services are provided by Pennsylvania State Police, Sligo Volunteer Fire Department, Rimersburg Hose Company, Callensburg Volunteer Fire Company, Perry Township Volunteer Fire Department, and Southern Clarion County Ambulance Service.

**WASHINGTON TOWNSHIP**

Washington Townships stretches up to be the most northern municipality in Clarion County covering 32.5 area square miles. It's 1,865 residents utilize the 31.71 miles of township road along with SR-208 and SR-68 both connecting to SR-157. Washington Township is well-known for its annual Mayfest event which draws a relatively large crowd for the area.

Washington Township's emergency services are provided by Pennsylvania State Police, Washington Volunteer Fire Department, and Shippenville-Elk Ambulance.

**Map 2**  
**Municipalities & Towns**  
**Clarion County, Pennsylvania**



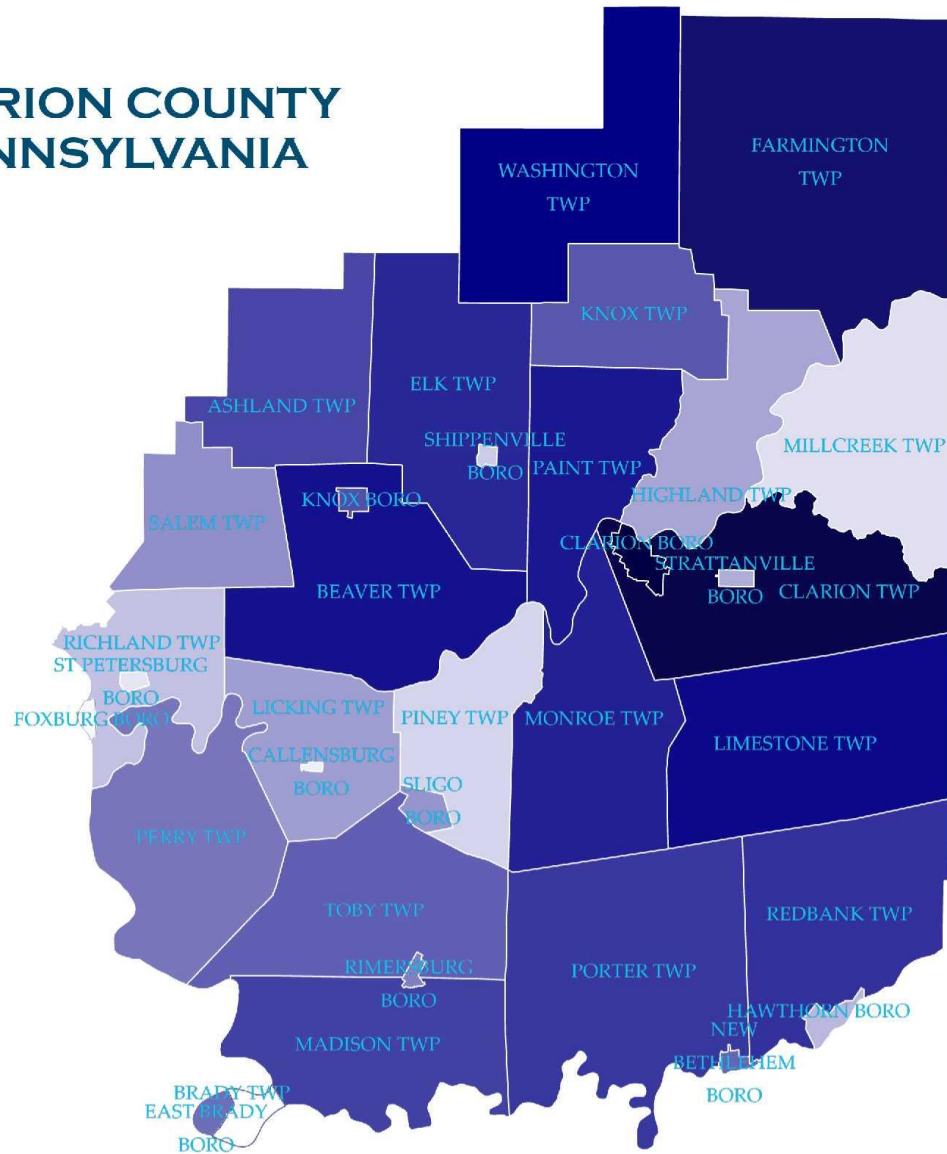
**Table 2.3-3 List of Municipalities**

<b>Boroughs</b>					
Callensburg	Clarion	East Brady	Foxburg	Hawthorn	Knox
New Bethlehem	Rimersburg	Shippenville	Sligo	St. Petersburg	Strattanville
<b>Townships</b>					
Ashland	Beaver	Brady	Clarion	Elk	Farmington
Highland	Knox	Licking	Limestone	Madison	Millcreek
Monroe	Paint	Perry	Piney	Porter	Redbank
Salem	Toby	Washington			





































**Map 3**  
**Population by Municipalities**

## CLARION COUNTY PENNSYLVANIA

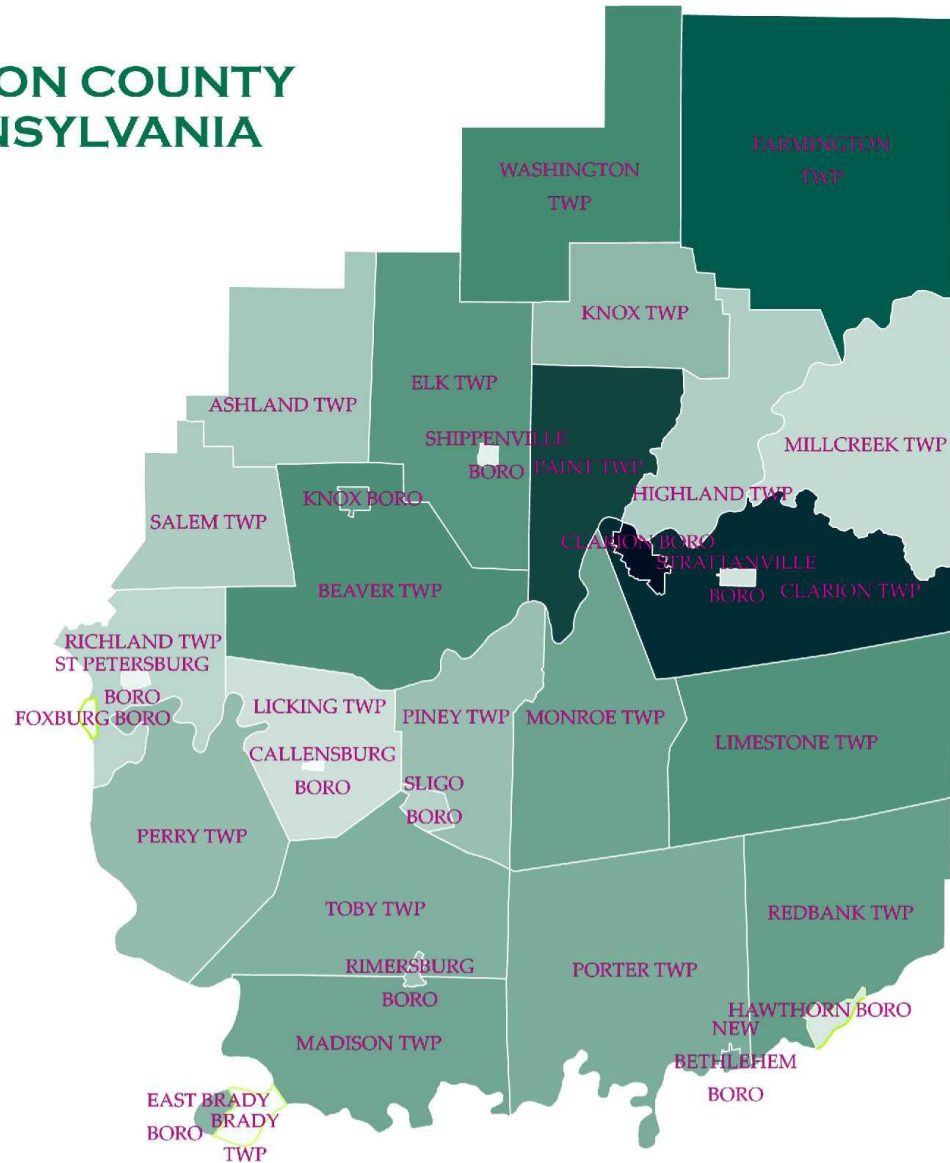


**2020  
POPULATION  
37,241**

LEGEND					
	Clarion Borough	5,693		East Brady Borough	904
	Clarion Township	3,852		Perry Township	887
	Farmington Township	1,799		Rimersburg Borough	878
	Washington Township	1,787		Salem Township	829
	Limestone Township	1,736		Sligo Borough	663
	Beaver Township	1,671		Licking Township	536
	Paint Township	1,588		Highland Township	501
	Monroe Township	1,569		Strattanville Borough	496
	Elk Township	1,396		Hawthorn Borough	456
	Redbank Township	1,278		Richland Township	453
	Porter Township	1,241		Shippenville Borough	443
	Madison Township	1,124		Piney Township	423
	Ashland Township	1,110		Millcreek Township	370
	Knox Borough	1,067		St. Petersburg Boro.	367
	Knox Township	981		Callensburg Borough	191
	Toby Township	933		Foxburg Borough	173
	New Bethlehem Boro.	912		Brady Township	53

**Map 4**  
**Population over 65**

## CLARION COUNTY PENNSYLVANIA



**2020  
SENIOR  
POPULATION  
65+  
7,188**

LEGEND					
	Clarion Borough	660		Perry Township	151
	Clarion Township	597		Piney Township	146
	Paint Township	357		Rimersburg Borough	133
	Farmington Township	309		Ashland Township	133
	Washington Township	298		Salem Township	123
	Beaver Township	274		Highland Township	94
	Limestone Township	269		Sligo Borough	87
	Elk Township	255		Richland Township	82
	Knox Borough	243		Millcreek Township	82
	Redbank Township	233		Licking Township	67
	Monroe Township	232		Strattanville Borough	67
	Madison Township	225		Hawthorn Borough	65
	New Bethlehem Boro.	224		Shippensburg Borough	62
	Porter Township	218		St. Petersburg Boro.	58
	Toby Township	167		Foxburg Borough	36
	East Brady Borough	165		Callensburg Borough	28
	Knox Township	156		Brady Township	3



### Housing Trends

According to data from the U.S. Census Bureau, there were 20,447 housing units in 2014 with over 77 percent being occupied and over 22 percent non-occupied; of the occupied, 69 percent are occupied by the owner.

Approximately half of municipalities still have blight that are being addressed. The municipalities are addressing this through the courts and obtaining money to remove and cleanup the structures.

**Table 2.3-4 Total Housing Units**

Year Built	Estimate of Units	Percent
2010 or later	525	2.6%
2000 – 2009	1,784	8.7%
1990 – 1999	2,380	11.6%
1980 – 1989	1,937	9.5%
1970 – 1979	3,484	17%
1960 – 1969	2,012	9.8%
1950 – 1959	1,914	9.4%
1940 – 1949	1,162	5.7%
1939 or earlier	5,249	25.7%

### 2.4. Land Use and Development

Approximately 248 square miles (41%) of the County is forest, 158 square miles (26%) is agriculture, 471 square miles (78.6%) is considered rural, and 130 square miles (21.4%) is considered urban. There is approximately 700 stream miles.

**Table 2.4-1 Pending & Proposed Land Development**

Municipality	Pending	Proposed
Clarion Borough	Glassworks Business Park	
Clarion Borough	PennWest Clarion	
Monroe Township		Trinity Point Development
Monroe Township		Route 68 at Interstate 80 at Exit 62
Paint Township		Route 66 at Interstate 80 at Exit 60

#### **Major land development/building in Clarion County (since the 2018 plan) includes:**

- Elderly apartment complex with 42 units, Clarion Borough
- Remodel and addition (37,840 square feet) to Tippin Gym at PennWest Clarion, Clarion Borough
- New industrial building (total of 225,000 square feet) Glass Works Business Park, Clarion Borough
- Current commercial facility new warehouse (16,000 square feet), Clarion Township
- Lumber mill and drying facility (20-acre complex nine total buildings), Clarion Township
- Current commercial facility addition (23,400 square feet) to shop, Limestone Township
- Adult day facility (50-75 clients) in Trinity Point, Monroe Township
- Clarion Psychiatric Hospital addition (23,000 square feet), Monroe Township
- New YMCA with child day care, Monroe Township
- Current commercial facility added three new buildings (total of 200,000 square feet), Paint Township
- Current commercial facility addition (15,820 square feet) to warehouse, Redbank Township
- Penn Highlands Health Care (17,000 square feet) out-patient facility and Emergency Room, Monroe Township
- LandPro (16,000 square feet) showroom, parts department and service area, Limestone Township
- American Pre-Cast, Clarion Borough
- Bobcat of Clarion (dealership), Clarion Borough

- Fort Knox, modern living solutions facility (256,000 square feet) manufactures bathroom components for modular homes, Knox Borough
- Lewis Lumber & Milling, manufacture hardwood flooring, Strattanville Borough

While each site is not a major land development, Dollar General built four new retail stores from the ground up throughout Clarion County making a total of eight Dollar Generals.

## 2.5 Economic Profile

From 2016 to 2021 the County has seen a 9.1% decrease in full time jobs. There are jobs available in the County; however, businesses are having a difficult time finding employees. This compares higher to Pennsylvania's 2.5% job loss.

The County has lost both small and large businesses since the 2018 plan. Many small businesses were lost due to economic reasons or because of COVID-19 in 2020. Some of the larger businesses include:

Kmart	50 employees
Comet Grocery Store	45 employees
Seidle Chevy	50 employees
iBake Foods	50 employees
Allegheny Wood Products	87 employees (temporary due to fire)
JC Penny	50 employees

**Table 2.4-2 Top Employers in County**

Employer	Product/Industry	No. of Employees
PennWest Clarion University	Higher Education	700
Clarion Hospital	Healthcare-Medical Hospital	490
Wal-Mart Associates Inc.	Retail	300
Training Towards Self Reliance	Healthcare and Social Assistance	300
Riverview Intermediate Unit 6	Educational Services	248
Kronospan USA	Manufacturing – Wood products	225
WRC Senior Services	Healthcare and Social Assistance	200
New Light Inc.	Healthcare and Social Assistance	200
Colony Homes	Manufacturing – Housing	190
Commodore Homes	Manufacturing – Housing	162

Source: Clarion County Economic Development Corporation

**Table 2.4-3 Top Industries in County**

Industry	Employment %	County Wages	PA Wages
Health Care & Social Asst.	22.3%	\$38,282	\$55,970
Educational Services	13.9%	\$57,405	\$62,214
Retail Trade	12.5%	\$27,963	\$33,161
Manufacturing	11.2%	\$43,826	\$66,965
Accommodations & Food Services	9.1%	\$14,328	\$19,731

Source: 2020 Center for Workforce Information & Analysis

## 2.6. Data Sources and Limitations

The Clarion County parcels database was used as an inventory of records throughout the County. The list of critical facilities (Appendix E) was developed based on information available from the Clarion County 9-1-1, Federal Emergency Management Agency, the Pennsylvania Emergency Management Agency, the Pennsylvania Department of Environmental Protection, the Pennsylvania Department of Health, and the North Central Pennsylvania Regional Planning and Development Commission (NCPRPDC).

The Countywide Preliminary Digital Flood Insurance Rate Map, effective date January 2012 (with revisions dated December 2012 effective date May 2014) were used for all flood risk analysis. The DFIRM database provides flood frequency and elevation information used in the flood hazard risk assessment. Data on 2010 land use was also provided by the Northwest Regional Planning & Development Commission (NWRPDC) and the Clarion County tax assessment database. Additional data for the base map was provided by the Pennsylvania Game Commission and the Pennsylvania Department of Conservation and Natural Resources. Population data from the 2020 Census was obtained from the U.S. Census Bureau (2021).

When applicable, Knowledge Center and WebEOC, incident reporting systems, were included to show incident data spanning approximately the last five years (1/1/2017-12/31/2021) in the 2023 plan update. Although Knowledge Center and WebEOC data proved valuable, primarily in the human caused hazards section where few records of past occurrences exist, data limitations exist in that the reporting system. Thus, while Knowledge Center and WebEOC reports provide important information on the frequency of past events, the number and frequency of events are under-reported. The County also used information from the Computer Aided Dispatch (CAD) System where all information from 9-1-1 calls are maintained.

Additional information used to complete the risk assessment for this plan was taken from various government agency and non-government agency sources. Those sources are cited where appropriate throughout the plan and on each map. It should be noted that numerous GIS datasets were obtained from the Pennsylvania Spatial Data Access (PASDA) website. PASDA is the official public access geospatial information clearinghouse for the Commonwealth of Pennsylvania. PASDA was developed by the Pennsylvania State University as a service to the citizens, governments, and businesses of the Commonwealth. PASDA is a cooperative project of the Governor's Office of Administration, Office for Information Technology, Geospatial Technologies Office and the Penn State Institutes of Energy and the Environment of the Pennsylvania State University.

To assess the vulnerability of different jurisdictions to the hazards, data on past occurrences of damaging hazard events was gathered. For several historic natural occurring hazard events, the National Climatic Data Center (NCDC) database was utilized. NCDC is a division of the US Department of Commerce's National Oceanic and Atmospheric Administration (NOAA). Information on hazard events is compiled by NCDC from data gathered by the National Weather Service (NWS), another division of NOAA. NCDC then presents it on their website in various formats. The data used for this plan came the US Storm Events database, which "documents the occurrence of storms and other significant weather phenomena having sufficient intensity to cause loss of life, injuries, significant property damage, and/or disruption to commerce" (NOAA, 2021).

### 3. Planning Process

#### 3.1. Update Process and Participation Summary

The plan update process starts with a meeting of the Hazard Mitigation Team to determine the procedures for revising the current plan, develop a timeline for plan, update process and a review of the current Hazard Mitigation Plan. Additional meetings are held with municipalities, school districts and PennWest Clarion to review current plan, determine hazards and risk areas, update action items and mitigation projects.

Public notice ads posted on the Clarion County Website to advertise a public meeting and request public comments. Copies of the current Clarion County Hazard Mitigation Plan are available for public review at the Clarion County Administrative Building 330 Main Street, Clarion, the County website, PennWest Clarion, school district offices and all municipal buildings within Clarion County (nine people attended the public meeting and no written comments were received). The public can contact EMA staff through the website for comments and questions.

Letters are sent to surrounding counties on September 22, 2022 advising of plan update and request comments on current plan and revised plan (no comments were received). Updated information is also requested from local, Commonwealth and Federal agencies.

As recommended by PEMA, the process included the following steps listed:

1. Hazard Identification and Analysis
2. Community Vulnerability Assessment
3. Mitigation Capabilities Assessment
4. Community Goals
5. Mitigation Strategy

Step 1, the *Hazard Vulnerability Analysis* describes and analyzes the natural occurring and human caused hazards present in Clarion County that can threaten human life and damage property. It includes historical data on past hazard occurrences and establishes hazard profiles and a risk index based upon hazard frequency, magnitude, and impact. The risk index forms the foundation for concentrating and prioritizing mitigation efforts.

Step 2, a *community vulnerability assessment* is completed predominantly through investigative research along with the use of GIS technology. It includes narrative descriptions on community characteristics, such as Clarion County's geographical, economic, and demographic profiles, and discusses future development trends and implications for hazard vulnerability.

Step 3, the *mitigation capabilities assessment* provides a comprehensive examination of Clarion County's capacity to implement meaningful mitigation strategies and identifies existing opportunities for program enhancement. Capabilities addressed in this section include staff and organizational capability, technical capability, policy and program capability, fiscal capability, legal authority, and political willpower. The purpose of this assessment is to identify any existing gaps, weaknesses or conflicts in local programs/activities that may hinder mitigation efforts, or to identify those local activities that can be built upon in establishing a successful community hazard mitigation program.

The conclusion of these three background studies results in the formation of *community goal* statements (Step 4) and set the stage for developing, adopting, and implementing a meaningful *Hazard Mitigation Strategy* (Step 5) for Clarion County. These two steps help make the Plan strategic and functional for implementation purposes, and ultimately are the "action" components

of the plan. Following completion of Step 5, Clarion County concentrates on designing measures to ensure the Plan's ultimate implementation, adopted evaluation and enhancement procedures to ensure the Plan is routinely updated.

### **3.2. The Planning Team**

The Clarion County Hazard Mitigation Team (see Attachment 1, page 38) holds individual meetings with each municipality, school district, PennWest Clarion and two public meetings. The meetings are led by the team leader and participants are encouraged for comment.

### **3.3. Meetings and Documentation**

The Hazard Mitigation Plan and supporting plans (located in Appendix A and Bibliography) are reviewed and updated by the Clarion County Hazard Mitigation Planning Team (HMT) with the assistance and guidance from representatives of the Pennsylvania Emergency Management Agency (PEMA).

Meetings are held with all 34 municipalities (elected officials), PennWest Clarion (public safety staff), seven school districts (superintendent and/or board) and the HMT planner to discuss updates to the plan (see Appendix C).

During the revision process, additional contacts are made with the following agencies for additional support in the County's hazard mitigation efforts:

- U. S. Army Corps of Engineers (USACE)
- U. S. Department of Agriculture
- Clarion County Conservation District
- Department of Community and Economic Development (DCED)
- Clarion County Department of Planning
- Clarion County Assessment
- Clarion County GIS and Mapping Department
- Clarion County Area Agency on Aging
- Clarion County Local Emergency Planning Committee
- West Central Pa. Chapter of the American Red Cross

The following agencies provided information which assisted in the development of the Clarion County Hazard Vulnerability Analysis (HVA), 2021 as well as the development of this mitigation plan.

- PennDOT, Bureau of Safety Programming and Analysis
- Pennsylvania State Police, Fire Marshals, Harrisburg, PA.
- National Oceanic & Atmospheric Administration (NOAA), National Weather Service (NWS)
- Department of Environmental Protection, Bureau of Oil and Gas Management
- Department of Conservation and Natural Resources, Bureau of Forestry
- Armstrong, Indiana and Clarion Drug and Alcohol Commission
- Clarion County Airport in Shippensburg, PA

### **3.4. Public and Stakeholder Participation**

Copies of the current and updated draft Hazard Mitigation Plan are made available to the public for review at the Clarion County Commissioners Office, County website ([www.co.clarion.pa.us](http://www.co.clarion.pa.us)), municipal buildings, PennWest Clarion and school district offices.

Public Service Announcements are published in The Clarion News and The Leader-Vindicator newspapers to inform the public of Clarion County's process to update the Hazard Mitigation Plan. News releases are distributed to all news media outlets (newspapers and radio stations) that cover Clarion County. The public is encouraged to review the Plan at the stated locations and to submit any comments or concerns relative to the Clarion County Hazard Mitigation Plan in writing, through the County website, by email or to attend the public meetings (no written comments were received). Copies of the announcements can be found in Appendix H, Appendix 2.

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

The HMP is developed using a multi-jurisdictional approach which involve all 34 municipalities, seven school districts and PennWest Clarion in the planning process. Involvement from local municipalities is critical to the collection of local knowledge related to hazard events. Local municipalities also have the legal authority to enforce compliance with land use planning and development issues. Appendix C, Annex 2 shows jurisdictional presence at the meetings, mitigation actions, providing projects and revised plan review.

Lists of agencies that have adopted the Clarion County Hazard Mitigation Plan, along with copies of the signed resolutions, are found in Appendix J.

**ATTACHMENT 1**  
**Clarion County Hazard Mitigation Planning Team**

NAME	POSITION	CONTRIBUTION
Ted Tharan	County Commissioner	Provide information on county issues, political issues, project ranking, review plan and adopt plan
Wayne R. Brosius	County Commissioner	Provide information on county issues, political issues, project ranking, review plan and adopt plan
Ed Heasley	County Commissioner	Provide information on county issues, political issues, project ranking, review plan and adopt plan
Mindy Frampton	Chief Clerk	Provide information on county issues, political issues, project ranking, review plan and coordinate public information programs.
Jeff Smathers	Department of Public Safety, Director	Provide information on county communication issues, review current and revised plan, project ranking
William Logue	County EMA Coordinator	Provide information on county issues, review current and revised plan and project ranking.
	County EMA Deputy/Operations & Training	Review current and revised plan, provide input on revisions, project ranking and assist with collecting information from municipalities
Brett Whitling	County EMA Planner HMP Team Leader	Lead team meetings, revise plan, submit plan for reviews, assist with collecting information from municipalities and public, develop public information releases and newspaper ads, project ranking and contact other agencies for plan revision information
Kristi Amato	County Planning/Development, Director	Provide information on planning/development issues, review plan and project ranking
Kevin Reichard	County Planning/Development, Engineer	Provide information on construction/building issues, review plan and project ranking
Leah Smith	GIS Director	Develop maps, review plan and project ranking.
Zach Stiglitz	Assessment Director	Provide information on property values, potential loss estimates, review plan and project ranking
Karen Lue Wilson	Clarion Township Secretary	Provide information on municipal issues, review plan and project ranking
Jason Hendershot	PennWest Clarion	Provide information on University issues, review plan and project ranking
Trudy Alexander	Clarion County Conservation District	Provide information on conservation issues, review plan and project ranking
Representative	PEMA	Provide information on PEMA issues, review plan and project ranking
Representative	Department of Environmental Protection	Provide information on DEP issues, review plan and project ranking



## 4. Risk Assessment

### 4.1. Update Process Summary

The process of hazard identification is to recognize each of the hazards that can occur in Clarion County based on historical data gathered from a variety of sources (County archives, historical societies, Internet sites, Pennsylvania Emergency Management Agency, human service agencies and the National Weather Service, etc.). Consideration was also given to critical facilities (hospitals, nursing homes, senior housing, etc.), Clarion County Schools and PennWest Clarion (see Appendix E).

A risk assessment result for the entire county does not mean that PennWest Clarion, each municipality or school district is at the same amount of risk to each hazard. Attachment 2 shows the different municipalities and school districts in Clarion County and whether their risk is greater than (>), less than (<), or equal to (=) the risk factor assigned to the County. This table was developed by based on the findings in the hazard profiles of Section 4.3, past history and University, municipal and school input.

<b>Table 4.1-1: Risk Assessment List</b>	
<b>HAZARD RISK</b>	<b>HAZARD</b> Natural Occurring (N) OR Human Caused (H)
<b>HIGH</b>	Flood, Flash Flood (N)
	Windstorm (N)
	Snow, Ice, Hail, Sleet (N)
	Opioid Addiction (H)
	Infectious, Pandemic (H)
	Utility Interruption (H)
	Cyber Security (H)
	Animal, Insect Infestation (H)
	Transportation Accidents (H)
	Drought (N)
	Subsidence (N)
<b>MODERATE</b>	Wildland Fire (N)
	Hazardous Materials (H)
	Water Control Failure (H)
	Extreme Temperatures (N)
	Harassment (H)
	Terrorism (H)
	Radon (N)
	Oil & Gas Wells (H)
<b>LOW</b>	Geomagnetic Storm (N)
	Earthquakes (N)
	Landslide (N)
	Explosion/Fire (H)
	Kidnapping/Hostage (H)

hazards that are addressed in the (HMP).

Clarion County has prepared, as part of their Emergency Operations Plan (EOP), a Hazard Vulnerability Analysis (HVA). The HVA and other documents are utilized to show what hazards are or are not a threat to Clarion County and its municipalities, schools, and University. Clarion County has prioritized the hazards that affect the County and has developed mitigation opportunities and/or strategies to deal with these hazards. The complete Clarion County HVA, as updated in April 2021, is located at the County Commissioners Office, County website, County EMA, PennWest Clarion, schools and municipalities.

Following hazard identification and profiling, a vulnerability assessment was conducted for each hazard to identify the impact of both natural occurring and human caused hazard events on people, buildings, infrastructure, and the community, as appropriate. Each hazard is discussed in terms of its potential impact on communities. This assessment allows all jurisdictions to focus on and prioritize local mitigation efforts on areas that are most likely to be damaged or require early response to a hazard event. A vulnerability analysis was performed which identifies structures, critical facilities, and/or populations that may be impacted during some hazard events. The chart to the left lists the 25

### 4.2. Hazard Identification

#### 4.2.1. Table of Presidential Disaster Declarations

Presidential Disaster and Emergency Declarations are issued when it has been determined that Commonwealth and local governments need assistance in responding to a disaster event. Table 4.2.1-1 identifies Presidential Disaster and Emergency Declarations issued between 2000 through 2022 that have



affected Clarion County. Additional declarations can be found on the FEMA website at: <http://www.fema.gov/disaster>. It is important to note that for instances where hurricanes or tropical storms initiated a disaster declaration, it was largely because of the damage caused by the excessive precipitation and flooding effects of coastal storms, not the damaging wind speeds.

#### 4.2.2 Summary of Hazards

Table 4.2.1-1: Presidential Disaster and Emergency Declarations affecting Clarion County		
DECLARATION NUMBER	DATE	EVENT
4506	3/2020	Major Disaster Declaration – COVID-19 Pandemic
3356	10/2012	Proclamation of Emergency – Hurricane Sandy
3235	9/2005	Proclamation of Emergency – Hurricane Katrina
1557	9/2004	Proclamation of Emergency – Tropical Depression Ivan
1497	9/2003	Proclamation of Emergency – Hurricane Isabel/Henri

The HVA and HMT used NFPA 1600 for evaluation of hazards for the 2023 HMP. Following a review of the hazards considered in the 2018 HMP and NFPA 1600, the HMT decided that the 2023 plan should identify, profile, and analyze 24 hazards. These 24 hazards include all 18 hazards profiled in the 2018 plan and the additional six hazards of concern. These additional hazards were added to become closer to hazards identified in the County HVA, the Commonwealth Hazard Mitigation Plan and potential damages and impact to residents/visitors. New hazards added include Infectious/Communicable/Pandemic Diseases; Kidnapping/Hostage; Cyber Security Incidents; Opioid Addiction; Utility Interruption, Disruption or Failure and Explosion/Fire. County Hazard profiles are included in Section 4.3 for each of these hazards. Changes in the plan include removal of the threat of Food-Borne Illness from the 2023 HMP as the threat is low and there have been no recorded outbreaks in Clarion County history. This was per suggested by PEMA and approved by the HMT. The report for annual power outages has been removed due to power suppliers unable to provide accurate data from past or current years. The annual number of harassment and bullying cases reported by school districts has been removed due to lack of accurate information and transparency.

Climate change has been a growing point of discussion and controversy. This plan also recognizes the potential threat of climate change and the affect it could have on Clarion County's natural resources and economy. Because the subject is still ambiguous, the considerations and calculations for climate change have been incorporated into the estimates for each hazard and into the mitigation projects.

### 4.3. Hazard Profiles

#### 4.3.1 Earthquakes

Earthquakes are caused by a sudden slip of a fault caused by the dynamic pressure of the Earth's plates pushing together on both sides of the fault over time. The strength of an earthquake is determined by the size of the slip and how close the slip occurred to the surface. The most active faults are along the Pacific Coast, although some smaller, less active, faults exist in the eastern United States.

##### 4.3.1.1 Location and Extent

Earthquakes are geological events that involve movement or shaking of the crust of the earth. Earthquakes are measured in terms of their magnitude and intensity (instrumental – Catastrophic). Earthquakes can cause devastating destruction to the manmade environment.

Earthquakes are relatively infrequent and uncommon in Clarion County but there is existing data to indicate that earthquake activity has occurred in Clarion County but causing minimal damage, if any.

Northwestern Pennsylvania's vulnerability to earthquakes decreases from west to east (see below). The effects of earthquake (if the hazard exists) could potentially be anything from detected only on seismographs to ground water wells collapsing to destruction, trees falling, ground rises and falls in waves.

### Richter Scale of Earthquake Energy:

Each level is **10 time stronger** than the previous level

	Description	Occurrence	In Population	Movement
1	Small	Daily	Every minute	Small
2	Small	Daily	Every hour	Small
3	Small	Daily	Every day	Small
4	Small	Daily	Every week	Moderate sudden
5	Moderate	Monthly	Every 10 years	Strong Sudden
6	Moderate	Monthly	Every 30 years	Strong Sudden
7	Major	Monthly	Every 50 years	Severe Sudden
8	Great	Yearly	Every 100 years	Very Severe
9	Great	Yearly	Every 300 years	Very Severe
10	Super	Rarely	Every 1,000 years	Extreme

experience a substantial earthquake, would be reasonable to expect that there could be extensive property and infrastructure damage and a significant loss of life.

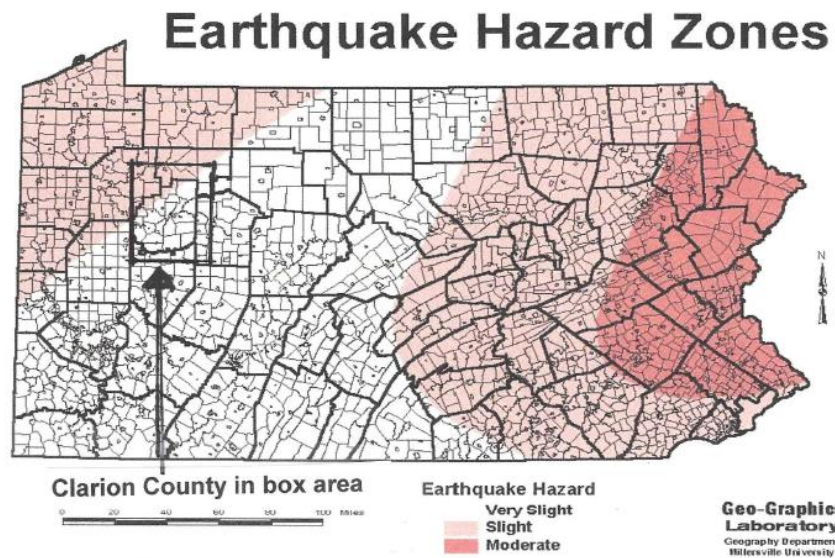
#### 4.3.1.4 Future Occurrence

The probability of such an event occurring in Clarion County is unlikely. Clarion County does not sit on any major fault lines.

#### 4.3.1.5 Vulnerability Assessment

Per Millersville University's seismic risk study, Clarion County has a very slight-to-slight risk of earthquakes.

Critical infrastructures such as schools, gas, water, wastewater and electric lines, school buildings, and possibly major routes could be damaged by an earthquake. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.



Worst case scenario would be Clarion Borough, including PennWest Clarion, being destroyed by an earthquake, damages could exceed \$900 million.

### 4.3.2 Landslide

A landslide is the downward and outward movement of slope-forming soil, rock, and vegetation reacting to the force of gravity. Landslides may be triggered by both natural and human-caused changes in the environment, including heavy rain, rapid snow melt, steepening of slopes due to construction or erosion, earthquakes, and changes in groundwater levels. Mudflows, mudslides, 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.

#### 4.3.2.1 Location and Extent

Per the United States Geological Survey (USGS), landslides are major geologic hazards that occur in all 50 states, cause \$1 – 2 billion in damages and result in an average of more than 25 fatalities each year (USGS). Landslides often occur with other natural hazards such as earthquakes and floods.

Landslides are not a serious risk in most of Clarion County but are more likely to occur due to the hill and valley areas of Clarion County. Limited areas of steep slopes associated with the banks of major watercourses in the County could collapse under heavy rainfall to produce a localized landslide. The potential of damage to lives or property from this type of natural hazard is low.

Most areas of Clarion County are in the high to moderate susceptible to landslides (see below and Appendix L).

#### Landslide Susceptibility



#### 4.3.2.2 Range of Magnitude

Most of Clarion County is in the high to moderate susceptibility area of Pennsylvania; however, only one major landslide has been recorded up to and including 2022.

#### 4.3.2.3 Past Occurrence

There was one major landslide recorded in 1983. This incident occurred when a slide blocked PA Route 28, north of New Bethlehem. This slide occurred May 22, 1983 and caused major problem for emergency traffic and commercial truck traffic for approximately six weeks.

#### 4.3.2.4 Future Occurrence

Because of the terrain and geological makeup of the County, such slides can occur again. Although landslides may occur anywhere in Pennsylvania, only 15 to 18 percent of the Commonwealth's land area is naturally prone to landslides. Landslides incidences in Clarion County should remain possible.

The frequency of landslides occurring in the County is expected to remain low, and the effects of these incidences will continue to pose a threat to the County. If population and development increase in Clarion County, the number of persons and properties vulnerable to the effects of landslides may increase. The probability of such an event occurring is low.

#### 4.3.2.5 Vulnerability Assessment

Some measures do exist to lessen the dangers of landslides. These measures include the Storm Water Management Ordinance and local ordinances (zoning and subdivision, etc.) that place limitations on construction or development, monitoring construction practices; prepare studies of slide prone areas, erosion protection measures, and drainage considerations. A basic rule of thumb is to know where landslide areas exist and to avoid building on, though, or near them (leave them undisturbed). Worst case scenario would be major landslide total damages could exceed \$1 million.

Clarion County lacks information to compare high altitudes next to major routes but is something the county will pursue through County GIS.

### 4.3.3 Subsidence

Subsidence may be natural or related to mining activities. Areas underlain by coal or other minerals which use deep mining techniques may become susceptible to subsidence. Poor engineering practices at the time of withdrawal or progressive degradation in geological stability contribute to subsidence. Areas of the Commonwealth that have underlying mines are subject to subsidence and constitute a potential threat to people living in those areas. Isolated incidents throughout the coal regions over the years have been houses, garages, and trees swallowed up by subsidence holes, usually described as a sinkhole. Lengths of local streets and highways, and countless building foundations have been damaged.

#### 4.3.3.1 Location and Extent

Subsidence is defined as a sinking movement of the earth's surface.

Natural subsidence results from what are considered normal geological processes to certain landforms. In Pennsylvania, water movement through carbonate terrain, i.e., limestone and dolomite may result in topographic features such as swales, sinkholes, and forms of subsidence. Based on the examination of the Pa. Topographic & Geographical Survey Maps, Clarion County is not underlain by significant Limestone.

The County is threatened by both major types of subsidence. **ALL** Clarion County's municipalities are subject to surface and subsurface sinkhole occurrence. Many coal beds have been involved in underground mining. The few mine maps available show that generally the mining that has occurred has been very deep. Appendix L contains available maps of known underground mining in Clarion County. Maps can also be found on Department of Environmental Protection website at [www.depgis.state.pa.us/msiRisk/](http://www.depgis.state.pa.us/msiRisk/).

#### 4.3.3.2 Range of Magnitude

Isolated incidents throughout the coal regions over the years have been houses, garages, and trees swallowed up by subsidence holes. Lengths of local streets and highways, and countless building foundations have been damaged.

Per Pennsylvania DEP there are 1,117 active and abandoned coal mines in Clarion County.

Department of Environmental Protection records show mining or possibly mined areas in all municipalities within Clarion County.

Table 4.3.3.2-1 is a list of municipalities where mining maps have been found.

Table 4.3.3.2-1 Mining History in Clarion County		
Brady Township	Madison Township	Redbank Township
Clarion Borough	Monroe Township	Rimersburg Borough
Clarion Township	Paint Township	St. Petersburg Borough
East Brady Borough	Perry Township	Strattanville Borough
Hawthorn Borough	Piney Township	Toby Township
Knox Township	Porter Township	Washington Township
Limestone Township		

#### 4.3.3.3 Past Occurrence

There are reports of subsidence in Clarion County:

In August 2003, two sinkholes measuring four feet in diameter and twenty feet deep were discovered near a residential area in Clarion Township. The Department of Environmental Protection's Bureau of Abandoned Mine Reclamation (BAMR) investigated and mitigated the holes.

In the spring of 2010 in Clarion Borough at the old Rhea Lumber Facility East Wood Street, had a hole opened that was approximately 4-feet deep and 3-feet wide. PennWest Clarion, the current owner, mitigated the hole.

There have been at least three mine shafts subsidence's located in St. Petersburg Borough that have been mitigated over the past 20 years.

PA DEP has no records of any other sinkhole activity incidents.

#### 4.3.3.4 Future Occurrence

The frequency of subsidence incidences occurring in the County is expected to remain likely. However, considering mine activity that has occurred in the County, subsidence cannot be ruled out.

#### 4.3.3.5 Vulnerability Assessment

Since all municipalities in Clarion County are vulnerable to the hazard of subsidence, local and county officials should follow some of the following hazard mitigation measures: encourage local awareness of the subsidence hazards; compliance with or enactment of building codes and regulations that consider geologic factors; preparedness to respond to and cope with a geologic hazard occurrence; and encourage local property owners to purchase subsidence insurance. Subsidence can affect critical infrastructures such as schools, medical facilities, and the prison as well as utilities. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

Worst case scenario would be major subsidence in Clarion Borough; total damages could exceed \$270 million.

Due to not accurate documentation of past mining in the county, it is unknown what critical infrastructure may or may not be built on an area susceptible to subsidence.

### 4.3.4 Radon

Radon is a cancer-causing natural radioactive gas that you can't see, smell, or taste. It is a large component of the natural radiation that humans are exposed to and can pose a serious threat to public health when it accumulates in poorly ventilated residential and occupation settings.

#### 4.3.4.1 Location and Extent

Radioactivity caused by airborne radon has been recognized for many years as an important component in the natural background radioactivity exposure of humans, but it was not until the 1980s that the wide geographic distribution of elevated values in houses and the possibility of extremely high radon values in houses were recognized. In 1984, routine monitoring of employees leaving the Limerick nuclear power plant near Reading, PA, showed that readings on Mr. Stanley Watras frequently exceeded expected radiation levels, yet only natural, non-fission product radioactivity was detected on him. Radon levels in his home were detected around 2,500 pCi/L (pico Curies per Liter), much higher than the 4 pCi/L guidelines of the Environmental Protection Agency (EPA) or even the 67 pCi/L limits for uranium miners. As a result of this event, the Reading Prong section of Pennsylvania where Watras lived became the focus of the first large-scale radon scare in the world.

Radon is a noble gas that originates by the natural radioactive decay of uranium and thorium. Like other noble gases (e.g., helium, neon, and argon), radon forms essentially no chemical compounds and tends to



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

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

### Map 5 EPA Map of Radon Zones in Pennsylvania

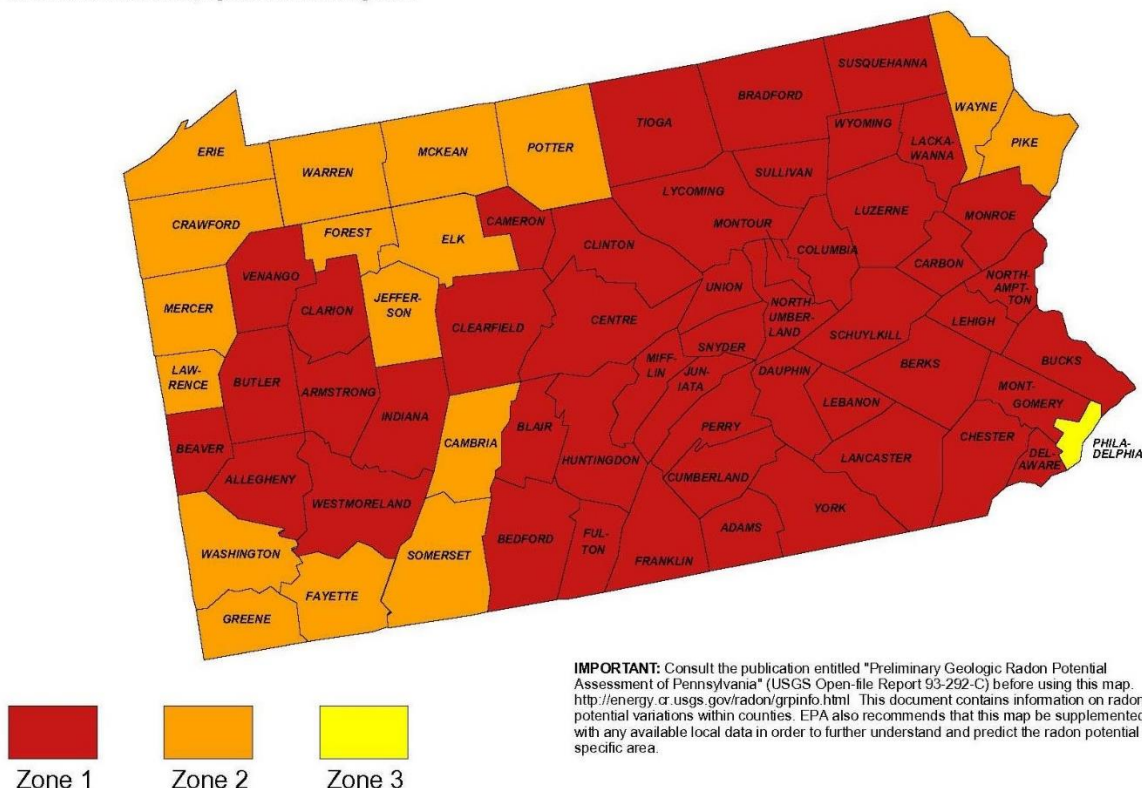
#### PENNSYLVANIA - EPA Map of Radon Zones

<http://www.epa.gov/radon/zonemap.html>

The purpose of this map is to assist National, State and local organizations to target their resources and to implement radon-resistant building codes.

This map is not intended to determine if a home in a given zone should be tested for radon.

*All homes should be tested, regardless of zone designation.*



#### 4.3.4.2 Range of Magnitude

Exposure to radon is the second leading cause of lung cancer after smoking. It is the number one cause of lung cancer among non-smokers. Radon is responsible for about 20,000 lung cancer deaths every year; approximately 2,900 of which occur among people who have never smoked. Lung cancer is the only known



effect on human health from exposure to radon in air and thus, far, there is no evidence that children are at greater risk of lung cancer than are adults (USEPA, 2010). The main hazard is from the radon daughter products ( $^{218}\text{Po}$ ,  $^{214}\text{Pb}$ ,  $^{214}\text{Bi}$ ), which may become attached to lung tissue and induce lung cancer by their radioactive decay.

#### 4.3.4.3 Past Occurrence

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

#### 4.3.4.4 Future Occurrence

Radon exposure is inevitable given present soil, geologic, and geomorphic factors across Pennsylvania. Development in areas where previous radon levels have been significantly high will continue to be more susceptible to exposure. However, new incidents of concentrated exposure may occur with future development or deterioration of older structures. Exposure can be limited with proper testing for both past and future development and appropriate mitigation measures. The probability of such an event occurring is highly likely.

#### 4.3.4.5 Vulnerability Assessment

Per the EPA 1993 Pennsylvania Radon Zones, Clarion County Falls into Zone 1 which has the highest potential for Radon exposure. Pennsylvania Hazard Mitigation Plan estimates that 20 percent of the buildings, which equates to approximately 20 percent of the population in the County are impacted by radon with a mitigation cost of approximating \$12,371,280. Most locations that would be at risk for radon exposure are residential structures with basements.

EPA recommends homes be fixed if the radon level is 4 pCi/L (picocuries per liter) or more. Because there is no known safe level of exposure to radon, EPA also recommends that Americans consider fixing their home for radon levels between 2 pCi/L and 4 pCi/L.

The average indoor radon concentration for America's homes is about 1.3 pCi/L. It is upon this national average indoor level that EPA based its estimate of 21,000 radon-related lung cancers a year. The average concentration of radon in outdoor air is .4 pCi/L or 1/10th of EPA's 4 pCi/L action level.

### 4.3.5 Drought

Drought is a natural climatic condition which occurs in virtually all climates, the consequence of a natural reduction in the amount of precipitation experienced over a long period of time, usually a season or more in length. High temperatures, prolonged winds, and low relative humidity can exacerbate the severity of drought. This hazard is of particular concern in Clarion due to the presence of farms as well as water-dependent industries and recreation areas across the County.

The Palmer Drought Severity Index (PDSI) measures the drought of a region taking into account both the quantity of water brought in by precipitation and water courses as well as the manner in which it is absorbed.

Palmer Classifications	
4.0 or more	extremely wet
3.0 to 3.99	very wet
2.0 to 2.99	moderately wet
1.0 to 1.99	slightly wet
0.5 to 0.99	incipient wet spell
0.49 to -0.49	near normal
-0.5 to -0.99	incipient dry spell
-1.0 to -1.99	mild drought
-2.0 to -2.99	moderate drought
-3.0 to -3.99	severe drought
-4.0 or less	extreme drought

#### 4.3.5.1 Location and Extent

Although a severe drought could have a devastating impact on the entire community it was determined to be the least likely to occur. However, communities in Clarion County could potentially experience problems associated with drought conditions. The biggest concern in these communities is the high demand on the water supply and below average rainfall for recharge of aquifers and reservoirs.

The main type of drought that could be included in this all-hazard mitigation plan is a hydrological drought. A hydrological drought occurs when surface and subsurface water levels drop, such as in streams, rivers, lakes, and reservoirs.

The Department of Environmental Protection's records indicate that there are 16 municipal water suppliers in Clarion County. Of those, three use surface water (rivers, streams) as their supply source. The remainder use wells and springs.

#### 4.3.5.2 Range of Magnitude

Droughts have hit the Commonwealth seven times within the last 30 years. The Commonwealth has been most vulnerable to hydrologic and water management droughts. Hydrologic droughts generally entail a reduction of stream flows, reduction in lake/reservoir storages and the lowering of ground water levels. Water management droughts are a result of abnormally dry periods and the failure to adhere to water management practices during these times. During the summer of 1983, the worst drought in 20 years occurred, causing over \$196 million in damages to the Commonwealth's crops. Severe droughts have also occurred during 2001 and 2002. Droughts can impact all the municipals.

#### 4.3.5.3 Past Occurrence

Clarion County has most recently experienced drought emergencies and water supply deficiencies during the droughts of 1983, 1998 and 2002, which resulted in a Governor's Declaration.

Agriculture being an important element of the County's economy (market value of products sold for 2017 was \$28 million) could be impacted greatly by a long drought. With approximately 594 farms a drought could also affect the families and farm workers. The farming community is exceptionally vulnerable to drought.

There have been sporadic instances where municipal water systems have lost their entire water reservoir. The water reservoir loss has been due to system malfunctions; either pumps failure or massive supply line leaks and have generally been corrected within 48 hours. Over the past several years, Clarion County's municipal water systems experienced system malfunctions or Department of Environmental Protection (DEP) shutdowns. These incidents are an indication of the aging of the infrastructure in Clarion County.

Currently no water suppliers have projected to experience future yield deficiencies.

From 2009 - 2019 Clarion County has had six drought watches, no drought warnings, and no drought emergencies (per PA DEP).

#### 4.3.5.4 Future Occurrence

Future droughts and water deficiencies are likely to occur in Clarion County as demands increase for water by various industrial, residential, and agricultural consumers. In addition, increased new development and the aging of the infrastructure in the County could affect water supplies.

It would be very difficult to forecast the future frequency and severity of drought emergencies in Clarion County. However, a drought situation could cause major shortages in private and public water supplies and crop damage on an extensive basis. The probability of such an event occurring is high.

#### 4.3.5.5 Vulnerability Assessment

Although difficult to combat a drought, they may be made less threatening if all municipalities in the County utilize proper land use development controls (building restrictions on watershed areas, etc.), erosion controls, enforce irrigation regulations, plan for emergency conservation, and if possible, locate alternate sources of water.

Also, expansion of current municipal water service areas would provide more opportunity for spring/well reliant residents to secure a dependable water source. Upgrading the aging water system infrastructure in the County would decrease water supply issues.

Public water deficiency has a large impact on Clarion County's economic development. Of the six exits along Interstate-80, only one has public water and wastewater. According to a study by Pennsylvania American Water, it would take approximately \$1.3 million to extend public water to the 64-mile marker I-80 exit.

With the County having 594 farms, the worst-case scenario would be a drought across the County affecting all water resources and during growing season total damages could exceed \$100 million. Note: Data providing a breakdown of farms within jurisdictions is not available. Almost all, or all, farms would be within the 22 townships.

See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

### 4.3.6 Extreme Temperatures (Heat & Cold)

Extreme cold temperatures drop well below what is considered normal for an area during the winter months and often accompany winter storm events. Combined with increases in wind speed, such temperatures in Clarion can be life threatening to those exposed for extended periods of time. Extreme cold temperatures are characterized by the ambient air temperature dropping to approximately 0 degrees Fahrenheit or below. 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.

#### 4.3.6.1 Location and Extent

This event can affect all of Clarion County.

#### 4.3.6.2 Range of Magnitude

In the event of extreme temperatures there may be an impact to a large concentration of vulnerable citizens, because of the rural nature of most of the County.

Extreme temperatures can result in elevated utility costs to consumers and can cause human risks. Extremely high temperatures cause heat stress. Major human risks for these temperatures include heat cramps, heat syncope, heat exhaustion, heatstroke, and death. The impacts of high temperatures will vary from person to person based on individual age, health, and other factors.

Cold temperatures can be extremely dangerous to humans exposed to the elements. Without heat and shelter, cold temperatures can cause hypothermia, frost bite, and death. Wind chill temperatures are often used in place of raw temperature values due to the effect of wind can have in drawing heat from the body under cold temperatures. These values represent what temperatures actually feel like to humans under cold, windy conditions.

The very old and the very young are most vulnerable to health-related impacts of extreme temperatures.

#### 4.3.6.3 Past Occurrence

January 30, 2019, there was an extreme cold/windchill event affecting the County where the temperature dropped to -10 degrees Fahrenheit with a windchill of -30 degrees. This was the only event in the last 10 years (per the National Weather Service).

#### 4.3.6.4 Future Occurrence

While the probability for this type of event is likely, there is a chance that it could occur in the County.

#### 4.3.6.5 Vulnerability Assessment

Extreme temperatures do not generally impact buildings; instead, they primarily impact people. In particular, the very old and the very young are vulnerable to temperature extremes. For information on population demographics, see maps on Page 31 – 32 and Table 2.3-1 on Page 19. Some hazards, including extreme heat and extreme cold, do not lend themselves to quantifying vulnerable structures and loss estimates.

Worst case scenario would be a long extreme temperature event in the County; total damages could exceed over \$20 million.

### 4.3.7 Flood and Flash Flood

Flooding is the temporary condition of partial or complete inundation on normally dry land and it is the most frequent and costly of all hazards in Clarion. Flooding events are generally the result of excessive precipitation. General flooding is typically experienced when precipitation occurs over a given river basin for an extended period. Flash flooding is usually a result of heavy localized precipitation falling in a short time over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces.

#### 4.3.7.1 Location and Extent

Flooding is normally the result of a larger event such as a thunderstorm, rapid snowmelt, and/or ice jam. Flooding is caused by excessive precipitation and can be generally considered in three categories: flash floods, ice jam floods, and general floods.

Flash floods can occur within several seconds to several hours with little warning. Flash floods can be deadly because they produce rapid rises in water levels and have devastating flow velocities. Several factors can contribute to flash flooding. Among these are rainfall intensity, rainfall duration, surface conditions, and topography and slope of the receiving basin. Urban areas are susceptible to flash floods because a high percentage of the surface area is composed of impervious streets, roofs, and parking lots where runoff occurs very rapidly.

Ice-jam floods occur on rivers that are totally or partially frozen. A rise in stream stage will break up a totally frozen river and create ice flows that can pile up on channel obstructions such as shallow riffles, log jams, or bridge piers. The jammed ice creates a dam across the channel over which the water and ice mixture continues to flow allowing for more jamming to occur.

Backwater upstream from the ice dam can rise rapidly and overflow the channel banks. Flooding moves downstream when the ice dam fails, and the water stored behind the dam is released. Now the flood takes on the characteristics of a flash flood, with the added danger of ice flows that when driven by the energy of the flood wave, can inflict serious damage on structures.

General floods are caused by precipitation over a longer time and over a given river/stream basin.

A combination of river basin physiography, local thunderstorm movements, past soil moisture conditions, and the degree of vegetative clearing determine the severity of a flooding event. Flooding is typically most severe in areas of the floodplain immediately adjacent to major streams and rivers.

Flooding can be as frequent as the occurrence of a spring rain or summer thunderstorm. The amount of precipitation produced by storm events determines the type of flooding. Flash floods, which typically occur more frequently than general floods, occur along small streams and creeks of the type that are widely present throughout northwest Pennsylvania.



*Clarion Mall Flooding in Monroe Twp., Oct. 2018*

The undermining or washing out of roads is typically associated with flash floods. General flooding occurs less frequently and as the result of much larger storm events such as hurricanes. These larger storm events occur in northwest Pennsylvania most often in the late spring and summer.

Both flash flooding and longer-term general flooding can cause massive damage and destruction to the structures located in these floodplains.

Many individuals throughout northwestern Pennsylvania could potentially be left homeless and many businesses, located primarily within the incorporated municipalities, could be destroyed resulting in a reduction in economic activity, an increase in unemployment, and lower personal incomes.

Most of the municipalities (30 out of 34) in Clarion County have flood prone areas. See Appendix F for a list of addressable structures located within the 100-Year Floodplain.

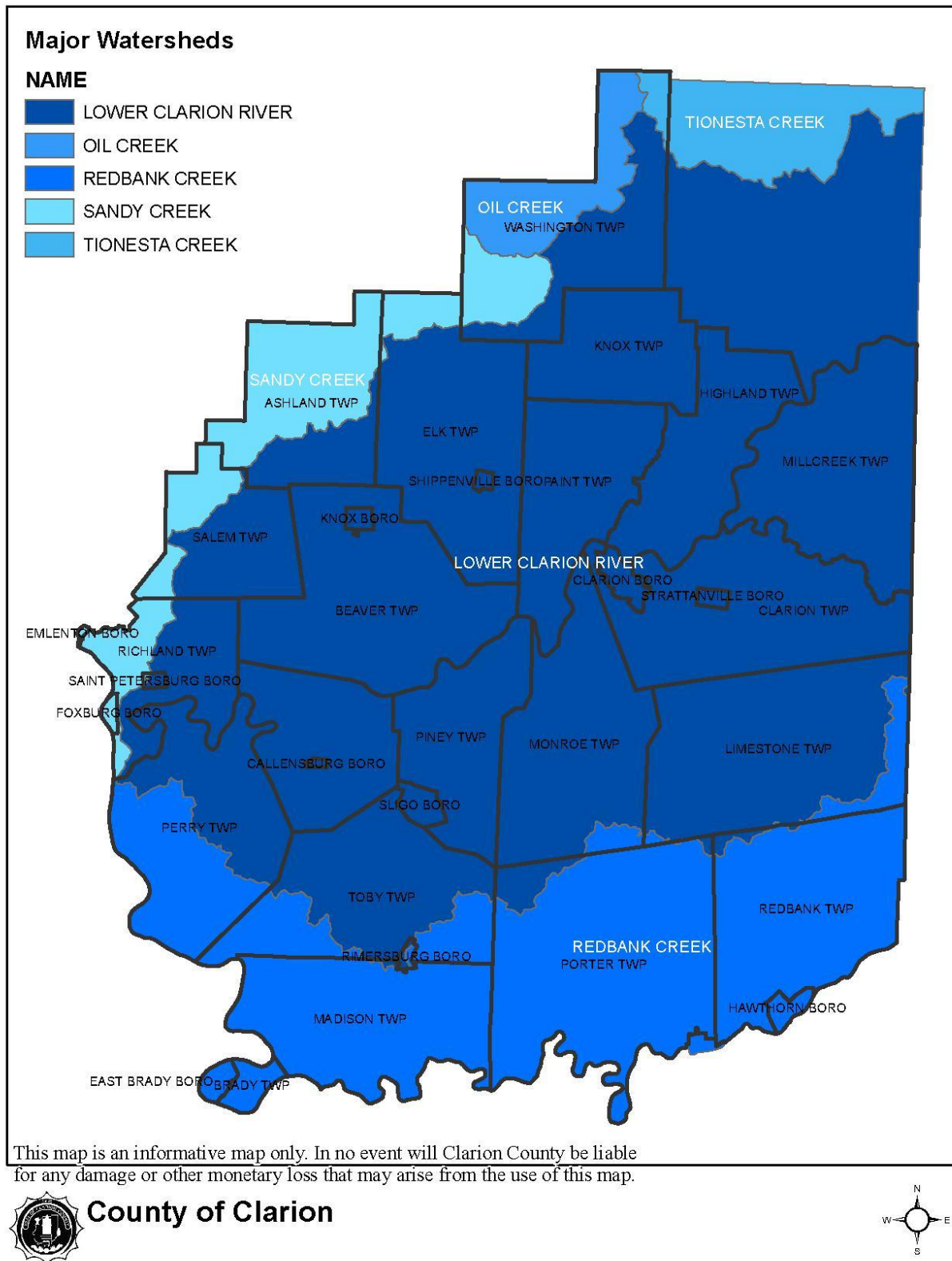
Geographic details of flood plane areas can be found on the GIS page of the Clarion County Website.

The rivers/streams prone to flooding include Allegheny River, Clarion River, Redbank Creek, Piney Creek, Deer Creek and Trout Run (see Maps 7, 8 and 9 in next several pages). The main flood season is usually January through July.

For more detailed mapping visit <https://gis.co.clarion.pa.us/portal/apps/sites/#/clarion-county-gis/app/67377aa81d6d48b2820e65b2cfa2f310>.



**Map 6**  
**Clarion County Watersheds**

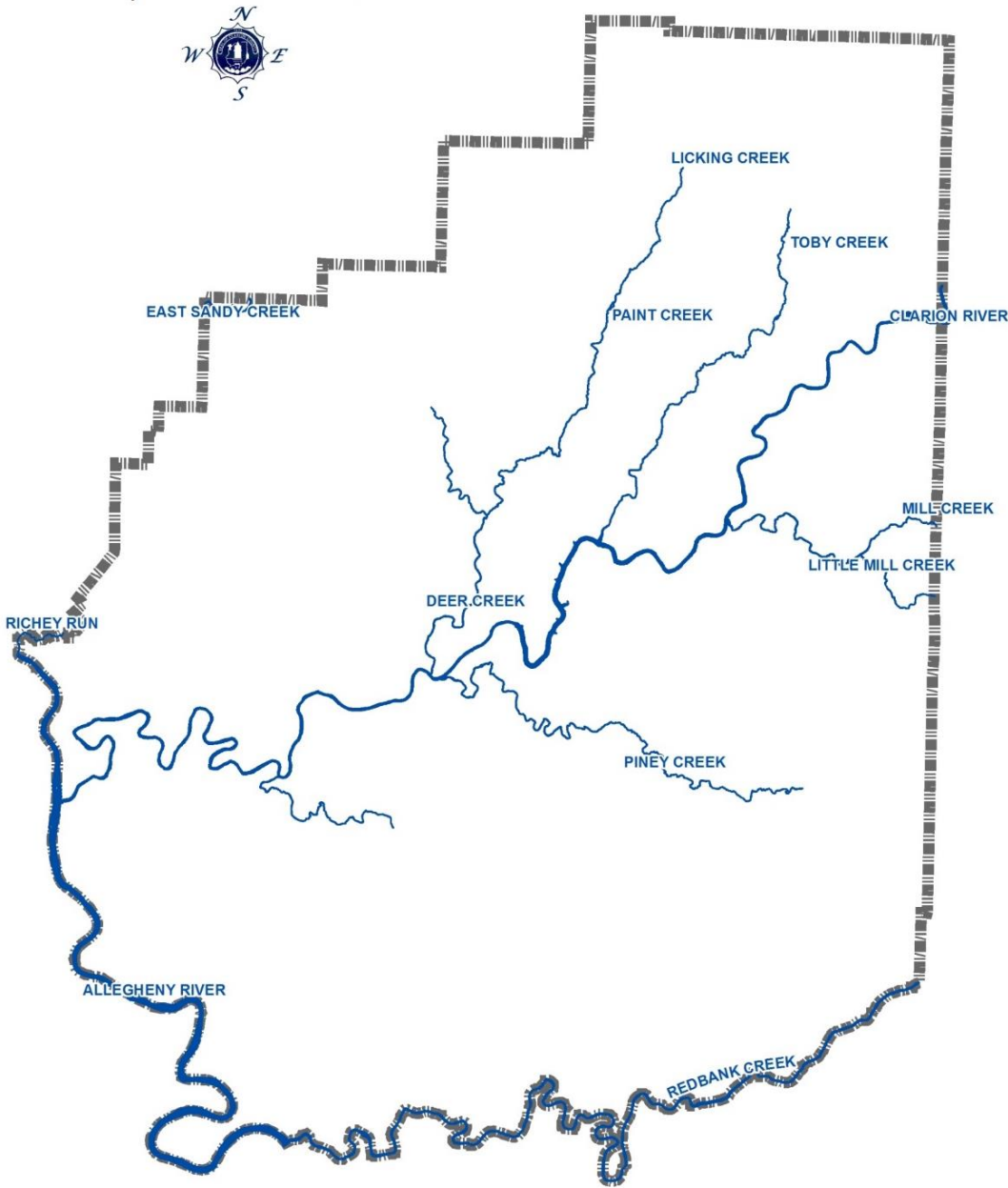




**Map 7**  
**Major Rivers and Streams**

# Clarion County, Pennsylvania

Major Rivers & Streams



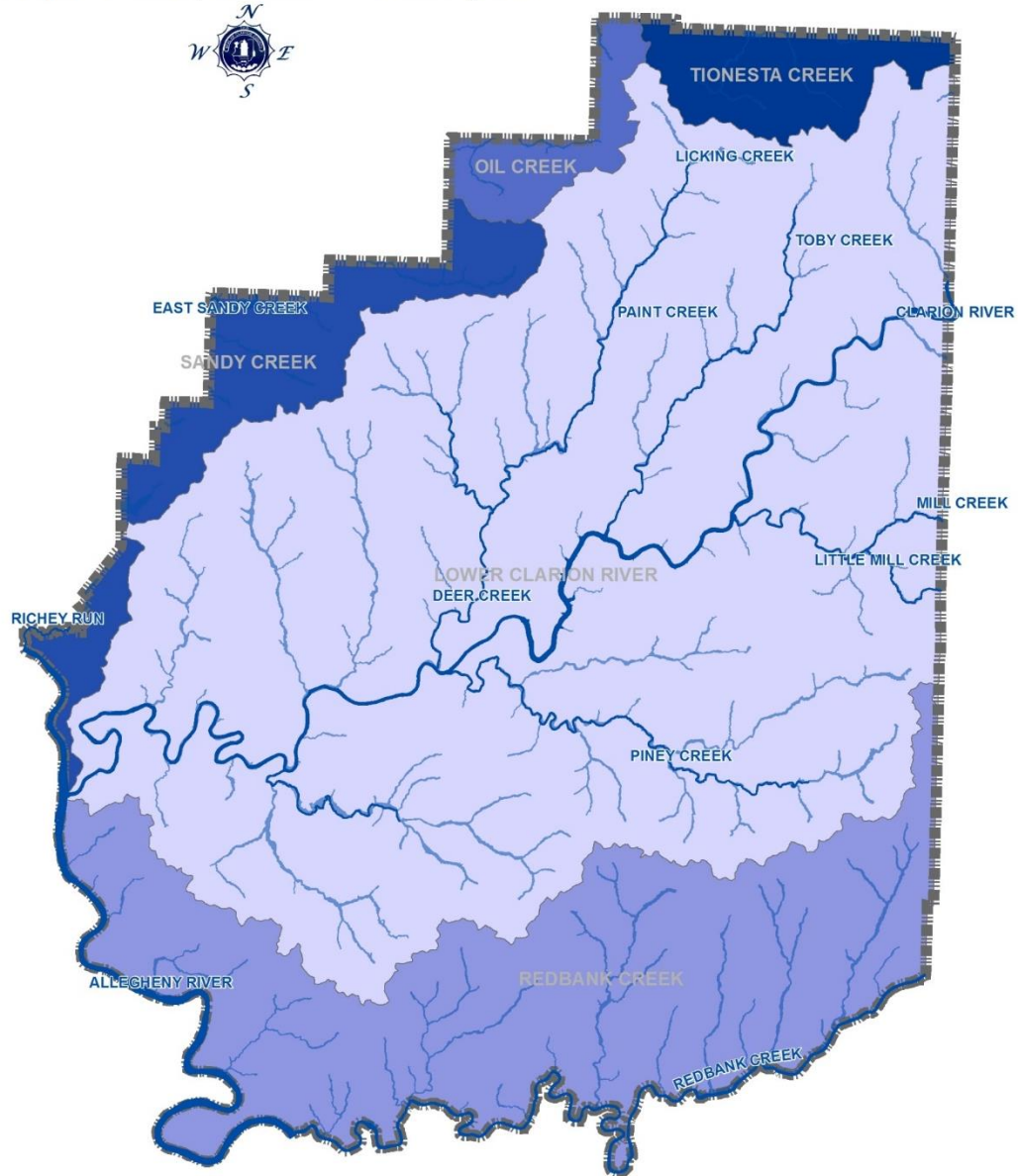
**County of Clarion**  
**Mapping & GIS Department**  
CHA

0 1 2 4 6 Miles

**Map 8**  
**Major Streams, Watersheds and Floodplain**

## Clarion County, Pennsylvania

### Major Streams, Watersheds & Floodplain



**County of Clarion**  
**Mapping & GIS Department**  
CHA

#### 4.3.7.2 Range of Magnitude

In the County, 30 of the 34 municipalities are flood prone (based on flood plan maps).

Table 4.3.7.2-1 Water Sources Affecting Municipalities				
Allegheny River	Clarion River	Piney Creek	Licking Creek	Redbank Creek
Brady Twp.	Callensburg Boro	Limestone Twp.	Sligo Boro	Madison Twp.
Madison Twp.	Beaver Twp.	-Reidsburg areas		Porter Twp.
Perry Twp.	Farmington Twp.			Redbank Twp.
Richland Twp.	Highland Twp.			New Bethlehem Boro
Toby Twp.	Millcreek Twp.			Hawthorn Boro
East Brady Boro	Monroe Twp.			
	Paint Twp.			
	Perry Twp.			
	Piney Twp.			
	Richland Twp.			

There is always the opportunity for more than one flood in a year in any area of the County. In addition, the County is susceptible to seasonal and flash floods because of heavy or prolonged rainfall, rapid thaw of snow and/or ice, or ice jams.

Seasonal flooding occurs in late spring/summer. This type of flooding is generally caused by storms of low to moderate rainfall intensity over a long period covering the entire area of principal watersheds. Many Commonwealth and federal flood protection projects in the area have served to reduce the average annual damages in the basin from \$633,000 to \$7.3 million per year.

#### 4.3.7.3 Past Occurrence

Although floods occur in all seasons, studies of the relationships among storm intensity, duration, affected area, and seasonality suggest a tendency for flooding on principal streams to occur in winter and for floods on small streams to occur mostly in summer (see Table 4.3.7.2-1).

Table 4.3.7.3-1 Flood History		
Date	Flood Type	Comments/Type of Declaration
8/28/21	Flash Flood	Flash flooding in Salem Township.
7/19/19	Flash Flood	Flash flooding in Ashland, Beaver, Elk, Limestone, Porter, Redbank and Salem Townships and Hawthorn and New Bethlehem Boroughs. Seven municipalities and the county declared local and county disasters.
7/4/19	Flash Flood	Flash flooding in Salem Township
8/3/18	Flash Flood	Flash flooding in Foxburg Borough, Richland and Washington Townships
7/2018	Flash Flood	Flash flooding in Washington and Knox Townships
2/2018	Flash Flood	Flash flooding in Licking Township
1/2018	Flash Flood	Flash flooding in Highland, Millcreek, Piney and Monroe Townships
7/2017	Flash Flood	Flash flooding in Farmington and Millcreek Townships
5/2017	Flash Flood	Flash flooding in Clarion and Sligo Boroughs, Beaver, Elk, Highland and Paint Townships
1/2017	Flash Flood	Flash flooding in Madison and Redbank Townships
9/2016	Flash Flood	Flash flooding in Clarion Borough and Clarion Twp. One fatality
Yearly	Ice Jam	Especially along the Allegheny River between Parker and East Brady, Clarion River from Route 36 bridge to the Allegheny River and Redbank Creek upstream of the dam in New Bethlehem

Yearly	General/Flash Flooding	Late spring, early summer flooding, especially along the Redbank Creek and Allegheny River
--------	------------------------	--

Large area floods are caused by storms of low rainfall intensity over a long period covering the entire area of principal watersheds. Small area floods and flash floods are caused by storms of high rainfall intensity and relatively short duration. An exception to this is tropical storms which normally occur during the summer months and cause extensive flooding over large areas.

Floods are natural occurrences that cause damages and loss of life, primarily because of man's use and encroachment upon the floodplains. Because of this continued encroachment, flood damages have been increasing on a regular basis. Problems associated with storm water runoff are becoming increasingly serious. Development actions such as the removal of vegetation, large scale resurfacing, and storm drainage systems are increasing the rate of runoff, resulting in many new localized flood problems as well as aggravating existing ones.

#### 4.3.7.4 Future Occurrence

Although it is impossible to predict the number or severity of flood incidents that may occur in the County, it is safe to predict that if increased development occurs on presently unused land and the hilly topography of Clarion County; that the damage to crops, roads, businesses, utilities, and private residences will increase in the future. Clarion County can safely assume to receive some type of flooding somewhere in the County on an annual basis with major widespread flooding expected every 4-5 years. The probability of such an event occurring is likely.



*Ice jam/flood in Perry Twp., March 2014*

Clarion County has the Rain Gauge Reporter Group who has a mission to record daily rainfall amounts and submits reports monthly to the Department of Public Safety. Also, in times of severe weather, the group members may be called upon to provide current rainfall amounts which will aid in predicting possible flooding issues.

#### 4.3.7.5 Vulnerability Assessment

Direct effects to social impact in terms of displaced households and shelter requirements, and economic impact in terms of 1) direct building losses and 2) business

interruption losses. Direct building losses consist of the damage to structures and their contents, while business interruption losses consist of the relocation expenses, employee wage loss, business income loss, and rental income loss that accrue during the time that a business remains inoperable.

To address possible increases in flood related losses, development in floodplain areas should be regulated closely, and structural and nonstructural measures should be reviewed to determine flood damage reduction potential. Repetitive loss structures should be acquired demolished and returned to green space (see Table 4.3.7.5-1 on next page).

**Table 4.3.7.5-1 Repetitive Loss Structures**

<b>Municipality</b>	<b>Residential Buildings</b>	<b>Business Building</b>	<b>Critical Facilities</b>	<b>Total Dollar Damages</b>	<b>Potential Dollar Loss Damages</b>
Limestone Township	1	0	0	\$30,016	\$250,000
New Bethlehem Borough	2	6	0	\$402,277	\$3,400,000
Perry Township	1	0	0	\$62,213	\$477,000

**Note:** Repetitive loss list from FEMA received and reviewed. The County Assessment Office field verified those structures on the list and determined that two structures on FEMA's list in New Bethlehem were removed and land is green space. The above list are current repetitive loss structures that remain in the flood plain.

Worst case scenario would be total major flooding of all prone areas across the County total damages could exceed one-hundred million.

Depending on the flooding location and extent, water, wastewater, and structures like schools, commercial stores and manufacturing can be affected by a flood. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

#### **4.3.8 Geomagnetic Storm (Solar Weather)**

In solar-terrestrial terms, a worldwide disturbance of the earth's magnetic field, distinct from regular diurnal variations. A geomagnetic storm is a temporary disturbance of the earth's magnetosphere caused by a disturbance in space weather.

##### **4.3.8.1 Location and Extent**

Geomagnetic storms can affect a very large area which would span not only across Clarion County but a large area of the country. These types of storms could affect all or part of the communication systems, internet, and utilities in the County. Geomagnetic Storms are categorized from G1 – G5. See Table 4.3.8.1-1 from NOAA Space Weather below:

**Table 4.3.8.1-1 Geomagnetic Storm Categories**

<b>Category</b>		<b>Effect</b>
<b>Scale</b>	<b>Descriptor</b>	<b>Duration of event will influence severity of effects</b>
G5	Extreme	Widespread voltage control problems and protective systems problems can occur, some grid systems may experience complete collapse or blackouts. Transformers may experience damage.
G4	Severe	Possible widespread voltage control problems and some protective systems will mistakenly trip out key assets from the grid.
G3	Strong	Voltage corrections may be required, false alarms triggered on some protective devices.
G2	Moderate	High-latitude power systems may experience voltage alarms, long duration storms may cause transformer damage.
G1	Minor	Weak power grid fluctuations can occur.

##### **4.3.8.2 Range of Magnitude**

Worst case could cause total loss of all communication systems, internet, and utilities.



#### 4.3.8.3 Past Occurrence

There have been occurrences of G3 storms over the last ten years with averaging one per year. In September of 2017, there was a G4 storm with no reported damages. There has been no reportable damage with these storms, but they occur with relative frequency.

There is no history of the County being affected by EMP.

#### 4.3.8.4 Future Occurrence

While the probability for this type of event is unlikely, there is a chance that it could occur in the County. Over the past few years there has been an increase in solar flare activity.

#### 4.3.8.5 Vulnerability Assessment

These types of storms affect communication systems and utilities. Maintain systems for backing up radio communication for both emergency services and public information. Evaluate all county radio towers and equipment locations to determine protection needs. Work with utility companies to protect equipment. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

Worst case scenario would be major loss of all communication systems, utilities, and internet; total damages could exceed \$500 million.

### 4.3.9 Snow, Ice, Hail and Sleet

Winter storms may include snow, sleet, freezing rain, or a mix of these wintry forms of precipitation. A winter storm can range from a moderate snowfall or ice event over a period of a few hours to blizzard conditions with wind-driven snow that lasts for several days. Many winter storms are accompanied by low temperatures and heavy and/or blowing snow, which can severely impair visibility and disrupt transportation.

#### 4.3.9.1 Location and Extent

Severe winter weather most frequently occurs during the winter month (November-March) and can be caused by lake-effect conditions, warm air masses associated with the Gulf



*Stuck in snow after responding to structure fire, Limestone Twp., Jan. 2018*

Stream, etc. The impact of a winter storms in Clarion County are not as devastating as some other hazards can be. Winter storms are a frequent event in Clarion County and are mitigated through the plowing, salting and spraying efforts of Pennsylvania Department of Transportation (PennDOT) and local municipalities. During the rare occurrence of such a major event, severe winter storms could potentially produce an accumulation of snow and ice on trees and utility lines resulting in loss of electricity and blocked transportation routes. Frequently, especially in rural areas, loss of electric power means loss of heat for residential customers, which poses an immediate threat to human life. Winter storms can affect all parts of Clarion County but can also be micro-regionalized and is tracked on a per-storm basis.

#### 4.3.9.2 Range of Magnitude



Winter storms occur on an average of five times a year in Pennsylvania. These storms may include snow, ice and sleet alone or in combination coupled with high winds. The predominant type of air which influences the climate of Clarion County has a polar continental source in Canada and moves in upon the region by way of tracks which vary from almost due north from the Hudson Bay region to a long westerly trajectory resulting from polar outbreaks into the Rockies which progress eastward. All municipalities are at risk from these storms.

**Table 4.3.9.2-1 Winter Weather Events**

<b>Weather Event</b>	<b>Classification</b>
<b>Heavy Snowstorm</b>	Accumulations of 4-inches or more in a 6-hour period, or six inches or more in a 12-hour period.
<b>Sleet Storm</b>	Significant accumulations of solid pellets which form from the freezing of raindrops or partially melted snowflakes causing slippery surfaces posing hazards to pedestrians and motorists.
<b>Ice Storm</b>	Significant accumulations of rain or drizzle freezing on objects (trees, power lines, roadways, etc.) as it strikes them, causing slippery surfaces and damage from the sheer weight of ice accumulation.
<b>Blizzard</b>	Wind velocity of 35 miles per hour or more, temperatures below freezing, considerable blowing snow with visibility frequently below one-quarter mile prevailing over an extended period of time.
<b>Severe Blizzard</b>	Wind velocity of 45 miles per hour, temperatures of 10°F or lower, a high density of blowing snow with visibility frequently measured in feet prevailing over an extended period time.

#### 4.3.9.3 Past Occurrence

A list of major winter storms (National Weather) effecting Clarion County is found below:

**Table 4.3.9.3-1 Major Winter Storms**

<b>Date</b>	<b>Type</b>	<b>Declaration</b>
4/18/2022	Winter Weather	None
3/11/2022	Winter Weather	None
3/9/2022	Winter Weather	None
2/24/2022	Winter Weather	None
2/3/2022	Winter Weather	None
1/24/2022	Winter Weather	None
1/23/2022	Winter Weather	None
1/16/2022	Winter Storm	None
1/9/2022	Winter Weather	None
11/27/2021	Winter Weather	None
2/22/2021	Winter Weather	None
2/15/2021	Winter Weather	None
2/10/2021	Winter Weather	None
2/8/2021	Winter Weather	None
2/1/2021	Winter Weather	None
1/3/2021	Winter Weather	None
12/24/2020	Winter Weather	None
12/16/2020	Winter Storm	None
11/30/2020	Winter Weather	None
2/12/2020	Winter Weather	None
2/7/2020	Winter Weather	None
12/17/2019	Winter Weather	None

12/4/2019	Winter Weather	None
2/20/2019	Winter Weather	None
2/10/2019	Winter Weather	None
1/18/2019	Winter Storm	None
11/16/2018	Winter Storm	None
3/8/2018	Winter Weather	None
2/7/2018	Heavy Snow	None
1/29/2018	Winter Weather	None
1/12/2018	Winter Storm	None

Within the past 10 years, winter storms in Clarion County have caused the following:

- a. Power failures lasting four hours or longer.
- b. Loss of communication networks lasting four hours or more.
- c. Road closing for 24 hours or longer.
- d. Stranded motorists requiring emergency transportation or temporary shelter, primarily from Interstate 80.
- e. Residents requiring evacuation or provision of supplies.
- f. Loss of water supplies.
- g. Structure collapse (**2/15** business on Rt. 322 had roof collapse from heavy snow load and building disrepair)
- h. Major accident on Interstate 80, causing road closure for over 10 hours
- i. Speed restrictions on Interstate 80
- j. Closure of Interstate 80 to trucks, motorhomes, trailers, and buses

Clarion County is vulnerable to winter storms varying in degrees of severity. These storms can cause road closings in the County, especially on secondary and farm roads that become virtually impassable. Winter storms have left motorists stranded, often requiring emergency assistance.

#### 4.3.9.4 Future Occurrence

The severity and frequency of major winter storms is expected to remain constant. However, due to increased dependence on various modes of transportation and use of public utilities for light, heat, and power, their disruption by these storms is far more significant today than in the past. The probability of such an event occurring is likely.

#### 4.3.9.5 Vulnerability Assessment

Winter storms in the County may cause business losses to all commercial centers. There could be property losses to both commercial and residential areas because of snow and ice loading, falling tree limbs and frozen pipes. During a winter storm, Clarion County households may become vulnerable to interruptions in utility services for heat and electricity. During power outages, residents either use alternative heating sources or relocate to friends or relatives. During widespread power outages, comfort centers will be established to provide heated shelter areas. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

Because of Clarion County's rugged terrain, all major roads are prone to being hazardous because of winter storms. Interstate 80 is the major roadway in the County, but is seldom closed, however, is the chief source of stranded motorists. Other main roads that normally remain open but are hazardous during winter storms are U.S. 322, Pennsylvania Routes 28, 36, 38, 58, 66, 68, 208, and others. Borough/Township roads are prone to closing, but most residents have alternative routes of travel. It is an ongoing responsibility for our county officials and municipal officials to prepare for these winter storms. Means to

reduce the hazards of these storms include discouraging travel, early dismissal for public places and businesses, planned emergency measures for dealing with power loss, and emergency measures for rescuing stranded motorists.

Worst case scenario would be a major snowstorm across the County completely closing the County down for five to seven days; total damages could exceed \$15 million.

#### 4.3.10 Wildland Fire

Wildfires occur throughout wooded and open vegetation areas of Pennsylvania. They can occur any time of the year, but mostly occur during long, dry hot spells. Any small fire, if not quickly detected and suppressed, can get out of control. Most wildfires are caused by human carelessness or negligence. However, some are precipitated by lightning strikes and in rare instances, spontaneous combustion.

##### 4.3.10.1 Location and Extent

Many fires have the potential for disaster or extensive loss of property and death. There are several factors which may influence the probability or likelihood that a fire may develop into a disaster. Based on historical record, our own experiences and an examination of the circumstances surrounding various situations, we can improve our understanding of fire hazards that may lead to disaster.

##### 4.3.10.2 Range of Magnitude

Given the rural nature of Clarion County including Historic Forests, River Frontage with old stands of timber, vegetation growth on reclaimed mine sites and urban interface, most of the County is exposed to the probability of some type of Wildland Fire. All municipalities are at risk from Wildland fires.

**Table 4.3.10.2-1 U.S. Forest Service – Wildland Fire Assessment System**

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

##### 4.3.10.3 Past Occurrence

Most fire disasters are averted by early warning and appropriate response. Even though only a small portion of these incidents resulted in significant property damage and even fewer in personal injury or

death, a larger portion could have resulted in disaster had the emergency response not been timely and effective.

A summary of brush fires follows:

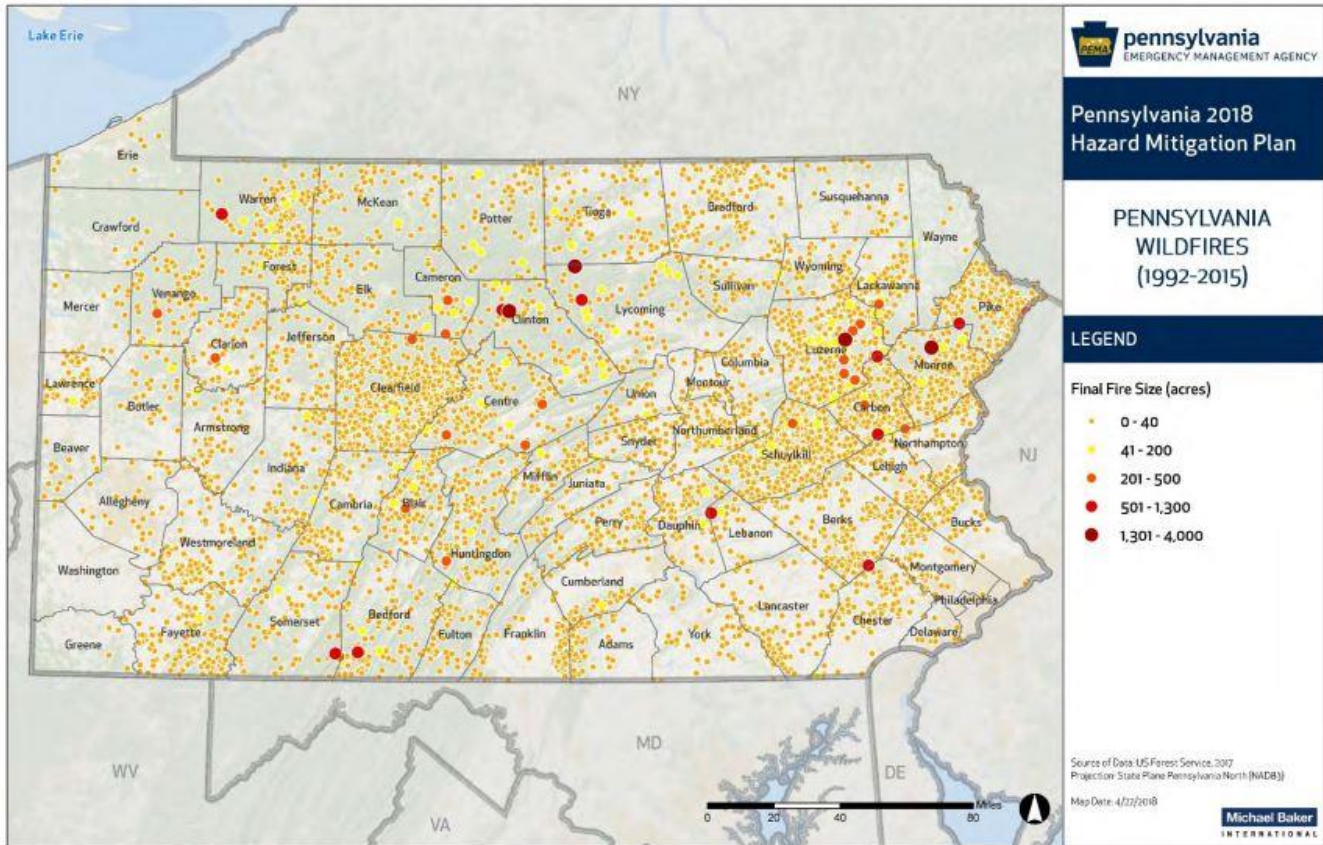
- 2021: 106** brush fires were reported most were caused by debris burning. The largest was a seven acres field fire caused by debris burning. Total area burned for the year was 18.5 acres.
- 2020: 109** brush fires were reported most were caused by debris burning. The largest was a 10-acre field fire caused by debris burning. Total area burned for the year was 25 acres. **A male died from burns caused when his clothes caught fire after a control burn got away from him.**
- 2019: 61** brush fires were reported most were caused by debris burning. The largest was a 6 acres field fire caused by debris burning. Total area burned for the year was 10 acres.
- 2018: 94** brush fires were reported most were caused by debris burning. The largest was a 13.74 acres field fire caused by debris burning. Total area burned for the year was 16.5 acres.
- 2017: 118** brush fires were reported most were caused by debris burning. The largest was a 1-acre field fire caused by debris burning. Total area burned for the year was 15 acres.
- Note: This data is based on what was reported. Most fire officials did not report acres burned and/or cause.**

#### 4.3.10.4 Future Occurrence

Although comprehensive fire figures are not available, it is safe to say that the number of small fires in Clarion County has remained likely constant. However, the number of major fires remains possible. It is expected that with expanded prevention programs, burn bans and better fire department training, this trend will continue.

#### 4.3.10.5 Vulnerability Assessment

Man has been responsible for well over 50 percent of all forest fires in the United States. These fires are usually the result of carelessness, failure to extinguish campfires, arson, etc. The Bureau of Forestry has been credited for the decline in the number of hazardous forest fires. Through their organization of fire observers, equipment, training, public education, and timely issued county wide burning bans; Clarion County is relatively free from major forest fires. Per the Pennsylvania All-Hazard Mitigation Plan, Clarion County is in the medium to high wildfire hazard assessment area.



Wildfires are most common in the spring (March – May) and fall (October – November) months. During spring months, the lack of leaves on the trees allows the sunlight to heat the existing leaves on the ground from the previous fall. The same theory applies for the fall; however, the dryer conditions are a more crucial factor.

Depending on the size or severity, a brush fire can tie up to one-quarter of Clarion County's fire departments, even up to one-half. With having that many companies out-of-service on one call, this puts a strain on the number of available companies to respond should another call come in such as a structure fire or motor vehicle accident.

There continues to be a decrease in the number of volunteer firefighters in the County and fire department equipment is aging. These factors can affect the ability to fight wildland fires.

Worst case scenario would be major wildland fire in Farmington or Millcreek Townships; total damages could exceed \$1 million.

Wildfires can cause threat to critical infrastructures depending on the size of the fire and the location of the structure. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.



#### 4.3.11 Windstorm, Hurricane, Tornado and Dust Storm

The County is vulnerable to all wind related hazards. Tornadoes and windstorms are common occurrences, especially during spring and summer months. A windstorm generates strong enough wind to cause light damage to trees and buildings. A hurricane is a tropical storm with winds that have reached a constant speed of 74 miles per hour or more. A tornado is a violently rotating column of air that is in contact with both the surface of the Earth and a cumulonimbus cloud. A dust storm is usually caused by thunderstorms and arise when a gust front or other strong wind blows loose sand and dirt from a dry surface. Straight-line winds such as a downburst have the potential to cause wind gusts that exceed 100 mph.

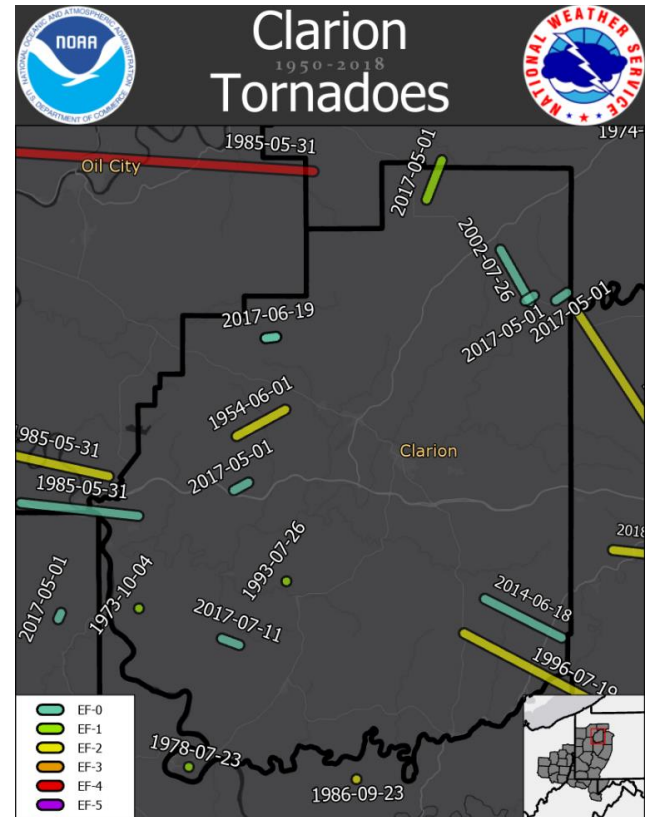
##### 4.3.11.1 Location and Extent

Severe thunderstorms most frequently occur in the summer in northwestern Pennsylvania. These usually occur in the late afternoon or during the evening or night hours. Summer thunderstorms involve lightning, strong winds and heavy rains that can result in wildland fires or localized wind damage and flash flooding. The impact of thunderstorms could be expected to be low due to the localized nature of the storms.

Clarion County experiences thunderstorms every year and over the years people have learned how to prepare when thunderstorms are predicted. Most County residents prepare by obtaining battery-operated radios, cell phone and/or landline phone, an emergency supply of water and non-perishable food, etc. Many times, severe storms, such as thunderstorms, can produce smaller, more localized storms. Windstorms are usually associated with hurricanes or tornadoes, but frequently occur with thunderstorms. Some Windstorms (Microbursts) often mistaken for tornadoes, can be just as devastating as a tornado. Wind Sheers are usually found when a violent weather front is moving through and wind speeds of up to 100 mph have been recorded. Thunderstorms normally occur during all months except the midwinter ones and have a maximum frequency in midsummer.

The destruction from these storms can be tremendous, destroying buildings, uprooting trees, and injuring people. Winds associated with these storms can reach 100 mph and cause major damage, as was the case during the June 30, 1998 storms. These winds, called microburst, caused straight-line winds estimated to be more than 100 mph.

Tornadoes, typically, the by-product of a larger storm, are violently rotating columns of air that encounter the ground. Tornadoes have a more localized impact and generally produce a narrow path of concentrated destruction from 0.01 mile-wide to greater than 1 mile-wide. Tornadoes may also produce paths of destruction from less than 1 mile in length to greater than 100 miles in length.





#### 4.3.11.2 Range of Magnitude

The destruction caused by tornadoes may range from light to severe depending on the path of travel. Typically, structures of light construction, such as residential homes, suffer the greatest damage from tornadoes. All municipalities are at risk from these storms.

Tornadoes are generally rated per the Enhanced Fujita Scale (EF0 - EF5 – Light (40-72 mph) to Incredible (261-318 mph) wind speeds).

#### 4.3.11.3 Past Occurrence

Because tornadoes are typically a by-product of thunderstorms, they have a higher likelihood of occurrence. Tornadoes and thunderstorms are most likely to occur during the spring months of May and June. Tornadoes during these months have also been the strongest, resulting in the greatest amount of harm or damage.

Tornadoes are considered a countywide hazard because their path is unpredictable and can affect everyone in the County. Since 1950, there have been 15 tornadoes recorded in Clarion County. The worst being two EF2s recorded on June 1, 1954 and July 19, 1996. On May 1, 2017, Clarion County had four confirmed tornadoes in the County, two (EF0) and one (EF1) in Farmington Township and one (EF0) in Beaver Township. No injuries were reported, damages to homes, barn and cabins, many trees down and utility outages. On June 19, 2017, Clarion County had one (EF0) in Elk Township causing damage to homes, barn and outbuildings, many trees down and utility outages. On July 11, 2017, an EF0 tornado was recorded in Toby Township; no structure damage was reported but did cause many trees down and utility outages.

The National Weather Service has reported severe windstorms and tornados in Clarion County. All the severe windstorms show wind gusts between 50 - 55 mph (see Table 4.3.11.3-1).

**Table 4.3.11.3-1 Severe Windstorms**

Year	Type	Comments/Type of Declaration
5/21/22	Windstorm	Trees down. Damages \$10,000.
3/7/22	Windstorm	Trees down and power outages. No damage estimates.
10/16/21	Windstorm	Trees down, power outages and damage to several houses.
8/12/21	Windstorm	Trees down and power outages.
7/13/21	Windstorm	Trees down and power outages. Damages \$12,000
7/7/21	Windstorm	Trees down and power outages. Damages \$36,000
6/21/21	Windstorm	Trees down. No damage estimates.
8/28/20	Windstorm	Trees down, power outages and some property damage. Damages \$45,000
8/27/20	Windstorm	Trees down, power outages and some property damage. Damages \$35,000
6/3/20	Windstorm	Trees down. Damages \$3,500
9/11/19	Windstorm	Trees down and power outages. Damages \$1,000
8/18/19	Windstorm	Trees down and power outages. Damages \$8,000
8/17/19	Windstorm	Trees down and power outages. Damages \$13,000
7/20/19	Windstorm	Trees down and power outages. Damages \$1,000
7/19/19	Windstorm	Trees down and power outages. Damages \$1,000
5/23/19	Windstorm	Trees down and power outages. Damages \$1,000
4/14/19	Windstorm	Trees down and power outages. Damages \$1,500
2/24/19	Windstorm	Trees down and power outages. Damages \$1,000
1/8/19	Windstorm	Trees down and power outages. Damages \$1,000
11/15/18	Windstorm	Trees down, power outages and some property damage. Damages \$13,000
9/21/18	Windstorm	Trees down, power outages and some property damage. Damages \$1,000

6/18/18	Windstorm	Trees down, power outages and some property damage. Damages \$2,000
5/15/18	Windstorm	Trees down, power outages and some property damage. Damages \$8,000
5/4/18	Windstorm	Trees down, power outages and some property damage. Damages \$2,500
3/2/18	Windstorm	Trees down, power outages and some property damage. Damages \$1,000
7/11/17	Tornado EF 0	Trees down and power outages. Damages \$10,000
6/19/17	Tornado EF 0	Trees down, power outages and property damage. Damages \$35,000
5/1/17	4 Tornadoes 1 (EF1) & 3 (EF0)	Trees down, power outages and property damage. Damages \$60,000
1/12/17	Windstorm	Trees down, power outages and some property damage. Damages \$1,500

The destruction from these windstorms can be tremendous, destroying buildings, uprooting trees and injuring people. Winds associated with these storms can reach 100 mph and cause major damage.

These winds, called microburst, caused straight-line winds estimated to be more than 100 mph. Fire Companies were dispatched for trees down during these storms:

<b>Table 4.3.11.3-2 Fire company dispatches for trees down</b>	
<b>Year</b>	<b>Dispatches</b>
2021	301
2020	319
2019	344
2018	465
2017	503

#### 4.3.11.4 Future Occurrence

Given history, including the fact that tornadoes occurred in all counties surrounding Clarion County, the odds are heavily in favor of a tornado or downburst/microburst-type storm occurring at any time in Clarion County. The probability of such an event occurring is likely.

If population increases and development continues in Clarion County, the number of persons and properties vulnerable to the effects of tornadoes and windstorms are expected to increase.

Although the National Weather Service Pittsburgh Forecast Area only averages four to five tornadoes each calendar year for the region, there was a record of 29 tornadoes recorded (none of which were recorded in Clarion County). Of that, 11 occurred on October 11, 2021. With climate change, severe windstorms, microbursts, and tornadoes will be observed as a greater chance of occurring.

#### 4.3.11.5 Vulnerability Assessment

Because tornadoes can strike anywhere in Clarion County, especially during the spring and summer months, it is imperative to have a good warning system and an informed public that knows what to do and where to go if a tornado strike is imminent.



*Storm damage in Farmington Twp., May 2017*

To improve the warning time available, Clarion County also has direct communication capabilities with PEMA for information and warnings via the Commonwealth 800 radio system and the EMnet systems. Commonwealth 800 radio system connects the 9-1-1 dispatch center with PEMA's EOC, and up to date information can be relayed back and forth. EMnet is a satellite-based messaging system. The EMnet System is the

medium transporter for the Emergency Alert System (EAS)/Integrated Public Alert and Warning System (IPAWS) which can be utilized directly from the 9-1-1 dispatch center, to initiate emergency broadcasts of severe weather alerts issued by the National Weather Service. EMnet and the EAS/IPAWS system can also be used for notifying the public to any incidents.

In 2018, 2019, 2020, and again in 2021 the National Weather Service has conducted "Skywarn" weather observer classes in Clarion County. In 2017 and 2020, National Weather Service also conducted an "Advance Skywarn" weather observer class. These spotters are very helpful in providing the NWS vital information, which in turn, helps to increase the warning times. Clarion County has a Severe Weather Plan, and we are a Storm Ready County as designated by the National Weather Service.

Worst case scenario would be Clarion Borough including PennWest Clarion being destroyed by tornadoes damages could exceed \$900 million.

See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

#### **4.3.12 Infectious/Communicable/Pandemic Diseases**

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

Communicable diseases are an illness which is capable of being spread to a susceptible host through the direct or indirect transmission of an infectious agent or its toxic product by an infected person, animal, or arthropod, or through the inanimate environment.

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

Federal and Commonwealth agencies have the primary responsibility for identifying, monitoring, and handling these types of events in the County.

#### 4.3.12.1 Location and Extent

Historically, the County is primarily concerned with three diseases with pandemic and infectious potential: Zika virus, West Nile virus, and influenza. Zika virus is an illness that is spread primarily through mosquito bites but can also be transmitted through sexual intercourse or blood transfusion or passed from mother to child in the womb.

The County is also concerned with Lyme Disease, and it is a bacterial infection primarily transmitted by ticks. There have been reported incidents involving humans.

#### 4.3.12.2 Range of Magnitude

The magnitude of a pandemic or infectious disease threat in the County will range significantly depending on the aggressiveness of the virus in question and the ease of transmission.

#### 4.3.12.3 Past Occurrence

Human Disease: Five pandemic influenza outbreaks transpired during the 20<sup>th</sup> century in 1918, 1957, 1968, 2009 and 2020. The population of the County would be vulnerable to a pandemic causing virus due to lack of immunity and limited vaccine stockpiles. There have not been any reported cases of naturally occurring smallpox globally since the 1970s. Any smallpox outbreak would be an act of terrorism. Plague is not endemic to Pennsylvania. SARS has not been reported in this area.

Table 4.3.12.3-1 Lyme Disease Cases	
Year	Cases
2020	<i>Currently not available</i>
2019	141
2018	187
2017	198
2016	206
2015	113

Infectious/Communicable Diseases that have impacted or currently impacting the County include AIDS, chickenpox, hepatitis, influenza, Lyme, measles, mumps, pertussis, rabies, and tuberculosis.

Zika Virus has **not** been found in mosquitoes in the County. There are no reported incidents involving humans.

West Nile Virus has been found in mosquitoes in the County. There are no reported incidents involving humans.

Lyme Disease cases have been reported involving humans. In Clarion County (as per Department of Health), the following have been reported (see table 4.3.12.3-1):

In there were outbreaks of Pertussis in 2015 and 2018 and NORO Virus in 2015.

In 2009 there was a pandemic of the H1N1 virus.

The COVID-19 (Coronavirus Disease 2019) was a world-wide pandemic in which came into Pennsylvania in 2020. By the end of the year, over 640,325 cases were reported in the Commonwealth along with 15,978 deaths. The Pennsylvania Department of Health reported 2,021 cases in Clarion County with 46 deaths.

#### 4.3.12.4 Future Occurrence

Future occurrences of communicable and infectious diseases are unclear. The probability of a pandemic event affecting the County is currently low. The probability of West Nile Virus occurring in the County in

mosquitoes is high and in humans is low. The probability of Zika Virus occurring in the County in mosquitoes is low and in humans is low. The probability of Lyme disease occurring in the County is very high.

#### 4.3.12.5 Vulnerability Assessment

When the disease is directly spread from human to human, every jurisdiction in the County has some vulnerability to pandemic and infectious disease threats. Jurisdictional losses in a pandemic or infectious disease outbreak stem from lost wages and productivity. Losses are difficult to estimate because the exact rates of absenteeism and cost of treating a widespread disease will depend on the virus or bacterium in question, the availability of vaccination or treatment, and the severity of symptoms.

The COVID-19 pandemic which began in 2020 caused a major financial loss to residents, businesses, and local governments. Schools were closed for three months, PennWest Clarion closed in March and sent students home. In April, the Governor closed all non-essential businesses for 37 days and requested residents across the Commonwealth to stay home except for very limited reasons for 30 days.

### 4.3.13 Animal or Insect Infestation Damage

Animal or insect infestation is any living species that is not native to an ecosystem and causes damage. The environment, the economy, and even human health can be impacted. Often, an animal or insect infestation spreads and reproduces quickly. They aren't limited to organisms that come from a foreign country; they can come from a different region in the United States. The County hosts several invasive pathogens, insects, plants, invertebrates, fish, and mammals. These species have largely been introduced by the actions of humans.

Federal and state agencies have the primary responsibility for identifying, monitoring, and handling these types of events in the county.

#### 4.3.13.1 Location and Extent

The location and extent of these threats depends on the preferred habitat of the species as well as the species' ease of movement and establishment. Most new introductions of invasive species occur because of human activity. Examples include movement of firewood, fish bait and smuggling activities. The type of event can occur anywhere in the County due to a rural nature and could have a large impact.

#### 4.3.13.2 Range of Magnitude

The magnitude of infestation species threats ranges from nuisance to widespread killer. The Emerald Ash Beetle has a 99 percent mortality rate for any ash tree it infects.

DCNR has identified the hemlock wooly adelgid in Cook Forest State Park and Clear Creek State Park in neighboring Jefferson County. This invasive species is capable of killing a tree in three to four years.

#### 4.3.13.3 Past Occurrence

The following are either currently effecting or have affected Clarion County:

##### Insects and Other Invertebrates:

Japanese Beetles, Gypsy Moth, Emerald Ash Beetle, Hemlock Wooly Adelgid and Siren Wood Wasp

##### Animal Pathogens:

Ticks (Lyme Disease), Deer (Chronic Wasting Disease)  
Mosquitoes (West Nile Virus and Zika Virus),  
Raccoon, Bat, Fox (Rabies)



Fishes and Invertebrates:

## Zebra Mussel and Round Goby

## 4.3.13.4 Future Occurrence

The probability of future occurrence for invasive species threats is on the rise because of the growing volume of transported goods, increasing technology, efficiency and speed of transportation and expanding international trade agreements. Expanded global trade has created opportunities for many organisms to be transported to and establish themselves in new countries and regions. The probability to this type of event is high.

## 4.3.13.5 Vulnerability Assessment

County losses due to infestation threats stem from three sources: lost revenue from diseased, damaged, or deceased crops, livestock, lumber, or other agricultural commodities; economic losses from the cost of eradication programs; and losses in the form of illness or death of humans.

**4.3.14 Explosion/Fire**

Explosions with/without fire are rare in the County. Fire and explosion hazards include vehicle and building/structure fires as well as overpressure rupture, overheating, or other explosions that do not ignite. These could be caused by gas leaks (natural or propane), wells (gas and oil), chemicals (i.e., drug labs) or explosive devices.

*Corner Water*

Fires and explosions often begin as a result of other hazards particularly storms, lightning strikes, transportation accidents, hazardous materials releases, criminal activity (arson), and terrorism.

## 4.3.14.1 Location and Extent

This type of event can and has occurred across the County.

## 4.3.14.2 Range of Magnitude

Explosion/fires have the potential to cause extensive damage to residential, commercial, or public property. Damage ranges from minor smoke and/or water damage to the destruction of buildings. People are often displaced for several months to years depending on the magnitude of the event. Fires and explosions can also cause injuries and death.



## 4.3.14.3 Past Occurrence

Four incidents in the last five years were caused by gas leaks. In October 2020 there was a house explosion in Rimersburg Borough due to a ruptured gas line. Two blocks of the borough were evacuated, and the structure was condemned that day. Red Cross was contacted to provide emergency shelter for several residents. In May 2019 there was a house explosion in Redbank Township attributed to migrating natural gas, November 2015, there was a garage explosion in Redbank Township attributed to methane gas, October 2015 there was a house explosion in Clarion Township attributed to natural gas, March of 2006, there was a house explosion in Clarion Borough that was attributed to a natural gas leak. This explosion was attributed to natural gas that possibly seeped into the basement. There was one fatality and three others injured in all these incidents. Although these incidents involve hazardous materials, the outcome voids the situation of being a hazardous material incident.



#### 4.3.14.4 Future Occurrence

The probability of these types of events is low; however, the County has had incidents involving all types of leaks, chemicals, and explosives. The potential was there for these incidents to have escalated.

#### 4.3.14.5 Vulnerability Assessment

The urban areas of the County are the most vulnerable based on the closeness of structures.

Table 4.3.14.3-1 Explosions	
Year	Explosions
2021	1
2020	1
2019	1
2018	1
2017	1

### 4.3.15 Hazardous Materials

Hazardous material releases can contaminate air, water, and soils possibly resulting in death and/or injuries. Dispersion can take place rapidly when transported by water and wind. While often accidental, releases can occur as a result of human carelessness, intentional acts, or natural hazards.

#### 4.3.15.1 Location and Extent

There are large amounts of chemicals, oils, radioactive materials, and other hazardous materials located in or transported through Clarion County daily. There are 17 SARA sites located in Clarion County and four SARA sites located in surrounding counties that have an impact on Clarion County. There are also 115 other locations in Clarion County reporting chemicals to Pennsylvania Dept. of Labor and Industry.

County farmers and other licensed applicators use pesticide products. Environmental health and safety issues are the primary concerns with these pesticides.

#### 4.3.15.2 Range of Magnitude

There is a high potential for accidents involving trucks carrying hazardous materials.

Natural gas incidents involving leaks, accidents, and line ruptures are common.

Clandestine drug manufacturing labs have been discovered and are in the County. Drug trends affect the number of drug labs found within each year.

There are approximately 594 farms using approximately 100,344 acres. (This information is current as of July 2019 according to the Department of Agriculture).

#### 4.3.15.3 Past Occurrence

There have been highway spills from truck accidents in the past; however, the potential for accidents involving fuel oils, propane gas, radioactive medical supplies, gasoline, and other toxic and dangerous liquids remains high. The following are **reported** transportation incidents totals in the County:

Table 4.3.15.3-1 Transportation Incidents	
Year	Incidents
2021	0
2020	4
2019	3
2018	6
2017	6

There have been transportation incidents in the County that have led to pollution and/or contamination. These are reported incidents:

**Table 4.3.15.3-2 Transportation Incidents with Water Pollution/ Ground Contamination**

Year	Water Pollution	Ground Contamination
2021	0	0
2020	0	0
2019	0	3
2018	1	6
2017	1	5

Natural gas incidents involving leaks, accidents, and line ruptures are common. Transmission lines are old. In Clarion County, there are approximately 150 miles of gas pipeline.

The following are gas incidents totals in the County:

<b>Table 4.3.15.3-3 Gas Incidents</b>	
Year	Incidents
2021	42
2020	23
2019	51
2018	38
2017	53

In 2004 Clarion County Law Enforcement Agencies started to experience incidents involving clandestine drug labs. There has been clandestine drug lab bust conducted within Clarion County. Pennsylvania State Police have a team that now handles clandestine drug labs. The following are reported drug lab incidents totals in the County:

<b>Table 4.3.15.3-4 Drug Lab Incidents</b>	
Year	Incidents
2021	
2020	1
2019	6
2018	4
2017	6

#### 4.3.15.4 Future Occurrence

Traffic estimates on Interstate 80 are approximately 22,437 trucks per day of which 854 of them are carrying placard hazardous materials (Clarion County 2021 Commodity Flow Study).

Each SARA facility and SARA site that could have an impact on Clarion County is contacted annually to verify the amounts of hazardous chemical(s) and updated in individual emergency plans should an incident occur. There are also 115 other locations in Clarion County reporting chemicals to Pennsylvania Dept. of Labor and Industry.

Clandestine drug manufacturing labs have remained as a hazard for several years. This is monitored by law enforcement intel.

There are many oil/natural gas wells and pipelines throughout the County. There also is one reported underground natural gas storage facility. The probability of such an event occurring is moderate.

There approximately 594 farms using pesticide products.

#### 4.3.15.5 Vulnerability Assessment

To date, there have been one Hazardous Materials releases from a fixed facility that required notification under SARA Title III.

There have been no reported pesticide product incidents.

Transmission lines are old, natural gas incidents involving leaks, accidents, and line ruptures will be common.

There are many oil/natural gas wells and pipelines throughout the County. There also is one underground natural gas storage facility. If deep gas drilling increases again there would be an increase in new pipelines within the County.

Due to higher costs for gasoline and fuel oil, some residents began making their own biofuel. This requires chemicals, different types of oils (cooking, vegetable, etc.) and other materials. To date, these locations have been in rural areas. An incident occurred in 2011 at a farm where the individual was making his own biofuel causing a fire and spill of cooking oil.

Worst case scenario would be major incident that would impact Clarion Borough and surrounding municipalities; total damages could exceed \$10 million.

#### 4.3.16 Transportation Accident

Transportation accidents can result from any form of air or road travel. It is unlikely that small accidents would significantly impact the larger community. However, certain accidents could have secondary regional impacts such as a hazardous materials release or disruption in critical supply/access routes, especially if vital transportation corridors or junctions are present.

PennDOT reports that the 5-year estimated traffic growth for Clarion County is 1.5 percent. Since Pennsylvania increased the speed limit on Interstate 80 to 70 mph in 2013, PennDOT has reported a reduction in total crashes for Clarion County (This information includes crashes unrelated to Interstate 80).

##### 4.3.16.1 Location and Extent

Transportation accident in Clarion will involve highway or air transport. There are no rail or water routes in the County. Most transportation accidents in the County are along the Interstate and State roads.

##### 4.3.16.2 Range of Magnitude

The County has over 648 miles of Commonwealth and Federal roads; there is 27.9 miles of interstate highway, 620 miles of federal and state highways, and 659 miles of paved municipal and secondary roads in Clarion County. The major transportation network in the County includes Interstate 80, US Route 322, and State Routes 28, 38, 36, 58, 66, 68, and 208. These routes carry extremely heavy truck traffic and are a constant potential scene of a hazardous materials incident. Clarion County has one interstate highway, producing heavy traffic flow. Traffic estimates on Interstate 80 are approximately 25,000 vehicles per day of which 10,000 are trucks (Clarion County 2021 Commodity Flow Study). Numerous state routes provide intra-county and inter-county traffic flows.

Clarion County has one general aviation airport within its boundaries. However, because of the Clarion Omni, a major airway out of Greater Pittsburgh International Airport is directly over the County. This places approximately 50 commercial flights a day over the County.

##### 4.3.16.3 Past Occurrence

The latest aviation incident in Clarion County was on October 23, 2021, in Piney Township when a small plane had to make a landing in a field. No fatalities were reported.

Per the Clarion County Airport, an aviation accident occurred on September 20, 2014, a Challenger LSA single engine aircraft crashed on takeoff. The pilot was severely injured and flown by MedeVac to hospital. On January 16, 1995, a Cessna 310 aircraft with inoperative deicing system attempted an unscheduled landing at Clarion Airport with considerable ice on left wing. Aircraft landing gear collapsed, and aircraft departed left side of runway. No fatalities were reported.



*Truck fire on Interstate 80 in Clarion Twp. June 2019*

On January 7, 2015 there was a major accident on Interstate 80 westbound at mile marker 65. The accident involved nine tractor trailer trucks and 10 other vehicles and occurred during whiteout snow conditions. This accident caused injuries to 24 people with two fatalities. Interstate 80 westbound was closed for over 12 hours causing congestion on alternate routes.

Lists of road closure incidents, caused by traffic accidents, trees down, fires or wires across the road (see table 4.3.16.3-1) and reportable traffic accidents (see table 3.3.16.3-2) are listed below:

<b>Table 4.3.16.3-1 Road Closure Incidents</b>	
<b>Year</b>	<b>Closures</b>
2021	47
2020	25
2019	86
2018	65
2017	45

<b>Table 4.3.16.3-2 Reportable Traffic Accidents</b>			
<b>Year</b>	<b>Crashes</b>	<b>Fatalities</b>	<b>Serious Injuries</b>
2021	379	7	14
2020	367	3	21
2019	443	6	26
2018	423	8	19
2017	392	7	21

#### 4.3.16.4 Future Occurrence

The probability of such an event occurring is high. The Pennsylvania Department of Transportation reports that the 5-year estimated traffic growth for Clarion County is 1.5 percent.

With highway accidents, there is an added vulnerability that stems from the age and upkeep of bridges throughout the Commonwealth. Per PennDOT, the following is information on bridges in Clarion County (as of 12/30/2021):

<b>Table 4.3.16.4-1 Clarion County Bridge Information</b>	
<b>Total Bridges</b>	<b>Poor Condition</b>
207	7

#### 4.3.16.5 Vulnerability Assessment

It can be assumed that transportation accidents may increase considering the transportation growth within the County. Airplane accidents should remain minor. As described earlier, the greatest vulnerability for an air accident is near the airport.

Worst case scenario would be total major bridge failure on Interstate 80; total damages could exceed \$60 million.

The sections of highway within Clarion County where accidents are most likely to occur are:

Interstate 80, PA Rt. 68 (South Fifth Avenue), one-half mile West of Clarion  
 PA Rt. 66, one-mile South of Clarion (Stone House Road)  
 Intersection of Exit 62 of I-80 and PA Rt. 68 due to massive traffic congestion  
 Intersection of Exit 64 of I-80 due to poor visibility  
 US Rt. 322, one and one-half miles East of Clarion (Bull Barn Turn)

#### 4.3.17 Water Control Structure Failure

A water control structure (dam or levee) is a human-made structure, usually an earthen embankment or concrete structure, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide protection from flooding. In some cases, also used to generate electricity.

##### 4.3.17.1 Location and Extent

In Clarion dams have the potential for creating a major disaster. Dam failures usually occur with little or no notice, wreaking havoc on an unsuspecting community. The worst dam failure in the nation occurred in Johnstown.

Dams in Pennsylvania have been classified by hazard potential as follows:

**Class 1 Dams** – These are dams with potentially high hazard capabilities, should they fail. This would include dams which store a significant quantity of water located on either small streams or main stem rivers or dams higher than 10 feet located on the main stems. Most of these dams would have the potential of causing both life and property losses if they failed.

**Class 2 Dams** – These are dams which have intermediate flood hazard potential if they fail. These dams store a sufficient quantity of water to cause property damage, but probably not loss of life in the event of failure.



*Piney Dam in Monroe Twp.*

**Class 3 Dams** – These are dams which have low flood hazard potential if they fail. Most property losses, if any, would most likely occur in the reach just below the dam.

**Class 4 Dams** – These are minor structures used to impound water for irrigation, water supply intakes, recreation, etc. The flood hazard potential is essentially nonexistent.

##### 4.3.18.2 Range of Magnitude

Class 1 and Class 2 dams would pose the greatest threat to downstream properties, should they fail.

Only one dam in the County falls under these classifications: Piney Dam (as seen in photo above) in which an Emergency Action Plan exists and is updated annually.

There are two dams located outside the County that would impact the County and fall under these classifications. Each dam has its own Emergency Action Plan. Those dams are:

- East Branch Dam, Elk County
- Kinzua Dam, Warren County

There are other smaller dams that would have an impact in the County. They are:

- New Bethlehem Dam, Clarion County
- North Fork Dam, Jefferson County
- Tionesta Dam, Forest County
- Two Mile Run, Venango County

#### 4.3.17.3 Past Occurrence

There is no record of a dam failure occurring in or effecting Clarion County.

#### 4.3.17.4 Future Occurrence

With continued maintenance of dams in and around Clarion County, no failure should occur in the future. The probability of such an event occurring is possible.

#### 4.3.17.5 Vulnerability Assessment

Ways of preventing this type of disaster from happening mainly involve the enforcement of safety standards for dam construction and maintenance and the installation of an adequate warning system.

Worst case scenario would be complete failure of Piney Dam; total damages could exceed \$250 million. See Appendix D Annex 2 on page 139 for a list of critical infrastructures by jurisdiction.

### 4.3.18 Oil and Gas Wells

Traditional hazards associated with oil and gas well drilling, potential impacts from Marcellus Shale gas well drilling include surface water depletion from high consumptive use with low return rates affecting drinking water supplies, and aquatic ecosystems and organisms; contaminated surface and groundwater resulting from hydraulic fracturing and the recovery of contaminated hydraulic fracturing fluid; and mishandling of solid toxic waste.

#### 4.3.18.1 Location and Extent

Pennsylvania was the first place in the world where a commercially successful well was drilled for oil production. This well was just west of Clarion County in Venango County. Natural gas wells followed. Pennsylvania is a significant producer of natural gas in the northeast United States.

Since the first commercial oil well was drilled in Pennsylvania in 1859, perhaps as many as 400,000 oil and gas wells have been drilled in the Commonwealth. Per Pennsylvania DEP there are 7,798 oil and gas wells in Clarion County.

Prior to 1985, gas and oil wells were not registered in Pennsylvania, leaving many old wells not properly plugged when abandoned.

#### 4.3.18.2 Range of Magnitude

Gas and Oil wells are still operational in the County. Per Pennsylvania DEP there are 7,798 oil and gas wells in Clarion County as well as approximately 191 orphaned wells, 54 abandon wells identified and likely many more abandoned not yet identified (as per DEP 01/2022). Recent advances in drilling technology had attracted new interest in the gas located in the Marcellus/Utica shale formation. The



Marcellus/Utica Shales is a rock formation that underlies all Clarion County at a depth of 5,000 to 8,000 feet. Appendix L contains map of wells.

An unplugged abandoned well can be a hazard to the health and safety of people living near it, or it can cause pollution. For example, a rusted-out casing in a gas well can let natural gas flow underground and accumulate in the basement of a nearby building, with explosive consequences. Occasionally, gas leaking from an old well contaminates nearby water wells.

An old well might be a conduit for salt brine from deeper formations to pollute fresh ground water, or to discharge at the surface. In some cases, oil leaks from abandoned wells pollute soil and water.

Near a coal mine, an old well can be a conduit for explosive gas to enter the mine, a serious mine safety problem. Where coal mining has occurred, an old well can allow acidic mine water to discharge at the surface.

#### 4.3.18.3 Past Occurrence

Today's wells are drilled vertical then horizontal. All oil wells are vertical and natural gas wells are vertical or vertical then horizontal. With all Clarion County, having the Marcellus/Utica shale formation there was an increase in this type of well drilling. This type of well drilling brings with it different hazards not seen with shallow well drilling. There have been incidents involving wells, these include the following:

- Releases from well heads being struck
- Gas migrating into water wells (there was one incident reported each year for 2015, 2016, 2018, 2019, and in 2021)
- Gas migrating into structures (one reported in 2019)
- There were two oil well incidents reported between 2014-2019
- There were five gas well incidents reported between 2011-2019

Orphaned/abandon wells have caused issues with gas migrating into water wells and possibly into structures.

#### 4.3.18.4 Future Occurrence

If drilling activities increase the potential for incidents will increase. The occurrence of this event is unlikely, however; the potential for a large-scale event is present.

Orphaned/abandon wells will continue to be an issue in Clarion County until all are plugged. These wells have caused issues with gas migrating into water wells and possibly into structures.

#### 4.3.18.5 Vulnerability Assessment

Extracting natural gas from the Marcellus/Utica Shale formation requires both vertical and horizontal drilling, combined with a process known as 'hydraulic fracturing'. To drill these wells requires three to four acres of land for roads and a drilling pad. Each site consists of many employees, equipment, supplies and drilling rigs. These drilling rigs are much larger than standard well drilling rigs. These sites have many hazards including confined spaces, high angle drill rigs, chemicals, radioactive materials, explosives, and high-pressure equipment. After the well is drilled, cased, and cemented to protect groundwater and the escape of natural gas and other fluids, drillers pump large amounts of water mixed with sand and other fluids into the shale formation under high pressure to fracture the shale around the well, which allows the natural gas to flow freely to the well bore. The amount of water typically required for hydraulic fracturing ranges from about one-million gallons for a vertical well to approximately five million gallons for a vertical well with a horizontal lateral. This used water creates issues in as it contains contaminants such as

brine, radioactive materials, and other chemicals. Also, Clarion County has many deep underground coal mines that are not mapped. These can lead to issues in the well drilling process.

Table 4.3.18.5-1 shows permits issued and wells drilled for various types of wells. While the wells drilled are lower than permits provide, this will change once the infrastructure is built to move the gas from wells to distribution.

<b>Table 4.3.18.5-1 Well Information</b>		
<b>Gas and Oil Wells</b>		
<b>Year</b>	<b>Permits</b>	<b>Drilled</b>
2021	11	2
2020	1	0
2019	2	1
2018	1	1
2017	3	2
<b>Unconventional Gas Wells</b>		
<b>Year</b>	<b>Permits</b>	<b>Drilled</b>
2021	8	0
2020	0	8
2019	11	0
2018	6	1
2017	9	4

The Table 4.3.18.5-2 (per DEP 2021) shows the orphaned and abandon wells identified (not plugged) by municipality in Clarion County.

<b>Table 4.3.18.5-2 Orphaned/ Abandon Wells</b>	
<b>JURISDICTION</b>	<b>ORPHANED/ ABANDON WELLS</b>
Ashland Township	41
Beaver Township	33
Clarion Borough	2
Clarion Township	11
Elk Township	49
Farmington Township	28
Highland Township	5
Knox Township	9
Limestone Township	33
Madison Township	4
Millcreek Township	12
Monroe Township	12
Paint Township	4
Perry Township	6
Piney Township	3
Porter Township	27
Redbank Township	24
Richland Township	27
Salem Township	14
St. Petersburg Borough	2
Toby Township	6
Washington Township	22

The average plugging cost is \$10,600 per oil well and \$53,700 per gas well.

Worst case scenario would be major gas well or gas pipeline explosion; total damages could exceed \$10 million.

#### **4.3.19 Harassment**

There are various types of harassment, bullying, psychological, racial, sexual, stalking, mobbing and hazing.

##### **4.3.19.1 Location and Extent**

The type of event can occur anywhere in the County and could have a large impact. There only a few **reported** incidents in the County.

##### **4.3.19.2 Range of Magnitude**

From the viewpoint of law enforcement, the crime of harassment has changed dramatically over the past five years. The typical person now has access to and uses a cell phone, laptop, or tablet. These devices vary in capabilities but will generally allow multiple ways for people to interact. This interaction could be directly or indirectly depending on the person's knowledge or ability. This technology is not specific to age, gender, race, etc. It is commonplace for each member of a family to have one or more of these devices for their own use. With this fact, law enforcement routinely deals with the crime of harassment through the "normal" avenue (kicking, punching, etc.) but now must deal with this crime through technology. Juveniles and or students routinely will "harass" each other by what they write or post to a public or personal site.

##### **4.3.19.3 Past Occurrence**

Over the past several years, there have been reported incidents of harassment relating to the use of technology were investigated. These investigations are and will continue to be difficult to investigate and prove to make an arrest. Each school district has had to adapt their policies and protocols due to social media having such a substantial impact and influence on those in grade school. Many of these incidents are done outside of school or on personal devices and are not reported to anyone. While it is mandatory for each school district to report harassment and bullying cases to PA Department of Education, it is unattainable to trace an accurate count of cases within the County per year.

Public Safety Answering Points (9-1-1 Centers) are receiving calls from malicious actor(s) reporting fake emergency situations at a target's address, which triggers an emergency response. This is known as SWATting because the event usually requires the dispatch of a SWAT Team.

In recent years, doxing has become an issue. Doxing involves a malicious actor collecting and releasing a target's personal information, which may include the target's home address, telephone number, email address, social security number, date of birth and family information.

##### **4.3.19.4 Future Occurrence**

The probability for this type of event is moderate in the County and will continue to occur.

##### **4.3.19.5 Vulnerability Assessment**

The probability of this type of event occurring is high especially with the increased use of the internet and cell phones. Almost all events involve at least two people. However, there could be events involving larger groups.

The County, schools and law enforcement need to work together to better report and track these types of incidents.

Worst case scenario would be major incident at a facility; total damages would not be just financial but would include emotional as well, that is hard to put a price on. Financial could exceed millions of dollars.

#### **4.3.20 Kidnapping/Hostage**

Kidnapping involves the abduction of a person by force or fraud to extract ransom, parental kidnapping, or interference with parental rights (taking an underage minor by another adult). Hostage is a person or persons held as security for fulfillment of conditions, terms, or promises by another.

In the last few years human trafficking has come forward as a major issue across the United States. It mainly involves young girls and women (82 percent of cases, with 30 percent being minors; source National Human Trafficking Hotline) being both kidnapped and held hostage as sex slaves, escorts and forced labor.

Human trafficking is a hidden crime as victims rarely come forward to seek help because of language barriers, fear of the traffickers, and/or fear of law enforcement.

Traffickers use force, fraud, or coercion to lure their victims and force them into labor or commercial sexual exploitation. They look for people who are susceptible for a variety of reasons, including psychological or emotional vulnerability, economic hardship, lack of a social safety net, natural disasters, or political instability. The trauma caused by the traffickers can be so great that many may not identify themselves as victims or ask for help, even in highly public settings.

##### **4.3.20.1 Location and Extent**

With Interstate 80 and the six interchanges and other major roadways across the County, hotels/motels, campgrounds, and parks here has led to movement of these victims by their captors.

##### **4.3.20.2 Range of Magnitude**

Every year, millions of men, women, and children are trafficked in countries around the world, including the United States. It is estimated that human trafficking generates many billions of dollars of profit per year, second only to drug trafficking as the most profitable form of transnational crime.

Victims of human trafficking can be any age, gender, race, or immigration status; they live in cities, suburbs, and rural areas. Human traffickers relentlessly canvass ways to take advantage of people who find themselves in circumstances of extreme adversity or violence, experience discrimination, economic vulnerability, or dependence. Communities that experience some of these hardships may be particularly vulnerable to human trafficking.

Pennsylvania is 10<sup>th</sup> in the nation in the number of human trafficking reported cases. Of the 127 cases (as of 2018), 112 were female victims and 15 male victims. Cases of sex trafficking were 106. The most common venues for sex trafficking are illicit massage parlors and spa businesses.

##### **4.3.20.3 Past Occurrence**

Kidnapping and hostage incidents have occurred in the County. Most kidnapping/hostage events are of the parental nature or someone interfering with parental custody. There was one kidnapping in 2019.

There are reports of human trafficking occurring in Clarion County.

##### **4.3.20.4 Future Occurrence**

There is a medium probability for this type of event.

#### 4.3.20.5 Vulnerability Assessment

Jurisdictional losses in kidnapping/hostage event stem from lost wages and productivity for the victim(s) and cost by law enforcement agencies. Losses are difficult to estimate because each case will be different.

### 4.3.21 Cyber Security Incidents

Cyber security incidents can be anything from a “virus” to outside sources accessing data from any computer system via the internet; to disrupting any or all services provided to the public. Adding to the problem is that the public and private sectors are relatively ignorant of just how much their life depends on computers as well as the vulnerability of those computers.

Cyber incidents can be defined as activities intended to damage or disrupt vital computer systems. These acts can range from taking control of a host website to using networked resources to directly cause destruction and harm. Protection of databases and infrastructure appear to be the main goals now. Cyber terrorists can be difficult to identify because the internet provides a meeting place for individuals from various parts of the world. Individuals or groups planning a cyber-attack are not organized in a traditional manner, as they can effectively communicate over long distances without delay. A more prominent group involved in large-scale hacking events recently is the group “Anonymous.” They have been known to overtake websites and alter the content that is presented to the public. The largest threat to institutions from cyber terrorism comes from any processes that are networked and controlled via computer. Any vulnerability that could allow access to sensitive data or processes should be addressed and any possible measures taken to harden those resources to attack.

When considering cyber terrorism or cyber-attack, locations with publicly accessible or shared computer workstations are more vulnerable to malicious internet outages, as open access allows for easier access to shared data and system information.

A more recent trend for cyber-attacks is ransomware where the attacker holds computer or server data hostage in exchange for payment through a cryptocurrency (such as Bitcoin). The victim is notified by a message explaining the data will be erased unless payment is made within a certain amount of time. While anyone can be vulnerable to ransomware, attackers usually target government, school systems and hospitals where the data is crucial. Unfortunately, the victim does not have much time to respond and is therefore forced to pay the attacker. Cryptocurrency is near impossible to trace leaving law enforcement agencies almost no way to track its source, especially within the time frame given in ransomware.

Anyone with a connection to the Internet can be susceptible to a cyber-attack. However, in general, the urban areas may have higher vulnerabilities due to higher concentrations of people, businesses, and critical infrastructure.

#### 4.3.21.1 Location and Extent

Generally, cyber incident involves unlawful attacks or threats against computers, networks, and the information stored therein to intimidate or coerce a government or its people to achieve economical political or social objectives. These acts can range from taking control of a host website, to using networked resources to directly cause destruction and harm.

#### 4.3.21.2 Range of Magnitude

The magnitude of a cyber incident will vary greatly based on the extent of systems affected and duration of the impact. Additionally, the magnitude will vary based upon which specific system is affected by an attack, the ability to preempt an attack, and an attack’s effect on continuity of operations.

The vulnerability of cyber incidents can only be addressed by the users of every individual computer system. Cyber incidents will continue to impact the County, municipalities, schools, residents and businesses in Clarion County.

#### 4.3.21.3 Past Occurrence

Clarion County has had municipalities, residents and businesses affected by these events. PennWest Clarion in December 2017 was hacked by a phishing scam resulting in some student information to be compromised. Some schools and municipalities have had computer systems held for ransom.

In 2021, Clarion Area School District had a student's account hacked. The hacker left threats prompting the district to order a modified lockdown at the high school.

Many municipalities, schools and organizations are not reporting this type of event. To date, the known extent of damages has been low.

#### 4.3.21.4 Future Occurrence

Clarion County has developed and distributed a Cyber Incident Plan. This type of event remains a moderate probability.

Municipalities, schools, University, health care facilities and businesses/industries will maintain security software on computer systems, backup data offsite and notify Clarion County DPS of cyber incidents.

Law enforcement agencies will monitor identified facilities/infrastructures.

#### 4.3.21.5 Vulnerability Assessment

All communities in the County are vulnerable on some level, directly or indirectly, to a cyber incident. Anyone connected to the Internet can be susceptible to a cyber-attack. However, in general, the urban areas may have higher vulnerabilities due to higher concentrations of people, businesses, and critical infrastructure.

The field of cyber security is of more importance due to the increasing reliance on computer systems, the Internet, wireless networks (such as Bluetooth and Wi-Fi), and the growth of smart devices like phones and tablets.

### 4.3.22 Terrorism (explosive, chemical, biological, radiological, nuclear, cyber)

The FBI defines terrorism as “the unlawful use of force against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives”.

Two types of terrorism identified by the FBI are Domestic Terrorism and International Terrorism.

Domestic terrorism involves group(s) or individual(s) whose terrorist activities: involve acts dangerous to human life that violate federal or Commonwealth laws; appear intended to intimidate or coerce a civilian population; to influence the policy of a government by intimidation or coercion; to affect the conduct of a government by mass destruction, assassination, or kidnapping; occur primarily within the territorial jurisdiction of the U.S and are lacking foreign sponsorship. If there is a terrorism event in Clarion County, the event would be domestic type.

#### Lone Actor/Homegrown Violent Extremists

Lone actor/homegrown violent extremists pose a potentially significant threat to both the law enforcement and the public. Lone actor/homegrown violent extremists have views that are more extreme than others. These individuals can have either international or domestic leanings and could target law enforcement, other public officials, individuals of different races, ethnicity, nationality, gender orientation or religion. Intelligence rarely exists prior to attacks except when information is accidentally leaked, or through brazen, intentional releases, which are typically discovered after the fact.



Recent lone actor/homegrown violent extremists attacks have gravitated toward simple schemes and unsophisticated weapons. Much less practice and pre-operational planning is required to carry out attacks using firearms, edged weapons, or vehicles.

International terrorism involves groups of individuals whose terrorist activities are foreign-based and/or directed by countries or groups outside the United States or whose activities transcend national boundaries. Examples would be the Al Qaeda and ISIS terrorist networks. These groups have been responsible for several attacks on US interests including the terrorist attacks of September 11, 2001.

Using the acronym '**B-NICE**' we can describe five types of terrorist attacks.

- **Biological** – Most likely to occur and like a nuclear attack, can have the greatest impact. Especially to human life. Hardest to detect because the symptoms don't show up right away and many individuals can become infected before they are detected.

Four Types of Biological Agents and Common Examples:

Bacteria – Anthrax and Cholera

Viruses – Smallpox and Ebola

Rickettsia – Q fever

Toxins – Botulism, SEB, and Ricin

- **Nuclear/Radiological** – Radiological dispersion is much more likely to occur than a nuclear incident. A nuclear incident can cause the most damage and have the greatest impact. Could be caused by a nuclear bomb attack or an attack on a nuclear facility.
- **Incendiary** – Firebombs, Liquid Fuel Bombs (Aircraft), Chemical Reactions.
- **Chemical** – Generally used by government agencies. Can be spread in the form of liquid, vapor, aerosol, solids, and gases.

Five Types of Chemical Agents:

Riot Control Agents – Tear Gas or Pepper Spray - Affects the eyes and respiratory system.

Choking Agents – Phosgene or Chlorine - Affects the respiratory system.

Blood Agents – Hydrogen Cyanide. Affects the respiratory and circulatory systems.

Nerve Agents – Tabun, Sarin, Soman, and VX - Affects the nervous system

Blister Agents – Mustard Gas and Lewisite - Causes burns to the skin and internal organs.

- **Cyber-Terrorism** – As explained in **4.3.21**, another form of terrorism that has emerged recently is Cyber-Terrorism. Cyber-Terrorism is best described by altering the Federal Bureau of Investigation's Definition of terrorism, to include "using computing resources" as another method of intimidation.
- **Explosive** - Most common tool of terrorist. Weapons of choice; dynamite, pipe bombs and car/truck bombs.

#### 4.3.22.1 Location and Extent

Although cyber-terrorism has occurred in the County, many municipalities and organizations are not reporting this type of event. To date the known extent of damages has been low.

#### 4.3.22.2 Range of Magnitude

It is hard to determine at this point what the actual probability of a terrorist attack occurring within the County is. However, it is safe to assume that it is much greater than it was before 09/11/2001. The most likely event in Clarion County is the from a lone actor/homegrown violent extremist's attack. Clarion Borough has an annual event which draws up to 250,000 attends on one day. This event is a National Homeland Security Event.

Cyber-Terrorism will continue to impact all jurisdictions and businesses in Clarion County and is considered a moderate probability.

#### 4.3.22.3 Past Occurrence

**Note: Most incidents are not reported to the County. This the list contains information that was reported to the County.**

Prior to 9/11/2001, the threat of international terrorism was unheard of in the country, but that has all changed. Surrounding counties nearly became direct targets of an international terrorist attack when high-jacked Flight 93 flew over nearby counties and crashed in Somerset County.

A second wave of terror began a few weeks later when letters, tainted with anthrax, began showing up in Florida, New York, and Washington DC. This second wave of terror hit Clarion County also, with many calls of suspicious substances being found. Clarion County's contracted HazMat Response Team responded to these incidents but found no legitimate threats. The following is a list of some of the occurrences that have been documented in Clarion County:

In 2019 there were three reported threats against schools or health care facilities.

**Reported** bomb threats or suspicious package incidents have occurred in the County at schools, health care facilities, county property, businesses, and postal facilities.

- 2020:** Bomb threat at school. Incident handled by PSP.
- 2019:** Bomb threat at school. Incident handled by PSP.
- 2018:** Bomb threats at schools. Email threats sent across the Commonwealth and Clarion County to banks, companies, schools, and residents. Incidents handled by local police and/or PSP.
- 2017:** Bomb threats at schools. Incidents handled by local police and/or PSP.
- 2016:** Bomb threat at a school. Incident handled by local police and/or PSP.

Although terrorists will usually select their targets based on the impact that the event will make, the reality is that targets of terrorist can include anything, can target anyone, and can occur anywhere.

In general, the following is list of potential targets that a terrorist may select:

- Government facilities
- Commercial facilities, particularly multinational or international firms
- Communications Centers (9-1-1)
- Industrial facilities, particularly those storing large quantities of hazardous materials or those involved in military development
- Abortion or Family Planning Clinics or any organization associated with a socially controversial issue
- Utility facilities including power generation plants, dams, and water treatment plants
- Law enforcement facilities
- Facilities housing important political or religious figures
- Historical sites
- Transportation infrastructure
- High profile events attracting large amounts of people of VIPs
- Educational facilities, especially colleges and universities
- Storage fields

Cyber-Terrorism has come to national attention with events at major business across the United States. Everything from credit card/banking/personal information being stolen, the disruption of websites, hacking, malware, and ransomware.

Clarion County has had municipalities, residents and businesses affected by these events. PennWest Clarion in December 2017 was hacked by a phishing scam, where some student information was compromised.

#### 4.3.22.4 Future Occurrence

Although the probability of Clarion County being the target of a direct Domestic Terrorist attack is greater than it being the direct target of an International Terrorist Attack, it should be equally prepared for both. It is hard to determine at this point what the actual probability of a terrorist attack occurring within the County is moderate. However, it is safe to assume that it is much greater than it was before 09/11/2001.

Bomb threats or suspicious package incidents will continue to occur in the County.

The vulnerability of Cyber-Terrorism can only be addressed by the users of every individual computer system. Cyber-Terrorism will continue to impact the County, municipalities, schools, residents, and businesses in Clarion County. This type of event remains a moderate probability.

#### 4.3.22.5 Vulnerability Assessment

Currently precautions are in place for the County, even doing so, there are always vulnerabilities to cyber-terrorism and lone actor/homegrown violent extremists attacks.

Worst case scenario would be major incident in Clarion County; total damages could exceed \$10 million.

### 4.3.23 Opioid Addiction

Opioid substance disorder occurs when an individual becomes physically dependent on a type of opioid. Opioids are a classification of drugs to relieve pain. Opioid is used as a broad term and includes opiates, which are drugs naturally extracted from certain types of poppy plants and narcotics. Opioids can also be synthetically made to emulate opium.

According to the Drug Enforcement Administration (DEA) opioids come in various forms: tablets, capsules, skin patches, powder, chunks in various colors from white to shades of brown and black, liquid form for oral use and injection, syrups, suppositories, and lollipops. The Centers for Disease Control and Prevention (CDC) defines the following as the three most common types of opioids:

- **Prescription Opioids:** Opioid medication prescribed by doctors for pain treatment. Prescription opioids can be synthetic-oxycodone (OxyContin) or hydrocodone (Vicodin), or natural, like morphine.
- **Fentanyl:** A powerful synthetic opioid that is 50 to 100 times more powerful than morphine and used for treating severe pain. Illegally made and distributed fentanyl is becoming more prevalent.
- **Heroin:** An illegal natural opioid processed from morphine and is also becoming more commonly used in the United States.

Opioids are highly addictive. They block the body's ability to feel pain and can create a sense of euphoria. Additionally, individuals often build a tolerance to opioids, which can lead to misuse and overdose.

#### 4.3.23.1 Location and Extent

All areas of the County are affected by Opioids.

#### 4.3.23.2 Range of Magnitude

Opioid addiction can lead to overdose, which can be fatal. The most dangerous side effect of an

opioid overdose is depressed breathing. First responders—paramedics, police officers, and fire fighters, are also affected by Pennsylvania’s opioid addiction crisis. In addition to the crisis consuming time and resources, first responders also face exposure risk, particularly to synthetic fentanyl.

The probability of this type of event is high.

#### 4.3.23.3 Past Occurrence

According to the CDC, drug overdose deaths, including those involving opioids, continue to increase in the United States. Deaths from drug overdose are up among both men and women, all races, and adults of nearly all ages. Two out of three drug overdose deaths involve an opioid. Overdose deaths from opioids, including prescription opioids, heroin, and synthetic opioids (like fentanyl) have increased almost six times since 1999. In the US, someone passes away from an accidental overdose every 19 minutes. Overdoses involving opioids killed more than 47,000 people in 2017, and 36 percent of those deaths involved prescription opioids. Opioid addiction impacts the entire Commonwealth of Pennsylvania. Nationally, Pennsylvania is among four of the hardest hit states from opioid-related deaths. OverdoseFreePA states in 2017, Pennsylvania coroners and medical examiners reported 5,456 drug-related overdose deaths (ruled accidental or undetermined). This number represents a rate of 43 deaths per 100,000 people, ranged from 0 to 77 among individual counties. Between 2015 and 2017, there was a 65 percent increase in the number of drug-related overdose deaths in Pennsylvania. The state of Pennsylvania loses 12 people a day to an unintentional overdose.

According to a joint intelligence report prepared by the DEA Philadelphia Division and the University of Pittsburgh, a higher percentage of drug-related deaths attributed to opioid use in Pennsylvania’s rural communities at 42 percent, compared to 34 percent in urban communities.

Clarion County Coroner report on overdose deaths by year:

<b>Table 4.3.23.3-1 Overdose deaths</b>	
<b>Year</b>	<b>Overdose Deaths</b>
2021	8
2020	6
2019	5
2018	11
2017	6

Year over year shows trends within the most frequently identified substances in decedents in Clarion County. These substance trends account for over 80 percent of the overdose deaths. They include Fentanyl, Buprenorphine, Ethanol, Gabapentin, Acetaminophen, and Oxycodone.

#### 4.3.23.4 Future Occurrence

Clarion County has had increases in drug overdose and deaths over the last two years. However, future occurrences of opioid addiction and misuse, overdose, and fatalities are unclear as the state moves forward with overdose prevention initiatives. In January 2018, Governor Tom Wolf declared Pennsylvania’s opioid addictions epidemic a disaster emergency.

Armstrong, Indiana and Clarion Drug and Alcohol Commission will continue to provide education programs (prevention, Naloxone, etc.).

Human service agencies to provide in-patient and out-patient treatment programs.

#### 4.3.23.5 Vulnerability Assessment

Rural communities in general experienced larger per-capita opioid-related deaths. Jurisdictional losses in the opioid addiction crisis stem from lost wages, productivity, and resources. County has seen an increase of time and resources devoted to the opioid epidemic as overdose and response increases. Additional County costs have increased for treatment programs and coroner cost.

#### 4.3.24 Utility Interruption, Disruption or Failure

Utility interruption includes any impairment of the functioning of telecommunication, gas, electric, water or waste networks. These interruptions or outages occur because of geomagnetic storms, fuel or resources shortage, electromagnetic pulses, information technology failures, transmission facility or linear utility accident, and major energy, power, or utility failure. The focus of utility interruptions as a hazard lies in fuel, energy, or utility failure; this hazard is often secondary to other natural hazard events, particularly transportation accidents, lightning strikes, extreme heat or cold events, and coastal and winter storms.

##### **Telecommunications**

Telecommunications includes voice, video, and internet communications services. The County has many providers for each system. The major suppliers for wired telephone service are Verizon, CenturyLink, Venus and Windstream. Comcast Cable Communications, Atlantic Broadband and AT&T Broadband are the major suppliers of cable television. Internet providers include Verizon, Windstream, Comcast, AT&T, Venus, Zito, Atlantic Broadband and Choice.

##### **Energy/Power/Utility**

The electric suppliers for the County are Allegheny Power, Central Electric, Penelec Electric and United Electric. The natural gas suppliers are Columbia Gas, Dominion Peoples, Equitable Gas, National Fuel, T.W. Phillips Gas and UGI Central Penn Gas.

##### **Water**

The Pennsylvania American Water Company, along with 15 community water systems and 36 transient water systems (these are campgrounds, restaurants, etc.) provide public water throughout most of the County. The more rural areas receive their water supply from private wells or springs.

<b>Table 4.3.24-1 Population on Public Water versus Wells</b>	
<b>Public Water</b>	<b>Wells</b>
60%	40%

##### **Wastewater**

Sanitation services are provided by 13 community wastewater treatment plants and four transient wastewater treatment plants.

<b>Table 4.3.24-1 Population on Community Wastewater Systems versus Septic System</b>	
<b>Community Wastewater Systems</b>	<b>Septic System</b>
55%	45%

#### 4.3.24.1 Location and Extent

Utility interruptions occur throughout the County but usually are small-scale, localized incidents. Utility interruptions are possible anywhere there is utility service.

#### 4.3.24.2 Range of Magnitude

The most severe utility interruptions will be County or municipal widespread power and telecommunications outages. With the loss of power, electrical powered equipment and systems will not be operational.

The severity of a utility interruption can be compounded with extreme weather events, especially winter weather events. Interruptions can also be more severe for special needs populations that are dependent on electronic medical equipment. Utility interruptions can significantly hamper first responders in their efforts to provide aid in a compound disaster situation, especially with losses of telecommunications and wireless capabilities. Telecommunications interruptions will also hinder first responders' efforts.

According to National Fuel, a rupture within their natural gas system in Paint Township could cause disruption of gas to homes, businesses, institutions, and facilities. From the information provided to Clarion County EMA the outage would affect at least all of Clarion Borough and Paint Township, and a large population in Clarion Township and Monroe Townships. Critical infrastructures within this footprint include all County government buildings, all medical facilities (including Clarion Hospital and psychiatric center), several school districts, long-term healthcare centers, and more. National Fuel estimates a disruption in service could last up to three weeks before the utility is restored. While there are other gas services in Clarion County, National Fuel would have the greatest impact due to population density and location of critical infrastructure.

#### 4.3.24.3 Past Occurrence

In August 2003, a widespread power outage occurred and resulted in twelve municipalities within the northwestern section of Clarion County being without power for approximately twelve hours as a result of the blackout caused a loss of some telecommunication systems. Parts of several municipalities were without power for as long as 48 to 72 hours. The power outage occurred because of a disruption to the power grids in states to the north and east of Pennsylvania and then cascading into the Commonwealth. Early reports estimated the total number customer affected in Pennsylvania at over 100,000.

Due to the rural nature of the County and lack of telecommunication systems infrastructure, Clarion County is vulnerable to these types of events. Major outages are as follows (see table 4.3.24.3-1):

<b>4.3.24.3-1 Number of Major Telecommunication Outages</b>	
<b>Year</b>	<b>Outages</b>
2021	8
2020	19
2019	2
2018	8
2017	5

There are between 113 and 199 miles of natural gas pipelines throughout the County (U.S. Dept. of Transportation, Pipeline and Hazardous Materials Safety Administration). Companies currently with major lines in the County are Columbia Gas, Dominion Peoples, Dominion Transmission Inc., Equitable Gas, National Fuel, T.W. Phillips Gas & Oil and UGI. There are many small companies that have pipelines in the County.

The rural nature of the County and lack of infrastructure causes us to be vulnerability to these types of events. Reported energy/power outages in Clarion County were mainly due to severe weather, leaks, or vehicle accidents.

In November 2018 a winter storm affected approximately 8,000 customers in eight municipalities, some customers were without power for five days. Four municipalities opened Comfort Centers for their residents.



Two water plants and one pumping station were without power and had to acquire generators to keep water flowing.

In 2017 a storm affected approximately 2,200 customers in four municipalities with 1,000 customers in the East Brady Borough and Brady Township area, lasted about 24 hours. No sheltering was needed, however the Red Cross provided hot meals.

There is no history of the County being affected by EMP. The County is vulnerability to terrorism and this device could be used.

#### 4.3.24.4 Future Occurrence

Utility interruptions will continue to occur annually with minimal impact. Widespread utility interruption events usually occur approximately once every five years, usually as a secondary effect of an extreme weather event. These interruptions should be anticipated, and first responders should be prepared during severe weather events

Aging infrastructure also adds to the risk of potential utility interruptions. As this equipment ages, it deteriorates from the constant wear and tear of service. As it ages, it reaches a point at which it will either fail on its own or as a result of outside forces (storms, loads it was designed to handle but no longer can, etc.). These failures cause service interruptions and can require expensive emergency repairs. In addition, as repairs have taken place along transmission routes, there is often a mix of new and old equipment along the line, as repair and not replacement is generally the choice made to resolve an issue.

The probability of these types of events is medium. Most outages are caused by storms and accidents.

#### 4.3.24.5 Vulnerability Assessment

All jurisdictions are vulnerable on some level to utility interruptions, but because this hazard often occurs in conjunction with other hazards, some jurisdictions might be more vulnerable to winter storms, temperature extremes, tornado, hail events, and lightning strikes may be more vulnerable to a utility interruption. In the majority of utility interruption events, jurisdictional losses will be minimal. However, long-term, and widespread outages can cause significant economic losses stemming from lost income, costs to government and social services agencies, costs to the utility provider, and the cost of spoiled commodities.

## 4.4. Hazard Vulnerability Summary

### 4.4.1. Methodology

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

RF values were obtained by assigning varying degrees of risk to five categories for each of the hazards profiled in the HMP update. Those categories include *probability, impact, spatial extent, warning time, and duration*. Each degree of risk was assigned a value ranging from one to four. The weighting factor agreed upon by the planning team is shown in Table 4.4.1-1. To calculate the RF value for a given hazard, the assigned risk value for each category was multiplied by the weighting factor. The sum of all five categories equals the final RF value, as demonstrated in the following example equation:

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

Table 4.4.1-1 summarizes each of the five categories used for calculating a RF for each hazard. Per the weighting scheme applied, the highest possible RF value is 4.0.

Table 4.4.1-1: Summary of Risk Factor approach used to rank hazard risk.					
RISK ASSESSMENT CATEGORY	DEGREE OF RISK				WEIGHT VALUE
	LEVEL	CRITERIA		INDEX	
<b>PROBABILITY</b> <i>What is the likelihood of a hazard event occurring in each year?</i>	<b>UNLIKELY</b>	LESS THAN 1% ANNUAL PROBABILITY		<b>1</b>	<b>30%</b>
	<b>POSSIBLE</b>	BETWEEN 1 & 10% ANNUAL PROBABILITY		<b>2</b>	
	<b>LIKELY</b>	BETWEEN 10 & 100% ANNUAL PROBABILITY		<b>3</b>	
	<b>HIGHLY LIKELY</b>	100% ANNUAL PROBABILITY		<b>4</b>	
<b>IMPACT</b> <i>In terms of injuries, damage, or death, would you anticipate impacts to be minor, limited, critical, or catastrophic when a significant hazard event occurs?</i>	<b>MINOR</b>	VERY FEW INJURIES, IF ANY. ONLY MINOR PROPERTY DAMAGE & MINIMAL DISRUPTION ON QUALITY OF LIFE. TEMPORARY SHUTDOWN OF CRITICAL FACILITIES.		<b>1</b>	<b>30%</b>
	<b>LIMITED</b>	MINOR INJURIES ONLY. MORE THAN 10% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE DAY.		<b>2</b>	
	<b>CRITICAL</b>	MULTIPLE DEATHS/INJURIES POSSIBLE. MORE THAN 25% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR MORE THAN ONE WEEK.		<b>3</b>	
	<b>CATASTROPHIC</b>	HIGH NUMBER OF DEATHS/INJURIES POSSIBLE. MORE THAN 50% OF PROPERTY IN AFFECTED AREA DAMAGED OR DESTROYED. COMPLETE SHUTDOWN OF CRITICAL FACILITIES FOR 30 DAYS OR MORE.		<b>4</b>	
<b>SPATIAL EXTENT</b> <i>How large of an area could be impacted by a hazard event? Are impacts localized or regional?</i>	<b>NEGLECTIBLE</b>	LESS THAN 1% OF AREA AFFECTED		<b>1</b>	<b>20%</b>
	<b>SMALL</b>	BETWEEN 1 & 10% OF AREA AFFECTED		<b>2</b>	
	<b>MODERATE</b>	BETWEEN 10 & 50% OF AREA AFFECTED		<b>3</b>	
	<b>LARGE</b>	BETWEEN 50 & 100% OF AREA AFFECTED		<b>4</b>	
<b>WARNING TIME</b> <i>Is there usually some lead time associated with the hazard event? Have warning measures been implemented?</i>	<b>MORE THAN 24 HRS</b>	SELF-DEFINED	<i>(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)</i>	<b>1</b>	<b>10%</b>
	<b>12 TO 24 HRS</b>	SELF-DEFINED		<b>2</b>	
	<b>6 TO 12 HRS</b>	SELF-DEFINED		<b>3</b>	
	<b>LESS THAN 6 HRS</b>	SELF-DEFINED		<b>4</b>	
<b>DURATION</b> <i>How long does the hazard event usually last?</i>	<b>LESS THAN 6 HRS</b>	SELF-DEFINED		<b>1</b>	<b>10%</b>
	<b>LESS THAN 24 HRS</b>	SELF-DEFINED	<i>(NOTE: Levels of warning time and criteria that define them may be adjusted based on hazard addressed.)</i>	<b>2</b>	
	<b>LESS THAN 1 WEEK</b>	SELF-DEFINED		<b>3</b>	
	<b>MORE THAN 1 WEEK</b>	SELF-DEFINED		<b>4</b>	

#### 4.4.2. Ranking Results

Using the methodology described in Section 4.4.1-1, Table 4.4.2-1 lists the Countywide RF calculated for each of the 25 potential hazards identified in the 2023 Hazard Mitigation Plan update. Hazards identified as high risk have risk factors greater than 2.5. Risk Factors ranging from 2.0 to 2.5 were deemed moderate risk hazards. Hazards with Risk Factors 1.9 and less are considered low risk.

**Table 4.4.2-1: Ranking of hazard types based on RF methodology.**

HAZARD RISK	HAZARD Natural (N) OR Human Caused(H)	RISK ASSESSMENT CATEGORY					RISK FACTOR (RF)
		PROBABILITY	ECONOMIC IMPACT	SPATIAL EXTENT	WARNING TIME	DURATION	
<b>HIGH</b>	Flood, Flash Flood (N)	4	3	3	4	2	3.3
	Snow, Ice, Hail, Sleet (N)	4	3	3	2	4	3.3
	Windstorm (N)	4	3	3	3	1	3.2
	Utility Interruption (H)	4	2	3	4	3	3.1
	Cyber Security (H)	4	2	2	4	3	3.1
	Transportation Accidents (H)	4	2	3	4	1	2.9
	Animal, Insect Infestation (H)	4	2	3	1	4	2.9
	Drought (N)	3	3	3	1	4	2.9
	Infectious, Pandemic (H)	3	3	3	1	4	2.9
<b>MODERATE</b>	Opioid Addiction (H)	4	2	2	1	4	2.7
	Subsidence (N)	3	2	3	1	4	2.6
	Hazardous Materials (H)	3	2	2	4	2	2.5
	Terrorism (H)	3	2	1	4	3	2.4
	Water Control Failure (H)	2	3	2	1	4	2.4
	Explosion/Fire (H)	3	2	1	4	2	2.3
	Wildland Fire (N)	2	2	3	2	3	2.3
	Extreme Temperatures (N)	2	2	3	1	4	2.3
	Harassment (H)	4	1	1	4	1	2.2
<b>LOW</b>	Radon (N)	3	1	2	1	4	2.0
	Oil & Gas Wells (H)	2	2	2	1	3	2.0
	Earthquakes (N)	2	2	2	1	1	1.8
	Landslide (N)	2	1	2	1	3	1.7
	Geomagnetic Storm (N)	1	2	2	1	2	1.6
	Kidnapping/Hostage (H)	1	1	1	4	3	1.5

#### 4.4.3. Potential Loss Estimates

Based on various kinds of available data, the Assessment Office using GIS information developed potential loss estimates for each hazard based on a worst case. Estimates provided in this section are based on areas identified by local municipalities, hazard maps and history. Estimates are considered potential in that they generally represent losses that could occur in a countywide hazard scenario. In events that are localized, losses may be lower, while regional events could yield higher losses.

The County parcel data used in this plan was linked to the building tax assessment database for extracting building values. These values are representative of replacement value alone; content loss, functional loss, and displacement cost are not included. Detailed loss estimates were determined by the County tax assessment office for three specific hazards and by municipalities (see Attachment 3).

#### 4.4.4. Future Development and Vulnerability

Risk and vulnerability to naturally occurring and human caused hazard events are not static. Risk will increase or decrease as County and municipalities see changes in land use and development as well as changes in population. Clarion County is expected to experience a variety of factors that will, in some areas, increase vulnerability to hazards while in other areas, vulnerability may stay static or even be reduced. The main increase in vulnerability will be if deep well drilling increases, opioid addiction continues to increase and cyber terrorism.

An analysis of land use and development potential will be conducted as a part of the update to the Clarion County Comprehensive Plan and the PennWest Clarion Facilities Master Plan [FMP] of the University's Clarion campus. This analysis will include consideration of limiting factors such as environmental sensitivity, unsuitable soils, steep slopes, and state-owned land, and consideration will also be given to the

location of existing infrastructure, as well as possible future infrastructure expansions. Even with the additional development in some areas, the County will most likely remain nearly all rural. Stringent floodplain ordinances and subdivision and land-use ordinances along with proper building practices can help reduce vulnerability to hazards in the future.

## Attachment 2

### Hazards by Jurisdiction

Greater than (>), less than (<), equal to (=), or not applicably (n/a) to the county risk factor

Jurisdiction	Flood, Flash Flood	Tornado, Wind Storm	Winter Storm	Transportation Accidents	Drought	Infectious Diseases	Subsidence	Fires Wildland	Hazardous Materials Incidents	Water Control	Extreme Temperatures	Harassment	Terrorism	Radon	Oil & Gas Wells	Solar Weather	Earthquake	Landslide	Food Borne Illness	Insect Infestation	Explosion Fire	Kidnapping	Cyber Security	Opioid Addiction	Utility Interruptions
Ashland Twp.	<	=	=	=	=	=	=	=	<	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Beaver Twp.	=	=	=	=	=	=	>	=	>	n/a	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Brady Twp.	<	=	=	<	=	=	=	=	<	=	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=
Callensburg Boro	<	=	=	<	=	=	<	<	<	=	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Clarion Boro	=	=	=	=	<	=	>	<	>	=	=	=	=	=	<	=	=	=	=	<	=	=	=	=	=
Clarion Twp.	=	=	=	=	=	=	>	=	>	=	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
East Brady Boro	=	=	=	=	<	=	=	<	>	>	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Elk Twp.	<	=	=	=	=	=	<	=	=	n/a	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Farmington Twp.	<	=	=	=	=	=	<	=	>	=	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Foxburg Boro	=	=	=	<	=	=	<	<	=	>	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=
Hawthorn Boro	=	=	=	=	=	=	<	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Highland Twp.	=	=	=	<	=	=	=	=	<	=	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Knox Boro	<	=	=	=	<	=	<	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Knox Twp.	=	=	=	=	=	=	=	=	=	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Licking Twp.	=	=	=	<	=	=	=	=	<	=	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Limestone Twp.	=	=	=	=	=	=	=	=	=	n/a	=	=	=	=	>	=	=	<	=	=	=	=	=	=	=
Madison Twp.	=	=	=	<	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Millcreek Twp.	=	=	=	<	=	=	<	=	<	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Monroe Twp.	<	=	=	>	=	=	=	=	>	=	=	=	=	=	=	=	=	<	=	=	=	>	=	=	=
New Bethlehem Boro	=	=	=	=	<	=	<	<	>	=	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=

Jurisdiction	Flood, Flash Flood	Tornado, Wind Storm	Winter Storm	Transportation Accidents	Drought	Infectious Diseases	Subsidence	Fires Wildland	Hazardous Materials Incidents	Water Control	Extreme Temperatures	Harassment	Terrorism	Radon	Oil & Gas Wells	Solar Weather	Earthquake	Landslide	Food Borne Illness	Insect Infestation	Explosion Fire	Kidnapping	Cyber Security	Opioid Addiction	Utility Interruptions
Paint Twp.	<	=	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Perry Twp.	=	=	=	<	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Piney Twp.	<	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Porter Twp.	=	=	=	=	=	=	=	=	<	n/a	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Redbank Twp.	=	=	=	=	=	=	=	=	<	n/a	=	=	=	=	=	=	=	=	=	=	=	=	=	=	=
Richland Twp.	<	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Rimersburg Boro	<	=	=	<	=	=	=	<	<	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Salem Twp.	=	=	=	=	=	=	<	=	<	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Shippenville Boro	<	=	=	=	<	=	<	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Sligo Boro	=	=	=	=	<	=	<	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
St. Petersburg Boro	<	=	=	<	<	=	>	<	<	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Strattanville Boro	<	=	=	=	<	=	>	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Toby Twp.	=	=	=	<	=	=	>	=	<	n/a	=	=	=	=	>	=	=	=	=	=	=	=	=	=	=
Washington Twp.	<	=	=	=	=	=	>	=	=	n/a	=	=	=	=	>	=	=	<	=	=	=	=	=	=	=
A-C Valley SD	<	=	=	=	=	=	=	=	<	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Clarion SD	=	=	=	=	<	=	>	<	>	n/a	=	=	=	=	<	=	=	=	=	=	=	=	=	=	=
Clarion-Limestone SD	=	=	=	=	=	=	>	=	>	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Keystone SD	<	=	=	=	<	=	<	<	=	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
North Clarion SD	<	=	=	=	=	=	<	=	>	n/a	=	=	=	=	=	=	=	<	=	=	=	=	=	=	=
Redbank SD	=	=	=	=	<	=	<	<	>	=	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
Union SD	<	=	=	<	=	=	=	<	<	n/a	=	=	=	=	<	=	=	<	=	=	=	=	=	=	=
PennWest Clarion	<	=	=	=	<	=	>	<	>	n/a	=	=	=	=	<	=	=	=	=	<	=	=	=	=	=



**Attachment 3: Tab 1**  
**Flooding Potential Loss Estimates**

<b>Jurisdiction</b>	<b>Residential</b>	<b>Commercial</b>	<b>Total</b>
Ashland Township	0	0	0
Beaver Township	\$371,582	\$6,258	\$377,840
Brady Township	0	0	0
Callensburg Borough	0	0	0
Clarion Borough	\$330,922	0	\$330,922
Clarion Township	\$626,844	\$192,572	\$819,416
East Brady Borough	\$27,279	0	\$27,279
Elk Township	\$54,697	\$39,266	\$93,945
Farmington Township	\$190,604	\$579,496	\$770,100
Foxburg Borough	\$5,823	\$1,898,803	\$1,904,626
Hawthorn Borough	\$102,106	\$22,210	\$124,316
Highland Township	\$993,615	0	\$993,615
Knox Borough	0	0	0
Knox Township	\$32,023	\$1,814	\$33,837
Licking Township	\$28,893	0	\$28,893
Limestone Township	\$1,015,655	\$397,898	\$1,413,553
Madison Township	\$300,774	0	\$300,774
Millcreek Township	\$176,623	0	\$176,623
Monroe Township	\$378,718	\$122,218	\$500,936
New Bethlehem Borough	\$1,979,657	\$25,005,397	\$26,985,054
Paint Township	\$1,017,122	0	\$1,017,122
Perry Township	\$1,086,445	0	\$1,086,445
Piney Township	\$221,847	\$11,172,557	\$11,394,404
Porter Township	\$34,477	\$477,993	\$512,470
Redbank Township	\$801,502	\$952,261	\$1,753,763
Richland Township	\$45,279	0	\$45,279
Rimersburg Borough	0	0	0
Salem Township	0	0	0
Shipperville Borough	0	0	0
Sligo Borough	\$578,670	0	\$578,670
St. Petersburg Borough	0	0	0
Strattanville Borough	0	0	0
Toby Township	\$59,025	\$1,243,537	\$1,302,562
Washington Township	\$69,557	0	\$69,557
<b>TOTALS</b>	<b>\$10,529,739</b>	<b>\$42,112,280</b>	<b>\$52,642,019</b>

Note: This attachment is based on values of the structures in 2017. Does not include structure contents.

**Attachment 3: Tab 2**  
**Landslides Potential Loss Estimates**

<b>Jurisdiction</b>	<b>Residential</b>	<b>Commercial</b>	<b>Total</b>
Ashland Township	0	0	0
Beaver Township	0	0	0
Brady Township	0	0	0
Callensburg Borough	0	0	0
Clarion Borough	\$467,906	0	\$467,906
Clarion Township	0	0	0
East Brady Borough	0	0	0
Elk Township	0	0	0
Farmington Township	0	0	0
Foxburg Borough	\$82,985	\$33,156	\$116,141
Hawthorn Borough	0	0	0
Highland Township	0	0	0
Knox Borough	0	0	0
Knox Township	0	0	0
Licking Township	0	0	0
Limestone Township	0	0	0
Madison Township	0	0	0
Millcreek Township	0	0	0
Monroe Township	0	0	0
New Bethlehem Borough	0	0	0
Paint Township	0	0	0
Perry Township	\$350,219	\$33,729	\$383,948
Piney Township	0	0	0
Porter Township	0	0	0
Redbank Township	0	0	0
Richland Township	0	0	0
Rimersburg Borough	0	0	0
Salem Township	0	0	0
Shippenville Borough	0	0	0
Sligo Borough	0	0	0
St. Petersburg Borough	0	0	0
Strattanville Borough	0	0	0
Toby Township	0	0	0
Washington Township	0	0	0
<b>TOTALS</b>	<b>\$901,110</b>	<b>\$66,885</b>	<b>\$967,995</b>

Note: This attachment is based on values of the structures in 2017. Does not include structure contents.

**Attachment 3: Tab 3**  
**Subsidence Potential Loss Estimates**  
Information below is based on known deep mine maps.

<b>Jurisdiction</b>	<b>Residential</b>	<b>Commercial</b>	<b>Total</b>
Ashland Township	0	8,492,796	8,492,796
Beaver Township	2,374,637	0	2,374,637
Brady Township	0	0	0
Callensburg Borough	0	0	0
Clarion Borough	4,996,851	291,665,528	296,662,379
Clarion Township	4,077,714	2,283,491	6,361,205
East Brady Borough	0	0	0
Elk Township	0	0	0
Farmington Township	0	0	0
Foxburg Borough	0	0	0
Hawthorn Borough	0	0	0
Highland Township	0	0	0
Knox Borough	0	0	0
Knox Township	0	0	0
Licking Township	52,708	10,077	62,785
Limestone Township	0	0	0
Madison Township	10,463,135	5,958,524	16,421,659
Millcreek Township	0	0	0
Monroe Township	237,922	0	237,922
New Bethlehem Borough	0	0	0
Paint Township	0	0	0
Perry Township	0	0	0
Piney Township	564,981	146,106	711,087
Porter Township	140,003	5,658	145,661
Redbank Township	152,888	315,229	468,117
Richland Township	0	0	0
Rimersburg Borough	10,763,633	8,361,310	19,124,943
Salem Township	0	0	0
Shippenville Borough	0	0	0
Sligo Borough	0	0	0
St. Petersburg Borough	1,925,612	167,692	2,093,304
Strattanville Borough	424,113	4,022,261	4,446,374
Toby Township	2,865,996	519,405	3,385,401
Washington Township	29,354,012	321,949,016	351,303,028
<b>TOTALS</b>	<b>68,394,175</b>	<b>643,897,093</b>	<b>712,291,268</b>

Note: This attachment is based on values of the structures in 2017. Does not include structure contents.

## 5. Capability Assessment

### 5.1. Update Process Summary

In this section, Clarion County has identified the resources and capabilities that are currently in place to reduce the risk from their identified hazards. A capability assessment, put simply, means looking at what you are doing, what you are not doing, what you can do, and even what you are doing wrong to reduce your communities' risks from hazards. Capability assessment looks at government programs and policies, regulations and ordinances, existing emergency plans, personnel and equipment, and the like. Capability assessment also looks at the resources available to local communities to reduce disaster risks. Resources can be divided into four categories:

#### Clarion County's Resources

1. Human Resources – police, fire, EMS, emergency management, utility providers, medical assistance personnel, teachers, clergy, human service workers, etc.
2. Physical Resources – equipment, vehicles, public lands, facilities, and buildings, etc.
3. Technological Resources – Early warning systems, weather alert radios, stream-level monitoring, etc. Use of Geographic Information System (GIS) can produce sophisticated map images. When coupled with other information databases, GIS provides a wealth of visual and factual information for disaster planning, response and recovery. The Internet is home to hundreds of web pages and home sites related to all types of disaster, emergency management and hazard mitigation as well as PEMA ([www.pema.state.pa.us](http://www.pema.state.pa.us)) and FEMA ([www.fema.gov](http://www.fema.gov)).
4. Informational Resources – Public awareness and education efforts
  - National Weather Services – Storm Ready programs
  - American Red Cross – Disaster Education
  - Salvation Army
  - VOAD groups
  - Business groups e.g., Chamber of Business & Industry
  - Existing public outreach of EMA's
  - LEPC
  - Faith Based Groups
  - School District Plans
  - Brochures on hazards to be distributed at various locations throughout the County
  - U.S. Department of Agriculture

### 5.2. Capability Assessment Findings

A capability assessment involves an evaluation of the County regarding its governmental structure, political framework, legal jurisdiction, fiscal status, policies and programs, regulations and ordinances, and resource availability. These factors are evaluated with respect to their strengths and weaknesses in preparing for, responding to, and mitigating the effects of the profiled natural hazards. By doing so, the reasonable conclusions as to the relative appropriateness of various hazard mitigation action items that may be identified as part of the hazard mitigation strategy. As such, the capability assessment plays an important role in the hazard mitigation planning process.

Within Pennsylvania, no county-level capability assessment would be complete without considering the constituent municipalities. Local municipalities have their own governing body, enforce their own rules and regulations, purchase their own equipment, maintain their own infrastructure, and manage their own resources. In many ways, the County is only as good as the capabilities of its constituent municipalities. As such, this capability assessment does not consider Clarion County as a lone entity but evaluates it considering the various characteristics and differences of and between its 34 constituent municipalities, seven school districts and PennWest Clarion.

### 5.2.1. Planning and Regulatory Capability

There are numerous existing regulatory and planning mechanisms in place at the Commonwealth, County, regional, and municipal level of government that support hazard mitigation planning efforts. These tools include the Commonwealth of Pennsylvania Standard All-Hazard Mitigation Plan, local floodplain management ordinances, the Clarion County Comprehensive Plan, the Clarion County Stormwater Management Plan, County Emergency Operation Plans, local zoning ordinances, and local subdivision and land development ordinances. These mechanisms were discussed at HMT meetings, municipal meetings and public meetings held on specific documents.

Information from several of these documents has been incorporated into this plan and mitigation actions have been developed to further integrate these planning mechanisms into the hazard mitigation planning process. The subsections below provide details about how these tools are implemented in Clarion County.

Some of the most important planning and regulatory capabilities that can be utilized for hazard mitigation include comprehensive plans, transportation plans, building codes, floodplain ordinances, subdivision and land development ordinances, and zoning ordinances. These tools provide mechanisms for the implementation of adopted mitigation strategies.

#### Citizens Guide to Disaster Preparedness Brochures

The Clarion County Planning Commission has created brochures that deal with disaster preparedness. The brochures cover a variety of topics (winter driving, landslides, terrorism, family disaster supply kit, house and building fires, etc.) that list what to do and how to prepare if impacted by a hazard or disaster. Clarion County plans to make these brochures available on the County website and at municipal buildings, libraries, festivals, township conventions, schools, miscellaneous outreach programs, etc.

#### Emergency Operations Plan (EOP)

An Emergency Operations Plan is an all-hazard plan developed for use by county government departments and agencies to ensure a coordinated and effective response to natural occurring or human caused disasters that may occur in Clarion County. The plan is organized to correspond to the phases of emergency management; they are broken into the Prevention, Preparedness and Mitigation Phases (before the disaster strikes) and the Response, Recovery and Mitigation Phases (after the disaster). Clarion County Emergency Operations Plan was last adopted in January 2022. All municipalities have adopted the County plan however all must have a Notification/Resource Manual and implementing procedures.

#### Special Hazards Plans

Clarion County has developed specific plans for many hazards that could impact the County. These plans work in conjunction with the County Emergency Operations Plan. Plans include Continuity of Government/Operations, Cyber, Dam, Debris Management, Extreme Temperature, Hazardous Materials, Mass Distribution of Medical Countermeasures and SNS Plan, Pandemic Influenza Plan, Radiological Response, Severe Weather, Unconventional Wells and Special Events.

The County also coordinates with other facilities for their emergency plans. These facilities include schools, health care, day care, SARA sites, well sites, dams, special event organizers, churches, Task Force, Pa. Department of Health, businesses, and industries.

#### Zoning Ordinance & Subdivision Ordinance

Clarion County has an Airport Zoning Ordinance and a Subdivision and Land Development Ordinance (SALDO). The Airport Zoning Ordinance is not a traditional zoning ordinance. Instead, it controls the height of structures in the flight path to the runways at the Clarion County Airport. It also restricts the location of landfills in immediate vicinity of the Airport (elimination of bird strikes). The SALDO speaks more to the way in which raw land is physically prepared for development. How these ordinances function and how

well they perform are vital to any overall land use recommendations, which are contained in the Clarion County Comprehensive Plan. Four out of 34 municipalities in Clarion County have their own zoning ordinance.

The SALDO is effective in achieving well planned new residential and commercial developments to insure the provision of adequate community facilities, public utilities, and streets plus an acceptable level of subdivision layout and design. One out of 34 municipalities in Clarion County have their own subdivision ordinance: the remaining fall under the County ordinance.

#### Clarion County Comprehensive Plan, 2021

Clarion County currently has a Comprehensive Plan, which is simply a formal documented policy guide for the physical development of the County. It is an expression of how a county sees itself in the future, and a blueprint of how the County will achieve the future. Clarion County's Comprehensive Plan includes a variety of topics such as land use planning (subdivision and zoning ordinances), housing statistics, sanitary sewer project priorities, community facilities, recreation, libraries, museums schools, health and safety, fire protection, hospitals, physical environment description, energy conservation, transportation, and much more that can be used to help Clarion County prosper and grow.

Comprehensive plans and land use plans define how a community should be developed (and where development should not occur). Use of the land can be designed per the land's hazards, such as reserving flood prone areas for parks, ball fields, golf courses, wildlife reservation areas, or similar uses.

The Clarion County Comprehensive Plan has been adopted to help define these issues. Sixteen of thirty-four municipalities within Clarion County have adopted their own, or joint plans, including: Clarion Borough; Callensburg Borough and Licking Township (jointly); Foxburg Borough, Richland Township and St. Petersburg Borough (jointly); Sligo and Rimersburg Boroughs, Toby, Madison and Piney Townships (jointly); Limestone Township; Monroe Township; New Bethlehem Borough; and Paint Township.

A plan generally has limited authority. It reflects what the community would like to see happen. Its function is that it guides other local measures, such as capital improvement programs, zoning ordinances, and subdivision ordinances.

Among the community objectives listed in the plan are three related to prevention and control of development within area subject to hazards, including floods. These objectives are listed below:

1. Encourage the extension of public utilities where economically possible and employ utility extensions as a means of guiding and controlling future development patterns.
2. Remove and prevent dilapidated housing, buildings and associated environmental characteristics.
3. Coordinate local and county planning efforts and expenditures with the goal being the controlled and orderly growth and development of Clarion County and its municipalities.

The plan recommends that the municipalities that use floodplain zoning (instead of zoning) to prohibit or regulate building within the FEMA 100-year floodplain (or at least within the floodway).

#### PA CleanWays

PA CleanWays' mission is to empower people to eliminate illegal dumping and littering in Pennsylvania. Types of projects include stream bank restoration, habitat improvements, education for watershed group, education for public, education for other audiences, fundraising, grant writing, public and media relations, partnership development, mapping, watershed, or non-point pollution assessment.



### PA Organization for Watersheds and Rivers

POWR is dedicated to the protection, sound management and enhancement of the Commonwealth's rivers and watersheds and to the empowerment of local organizations with the same commitment.

Types of projects include education for watershed group, education for public, education for other audiences, public and media relations, and partnership development.

### PA Rivers Resource Advisory Council

Types of projects include: stream bank restoration, stream channel restoration, habitat improvement, riparian buffer restoration, riparian buffer conservation, stream bank fencing, agricultural BMP's, abandoned mine drainage passive and active treatment, storm drain stenciling, education for watershed group, education for general public, education for other audiences, fundraising, grant writing, public and media relations, partnership development, keep your group going, watershed planning, community visioning, mapping, GIS development, GIS use, watershed or non-point pollution assessment, water monitoring (chemical and physical), water monitoring (biological), data analysis, land use decision making, storm water management, lake management and BMP design and selection.

### Pennsylvania Biodiversity Partnership

The Pennsylvania Biodiversity Partnership (PBP) is a broad-based, public-private partnership created in 2001 to promote the conservation of native species and their habitats. PBP is unique in bringing together as equal partners organizations and individuals with diverse interests and backgrounds. PBP members represent conservation and environmental organizations, educators, government agencies, business and industry, scientists and academic institutions, sportsmen and women, and private landowners.

Representatives from Pennsylvania's agricultural community have been involved in PBP from its beginning. PBP is a voluntary coalition, and anyone interested in Pennsylvania's natural resources may participate.

PBP's mission is to conserve biodiversity statewide by fostering communication and cooperation among everyone concerned with natural resource values throughout the state. Our activities strive to:

- Educate people on the ways biodiversity sustains economic and environmental health and ensures quality of life for all Pennsylvanians.
- Develop a scientifically-based plan for biodiversity conservation.
- Advise state agencies and encourage them to take a leadership role in the conservation of biodiversity.
- Promote voluntary conservation of biodiversity on private lands.
- Advocate both private and public long-term funding for biodiversity conservation initiatives.
- Assess and regularly account for progress on biodiversity conservation in Pennsylvania.

### Rivers, Bays, and Oceans

Types of projects include: stream bank restoration, stream channel restoration, habitat improvement, riparian buffer restoration, riparian buffer conservation, stream bank fencing, agricultural BMP's, abandoned mine drainage passive and active treatment, storm drain stenciling, education for watershed group, education for general public, education for other audiences, fundraising, grant writing, public and media relations, partnership development, keep your group going, watershed planning, community visioning, mapping, GIS development, GIS use, watershed or non-point pollution assessment, water monitoring (chemical and physical), water monitoring (biological), data analysis, land use decision making, storm water management, lake management and BMP design and selection.

### Watershed Assistance Center Western Pennsylvania Conservancy

Types of projects include: stream bank restoration, stream channel restoration, habitat improvement, riparian buffer restoration, riparian buffer conservation, stream bank fencing, agricultural BMP's, abandoned mine drainage passive and active treatment, storm drain stenciling, education for watershed group, education for general public, education for other audiences, fundraising, grant writing, public and

media relations, partnership development, keep your group going, watershed planning, community visioning, mapping, GIS development, GIS use, watershed or non-point pollution assessment, water monitoring (chemical and physical), water monitoring (biological), data analysis, land use decision making, storm water management, lake management and BMP design and selection.

#### Department of Environmental Protection (DEP) Growing Greener Grants

The state's Growing Greener Program includes initiatives to preserve farmland and protect open space; eliminate the maintenance backlog in State Parks; clean up abandoned mines and restore watershed; and provide new and upgraded water and sewer systems. PA DEP is involved in Growing Greener projects that involve watershed restoration, which include bank stabilization and stream restoration projects.

#### Voluntary Organizations Active in Disaster (VOAD)

The mission of the Northwestern Pennsylvania Regional VOAD is to be a consortium of the organizations, which will foster more effective service to those imperiled, or impacted, by disaster through cooperation in the mitigation (encouraging governmental actions for disaster prevention and/or limitation) and response (aid to disaster effected persons). This organization is to coordinate and educate agencies and facilitate communications between them in reaching the common goal. This organization takes no role in providing direct services to anyone. Direct services are provided by the member organizations.

#### School Emergency Plans

We currently have received plans for all seven districts, three private schools and Clarion County Career Center. The Clarion County Sheriff's Office also maintains an updated list of Amish schools within the County.

#### Volunteer Organizations

Clarion County currently has 16 volunteer fire departments that assist during and after a disaster. The County human service agencies and religious organizations in Clarion County will also assist after a disaster.

#### Clarion County Airport Zoning Ordinance

Ours is not a typical zoning ordinance. It is meant to protect the area around the airport, the flight paths, and runways. Basically, it controls the height of buildings and communications towers in the flight paths. It also regulates landfills (bird strikes).

#### Open Space Preservation

Pennsylvania's natural resources are significant factors in our environmental health, economic vitality, and quality of life for Clarion County residents. Greenways, waterways, wetlands, and other types of natural areas function as valuable resources for open space, wildlife habitat, water protection, recreation, and tourism.

Open space preservation is designed to keep the flood plain free from development which could contribute to flooding. Land use and capital improvement plans should identify area to be preserved by acquisition and other means, such as purchasing an easement. Easements allow the owner to develop and use private property, but property taxes are reduced, or a payment is made to the owner if the owner agrees to not build on the flood prone part or the part set aside in the easement.

#### Floodplain Development Regulations

The NFIP sets minimum requirements for subdivision regulations and building codes for communities participating in the NFIP (see Attachment 4). These are usually spelled out in a separate ordinance. In addition to the minimum federal requirements, the Pennsylvania Flood Plain Management Act (Act 166) of 1978 sets some more restrictive standards. Construction of hospitals, nursing homes, jails and mobile home parks in the floodplain are discouraged and require municipal approval.

**Act 166 prohibits development that “may endanger human life” from the floodway. Such development includes the production or storage of hazardous and radioactive materials. Such development can be permitted in the floodplain outside of the floodway provided it is protected to a level 1.5 foot above the BFE. Act 166 also provides financial assistance to communities for preparation, administration and enforcement of local floodplain management provisions and ordinances.**

#### Building Codes and Enforcement

The adoption of various construction, property maintenance and fire prevention codes are critical for quality construction and safety reasons. Therefore, the building code is increasingly recognized as an indispensable tool to promote the public health, safety, and welfare through the establishment of minimum building/construction standards.

The building code is the basic regulation for new construction in a community. It also regulates the expansion, alteration, and repair of existing structures. It includes requirements for the various special facilities and equipment, which may be placed in buildings, such as air conditioning, electrical, plumbing, heating, and other facilities, and elevators. Even though the building code appears to be complex, its adoption, implementation and enforcement enhance solid community development.

When properly adopted, administered, and enforced, the building code can increase the quality of housing and can also promote the improvement and rehabilitation of older sections of a community.

The Uniform Construction Code (UCC) Administration and Enforcement Regulation was approved by the Attorney General and was published in the January 10, 2004 Pennsylvania Bulletin. Publication of the administrative and enforcement regulation means that the municipal election period for enforcement, also known as the opt in/opt out period is set. All Clarion County municipalities opted in for total enforcement (see Attachment 5). Currently all 34 municipalities use a contractor to do inspections.

Preventive measures are designed to keep problems from beginning or getting worse. The use of known hazard areas, like floodplains for example, can be limited through planning, land acquisition, or regulation. These activities are usually administered by building, zoning, planning, and/or code enforcement officials. Some of these activities include Planning and Zoning, Subdivision and Land Development Regulations, Open Space Preservation, Building Codes and Enforcement, Storm Water Management, and Drainage System Maintenance.

The Clarion County Planning Commission continues to review of all Subdivision and Land Development applications. The review includes detailed map and information regarding the project. This information is run by the County engineer for code and safety regulations compliance before approved.

#### Community Rating System

In addition to the National Flood Insurance Program (NFIP) municipalities are eligible to participate in the NFIP's Community Rating System (CRS). Under the CRS, policyholders can receive premium discounts of 5 to 45 percent as their cities and towns adopt more comprehensive flood mitigation measures. Currently there are no municipalities participating in this program.

#### PennWest Clarion Facilities Master Plan Clarion Campus

PennWest Clarion Facilities Master Plan [FMP] of the University's Clarion campus was completed in the Spring of 2014. The FMP establishes a thorough understanding of the University's existing and projected academic, facility, community, and cultural needs, and provides a flexible structure for improvements that align capital capacities with PennWest Clarion's goals and needs. The plan includes information on

structure replacement/renovation, parking assessment, infrastructure assessment (water, sanitary, storm water and utilities), landscaping needs and special needs.

As part of master plan implementation PennWest Clarion officials will follow the current goals/objectives below:

- Review their capital improvement plans to ensure that programmed infrastructure improvements are not in hazardous areas.
- Research possible mitigation projects to reduce flooding, reduce/eliminate sewage leakage and inflow/infiltration problems. Some projects may include reservoirs, retention pools, diversions, channel modification, increase pipe size and storm sewers.
- Protect existing natural resources and open space to improve their flood control function.
- Protect university health, safety and welfare by increasing the awareness of existing and potential hazards and by fostering responsibility in mitigating risks due to those hazards.

Since completion of the PennWest Clarion Facilities Master Plan in the Spring of 2014 the following projects were completed/commenced:

- In 2019 Tippin Gym was renovated as a Department of General Services Project.

Any future revisions to the PennWest Clarion Master Plan will be forwarded to the Clarion County for review to determine if a potential hazard exists or if it could create a conflict with Clarion Counties current hazard mitigation efforts.

With the integration of the three campuses, PennWest is working on updating the FMP which should be completed in 2024.

### **5.2.2. Administrative and Technical Capability**

Administrative capability is described by an adequacy of departmental and personnel resources for the implementation of mitigation-related activities. Technical capability relates to an adequacy of knowledge and technical expertise of local government employees or the ability to contract outside resources for this expertise to effectively execute mitigation activities. Common examples of skill sets and technical personnel needed for hazard mitigation include: planners with knowledge of land development/management practices, engineers or professionals trained in construction practices related to buildings and/or infrastructure (e.g. building inspectors), planners or engineers with an understanding of naturally occurring 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 system, resource development staff or grant writers, fiscal staff to handle complex grant application processes (see Attachment 6).

Based on assessment results, municipalities, schools and PennWest Clarion have low-to-moderate administrative and technical staff needed to conduct hazard mitigation-activities. There seems to be sufficient emergency management staff across the County and most municipalities have engineering capabilities via contractors. All municipalities in Clarion County have an identified emergency management coordinator (EMC), though ten EMCs share duties between two or more municipalities.

### **County Agencies:**

Board of Commissioners - The Board of County Commissioners constitutes the chief governing body of the County. Statutory authority of the Commissioners is primarily of an administrative nature with legislative or policy-making powers. The County Commissioners are vested with selective policy-making authority to provide certain local services and facilities on a county-wide basis. Administrative powers and duties of the County Commissioners encompass registration and elections, assessment of persons and property, human

services, veterans' affairs, appointment of county personnel and fiscal management. The board is responsible for the creation and management of the annual budget that includes the determination of how monies are to be spent and how monies are to be raised. The Commissioners must work with row officers and other officials to ensure that all County operations function smoothly and that the citizens of the County receive needed services.

Emergency Management Agency - Coordinate Countywide emergency response functions; collect/share/analyze/disseminate information; track resources; develop emergency plans and coordinate/provide exercise and training programs.

GIS Department - GIS Department is responsible for developing, implementing, and editing the County's GIS data layers; it is also responsible for all deed transfers for land surfaces, placement of subdivisions on maps for taxing purposes, creating, and maintaining the 9-1-1 address database, and managing data workflow as well as quality control and quality assurance of County's data.

Planning Department - The Clarion County Department of Planning is responsible for land development, commercial development and land subdivision plan review and approval. Assist local communities and emergency services with preparation of grant applications. Oversight of the Community Development Block Grant (CDBG) programs and County recycling program.

Other local organizations that could act as partners include the Clarion County Conservation District, the PennState Cooperative Extension and County Economic Development staffs.

Commonwealth agencies which can provide technical assistance for mitigation activities include, but are not limited to:

- Pennsylvania Department of Community and Economic Development
- Pennsylvania Department of Conservation and Natural Resources
- Pennsylvania Department of Environmental Protection
- Pennsylvania Department of Transportation
- Pennsylvania Department of Health
- Pennsylvania State Police

Federal agencies which can provide technical assistance for mitigation activities include, but are not limited to:

- Army Corp of Engineers
- Department of Housing and Urban Development
- Department of Agriculture
- Economic Development Administration
- Emergency Management Institute
- Environmental Protection Agency
- FEMA
- FAA
- Small Business Administration

### **5.2.3. Financial Capability**

The decision and capacity to implement mitigation-related activities is often strongly dependent on the presence of local financial resources. While some mitigation actions are less costly than others, it is important that money is available locally to implement policies and projects. Financial resources are particularly important if communities are trying to take advantage of Commonwealth or federal mitigation

grant funding opportunities that require local-match contributions. **Based on survey results, most municipalities, school districts and PennWest Clarion perceive fiscal capability to be limited.**

The Pennsylvania Municipalities Financial Recovery Act (Act 47 of 1987) identified fiscally distressed municipalities based on established criteria and authorized the PA DCED to assist in developing financial recovery plans in these areas. Analysis of the Act 47 fiscally distressed municipality list indicated that none of Clarion County's municipalities were identified as being fiscally distressed according to the established rating criteria.

Though the smaller, less populous municipalities do not have sufficient budgets to do costly mitigation projects without financial assistance, this does not preclude these municipalities from participating in hazard mitigation activities. Cooperative arrangements, coordinated efforts, and resource efficiency may serve as effective avenues for overcoming fiscal constraints and accomplishing hazard mitigation objectives at the local level.

Financial status is not the only factor in determining hazard mitigation capability. There are also numerous partnering opportunities and grant programs available to assist in offsetting the expenses of local hazard mitigation efforts. Under the Pennsylvania Department of Environmental Protection (PA DEP) Growing Greener grant program there are other agencies and associations available for municipalities to partner with to accomplish hazard mitigation activities.

Commonwealth programs which may provide financial support for mitigation activities include, but are not limited to:

- CFA/DCED Flood Mitigation Program,
- CFA/DCED H2O PA Flood Control Projects,
- CFA/DCED H2O PA High Hazard Unsafe Dam Projects,
- CFA/DCED H2O PA Water Supply, Sanitary Sewer and Storm Water Projects,
- CFA/DCED PA Small Water and Sewer,
- DCNR Community Conservation Partnerships Program,
- DCNR Pennsylvania Heritage Areas Program
- DCNR Pennsylvania Recreational Trails Program
- DCNR Land & Water Conservation Fund (LWCF)
- DCED Business Financing
- DCED Keystone Communities Program,
- DCED Local Government Capital Project Loan Program,
- DCED Municipal Assistance Program,
- DEP Growing Greener Program,
- Land Use Planning and Technical Assistance Program
- PennDOT Pennsylvania Infrastructure Bank (PIB) Loan,
- Pennsylvania Infrastructure Investment Authority (PENNVEST), and
- Pennsylvania Redevelopment Assistance Capital Program (RACP).

Federal programs which may provide financial support for mitigation activities include, but are not limited to:

- Department of Commerce (DOC)/Economic Development Authority (EDA) Construction Grant Program
- Department of Energy Weatherization Assistance Program
- Department of Homeland Security Grant Program (HSGP)
- Department of Transportation/Federal Highway Administration Emergency Relief Program



- DOC/EDA Planning Grants
- DOC/EDA Revolving Loan Fund
- DOC/EDA Technical Assistance Grants
- FEMA Community Assistance Program – State Support Services Element (CAP-SSSE)
- FEMA Community Disaster Loan Program
- FEMA Community Rating System
- FEMA Emergency Management Performance Grants (EMPG)
- FEMA Environmental Planning and Historic Preservation Program (EHP)
- FEMA Flood Mitigation Assistance Program
- FEMA Hazard Mitigation Grant Program (HMGP)
- FEMA Individuals and Households Program (IHAP)
- FEMA National Dam Safety Program
- FEMA National Flood Insurance Program
- FEMA Pre-Disaster Mitigation Program
- FEMA Public Assistance Program (PA)
- FEMA Regional Catastrophic Preparedness Grant Program
- FEMA Repetitive Flood Claims Program (RFC)
- FEMA Severe Repetitive Loss Grant Program
- Housing and Urban Development (HUD) 5-H Homeownership Program
- HUD Community Development Block Grants (CDBG)
- HUD Community Development Block Grant Disaster Recovery Program (CDBG-DR)
- HUD Disaster Housing Assistance Program
- HUD/Federal Housing Administration (FHA) Title 1 Home Repair Loan Program
- HUD/FHA Section 203(h) Mortgage Insurance for Disaster Victims
- HUD/FHA Section 203(k) Rehabilitation Mortgage Insurance Program
- HUD Partnership for Advancing Technology in Housing
- HUD Section 108 Loan Guarantee Programs
- Internal Revenue Service Casualty Loss-Special Disaster Provisions
- National Oceanic and Atmosphere Administration (NOAA) Storm-Ready Program
- Natural Resources Conservation Service (NRCS) easement programs
- Small Business Administration Disaster Loan Programs
- United States Army Corps of Engineers (USACE) General Investigation (GI)
- USACE Continuing Authorities Program
- USACE Flood Plain Management Services Program (FPMS)
- USACE Inspection of Completed Works Program (ICW)
- USACE National Levee Safety Program
- USACE Planning Assistance to States
- USACE Rehabilitation and Inspection Program (RIP)
- United States Department of Agriculture (USDA)/Farm Service Agency (FSA) Emergency Conservation Program
- USDA Emergency Conservation Program
- USDA/FSA Emergency Farm Loans
- USDA Non-insured Crop Disaster Assistance Program (NAP)
- USDA/NRCS Emergency Watershed Protection Program
- USDA Repair and Rehabilitation Loan
- USDA/Rural Housing Service (RHS) Community Facilities Loans and Grants

- USDA/RHS Rural Rental Loans
- USDA/RHS Section 502 Single-Family Housing Direct and Guaranteed Loans
- USDA/RHS Section 504 Repair Loans and Grants
- USDA/RHS Self-Help Housing Loans
- USDA/Risk Management Agency Federal Multi-Peril Crop Insurance
- SDA/Rural Business Service Business and Industrial Loans
- USDA Watershed Protection and Flood Prevention Program

#### 5.2.4. Education and Outreach

Education and outreach programs and methods are used to implement mitigation activities and communicate hazard-related information. Examples include fire safety programs that fire departments deliver to students at local schools; weather related programs (Skywarn) and the County rain/snow monitoring and reporting program, participation in community programs and activities conducted as part of hazard awareness campaigns, such as Fire, Tornado or Flood Awareness Month. Storm-Ready Certification is an education and outreach program that helps arm communities with the communication and safety skills needed to save lives and property before, during, and after an event. The program is administered by the National Weather Service of the National Oceanic and Atmosphere Administration (NOAA). **Clarion County is certified as a Storm-Ready County.**

The County also has a website that can educate residents about hazard mitigation and risk and communicate information in the event of a disaster.

#### 5.2.5. Plan Integration

Plan integration recognizes that hazard mitigation is most effective when it works in efficient coordination with other plans, regulations, and programs. Plan integration promotes safe, resilient growth, effective emergency management, and an overall reduction of risk by ensuring that the goals and actions established in the HMP are included in comprehensive planning efforts so they can affect future land use and development. Some of the most important areas of planning and regulatory capabilities to integrate hazard mitigation goals and actions into include comprehensive plans, the hazard mitigation plans from all surrounding or encompassing areas, emergency operations plans, building codes, floodplain ordinances, subdivision and land development ordinances, stormwater management plans and ordinances, and zoning ordinances. These tools provide mechanisms for the implementation of adopted mitigation strategies. Section 5.2.1 provides an overview of these types of regulations and tools, and details the work done by Clarion County and its municipalities in these areas.

Clarion County's Comprehensive Plan, which was last updated in 2021, establishes countywide goals and objectives, describes environmental and demographic characteristics, identifies potential capital improvement projects, and inventories existing planning initiatives (as stated in section 5.2.1) and tools in the County.

As discussed, many of the goals and objectives outlined in the Clarion County Comprehensive Plan and other plans/ordinances are related to the hazard mitigation risks and goals established in the HMP. When these plans/ordinances are revised, we will include updated information from this HMP. For example, the goal to "discourage development in high hazard locations such as floodplains, subsidence, or landslide prone areas" could be revised to mention all-natural occurring and human caused hazards listed in this plan. Additionally, the plans/ordinances can identify the places of higher vulnerability that are identified in this plan for all of the high-risk hazards, and include objectives aimed at reducing the risk to these vulnerable areas. For example, and an objective of the plans/ordinances could be to encourage elevation and flood proofing of structures in the SFHA by seeking Flood Mitigation Assistance (FMA) grants and strictly enforcing floodplain management ordinances in effected municipalities. Also, another objective could be to educate property owners about mine subsidence, associated risks, and actions to take in the

event of an emergency. These types of objectives could also be created for medium-risk hazards when appropriate.

When the Hazard Mitigation Plan is updated, all County and municipal plans/ordinances will be reviewed to ensure their goals and objectives are integrated into the update.

### Attachment 4 NFIP – Community Status Book

Municipality	CID	Current Effective Map
Ashland Township	422361#	12/02/11(M)
Beaver Township	422362#	12/02/11(M)
Brady Township	422363#	12/09/14
Callensburg Borough	422364#	12/02/11(M)
Clarion Borough	421500#	12/02/11(M)
Clarion Township	421507#	12/02/11(M)
East Brady Borough	421501#	12/09/14
Elk Township	422365#	12/02/11(M)
Farmington Township	422366#	12/02/11(M)
Foxburg Borough	421502#	12/09/14
Hawthorn Borough	421503#	12/09/14 (M)
Highland Township	421508#	12/02/11(M)
Knox Borough	421504#	(NSFHA)
Knox Township	422367#	12/02/11(M)
Licking Township	422368#	12/02/11(M)
Limestone Township	422369#	12/02/11(M)
Madison Township	422370#	12/09/14
Millcreek Township	422371#	12/02/11(M)
Monroe Township	422372#	12/02/11(M)
New Bethlehem Borough	420296#	12/09/14
Paint Township	422373#	12/02/11(M)
Perry Township	421509#	12/09/14
Piney Township	422374#	12/02/11(M)
Porter Township	421510#	12/09/14
Redbank Township	421511#	12/09/14
Richland Township	422375#	12/09/14
Rimersburg Borough	N/A	
Salem Township	422376#	12/02/11(M)
Shippenville Borough	N/A	
Sligo Borough	421506#	12/02/11
St. Petersburg Borough	N/A	
Strattanville Borough	N/A	
Toby Township	422377#	12/02/11
Washington Township	422378#	12/02/11(M)

**(M)** - No Elevation Determined - All Zone A, C and X

**#** - This community has a map with a 10-digit ID number. Each map with such a number will be published as one or more Z-fold panels (like road maps). Each map having more than one panel also has an index showing which panels apply to the various sections of a community. Since the 10-digit system permits the revision of individual panels rather than the entire map, the index also shows the correct suffix of the most current panel for a location in the community. Each time a panel is revised and published, the map index is also revised and republished with a new effective date to reflect the panel revision. For community maps with 10-digit ID numbers, the Status Book gives data relating to the index only. The index must be consulted for information on individual panels.

**Attachment 5**  
**Municipal Building Code Enforcement**

MUNICIPALITY	OPT-IN/OPT-OUT	DATE	AMENDMENTS
ASHLAND TOWNSHIP	OPT-IN	05/13/2004	NO
BEAVER TOWNSHIP	OPT-IN	07/05/2004	NO
BRADY TOWNSHIP	OPT-IN	06/23/2004	NO
CALLENSBURG BOROUGH	OPT-IN	07/03/2004	NO
CLARION BOROUGH	OPT-IN	07/06/2004	YES
CLARION TOWNSHIP	OPT-IN	07/08/2004	YES
EAST BRADY BOROUGH	OPT-IN	06/27/2004	YES
ELK TOWNSHIP	OPT-IN	07/03/2004	NO
FARMINGTON TOWNSHIP	OPT-IN	11/02/2016	NO
FOXBURG BOROUGH	OPT-IN	06/12/2004	YES
HAWTHORN BOROUGH	OPT-IN	06/19/2006	NO
HIGHLAND TOWNSHIP	OPT-IN	07/06/2004	NO
KNOX BOROUGH	OPT-IN	06/07/2004	NO
KNOX TOWNSHIP	OPT-IN	07/08/2004	NO
LICKING TOWNSHIP	OPT-IN	07/08/2004	NO
LIMESTONE TOWNSHIP	OPT-IN	07/08/2004	NO
MADISON TOWNSHIP	OPT-IN	07/06/2004	NO
MILLCREEK TOWNSHIP	OPT-IN	07/07/2004	YES
MONROE TOWNSHIP	OPT-IN	07/08/2004	NO
NEW BETHLEHEM BOROUGH	OPT-IN	06/24/2004	NO
PAINT TOWNSHIP	OPT-IN	09/18/2006	NO
PERRY TOWNSHIP	OPT-IN	07/08/2004	YES
PINEY TOWNSHIP	OPT-IN	07/08/2004	NO
PORTER TOWNSHIP	OPT-IN	07/08/2004	NO
REDBANK TOWNSHIP	OPT-IN	04/07/2008	NO
RICHLAND TOWNSHIP	OPT-IN	06/13/2004	NO
RIMERSBURG BOROUGH	OPT-IN	03/08/2005	NO
SALEM TOWNSHIP	OPT-IN	07/06/2004	NO
SHIPPENVILLE BOROUGH	OPT-IN	07/05/2004	NO
SLIGO BOROUGH	OPT-IN	07/01/2004	NO
St. PETERSBURG BOROUGH	OPT-IN	07/05/2004	NO
STRATTANVILLE BOROUGH	OPT-IN	06/14/2004	YES
TOBY TOWNSHIP	OPT-IN	07/07/2004	YES
WASHINGTON TOWNSHIP	OPT-IN	07/08/2004	NO

OPT-IN Municipality will enforce building codes.

OPT-OUT Municipality will have Department of Labor and Industry enforces commercial construction and ensures a certified third party enforces residential construction.

### Attachment 6 County and Municipal Capabilities

JURISDICTION	Elected Officials	Planning	GIS	Emergency Management	Law Enforcement	Public Works
Clarion County	X	X	X	X	X	X
Ashland Township	X			X		
Beaver Township	X			X		
Brady Township	X			X		
Callensburg Borough	X			X		
Clarion Borough	X			X	X	X
Clarion Township	X			X		X
East Brady Borough	X			X	X*	X
Elk Township	X			X		
Farmington Township	X			X		X
Foxburg Borough	X			X		
Hawthorn Borough	X			X	X*	
Highland Township	X			X		
Knox Borough	X			X	X	X
Knox Township	X			X		
Licking Township	X			X		
Limestone Township	X			X		
Madison Township	X			X		X
Millcreek Township	X			X		
Monroe Township	X			X		
New Bethlehem Borough	X			X	X*	
Paint Township	X			X		
Perry Township	X			X		
Piney Township	X			X		
Porter Township	X			X		
Redbank Township	X			X		
Richland Township	X			X		
Rimersburg Borough	X			X	X*	
Salem Township	X			X		
Shippensburg Borough	X			X		
Sligo Borough	X			X		
St. Petersburg Borough	X			X		
Strattanville Borough	X			X		
Toby Township	X			X		
Washington Township	X			X		X
Allegheny-Clarion Valley SD	X			X	X	
Clarion Area SD	X			X		
Clarion-Limestone Area SD	X			X	X	
Keystone SD	X			X		
North Clarion County SD	X			X		
Redbank Valley SD	X			X		
Union SD	X			X	X	
PennWest Clarion		X	X	X	X	X

X\* Southern Clarion County Regional Police cover all part time



## 6. Mitigation Strategy

### 6.1. Update Process Summary

The HMT, municipalities, school districts and university reviewed the goals, objectives, and actions identified in the 2018 HMP to determine how relevant they were with the current risk assessment and the progress made in implementing the Mitigation Strategy in the last five years. This process included a full review of the goals and objectives, as well as the actions, and the identification of where the municipalities, school districts, university and County had experienced success in mitigating their risks and hazards. After completing the review of the Mitigation Strategy, the municipalities, school districts, university and Planning Team identified additional mitigation actions to meet the current goals and objectives. It was determined to remain with the current six goals and update objectives.

### 6.2. Mitigation Goals and Objectives

Mitigation is any cost-effective action taken to eliminate or reduce the long-term risk to life and property from natural occurring and human caused hazards.

This portion of the Plan identifies the six goal statements established by Clarion County, the municipalities, school districts and PennWest Clarion for purposes of this Hazard Mitigation Plan. Each Goal is meant to be general and broad in nature and can only be achieved through the long-term implementation of more specific objectives. The goals below were determined to be those that would have the greatest benefit in hazard reduction to the County. Each Goal listed below will be more specifically addressed and realized through the implementation of short-term mitigation objectives and actions established and maintained in this plan.

The term “jurisdictions” in this section include the County, municipalities, school districts and PennWest Clarion.

**Table 6.2-1 Goals and Objectives**

<b>Goal #1</b>	<b>Attempt to reduce the current and future risk of damage from natural occurring and human caused hazards in Clarion County</b>
<b>Objective 1.1</b>	<b>All jurisdictions will attempt to reduce the current and future risk of damage in Clarion County by directing new development away from hazardous areas, by review existing regulations to ensure adequacy in reducing the amount of future development in identified hazardous areas and maintaining compliances with Commonwealth and Federal regulations.</b>
	Action 1.1.1: Municipal officials will identify hazardous areas within their municipality and review regulations pertaining to their jurisdiction to ensure that adequate regulations are in place to reduce future development in hazardous areas in their jurisdiction.
	Action 1.1.2: Maintain repetitive loss information to use for mitigation projects.
	Action 1.1.3: Municipalities will be compliant with NFIP and maintain compliance.
	Action 1.1.4: All jurisdictions will collect data on all future incidents to help determine the impact of hazards on each jurisdiction and for use in updating plans.
<b>Objective 1.2</b>	<b>Review all comprehensive plans to ensure that designated growth areas are not in hazard areas.</b>
	Action 1.2.1: Planning Department and applicable municipal officials to review their comprehensive plans to ensure that designated growth areas are not in hazardous areas.
<b>Objective 1.3</b>	<b>Review and enforcement of the building codes.</b>
	Action 1.3.1: Municipal officials or their third-party inspectors will review the statewide Uniform Construction Code to ensure the enforcement of these codes as a minimum standard.

<b>Objective 1.4</b>	<b>Review all capital improvement plans to ensure that infrastructure improvements are not directed towards hazardous areas.</b>
	Action 1.4.1: Municipal officials will review their capital improvement plans to ensure that programmed infrastructure improvements are not in hazardous areas.
<b>Objective 1.5</b>	<b>Evaluate and update existing floodplain ordinances to meet or exceed the NFIP standards.</b>
	Action 1.5.1: Applicable municipalities will review and update their floodplain ordinances to be sure that they are in full compliance with the NFIP, as required (see Appendix O).
<b>Objective 1.6</b>	<b>Improve the enforcement of existing floodplain regulations.</b>
	Action 1.6.1: Clarion County EMA to arrange with PEMA to hold training sessions (upon request) with the County and the municipalities on the National Flood Insurance Program (NFIP) requirements.
	Action 1.6.2: Municipalities will encourage residents living in or wanting to build in the flood plain to acquire a map from Clarion County Assessment Department.
<b>Objective 1.7</b>	<b>Municipalities to become part of the Community Rating System (CRS).</b>
	Action 1.7.1: County EMA to arrange with PEMA to conduct training on the Community Rating System (CRS) to municipalities.
<b>Objective 1.8</b>	<b>Evaluate existing shelters to determine adequacy for current and future populations.</b>
	Action 1.8.1: County to work with the American Red Cross to ensure that all shelters within Clarion County meet shelter requirements.
	Action 1.8.2: CART team will maintain adequate emergency shelter and evacuation plans for animals (domestic pets and livestock).
<b>Objective 1.9</b>	<b>All jurisdictions, agencies and businesses should ensure safety of their computer systems:</b>
	Action 1.9.1: Maintain security updates, software and antivirus on all computer systems and servers
	Action 1.9.2: Ensure all computers are only used on secured systems
	Action 1.9.3: Develop policy for backing up all data
	Action 1.9.4: Maintain copy of backup data off site
	Action 1.9.5: Keep Network Firewall in place and current configuration
	Action 1.9.6: Keep all network switches and wireless networks secured and current configuration
	Action 1.9.7: <b>Report all incidents to Clarion County EMA.</b>
<b>Objective 1.10</b>	<b>Standardize dam incident emergency classification terminology used for incidents:</b>
	Action 1.10.1: Standardize terminology, currently there are three different sets of terms for dam incidents in Clarion County. Using different terminology makes it difficult for first responders and when notifying the public.
	Action 1.10.2: Federal and Commonwealth agencies should work on trying to standardize dam incident terminology.
<b>Objective 1.11</b>	<b>All jurisdictions to identify orphaned/abandoned oil or gas wells and open mine shafts.</b>
	Action 1.11.1: All jurisdictions to work with DEP and county residents to identify open mine shafts and orphaned/abandoned wells.
	Action 1.11.2: County and DEP to provide press releases requesting residents to report open mine shafts and orphaned/abandoned oil or gas wells to DEP. Also request residents and/or agencies that have old maps showing deep mines or oil/gas wells to provide information to DEP.

<b>GOAL #2</b>	<b>Reduce the potential impact of natural occurring or human caused disasters on public and private property.</b>
<b>Objective 2.1</b>	<b>Municipalities will participate in the National Flood Insurance Program and encourage property owners to purchase flood insurance.</b>
	Action 2.1.1: County Planning and PEMA to conduct outreach efforts to educate municipalities about the NFIP and its requirements.
	Action 2.1.2: County to obtain updated information on the number of NFIP policyholders in Clarion County and its municipalities from PEMA and FEMA.
<b>Objective 2.2</b>	<b>Protect Clarion County's most vulnerable populations, buildings, and critical facilities through the implementation of cost-effective and technically feasible mitigation projects.</b>
	Action 2.2.1: EMA to work with municipalities and the GIS Department to maintain information on the number, location and assessed value of all repetitive loss properties and structures within the 100-year floodplain throughout the County to plan future mitigation activities.
	Action 2.2.2: When funds become available for hazard mitigation projects, the municipalities will hold public meetings with the owners of repetitive loss properties in high-risk areas. These meetings will also be used to identify high-risk properties in the County and to determine potential participation in future acquisition and relocation projects.
	Action 2.2.3: Identify County residents with special needs.
<b>GOAL #3</b>	<b>Improve upon the protection of the citizens of Clarion County from all-natural occurring and human caused hazards.</b>
<b>Objective 3.1</b>	<b>Ensure adequate training and resources for emergency organizations and personnel.</b>
	Action 3.1.1: Clarion Fire departments, EMS agencies and the Human Service agencies to increase the number of trained responders by meeting with groups of potential volunteers to attempt to increase the number of trained responders for all County Fire Departments, Emergency Medical Services, Human Service agencies, etc. All areas of Clarion County will benefit.
	Action 3.1.2: EMA to conduct tabletop exercises with local fire, EMS, law enforcement, emergency managers, county, and local officials, etc. and other response agencies. Type of exercises may include Weather, Hazardous Materials Spill, etc.
	Action 3.1.3: EMA to provide information about local, regional, Commonwealth, and federal training opportunities to fire departments, law enforcement agencies, EMS companies, and other emergency responders. Training opportunities that are available will be emailed and post on Clarion County website for all local emergency responders. Training should include preparedness to respond to natural occurring, human caused and technological hazards.
	Action 3.1.4: Continue to conduct National Weather Service Storm Spotter classes (Basics and Advanced) by partnering with the National Weather Service to provide training to people throughout Clarion County.
	Action 3.1.5: Clarion County fire, EMS, law enforcement, municipalities, schools, health care and public works agencies to increase the number of responders trained in the National Incident Management System and identify individual responders that need to be trained in Incident Management courses including ICS 100, 200, 700, and 800.
	Action 3.1.6: Municipal officials will ensure adequate training for emergency services (EMA, EMS, Fire and Law enforcement). This includes officers and other personnel.
	Action 3.1.7: Regular training to keep users current on Cyber threats and proper computer safety.

	Action 3.1.8: Ensure the DCORT (Disaster/Crisis Outreach and Referral Team) and CISM (Critical Incident Stress Management) teams have adequately trained staff for large scale events. Provide initial and annual training programs.
	Action 3.1.9: Work with Clarion Hospital, Clarion County Schools, Clarion Career Center and PennWest Clarion to establish EMT and Paramedic training programs in the County. Encourage residents to participant in these programs.
<b>Objective 3.2</b>	<b>Improve emergency preparedness in Clarion County.</b>
	Action 3.2.1: Maintain the Clarion County Emergency Operations Plan (EOP) and update bi-annually or when necessary, based on the recommendations of the PEMA and FEMA. Include participation from all jurisdictions in the update process by ensuring that they adopt the EOP.
	Action 3.2.2: All jurisdictions will collect data from all incidents and use this information for mitigation efforts and plan updates.
	Action 3.2.3: All county, municipalities, schools, health care, fire, EMS, law enforcement, human services agencies and public works will become NIMS compliant and maintain compliance.
	Action 3.2.4: Ensure all required organizations complete the annual NIMS compliant report, which is required by FEMA and PEMA.
<b>Objective 3.3</b>	<b>Improve coordination and communication among disaster response organizations, local, and county governments.</b>
	Action 3.3.1: Clarion County will use the County website, Facebook, other social media sites and Knowledge Center as resources and incident management programs to improve coordination/communications.
<b>Objective 3.4</b>	<b>Evaluate cost-effective ways to disseminate appropriate warnings and to augment existing broadcast/communication systems for monitor warning information continuously.</b>
	Action 3.4.1: Research the possibility of installing Emergency Alert Warning Systems and equipment to reach all populated areas throughout the County. Work with all jurisdictions and utilities for the possibility of using their notification systems during emergencies.
	Action 3.4.2: Evaluate the possibility of combining notification systems from all jurisdictions and utilities in to one county system.
<b>Objective 3.5</b>	<b>All jurisdictions, human service agencies, businesses and industries will ensure continuity of operations.</b>
	Action 3.5.1: All the above should develop and maintain a continuity of operations plan.
<b>Objective 3.6</b>	<b>Clarion County Schools should continue to participate or start participating in the following programs:</b>
	Action 3.6.1: The <b>Pennsylvania Youth Survey</b> is done every two years and taken voluntarily by students in grades 6, 8, 10 & 12 in participating school districts. Students take the survey on the condition of it being completely anonymous. The survey identifies issues facing students (some areas include drugs, alcohol, and bullying). This information is then used to identify programs to help the students to deal with these issues.
	Action 3.6.2: The <b>Clarion County Youth Council</b> is a county wide program open to selected students from 8th-12th grade. <b>All seven county school districts are participating in the 17-18 school year.</b> Each school has a small group of students who attend each of the three meetings held during the school year. These students learn valuable problem-solving skills as well as leadership and working together. Students use information provided to them at the meetings, through their administration or the PA Youth Survey to choose topics that are relevant to them and work towards bringing awareness or prevention to problem topics in their schools or

	<p>communities. These topics range from bullying, hunger issues, drug and alcohol topics, safe driving, cancer, and community fundraising. Research has shown the students often listen quicker to their peers than to adults. Ultimately, this program seeks to teach students the valuable of positive leadership and making a positive difference in their school and community. Schools should continue to support student projects.</p>
	<p>Action 3.6.3: The <b>Promoting Alternative Thinking Strategies (PATHS)</b> Curriculum is a program for educators and school staff designed to facilitate the development of self-control, positive self-esteem, emotional awareness, and interpersonal problem-solving skills. PATHS have been used, researched, and found effective with classrooms of students as a prevention program or with a specific target population such as special needs students as an intervention program. The purposes of the PATHS Curriculum are to enhance social and emotional competence and understanding in children, as well as develop a caring, prosocial context that facilitates educational processes in the classroom. The PATHS program has been shown to reduce students exhibiting aggressive behavior and depression/sadness among special-needs students. Reports also have shown increases in the following areas, students exhibiting self-control, pro-social peer relations, students' scores on cognitive skills tests, students' vocabulary for emotions, ability to use effective conflict resolution strategies. <b>Currently 2 school districts are presenting the PATHS program.</b></p>
	<p>Action 3.6.4: <b>Olweus Bullying Prevention Program is a universal intervention for the reduction and prevention of bully/victim problems.</b> The universal program targets students in elementary, middle, and junior high school and school staff has the primary responsibility for the introduction and implementation of the program. Core components of the program are implemented on three levels:</p> <ul style="list-style-type: none"> <li>• <b>School-wide components</b> include the administration of an anonymous questionnaire to assess the nature and prevalence of bullying at each school, a school conference day to discuss bullying at school and plan interventions, formation of a Bullying Prevention Coordinating Committee to coordinate all aspects of school's program, and increased supervision of students at "hot spots" for bullying.</li> <li>• <b>Classroom components</b> include the establishment and enforcement of class rules against bullying and holding regular class meetings with students.</li> <li>• <b>Individual components</b> include interventions with children identified as bullies and victims, and discussions with parents of involved students. Teachers may be assisted in these efforts by counselors and school-based mental health professionals.</li> </ul> <p>The Olweus Bullying Prevention Program has been shown to result in reductions in bullying, victimization, and antisocial behavior such as vandalism, fighting, theft and truancy. It has also been proven to improve the "social climate" of classrooms, as reflected in students' reports of improved order and discipline, more positive social relationships, and a more positive attitude toward schoolwork and school.</p> <p><b>The Olweus Bullying program is being used in 2 county school districts.</b></p>
	<p><b>"Safe2Say Something"</b> (S2SS) Anonymous Reporting System is a lifesaving and life-changing school safety program that teaches students, educators and administrators how (1) to recognize the signs and signals of individuals who may be at risk of hurting themselves or others and (2) to anonymously report this information through the S2SS app, website or 24/7 Crisis Center Hotline.</p>

<b>GOAL #4</b>	<b>Reduce or redirect the impact of natural occurring and human caused disasters (especially floods) away from at risk population areas</b>
<b>Objective 4.1</b>	<b>Research possible mitigation projects to reduce flooding, reduce/eliminate sewage leakage and inflow/infiltration problems. Some projects may include reservoirs, retention pools, diversions, channel modification, increase pipe size and storm sewers.</b>
	Action 4.1.1: Continue to review post-disaster reviews submitted by the municipalities.
	Action 4.1.2: Continue to produce and submit Hazard Mitigation Project Opportunity Forms for high-risk structures/areas (especially post-disaster).
	Action 4.1.3: Municipal officials will attempt to acquire or encourage residents to elevate the homes that are in flood prone areas. Especially those with repetitive losses.
<b>GOAL #5</b>	<b>Protect existing natural resources and open space, including parks and wetlands, within the floodplain and watershed to improve their flood control function.</b>
<b>Objective 5.1</b>	<b>Protect Clarion County's natural resources through the implementation of cost-effective and technically feasible mitigation projects.</b>
	Action 5.1.1: When funds become available for mitigation projects, the municipalities should plan to hold meetings to identify high-risk properties and to determine potential participation in future acquisition and relocation projects.
	Action 5.1.2: County to work with DEP, conservation agencies, etc., to research avenues for restoring degraded natural resources and open space to improve their flood control functions.
<b>GOAL #6</b>	<b>Protect public health, safety and welfare by increasing the public awareness of existing and potential hazards and by fostering both individual and public responsibility in mitigating risks due to those hazards.</b>
<b>Objective 6.1</b>	<b>All jurisdictions, emergency service agencies, and human services agencies) should maintain and distribute public awareness materials about hazard risks, preparedness, and mitigation.</b>
	Action 6.1.1: Maintain public information materials for residents, businesses, and visitors on the County website. Site should contain information on mitigation, preparedness, response recovery and continuity of operations.
	Action 6.1.2: Work with the Clarion Cooperative Extension to maintain Animals in Disaster Displays that will be used at 4-H Clubs, Agricultural Fair, in Veterinarians Offices and other places that animal owners may gather. The display will have information about preparing animals for disasters by making a disaster plan and a disaster supply kit for each animal. The display will encourage animal owners to decide ahead of time where animals will be sheltered.
	Action 6.1.3: Schools to maintain displays for children's programs that teach preparedness and safety.
	Action 6.1.4: Continue to utilize the media for the distribution and publication of hazard information by sending news releases and public service series to local newspapers, radio stations about pre-disaster information (County and municipalities). Orient residents (via print and radio) to the meaning of the County fire siren system for emergencies.
	Action 6.1.5: All jurisdictions to continue to work with non-governmental organizations to promote mitigation education and awareness by creating public speaking series on hazard related topics such as types of natural disasters and risks, how to develop a family disaster plan and disaster supply kit, sheltering in place, how to develop a business continuity plan, simple types of mitigation projects for homeowners and businesses, etc.



	Action 6.1.6: Continue to work with the Clarion County school districts and the PennWest Clarion to promote emergency preparedness and hazard mitigation education and awareness. Provide information on hazardous, emergency alert systems and discuss ways to better integrate mitigation into the curriculum such as science, math and other subjects
	Action 6.1.7: County to develop a social media network to provide pre/post emergency information
	Action 6.1.8: Work with Pa. Department of Health on providing public information programs and materials on Lyme Disease and other health related issues for residents and visitors.
	Action 6.1.9: Human Service agencies to coordinate with Clarion County EMA to provide public information materials on preparedness and safety to clients.
<b>Objective 6.2</b>	<b>Target owners of properties within identified hazard areas for additional outreach regarding mitigation and disaster preparedness.</b>
	Action 6.2.1: If requested, work with representatives from NFIP to hold local course on the National Flood Insurance Program (NFIP) for property owners.
	Action 6.2.2: Municipalities should provide information to property owners or renters within the 100-year floodplain regarding potential flood hazards. The content of the letters should include the following information: the local flood hazard, flood safety, flood insurance information, property protection measures, the natural and beneficial functions of the local floodplain, where to obtain a map of the local flood hazard area, information about NOAA Weather radios used for local weather warnings, floodplain development permit requirements and substantial improvement/damage requirements.
	Action 6.2.3: GIS and Assessment Offices to maintain information for structures within the 100-year floodplain and structures that are not in the floodplain but are prone to flooding. This information will include map number, assessed value and structure type. <b>This information is maintained at the GIS/Assessment Office.</b>
	Action 6.2.4: Provide annual news releases to encourage county residents to investigate the need to purchase subsidence insurance from the Commonwealth.

### 6.3. Identification and Analysis of Mitigation Techniques

The mitigation strategy in the updated HMP should include analysis of a comprehensive range of specific techniques or actions. FEMA, through the March 2013 Local Mitigation Handbook, and PEMA, through the October 2013 Standard Operating Guide (SOG), identify four categories of hazard mitigation techniques.

- **Local plans and regulations:** Government authorities, policies, or codes that influence the way land and buildings are developed and built. Examples include, but are not limited to comprehensive plans, subdivision regulations, building codes and enforcement, and NFIP and CRS.
- **Structure and infrastructure:** Modifying existing structures and infrastructure or constructing new structures to reduce hazard vulnerability. Examples include but are not limited to acquisition and elevation of structures in flood prone areas, utility undergrounding, structural retrofits, floodwalls and retaining walls, detention and retention structures, and culverts.
- **Natural systems protection:** Actions that minimize damage and losses and preserve or restore the functions of natural systems. Examples include but are not limited to sediment and erosion control, stream corridor restoration, forest management, conservation easements, and wetland restoration and preservation.
- **Education and awareness:** Actions to inform and educate citizens, elected officials, and property owners about hazards and potential ways to mitigate the hazards and may also include participation in national programs. Examples include but are not limited to radio or television spots,

websites with maps and information, provide information and training, NFIP outreach, StormReady, and Firewise Communities.

Table 6.3-1 provides a matrix identifying the mitigation techniques used for the hazards identified in the risk assessment.

**Table 6.3-1: Mitigation techniques used for identified hazards**

HAZARD (In order of risk factor ranking) Natural (N) OR Human Caused(H)	MITIGATION TECHNIQUE			
	PLANS AND REGULATIONS	STRUCTURE AND INFRASTRUCTURE	NATURAL SYSTEMS PROTECTION	EDUCATION AND AWARENESS
Flood, Flash Flood (N)	X	X	X	X
Windstorm (N)	X	X	X	X
Winter Storms (N)	X	X	X	X
Drought (N)	X	X		X
Emerging Diseases (N)	X	X		X
Subsidence (N)	X	X		X
Wildland Fire (N)	X	X		X
Extreme Temperatures (N)	X	X		X
Radon (N)	X	X		X
Geomagnetic Storm (N)	X	X	X	X
Earthquakes (N)	X	X		X
Landslide (N)	X	X		X
Transportation Accidents (H)	X	X		X
Hazardous Materials (H)	X	X		X
Water Control (Dams) (H)	X	X		X
Harassment (H)	X			X
Terrorism (H)	X	X		X
Oil & Gas Wells (H)	X	X	X	X
Infectious, Pandemic (H)	X			X
Animal, Insect Infestation (H)	X		X	X
Explosion/Fire (H)	X	X		X
Kidnapping/Hostage (H)	X			X
Cyber Security (H)	X	X		X
Opioid Addiction (H)	X			X
Utility Interruption (H)	X	X		X

#### 6.4. Mitigation Action Plan

The final list of 250 mitigation action projects in **Appendix G** is made up of projects submitted by municipalities, school districts, PennWest Clarion and County at individual meetings. The carried over projects were identified as still viable and not yet complete. Every participating jurisdiction has at least one mitigation action project.

The Hazard Mitigation Planning Team reviewed mitigation projects and made plan revisions to include this information. The Team reviewed and ranked all submitted projects. Community Ranking Scores were determined by using STAPLE + E Criteria.

The municipalities reviewed the project rankings applied by the HMT during their draft plan review and no comments were received on rankings. Some municipalities updated carryover project status.

## **7. Plan Maintenance**

### **7.1. Update Process Summary**

Monitoring, evaluating, and updating this plan, is critical to maintaining its value and success in Clarion 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 HMP maintenance also defines the municipalities' role in updating and evaluating the plan. Finally, the 2023 HMP elaborates upon continued public involvement and how this plan may be integrated into other planning mechanisms in the County.

### **7.2. Maintenance, Monitoring, Evaluation, and Updating the Plan**

#### **Maintenance**

Per the Disaster Mitigation Act of 2000, local plans are required to develop a method and schedule of monitoring, evaluating, and updating the hazard mitigation plan within a five-year cycle. The current plan will be maintained at the County, municipalities, PennWest Clarion, school districts and on the County website.

#### **Monitoring**

Using the implementation schedule developed for the mitigation projects, the Clarion County Hazard Mitigation Team shall meet yearly to track the progress of the mitigation plan to develop status reports which detail efforts to date and any challenges they are experiencing in implementing the mitigation projects. The County Hazard Mitigation Team will be responsible for tracking the progress of the implementing agencies and ensuring that the plan timeline is adhered to.

#### **Evaluation**

On an annual basis, the County Hazard Mitigation Team will coordinate with the municipalities, school districts and PennWest Clarion to develop an end-of year report. The report should detail mitigation activities undertaken over the course of the year as well as any mitigation projects that have been completed. Any mitigation success stories should be highlighted. The evaluation process would also incorporate opportunities for public involvement by inviting the public to attend the end of year mitigation plan meeting and review and provide comments to the current plan. Press releases will be distributed to notify the public of meeting and opportunity for comments. The report should also address the following points:

- Evaluate the goals and objectives to ensure they address current and expected conditions
- Determine if the nature or magnitude of risk has changed
- Evaluate whether the current resources are adequate for implementing the plan
- Document any implementation problems such as technical, political, legal, or coordination issues with other agencies
- Discuss whether the outcomes have occurred as expected
- Document agency and other partner participation

Copies of the annual report were distributed to each of the implementing agencies, municipalities, school districts, citizens, PEMA, and FEMA. The report was also posted on the County website. News releases were distributed to all Clarion County media outlets regarding the annual report. Copies of annual reports for years 2019 - 2022 can be found in Appendix C, Annex 3.

#### **Updating**

This plan will be updated, approved, and adopted before the five-year anniversary of approval date of FEMA. In the event of a significant disaster or any substantial changes in land use planning or regulations that would impact the recommended mitigation projects, more frequent updates will be considered. The Hazard Mitigation Team would be responsible for overseeing the update of the hazard mitigation plan. The update process would be like the one used to develop the original plan and would incorporate

opportunities for public involvement by inviting the public to review and provide comments to the current plan and draft copies of the revised plan.

### **7.3. Continued Public Involvement**

As was done during the development of the 2018 HMP this plan involved the public during the evaluation and update of the plan through public meetings, County website and press releases requesting public comments. The public has access to an electronic copy of the current HMP through their local municipal office, school districts, Clarion County Emergency Management Agency (EMA), the Clarion County Commissioners Office or the County website. The County website will allow the public to provide direct comments via an email link to County Emergency Management Agency. The Clarion County Commissioners Office also has a paper copy of the plan should a citizen not have ready electronic access. Information on upcoming events related to the HMP or solicitation for comments were announced via newspapers, press releases, and on the County website.

For plan updates and annual reviews press releases are sent out requesting public comments relative to the Clarion County Hazard Mitigation Plan. All comments can be emailed to or mailed to the Emergency Management Agency.

The Department of Public Safety has an informational table at festivals and public events held during the year. We will provide information on hazard mitigation and the plan to seek public comments.

## **8. Plan Adoption**

The Plan was submitted to the Pennsylvania State Hazard Mitigation Officer on October 17, 2022. It was forwarded to FEMA for final review and approval-pending-adoption on October 17, 2022, FEMA granted full approval-pending-adoption on May 11, 2023.

This All-Hazard Mitigation Plan has been adopted by the Clarion County Board of Commissioners on March 28, 2023 during a regularly scheduled public meeting. All 34 Clarion County municipalities, seven school districts and PennWest Clarion have also adopted the Clarion County All-Hazard Mitigation Plan as their own. Copies of the local adoption resolutions passed by Clarion County, PennWest Clarion, school districts and its municipal governments can be found in Appendix J. The completed Local Mitigation Plan Review Crosswalk can be found in Appendix B.

## **9. Appendices**

- A. Bibliography**
- B. Local Mitigation Plan Review Tool**
- C. Meeting and Other Participation Documentation**
  - Annexes
    - 1 – Meeting/Correspondence Chart
    - 2 – Participation Chart
    - 3 - Meeting/Correspondence Documentation
- D. Critical Essential Facilities**
- E. Clarion County Addressable Structures within the Floodplain**
- F. Hazard Mitigation Project Status Chart**
- G. Public Service Announcements/News Releases**
- H. Public, School Districts, PennWest Clarion and Municipal Comments**
- I. County and Municipality Plan Adoption**
- J. Plan Distribution**
- K. Public Information Brochures**
- L. Stormwater Management Ordinance Municipal Participation**
- M. Floodplain Ordinances Adopted by Municipalities**

## Appendix A Bibliography

### **Clarion County Hazard Vulnerability Analysis – April 2021**

Data collected for use in developing the HVA was based on historical data that was gathered from a variety of sources (County archives, historical societies, Internet sites, Pennsylvania Emergency Management Agency [PEMA] publications, the National Weather Service, and other Commonwealth/federal agencies).

Information integrated into this plan includes:

History: a record of past events is particularly helpful in evaluating natural occurring and human caused hazards. Both the frequency and severity of past events are useful in predicting the future.

Vulnerability: the susceptibility of a community to destruction, injury, or death. The degree of vulnerability may be related to geographic location as with floodplains, or to the type of facility or structure.

Maximum threat or worst-case disaster should be considered for each hazard. The maximum threat provides an upper boundary for the level of preparedness that may be necessary.

Probability of an occurrence in the future is another important factor to be considered when deciding on priorities, the level of preparedness and planning appropriate for a hazard.

### **Clarion County Comprehensive Plan – November 2021**

The Clarion County Comprehensive Plan is a land use and growth management tool, prepared for and adopted by the County Commissioners, which establishes broad goals and criteria for development within the County limits. Based on the findings in the Plan, the following Key Policies and Actions were established:

- ❖ Land Use Plan
- ❖ Housing Plan
- ❖ Economic Development Plan
- ❖ Community Facilities and Public Utilities Plan
- ❖ Conservation of Natural and Historic Resources Plan
- ❖ Transportation Plan
- ❖ Interrelationships Plan

The Clarion County Commissioners and the Clarion County Planning Commission use these policies and action plans as guidance for public projects. While this list is not all-inclusive, it gives a broad example of uses of the Comprehensive Plan.

- ❖ Broadband/Cellular/Wireless Expansion
- ❖ Public Infrastructure Improvements
- ❖ Economic Development along Interstate 80
- ❖ Parks and Outdoor Recreation
- ❖ Indoor Recreation
- ❖ Marketing and Branding
- ❖ Housing

Through implementation of the Clarion County Subdivision and Land Development Ordinance (SALDO), the Planning Staff notifies developers if their project is potentially in a flood plain. Staff also looks at lot size, access to development lots (both residential and commercial), evaluates access to public infrastructure, etc. While the SALDO is not actually part of the Comprehensive Plan, it is an important land use tool.



**Appendix B**  
**Local Mitigation Plan Review Tool**

<b>Jurisdiction:</b> Clarion County, Pennsylvania	<b>Title of Plan:</b> Hazard Mitigation Plan	<b>Date of Plan:</b> June, 2023
<b>Local Point of Contact:</b> Brett Whitling	<b>Address:</b> 160 Amsler Ave. Shippensburg, PA 16214	
<b>Title:</b> EMA Planner Hazard Mitigation Officer		
<b>Agency:</b> Clarion County Emergency Management Agency		
<b>Phone Number:</b> 814-226-4000 Ext. 1403	<b>E-Mail:</b> bwhitling@dps.clarion.pa.us	

<b>Commonwealth Reviewer:</b>  Ernest Szabo	<b>Title:</b>  State Hazard Mitigation Planner	<b>Date:</b>
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<b>FEMA Reviewer:</b>	<b>Title:</b>	<b>Date:</b>
<b>Date Received in FEMA Region</b> <i>(insert #)</i>		
<b>Plan Not Approved</b>		
<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.

1. REGULATION CHECKLIST	Location in Plan (section and/or	Met	Not Met
<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))	Section 3 Pages 29-31 Appendix C - Annexes 1, 2 & 3		
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))	Sections 3.1 & 3.3 Pages 29 & 30		
A3. Does the Plan document how the public was involved in the planning process during the drafting stage? (Requirement §201.6(b)(1))	Sections 3.1 & 3.4 Pages 29 & 31 Appendix C- Annex 1&3 Appendix H - Annex 1&2		
A4. Does the Plan describe the review and incorporation of existing plans, studies, reports, and technical information? (Requirement §201.6(b)(3))	Sections 5.1, 5.2.1 & 5.2.5 Pages 90, 91 & 101		
A5. Is there discussion of how the community(ies) will continue public participation in the plan maintenance process? (Requirement §201.6(c)(4)(iii))	Sections 7.2 & 7.3 Pages 115-116		
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))	Section 7 Pages 115 & 116		
<b>ELEMENT A: REQUIRED REVISIONS</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))	Section 4.1 Page 34 Attachment 2 Pages 84 & 85		
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))	Section 4.3 Pages 35-81 Attachment 2 Pages 84 & 85		
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))	Section 4.3 Pages 35-81 Attachment 2 Pages 84 & 85		
B4. Does the Plan address NFIP insured structures within the jurisdiction that have been repetitively damaged by floods? (Requirement §201.6(c)(2)(ii))	Section 4.3.7.5 Page 49		
<b>ELEMENT B: REQUIRED REVISIONS</b>			

<b>ELEMENT C. MITIGATION STRATEGY</b>			
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))	Section 5 Pages 90 – 101 Attachment 6, page 105		
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))	Section 5.2.1 Page 91 Attachment 4 Page 103 Section 6.2 Goal 1, Objectives 1.1, 1.5&1.6 Pages 106-107 Goal 2 Objective 2.1 Page 108 and Appendix O		
C3. Does the Plan include goals to reduce/avoid long-term vulnerabilities to the identified hazards? (Requirement §201.6(c)(3)(i))	Sections 6.2 & 6.3 Pages 106 – 114		
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))	Section 6.2 Pages 106 - 113 Appendix G		
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))	Appendix G		
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))	Section 5.2.5 Page 101		
<b><u>ELEMENT C: REQUIRED REVISIONS</u></b>			
<b>ELEMENT D. PLAN REVIEW, EVALUATION, AND IMPLEMENTATION</b> (applicable to plan updates only)			
D1. Was the plan revised to reflect changes in development? (Requirement §201.6(d)(3))	Section 2.4 pages 25 - 27 Section 4.4.4 page 83		
D2. Was the plan revised to reflect progress in local mitigation efforts? (Requirement §201.6(d)(3))	Section 7.2 Page 115		
D3. Was the plan revised to reflect changes in priorities? (Requirement §201.6(d)(3))	Section 4.2.2 Page 35		
<b><u>ELEMENT D: 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))	Appendix J		
E2. For multi-jurisdictional plans, has each jurisdiction requesting approval of the plan documented formal plan adoption? (Requirement §201.6(c)(5))	Appendix J		
<b><u>ELEMENT E: 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: REQUIRED REVISIONS</u></b>			

**Appendix C, Annex 1**  
**Meeting and Other Participation Documentation**  
**Meeting/Correspondence Chart**

<b>DATE</b>	<b>MEETING, INFORMATION or CORRESPONDENCES</b>
1/2/19	Letter to PEMA with 2018 annual report
9/9/19	Letter to municipalities on 2019 annual report
9/13/19	Letter to School Districts on 2019 annual report
10/28/19	Meeting with school superintendents on 2019 Annual Report and Plan
11/13/19	Hazard Mitigation Team annual meeting
1/2/20	Letter to PEMA with 2019 annual report
9/14/20	Letter sent to municipalities and school districts on 2020 annual report
11/4/20	Hazard Mitigation Team annual meeting
1/8/21	Letter to PEMA with 2020 annual report
6/15/21	HMP Team kickoff meeting
8/24/21	Elected officials Kickoff Meeting
8/31/21	Letters to municipalities that missed meeting
9/23/21	Letter to surrounding counties for plan review
7/26/22	HMP Team meeting for Final Draft
9/26/22	Draft Plan Public Meeting
9/27/22	Sent draft plan to neighboring counties for review
12/22/22	Submit draft to FEMA
3/21/23	FEMA/PEMA Approval
3/28/23	Clarion County Adoption

**HAZARD MITIGATION PLAN  
TEAM MEETING 6/15/2021**

[illegible]

**HAZARD MITIGATION PLAN  
ELECTED OFFICIALS MEETING 8/24/2021**

NAME	REPRESENTING
<i>M. Caputo Smith</i>	<i>Limestone Twp</i>
<i>Ed Hensley</i>	<i>Clarion County</i>
<i>Harry B. Dinitto</i>	<i>Limestone Twp</i>
<i>Raj Rennard</i>	<i>E-14 Twp</i>
<i>Alice Fayling</i>	<i>CLARION SD</i>
<i>Sherry Jorgensen</i>	<i>Sligo Borough</i>
<i>Karen B. Bitt</i>	<i>Licking, Perry, Grafton</i>
<i>Jack Shaffer</i>	<i>New Bethlehem Borough</i>
<i>Denay McKusker</i>	<i>Mill Creek Twp</i>
<i>Brian Miller</i>	<i>E 11k Twp</i>
<i>Nancy Kadunce</i>	<i>Highland Twp</i>
<i>Trudy Alexander</i>	<i>Highland Twp</i>
<i>Dave Polony</i>	<i>E 11k Twp.</i>
<i>William D. Hogan</i>	<i>St. Petersburg</i>



HAZARD MITIGATION DRAFT PLAN  
PUBLIC MEETING 9/26/2022

NAME	LOCATION
<i>Janice B...</i>	<i>CCDPS</i>
<i>A. J.</i>	<i>Clarion</i>
<i>Mr. C. M.</i>	<i>Clarion</i>
<i>John H. H.</i>	<i>Shippenville</i>

**Appendix D**  
**Annex 1**  
**Critical/Essential Facilities**

Type of Facility	Number of Facilities	Number with losses in previous disasters	Type of hazard created without facility
Power facilities	1 Hydro-electric Dam	0	Residents, businesses, critical infrastructure is without constant or any power
Water Treatment Plants Community	16	1	Non-potable water to humans
Water Treatment Plants Transient	36	0	Non-potable water to humans
Wastewater Treatment Plants Community	13	0	Environmental hazard to humans, animals, fish, plants/trees
Wastewater Treatment Plants Transient	4	0	Environmental hazard to humans, animals, fish, plants/trees
Communication Centers	1 County 1 PennWest Clarion 1 PSP	0 0 0	Emergency services are not available to aid in protection of life and property
Tower Sites	8 County 1 PennWest Clarion 1 PSP	0 0 0	Delayed communication to emergency services can exacerbate situations or incidents
Education	39 School Buildings 64 PennWest Clarion Buildings	2 0	Students are unable to learn Cannot use facility as a temporary shelter
<b>Health Care Facilities</b>			
Clarion Hospital		0	Injured or medically reliant patients will lack medical care
Clarion Psychiatric Center		0	Mentally ill will be without regulated medical attention
Clarion HCRC Nursing		0	Seniors within assisted living care facilities will be without medical attention
Clarion Senior Living		0	
Clarview Nursing and Rehab. Center		0	
Shippensburg HCRC Nursing		0	
Country Springs Personnel Care		0	
Edgewood Heights Personnel Care		0	
Water Run Landing Personnel Care		0	
Primary Health Network Urgent Care		0	

UPMC Urgent Care		0	Those seeking short term medical attention will need to resort to hospital
Clarion Forest VNA Adult Day Living		0	Stay-at-home seniors will be without attention or have needs met
LIFE-NWPA Adult Day Health Center		0	
Senior Apartment Buildings	9	1	
Fire/Police/Emergency Services	6 EMS Stations 2 Medical Helicopters 16 Fire Stations 6 Law Enforcements Stations	1 0 0 0	Emergency services are not available to aid in protection of life and property
Senior Citizen Centers	4	0	Stay-at-home seniors will be without attention or have needs met
<b>Mass Care Centers</b>			
PennWest Clarion	4	0	Lack of mass care centers leaves congestion to others. This could also result in longer transit times to and from facilities
A-C Valley High School	1	0	
Redbank Valley High School	1	0	
Keystone High School	1	0	
Union High School	1	0	
East Brady EMS	1	0	
<b>Comfort Care Centers*</b>			
Main Street Center	1	0	Lack of comfort care centers leaves congestion to others. This could also result in longer transit times to and from facilities. Without sufficient comfort centers, people are at risk to extreme temperatures
Trinity Point Church of God	1	0	
Zion Baptist Church	1	0	
East Brady Community Building	1	0	
St. Petersburg Borough Building	1	0	
Farmington Fire Company	1	0	
Knox Fire Company	1	0	
Limestone Fire	1	0	
New Bethlehem Fire	1	0	
Strattanville Fire	1	0	

\*Comfort Care Centers are cooling and warming facilities

**Appendix D**  
**Annex 2**  
**Critical Infrastructures by Jurisdiction**

<b>Jurisdiction</b>	<b>Water</b>	<b>Waste Water</b>	<b>Electric</b>	<b>Gas</b>	<b>Manufacturing</b>	<b>Schools</b>	<b>Commercial (Stores)</b>
Ashland Township			X	X			X
Beaver Township			X	X	X	X	X
Brady Township			X	X			
Callensburg Borough			X	X			X
Clarion Borough	X	X	X	X		X	X
Clarion Township		X	X	X	X	X	X
East Brady Borough	X	X	X	X			X
Elk Township			X	X			
Farmington Township	X		X	X		X	X
Foxburg Borough	X	X	X	X			
Hawthorn Borough	X	X	X	X			X
Highland Township			X	X			
Knox Borough	X	X	X	X	X	X	X
Knox Township			X	X			
Licking Township			X	X			
Limestone Township			X	X			X
Madison Township			X	X			X
Millcreek Township			X	X			
Monroe Township			X	X			X
New Bethlehem Boro	X	X	X	X	X	X	
Paint Township			X	X	X	X	X
Perry Township	X		X	X			
Piney Township			X	X	X		
Porter Township			X	X			
Redbank Township			X	X			
Richland Township			X	X	X	X	
Rimersburg Borough			X	X			X
Salem Township			X	X			
Shippenville Borough			X	X			X
Sligo Borough		X	X	X		X	
St. Petersburg Borough	X		X	X			X
Strattanville Borough		X	X	X	X		
Toby Township			X	X			
Washington Township			X	X			

**Appendix E**  
**Clarion County Addressable Structures within the Floodplain**

<b>Jurisdiction</b>	<b>Residential</b>	<b>Commercial</b>	<b>Total</b>	<b>*Active Flood Insurance</b>
Ashland Township	0	0	0	3
Beaver Township	8	1	9	1
Brady Township	0	0	0	0
Callensburg Borough	0	0	0	0
Clarion Borough	10	0	10	0
Clarion Township	22	1	23	3
East Brady Borough	6	0	6	2
Elk Township	2	1	3	0
Farmington Township	9	1	10	1
Foxburg Borough	1	1	2	3
Hawthorn Borough	3	1	4	1
Highland Township	27	0	27	2
Knox Borough	0	0	0	0
Knox Township	2	1	3	0
Licking Township	2	0	2	1
Limestone Township	34	3	37	10
Madison Township	16	0	16	2
Millcreek Township	5	0	5	3
Monroe Township	9	1	10	4
New Bethlehem Borough	22	45	67	39
Paint Township	24	0	24	0
Perry Township	16	0	16	6
Piney Township	6	1	7	1
Porter Township	2	2	4	0
Redbank Township	29	9	38	17
Richland Township	1	0	1	0
Rimersburg Borough	0	0	0	0
Salem Township	0	0	0	1
Shippenville Borough	0	0	0	0
Sligo Borough	20	0	20	2
St. Petersburg Borough	0	0	0	0
Strattanville Borough	0	0	0	0
Toby Township	4	1	5	0
Washington Township	5	0	5	1
<b>TOTALS</b>	<b>285</b>	<b>69</b>	<b>354</b>	<b>103</b>

\*Per FEMA as of 10/2017

### Appendix F Hazard Mitigation Project Status Chart

The HMT reviewed and ranked all submitted projects.  
Community Ranking was determined by using STAPLE + E Criteria.

## CLARION COUNTY & EMA

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-00-18-01	County EMA & Municipal Elected Officials	Education and Awareness Programs	Identifying residents with special needs as defined by FEMA in case of emergency.	This would include developing the form, processes used to collect information, maintaining information, and implementing information during times of emergencies.	\$10,000	High	Working on funding
		<b>Hazard Type</b>	Develop a program to identify residents within the County that have special needs.				
		All hazards					
16-00-18-02	County EMA & Municipal Elected Officials	Education and Awareness Programs	Current county warning system is only setup for county wide tornado warnings.	Change the current tornado warning system to an all-hazard system with individual fire company activation.	\$12,000	Med	50 % Complete
		<b>Hazard Type</b>					
		All hazards					
16-00-18-03	County Commissioners & Conservation District	Natural Systems Protection	Overhaul the treatment system for acid mine drainage at the County Park.	Major overhaul of current system to include installation of new anoxic limestone drain and appropriately sized settling ponds and wetland to remove high levels of iron from water.	\$191,471	Med	50 % Complete
		<b>Hazard Type</b>					
		Oil & Gas Wells					



16-00-20-01	County Commissioners & County EMA	Structure and Infrastructure Projects	Establish a new facility for Clarion County 9-1-1 Dispatch Center and EMA.	Build/renovate facility to meet PSAP standards. Facility to include ample room to house EMA supplies and resources.	\$3 Million	High	Completed in 2022
		<b>Hazard Type</b>					
		All hazards					
16-00-21-01	All Elected Officials, EMS Agencies	Local Planning & Regulations	Ambulance agencies are not being paid for their services. Agencies are also struggling to maintain enough personnel for all shifts to be covered.	Create an authority for ambulance agencies where personnel may be shared to for services to be available. Also create or delegate a role for billing and finances		High	New
		<b>Hazard Type</b>					
		All hazards					
16-00-21-02	County EMA	Education and Awareness Programs	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Provide municipalities/individuals with educational material on plugging orphaned/abandoned wells.	\$0	Low	New
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-00-21-03	County EMA	Education and Awareness Programs	Identify structures within flood hazard zones and inform property owners.	Provide municipalities/individuals with educational material on relocating structures within a flood hazard zone.	\$0	Low	New
		<b>Hazard Type</b>					
		Flood, Flash flood					
16-00-23-02	County EMA	Local Planning & Regulations	Ensure development will occur out of hazard-prone areas.	Review, evaluate, and discuss designated growth areas in existing County and local plans	\$0	Low	New
		<b>Hazard Type</b>					

		All hazards					
16-00-23-02	County EMA	Local Planning & Regulations	Consider the development of stricter standards for new construction.	Encourage municipalities to review floodplain ordinances and building codes annually.	\$0	Low	New
		<b>Hazard Types</b>					
		All hazards					

## ASHLAND TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-01-18-01	Ashland Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 29 Orphaned/Abandon wells within the Township	\$900,000	Low	0% Complete
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-01-18-02	Ashland Twp. Supervisors	Structure and Infrastructure Projects	Spook Hollow Road washes out every time there is a hard rain.	Replace small culvert pipe with larger pipe and grade and resurface the road.	\$80,000	Low	50% Complete
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-01-18-03	Ashland Twp. Supervisors	Structure and Infrastructure	Bridge structural integrity in jeopardy of collapse.	Remove bridge over old railroad tracks.	\$1 – 2.5 M	Low	Completed in 2021
		<b>Hazard Type</b>					

		Projects Safety of citizens					
16-01-18-04	Ashland Twp. Supervisors	Structure and Infrastructure	Bridge structural integrity in jeopardy of collapse.	Replace bridge on Route 322 over tributary to Canoe Creek	\$1 – 2.5 M	Low	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding Earthquakes					

## BEAVER TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-02-18-01	Beaver Twp. Supervisors	Structure and Infrastructure	Eagle Furnace Road washes out every time there is a hard rain.	Grade and resurface 3,000 feet of the road.	\$85,000	Low	Completed in 2020
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-02-18-02	Beaver Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 28 Orphaned/Abandon wells within the Township	\$900,000	Low	Waiting for funds
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-02-18-03	Beaver Twp. Supervisors	Structure and Infrastructure	Blair's Corners culvert pipe failing causing threat to vehicles	Repair or replace culvert pipe.	\$35,000	Med	Completed in 2020
		<b>Hazard Type</b>					

		Flooding, Flash flooding					
16-02-20-01	Beaver Twp. Supervisors	Structure and Infrastructure	T-407 in need of upkeep	Seal and blacktop T-407 Culbertson Road Box Culvert	\$25,000	Low	Completed in 2021
		<b>Hazard Type</b>					
		All hazards					
16-02-20-02	Beaver Twp. Supervisors	Structure and Infrastructure	T-332 & T-383 intersection.	Repair Beaver Creek stream bank from eroding road away	\$30,000	Med	Completed in 2021
		<b>Hazard Type</b>					
		All hazards					
16-02-21-01	Beaver Twp. Supervisors	Structure and Infrastructure	T-659 Switzer Road starts at SR-208 and ends at Knox Borough line. The road surface has been failing for quite some time. The Knox Park (Peanut Park) is at the Beaver Twp Knox Borough Line.	Blacktop this road to create a safer environment for people at the park.	\$120,000	Med	Waiting for funding
		<b>Hazard Type</b>					
		All hazards					
16-02-22-01	Beaver Twp. Supervisors	Structure and Infrastructure	Culvert on Adleberger Road is too small and floods during large amounts of rain. Road is used by public, Amish and English and public-school buses. On tributary to high quality trout stream.	Replace with larger culvert.	\$200,000	Med	Waiting for funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-02-22-02	Beaver Twp. Supervisors	Structure and Infrastructure	Wentlings Corners Road culvert at the end of Alt Lane is collapsing and	Replace culvert	\$130,000	High	Waiting for funding
		<b>Hazard Type</b>					

		Flooding, Flash flooding	actively failing. On tributary to high quality trout stream.				
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## BRADY TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-03-18-01	Brady Twp. Supervisors	Education and Awareness	Identifying residents within the Township that have special needs in case of emergency.	Complete a survey of all Township residents to identify those with special needs in case of emergency.	\$100	Med	Ongoing
		<b>Hazard Type</b>					
		All hazards					

## CALLENSBURG BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-04-18-02	Callensburg Boro. Council	Education and Awareness Programs	Identifying residents within the Borough that have special needs in case of emergency.	Complete a survey of all Borough residents to identify those with special needs in case of emergency.	\$500	High	Completed in 2020
		<b>Hazard Type</b>					
		All hazards					
16-04-22-01	Callensburg Boro. Council	Structure and Infrastructure Projects	3 properties with blight structures	Borough to obtain parcels and demolish structures	\$50,000	Med	New project
		<b>Hazard Type</b>					

		All hazards					
16-04-22-02	Callensburg Boro. Council	Structure and Infrastructure Projects	Apple Alley stormwater drainage insufficient. Culvert at end of the road too small.	Repair road and install proper stormwater drainage system. Replace culvert at the end of the road.	\$6,000	Med	New project
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## CLARION BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-05-18-01	Clarion Borough Council	Education and Awareness Programs	Unable to provide emergency warnings to public (approximately 150,000) during special events.	Project would entail installing amplifiers, system controls, outdoor speakers, and several thousand feet of wire, all necessary connections and weather proofing fittings plus significant installation and labor costs. Project completion would require permits, as well as cooperation of local utilities and municipal authorities to use existing streetlights and utility poles for mounting speakers.	\$55,000	Med	Lack of funding
		<b>Hazard Type</b>					
		All hazards					



16-05-18-02	Clarion Borough Council	Structure and Infrastructure Projects	Deteriorated inlets/piping along Greenville Avenue, causing backups during severe rain events.	This project would replace deteriorated 18-24-inch corrugated metal storm sewer piping (CMP) along both sides of Greenville Avenue from Payne Street to Corbett Street, approximately 1,000 feet. The replacement piping would be 18-24-inch HDPE storm sewer piping (smooth bore). Approximately nine concrete inlets and tops would also be replaced. Project restoration would require road base re-installation and top-coat asphalt paving, replacement concrete curbing, and re-installation of affected sidewalks.	\$1,000,000	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-05-18-03	Clarion Borough Council	Structure and Infrastructure Projects	Collapsed metal piping and deteriorated inlets are a recurring event in Clarion Borough due to the age of the infrastructure. These malfunctions cause localized flooding and road damage.	Typically, the repairs involve 150 feet or less of replacement piping and an inlet or two. Concrete curbing, sidewalks and pavement restoration are often needed for these projects.	\$75,000 Annually	High	Ongoing / 2 <sup>nd</sup> Ave. completed in 2020
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

16-05-18-04	Clarion Borough Council	Structure and Infrastructure Projects	Storm flooding around the Borough. Storm Sewer System Study and Evaluation Project, completion of this project would give the Borough a solid, accurate, base of information from which to plan and prioritize future storm sewer system projects.	The important data to be gathered includes exact location, size (bore), and depth of all storm sewer piping, the material from which it is made (metal, plastic, concrete, etc.), and its current physical condition. The location, material, and condition of all inlets would also be determined. Real-time functioning data of the system would be gathered to help answer capacity and possible improvement questions.	\$750,000	High	30% Completed
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-05-18-05	Clarion Borough Council	Structure and Infrastructure Projects	Storm water overflow from the inlet structure on North 5 <sup>th</sup> Avenue above the Clarion River bridge has heavily damaged the gabion basket erosion control system installed on the bank above Fireman's Road and Firemans Road itself.	This project would stabilize/repair the eroded bank and replace the damaged gabion baskets or install an entirely new system of erosion control plus repair the damaged portions of Fireman's Road.	\$300,000	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-05-18-06	Clarion Borough Council	Structure and Infrastructure Projects	Excessive water runoff and related erosion in the wooded, steep slope area between North 5 <sup>th</sup> Avenue/Fireman's	This project would determine the source of excessive runoff and/or uncontrolled runoff and construct a conveyance	\$2.5 Million	High	Lack of funding

		<b>Hazard Type</b>	Road/Clarion River and US 322/First Avenue is overloading the inlet structure on North 5 <sup>th</sup> Avenue (see 16-05-06).	system which would effectively convey this water to the Clarion River in a controlled manner.			
		Flooding, Flash flooding					
16-05-18-07	Clarion Borough Council	Structure and Infrastructure Project	Trout Run is a major receiver of Clarion Borough's storm water drainage. The stream needs physical improvements to continue safely conveying this water.	This project would provide bank and channel stabilization, removal of in-stream and other obstructions, and channel re-alignment as needed.	\$1.5 Million	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-05-20-10	Clarion Borough Council	Structure and Infrastructure Projects	This project will construct South Sixth Avenue from its intersection with South Street to its intersection with Boundary Street, a distance of approximately 1,640 feet.	The reconstruction work items will include road and shoulder improvements, repaving, storm water infrastructure improvements, installation of curbing and project site restoration. Phase I	\$310,000	High	Scheduled for 2022
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## CLARION TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-06-17-01	Clarion Twp. Supervisors	Natural Systems Protection		Work with DEP to plug 2 Orphaned/Abandon wells within the Township	\$30,000	Low	Ongoing
		<b>Hazard Type</b>					

		Oil & Gas Wells					
16-06-17-02	Clarion Twp. Supervisors	Structure and Infrastructure Projects	Bridge on Route 66 over Brush Run in poor condition	Replace Bridge on Route 66 over Brush Run	\$1.4 M	Med	Completed in 2019
		<b>Hazard Type</b>					
		Earthquake, Flooding, Flash flooding					
16-06-17-03	Clarion Twp. Supervisors	Structure and Infrastructure Projects	4 <sup>th</sup> Ave. flooding of roadways (and properties) exists during rainfall which washes a great deal of debris onto the streets.	Install pipes and catch basins.	\$184,400	Low	35% completed. Cont. in '21
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-06-17-04	Clarion Twp. Supervisors	Structure and Infrastructure Projects	Boundary Street flooding this is a joint project with Clarion Borough to address the water running toward the Comet Food Warehouse.	Obtain right of way, install pipes and catch basins.	\$127,571	Med	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-06-18-05	Clarion Twp. Supervisors	Structure and Infrastructure Projects	Flooding exists along Trout Run allowing water to enter the Dollar General and Comet Food.	Install pipes and grade pavement.	\$50,190	Med	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

16-06-18-06	Clarion Twp. and Millcreek Twp. Supervisors	Structure and Infrastructure Projects	Asbury Bridge this is a joint project with Millcreek Township to replace the temporary, "jump bridge" with a permanent structure		\$225,000	Med	Completed in 2018
		<b>Hazard Type</b>					
		Earthquake, Flooding, Flash flooding					
16-06-18-07	Clarion Twp. and Millcreek Twp. Supervisors	Structure and Infrastructure Projects	Replace Fleming Springs Road bridge this is a joint project with Millcreek Twp.	Poor Water Conditions have caused the need for at least a temporary bridge to be installed at this location.	\$200,000	Low	Completed in 2018
		<b>Hazard Type</b>					
		Earthquake, Flooding, Flash flooding					
16-06-18-08	Clarion Twp. Supervisors	Structure and Infrastructure Projects	Deer Run Road replacement of a culvert pipe/ possible hydraulic study needed		\$52,000	Low	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-06-18-09	Clarion Twp. Supervisors	Structure & Infrastructure Projects	Staab Road due to poor water conditions, the wing walls have collapsed causing the road to sink.	Insert pipe.	\$100,000	Low	Projected for 2023
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Subsidence					
16-06-21-10	Clarion Twp. Supervisors	Structure & Infrastructure Projects	State welfare building at 1317 Eastwood Drive is	Obtain property and demolish structure. Turn into	\$70,000	Med	Ongoing

		<b>Hazard Type</b>	dilapidated and considered blight.	green space or resell property.			
		All hazards					
16-06-21-11	Clarion Twp. Supervisors	Structure & Infrastructure Projects	Vacant blight residential space at 239 South 3rd Ave infested and causing infestation to neighboring properties.	Obtain property and demolish structure.	\$70,000	Med	Ongoing
		<b>Hazard Type</b>					
		All hazards					
16-06-21-12	Clarion Twp. Supervisors	Natural Systems Protection	40' high wall from strip mining along Maple Road creating red creek and flooding onto township road.	Back fill to high wall to prevent collapsing prevent stormwater flooding.	\$200,000	Low	Ongoing
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Subsidence					

## EAST BRADY BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-07-18-01	East Brady Boro. Council	Structure and Infrastructure Projects	Part A: Brady St. & Route 68 end wall of 48" culvert, located under a house on Kellys Way, is failing. Failure would lead to loss of the house and closure of Route 68. Route 68 closure	The proposed project will remove and replace the end wall and portions of the culvert.	\$1,486,200	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Subsidence					

			will affect travel between Armstrong and Clarion Counties, also causing issues with emergency response.				
16-07-18-02	East Brady Boro. Council	Structure and Infrastructure Projects	1 <sup>st</sup> , 2 <sup>nd</sup> and 3 <sup>rd</sup> Avenues have no drainage to river. Flooding and icing of this area including electrical transfer station and Borough recreation areas.	The proposed project will install 11 inlets to capture runoff, improved road curb and ditches, up to 1,000 feet of pipe to control and direct the flow of stormwater and improvements to an existing stormwater detention pond.	\$284,500	Med	Completed in 2020
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-07-18-03	East Brady Boro. Council	Structure and Infrastructure Projects	3 <sup>rd</sup> through 6 <sup>th</sup> Streets has no infrastructure or unconstructed path to river. Results in flooding of Purdum St. and surrounding homes.	The proposed project will install inlets and pipe and improve curbing to capture, control and convey stormwater to the river for disposal	\$370,000	Med	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-07-18-04	East Brady Boro. Council	Structure and Infrastructure Projects	1 <sup>st</sup> through 3 <sup>rd</sup> Streets has no infrastructure or unconstructed path to river. Results in flooding of various streets and surrounding homes.	The proposed project will install inlets and pipes and improve curbing to capture, control and convey stormwater to the river.	\$610,000	Med	Partially Completed
		<b>Hazard Types</b>					
		Flooding, Flash flooding					



16-07-18-05	East Brady Boro. Council	Structure and Infrastructure Projects	Streets surrounding Clarion Street have no infrastructure or unconstructed path to river. Results in flooding of various streets and surrounding homes.	The proposed project will install inlets and pipe and improve curbing to capture, control and convey stormwater to the river.	\$333,000	Med	Ongoing
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-07-18-06	East Brady Boro. Council	Structure and Infrastructure Projects	Ferry St. and Maple Terrace the stormwater from this area is not adequately controlled or captured. This results in washout of road shoulders and localized flooding and icing of roads.	The proposed project will replace and install inlets and pipe, and improve curbing and swales to capture, control and convey stormwater to a nearby creek.	\$93,600	Med	Completed in 2018
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-07-18-07	East Brady Boro. Council	Structure and Infrastructure Projects	Wallace St. from 1 <sup>st</sup> to 2 <sup>nd</sup> Avenues the stormwater from this area is not adequately controlled or captured. This results in washout of road shoulders and localized flooding and icing of roads.	The proposed project will install inlets and pipe, and improve curbing and swales to capture, control and convey stormwater to the Borough stormwater collection system.	\$61,200	Med	50% Complete (2018)
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-07-18-08	East Brady Boro. Council	Structure and Infrastructure Projects	Part B: An unnamed tributary to the Allegheny River is channeled into a piped collection system at the south end of Brady Street. During heavy rains and snowmelt events the	The proposed project will install a larger culvert at the piped system entrance and a trash rake to prevent rocks and other debris from entering the pipe. The unimproved road ditch line	\$200,000	High	Lack of funding
		<b>Hazard Types</b>					

		Flooding, Flash flooding	stream overflows the pipe entrance and causes localized flooding and significant damage to the road and shoulders.	will be reconstructed, and damaged pavement replaced.			
16-07-18-09	East Brady Boro. Council	Structure and Infrastructure Projects	The Borough system is served by a single water storage tank located on the east side of town. Water mains on the west side of town are small diameter and do not have the flow or head capacity to provide fire protection to portions of the west side of town.	The proposed project will install an interconnect between the east and west sides of the water distribution system improving the overall system hydraulics, water system quality, and fire protection capabilities to residents and businesses on the west side of the town.	\$260,000	High	Lack of funding
		<b>Hazard Types</b>					
		Wildfires, Fires					
16-07-18-10	East Brady Boro. Council	Structure and Infrastructure Projects	Bridge Street from East 2 <sup>nd</sup> Street to McClaine St. the stormwater from this area is not adequately controlled or captured. This results in washout of road shoulders and localized flooding and icing of roads.	The proposed project will replace and install inlets and pipe, and improve curbing and swales to capture, control and convey stormwater to the Borough stormwater collection system.	\$37,500	Med	50% Complete (2018)
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-07-18-11	East Brady Boro. Council	Structure and Infrastructure Projects	4 <sup>th</sup> and Purdum Street stormwater from this area is not adequately controlled or captured. This results in localized flooding of streets. Winter conditions result in	The proposed project will install inlets and improve curbing to capture, control and convey stormwater to the Borough stormwater collection system.	\$22,900	Med	Partially Completed (75%)
		<b>Hazard Types</b>					

		Flooding, Flash flooding	ice buildup on the roadways causing unsafe conditions for pedestrians and vehicles.				
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## ELK TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-08-18-01	Elk Twp. Supervisors	Structure and Infrastructure Projects	Municipal building/EOC has no backup power	Install Natural Gas Generator at EOC	\$10,000	Med	Completed in 2022
		<b>Hazard Types</b>					
		All hazards					
16-08-18-02	Elk Twp. Supervisors	Local Planning & Regulations	Brownie Trailer Court is susceptible to flash floods. One death has already occurred due to a flood in 1996. State moved road due to flooding.	Land acquisition of entire Brownie Trailer Court property and relocation of trailers to another court not in flood plain.	\$1,000,000	High	Abandoned project
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-08-18-03	Elk Twp. Supervisors	Local Planning & Regulations	Shippen Inn and Tarp Shop both in flood hazard zones.	Acquisition of both structures (Tarp Shop & Shippen Inn). Both are business; however, Shippen Inn is also a residential structure.	\$600,000	Med	Owners will not allow (2018)
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-08-22-01	Elk Twp. Supervisors	Structure and Infrastructure Projects	Brownie Trailer Court Road fills with stormwater at end of road creating large ice patch. Residents live along	Fill with hot mix and possibly blacktop road with crown to create water runoff	\$4,000	Med	Waiting on funds
		<b>Hazard Types</b>					

		Flooding, Flash flooding	road down to end of road at barricades.				
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## FARMINGTON TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-09-18-01	Farmington Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 16 Orphaned/Abandon wells within the Township	\$320,000	Low	3 wells completed. No funding for other wells yet
		<b>Hazard Types</b>					
		Oil & Gas Wells					
16-09-22-01	Farmington Twp. Supervisors	Structure and Infrastructure Projects	Three blighted properties with one owner on Route 36.	Obtain properties from owner and demolish structures.	\$150,000	Med	Owner not willing to sell
		<b>Hazard Types</b>					
		Hazardous Materials					

## FOXBURG BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-10-17-01	Foxburg Boro. Council	Structure and Infrastructure Projects	North Palmer Ave. - House is condemned.	Demolish house to prevent injuries and protect the community.	\$17,000	Low	Completed in 2021
		<b>Hazard Types</b>					

		Hazardous Materials					
16-10-17-02	Foxburg Boro. Council	Structure and Infrastructure Projects	North Palmer Ave. - House is condemned.	Demolish house to prevent injuries and protect the community.	\$10,000	Low	Completed in 2020
		<b>Hazard Types</b>					
		Hazardous Materials					
16-10-17-03	Foxburg Boro. Council	Structure and Infrastructure Projects	North Palmer Ave. roadway collapsing dead end road. Currently no access for emergency vehicles.	Clear area, shore up with gabion basket and rebuild roadway.	\$146,000	Med	Waiting for Environmental Review and additional funding
		<b>Hazard Types</b>					
		Subsidence					
16-10-17-04	Foxburg Boro. Council	Structure and Infrastructure Projects	Summit Ave. dead end roadway failing with poor access for emergency vehicles.	Repair and extend drainage pipes. Widen and rebuild road.	\$62,000	Med	,Single sealcoat applied
		<b>Hazard Types</b>					
		Subsidence					
16-10-17-05	Foxburg Boro. Council	Structure and Infrastructure Projects	S. Palmer and Main Street flooding in rainstorm causing sink hole.	Fix drains and sink hole.	\$17,000	Med	Waiting for environmental review
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-10-17-06	Foxburg Boro. Council	Structure and Infrastructure Projects	No backup to water plant.	Establish interconnectivity line with St. Petersburg Water	\$250,000	High	Negotiations are needed
		<b>Hazard Types</b>					

All hazards

## HAWTHORN BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-11-17-01	Hawthorn Boro. Council	Structure and Infrastructure Projects	Flooding issues on Yost St. to Brookville St. and Center St. Maple St. during heavy rain.	Install larger pipe and culverts	\$1,000,000	Low	50% complete
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-11-17-02	Hawthorn Boro. Council	Structure and Infrastructure Projects	Flooding issues on Center St. to Brookville St. and 2 <sup>nd</sup> East St. to Maple St. during heavy rain.	Install larger pipe and culverts	\$1,000,000	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-11-17-03	Hawthorn Boro. Council	Structure and Infrastructure Projects	Flooding issues on Wiants Ln. to Brookville St. and Yost St. to Maple St. during heavy rain.	Install larger pipe and culverts	\$1,000,000	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-11-22-01	Hawthorn Boro. Council	Structure and Infrastructure Projects	Culvert over Main Street is deteriorating.	Replace culvert.	\$40,000	Low	No funding
		<b>Hazard Types</b>					

		Flooding, Flash flooding					
16-11-22-02	Hawthorn Boro. Council	Structure and Infrastructure Projects	Road dips on Walnut Street with no stormwater system.	Raise the road and install stormwater system.	\$10,000	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-11-22-03	Hawthorn Boro. Council	Structure and Infrastructure Projects	Truitsburg Road leading to Redbank Valley Elementary School floods during heavy rains.	Install stormwater drainage system.	\$100,000	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-11-22-04	Hawthorn Boro. Council	Structure and Infrastructure Projects	Lime Creek getting blocked up with sediment from Brookville Street to the end of Center Street.	Drudge creek. Install riff raff on bottom of creek.	\$60,000	Med	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

## HIGHLAND TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-12-17-01	Highland Twp. Supervisors	Education and Awareness Programs	Identifying residents within the Township that have special needs in case of emergency.	Complete a survey of all Township residents to identify those with special needs in case of emergency.	\$400	High	Lack of funding
		<b>Hazard Types</b>					



		All hazards					
16-12-17-02	Highland Twp. Supervisors	Structure and Infrastructure Projects	Kinbahe Road constantly washes out taking the road surface into Little Toby Creek resulting in constant expense to the Township.	Double Sealcoat approximately 700ft of very steep Kinbahe Road that is now dirt and install drainage pipe.	\$12,000	Med	Lack of funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-12-17-03	Highland Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 4 Orphaned/Abandon wells within the Township	\$120,000	Low	Lack of funding
		<b>Hazard Types</b>					
		Oil & Gas Wells					
16-12-17-04	Highland Twp. Supervisors	Structure and Infrastructure Projects	Flooding issues on Highland Drive during heavy rain.	Install inlet pipe and boxes as well as 660' of drainage pipe	\$70,000	Low	Completed in 2018
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-12-17-05	Highland Twp. Supervisors	Structure and Infrastructure Projects	Flooding and erosion of McCleary Road culvert. This a major artery and school bus route in the Township.	Replace hand cut stone causeway with arch style or pipe suitable for water flows.	\$300,000	High	Lack of funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-12-17-06	Highland Twp. Supervisors	Structure and Infrastructure Projects	Flooding issues on various township roads during heavy	Replace failing small pipes with larger pipes.	\$10,000	Low	Completed in 2019

		<b>Hazard Types</b>	rain. \$41,550.00 through Dirt & Gravel program.	8/12/2020 completed pipe replacement on Reed Road			
		Flooding, Flash flooding					
16-12-22-01	Highland Twp. Supervisors	Structure and Infrastructure Projects	Bigley Road washes out in heavy rain. Road is very steep and receives very little sunlight.	Improve surface drainage and remove trees hanging over roadway	\$60,000	High	New project
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-12-22-02	Highland Twp. Supervisors	Structure and Infrastructure Projects	Sarvey Road constantly washes out taking the road surface into Toby Creek resulting in constant expense to the Township.	Double Sealcoat approximately 1,500 ft. of very steep Sarvey Road that is now dirt and install drainage pipe.	\$24,000	Med	New project
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

## KNOX BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-13-17-02	Knox Boro. Council	Structure and Infrastructure Projects	Huston Ave storm drains are too small causing flooding during heavy rains impacting High and Elementary schools.	Replace small pipes with larger pipes and add additional drains and pipes.	\$500,000	High	Completed in 2019
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-13-17-03	Knox Boro. Council	Structure and Infrastructure Projects	Retaining wall on Route 208 is structurally unsound. Could	Grade hill and replace wall.	\$2,000,000	High	Lack of funding

		<b>Hazard Types</b>	fail and fall on roadway and houses.				
		Hazardous Materials, Transportation accidents					
16-13-18-04	Knox Boro. Council	Structure and Infrastructure Projects	Install backup generator at the water plant.	The water plant provides water for 2 municipalities.	\$150,000	High	Completed in 2020
		<b>Hazard Types</b>					
		All hazards					
16-13-20-06	Knox Boro Council	Structure and Infrastructure Projects	Add a generator to Well #8.	Tentative completion date is 2024	\$110,000	Low	Planned for 2024
		<b>Hazard Types</b>					
		Oil & Gas Wells					

## KNOX TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-14-17-01	Knox Twp. Supervisors	Structure and Infrastructure Projects	Hearst Road - flood waters scour around bridge when debris collects on bridge at Washington Road.	Clean upstream channel	\$27,000	Low	Lack of funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

16-14-17-02	Knox Twp. Supervisors	Structure and Infrastructure Projects	Fairview Drive - roadway collects sheet flow that channels downhill flooding areas at base of hill.	Install cross drains, clear exit ditches, re-crown road and re-grade ditch line	\$174,000	Low	Lack of funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-14-17-03	Knox Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 6 Orphaned/Abandon wells within the Township	\$180,000	Low	Lack of funding
		<b>Hazard Types</b>					
		Oil & Gas Wells					

## LICKING TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-15-17-04	Licking Twp. Supervisors	Structure and Infrastructure Projects	Mt. Zion Road flooding due to culvert pipes that are too small.	Replace with larger pipes.	\$5,000	Low	Completed in 2019
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-17-05	Licking Twp. Supervisors	Structure and Infrastructure Projects	Pine Hollow Road flooding due to culvert pipes that are too small.	Replace with larger pipes.	\$5,000	Low	Completed in 2021
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

16-15-18-06	Licking Twp. Supervisors	Structure and Infrastructure Projects	Myers Hollow Road floods (in floodplain) needs built up	extensively to prevent flooding	\$36,000	Med	Completed
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-17-07	Licking Twp. Supervisors	Structure and Infrastructure Projects	Whitmore Road has water oozing from middle of road.	Install underdrains.	\$5,000	Low	Ongoing
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-17-08	Licking Twp. Supervisors	Structure and Infrastructure Projects	Pine Hollow Road flooding due to culvert pipe erosion.	Repair outflow.	\$5,000	Low	Completed
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-17-09	Licking Twp. Supervisors	Structure and Infrastructure Projects	Shirey Road flooding due to culvert pipe erosion.	Repair outflow.	\$5,000	Low	Completed
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-17-10	Licking Twp. Supervisors	Structure and Infrastructure Projects	Larkin Road hill is too steep and erodes roadway during heavy rain.	Fix hill and surface road.	\$15,000	Low	Completed in 2019
		<b>Hazard Types</b>					

		Flooding, Flash flooding					
16-15-18-11	Licking Twp. Supervisors	Structure and Infrastructure Projects	Sterner Road intersection with Gibson.	Steep incline up to stop sign need to build up road and resurface	\$25,000	Low	Completed in 2021
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-15-22-01	Licking Twp. Supervisors	Structure and Infrastructure Projects	Aughton Road floods from swamp ground	Install drainage system	\$50,000	Med	New project
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

## LIMESTONE TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-16-17-01	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Village of Kingsville - repetitive flooding	Acquisition or elevation of structure	\$100,000 - \$250,000	High	Abandoned
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-16-17-04	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Thompson Road - flooding due to undersized pipe	Replace existing under drain with 36" pipe and raise the road surface 24"	\$10,000	Low	Completed in 2021

		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-16-17-05	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Curtinbottom Road - flooding due to undersized pipe	Replace existing under drain with 2-4' pipes and raise the road surface 24" for 100' on each side of the pipes	\$10,000	Low	Completed in 2018
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-16-17-06	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Curll Road - bridge damaged by flooding	Replace beams under bridge	\$1,500,000	Med	Completed
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-16-17-07	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Deer Hollow Road - flooding due to undersized pipes	Remove current under drainpipes and replace with an Arch pipe or a box culvert	\$750,000	Med	Waiting for funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-16-17-11	Limestone Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 15 Orphaned/Abandon wells within the Township	\$500,000	Low	Waiting for funding
		<b>Hazard Types</b>					
		Oil & Gas Wells					



16-16-17-12	Limestone Twp. Supervisors	Structure and Infrastructure Projects	Bridge removal Forest Drive	Bridge replaced	\$1 - \$2.5 M	High	Completed in 2018
		<b>Hazard Types</b>					
		Earthquake, Flooding, Flash flooding					

### MADISON TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-17-17-01	Madison Twp. Supervisors	Structure and Infrastructure Projects	Buildup of debris in Wildcat Creek.	Clear debris, remove vegetation and dredge at outflow into Redbank Creek in Lawsonham.	unknown	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-17-17-02	Madison Twp. Supervisors	Structure and Infrastructure Projects	Debris buildup causes flooding of a home located nearby.	Clear debris along Friar Point Road tributary stream.	\$2,500	High	Completed in 2021
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-17-17-03	Madison Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 3 Orphaned/Abandon wells within the Township	\$60,000	Low	No funding
		<b>Hazard Types</b>					

		Oil & Gas Wells					
16-17-18-04	Madison Twp. Supervisors	Structure and Infrastructure Projects	Sarah Furnace Road over Catfish Run in poor condition	Replace bridge	\$1 - \$2.5 M	High	Completed
		<b>Hazard Types</b>					
		Earthquakes, Flooding, Flash flooding					
16-17-18-05	Madison Twp. Supervisors	Structure and Infrastructure Projects	Bridge on Wildcat School Road is failing.	Repair bridge.	\$50,000	Med	No funding
		<b>Hazard Types</b>					
		Earthquakes, Flooding, Flash flooding					
16-17-17-06	Madison Twp. Supervisors	Structure and Infrastructure Projects	Storm pipes collapsing on Rider Road.	Replace pipes.	\$600	Low	Completed in 2021
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-17-17-07	Madison Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Traister Road.	Install large drainpipes at 2 locations.	\$9,000	Low	No funding
		<b>Hazard Types</b>					
		Flooding, Flash flooding					

16-17-17-08	Madison Twp. Supervisors	Structure and Infrastructure Projects	Storm pipes collapsing on Sarah Furnace Road.	Replace pipes.	\$5,000	Low	Completed in 2021
		<b>Hazard Types</b>					
		Flooding, Flash flooding					
16-17-18-09	Madison Twp. Supervisors	Structure and Infrastructure Projects	Kissinger Mills Bridge failing.	Replace bridge.	\$906,000	Med	Completed in 2018
		<b>Hazard Types</b>					
		Earthquakes, Flooding, Flash flooding					

## MILLCREEK TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-18-17-01	Millcreek Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 4 Orphaned/Abandon wells within the Township	\$120,000	Low	Waiting for funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-18-18-02	Millcreek Twp. and Clarion Twp. Supervisors	Structure & Infrastructure Projects	Asbury bridge inspection failed on Asbury Rd.	Replace bridge.	\$225,000	Med	Completed in 2019
		<b>Hazard Type</b>					

		Earthquakes, Flooding, Flash flooding					
16-18-18-03	Millcreek Twp. and Clarion Twp.	Structure & Infrastructure Projects <b>Hazard Type</b> Earthquakes, Flooding, Flash flooding	Winklink bridge failed at Old State and Fleming Spring Roads.	Replace bridge.	\$200,000	Low	Completed in 2019
16-18-21-04	Millcreek Twp.	Structure & Infrastructure Projects / Natural Systems Protection <b>Hazard Type</b> Hazardous Materials	Approximately 25 blighted properties with hazmat scattered along different watersheds. All water within the watershed go not only to drinking water but flows to Clarion River and into other public water systems.	Acquisition of properties and remove blight.	\$1 million	Med	New in 2021
16-18-21-05	Millcreek Twp.	Structure & Infrastructure Projects <b>Hazard Type</b> Flooding, Flash flooding	Culverts on Work Drive and Zaght Road not large enough to carry water. Water carries to a wild trout stream.	Pipes need removed and replaced.	\$25,000	Low	New in 2021
16-18-21-06	Millcreek Twp.	Natural Systems Protection <b>Hazard Type</b>	Trees becoming unstable along roadway and falling within road. No one to clean it up. Plagued with Wooly	Have a service clear out leaning trees across road			

		Animal, Insect Infestation, Transportation accidents	Hemlock and a fungus spreading.				
16-18-21-07	Millcreek Twp.	Structure & Infrastructure Projects	Blyson public space offers access to the river but access is dangerous for anyone coming off river. Emergency services has poor access to area in order to respond. Area becomes very populated during summer. Public from Cook Forest uses area which creates dangerous situation due to lack of access.	Path needs to be created with trees and rocks cleared out. Create either a stairway or a maintained gravel trail for people to come off river to access the parking lot.	\$50,000	Low	New in 2021
		<b>Hazard Type</b>					
		All hazards					
16-18-21-08	Millcreek Twp.	Structure & Infrastructure Projects / Natural Systems Protection	Approximately 25 blighted properties with hazmat scattered along different watersheds. All water within the watershed go not only to drinking water but flows to Clarion River and into other public water systems.	Acquisition of properties and remove blight.	\$1 million	Med	New in 2021
		<b>Hazard Type</b>					
		Hazardous Materials					
16-18-21-09	Millcreek Twp.	Structure & Infrastructure Projects	Culverts on Work Drive and Zaght Road not large enough to carry water. Water carries to a wild trout stream.	Pipes need removed and replaced.	\$25,000	Low	New in 2021
		<b>Hazard Type</b>					

Flooding, Flash flooding
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## MONROE TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-19-17-01	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Pennsy Road culverts are too small and become obstructed with debris easily. This cause flooding and road damage.	Replace two small culverts with one arched culvert.	\$50,000	Med	Completed
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-19-17-02	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Section of Route 68 in need of work.	Replace bridge, upgrade drainage, intersection improvements and widen road on Route 68	\$10-\$12.5 M	Med	Completed
		<b>Hazard Types</b>					
		Earthquakes, Flooding, Flash flooding					
16-19-17-03	Monroe Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 6 Orphaned/Abandon wells within the Township	\$180,000	Low	Ongoing
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-19-17-04	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Reidsburg Bridge Curve in need of work	Replace 1 bridge, remove 1 bridge, repair 1 bridge	\$2.5 - \$5 M	High	Completed

		<b>Hazard Types</b>					
		Transportation accidents					
16-19-18-05	Monroe Twp. Supervisors	Structure and Infrastructure Projects					
		<b>Hazard Type</b>	Curlsville Road over Licking Creek bridge in poor condition	Bridge replacement	\$1 - \$2.5 M	High	Completed in 2019
		Earthquakes, Flooding, Flash flooding, Transportation Accidents					
16-19-17-07	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Craggs Run under Pennsy Road roadway & property floods during heavy rainfall; washing debris into pipes & onto property.	Remove two small pipes, install long box culvert with headwalls & corner wing walls, backfill & raise roadway, clean banks & debris, seed & mulch stream banks	\$125,500	Med	Completed
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-19-18-08	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Reids Run under Curll Road water goes over pipe & floods roadway during heavy rainfall & debris goes into pipe.	Excavate & remove old small cement pipe, install larger plastic pipe, install headwalls & endwalls, clean stream banks of debris, seed & mulch	\$15,000	Low	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-19-17-09	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Unknown tributary under Moggey Road roadway & property floods during	Excavate & remove small pipe, install larger pipe & backfill, install headwalls &	\$20,000	Low	Ongoing
		<b>Hazard Type</b>					



		Flooding, Flash flooding	heavy rainfall & washes out around pipe	endwalls, clean stream banks, seed, & mulch			
16-19-17-10	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Route 68 over Craggs Run bridge in poor condition	Replace Bridge	\$1 - 2.5 M	Low	Completed in 2018
		<b>Hazard Type</b>					
		Earthquakes, Flooding, Flash flooding					
16-19-22-01	Monroe Twp. Supervisors	Structure and Infrastructure Projects	Siverling Road needs pipe due to stormwater runoff from Trinity Point which is washing road away.	Install 690' of pipe to prevent erosion.	\$85,000	High	To be completed 2022
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

### NEW BETHLEHEM BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-20-17-01	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Storm drains on Wood and Penn streets are deteriorating.	Replace storm drains larger drains.	\$50,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-20-17-02	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Retaining wall along Wood Street is failing and poses threat to several houses.	Repair retaining wall along Wood Street. Work in	\$500,000 to \$1,000,000	Med	Lack of funding

		<b>Hazard Type</b>		conjunction with PENNDOT on this project.			
		Transportation accidents					
16-20-17-04	New Bethlehem Boro. Council	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 2 Orphaned/Abandon wells within the Borough.	\$60,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-20-17-05	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Repetitive flooding to structures and critical infrastructure (schools), and state roads.	Repetitive loss structures, acquisition or elevation of structures	\$1,500,000 - \$3,400,000	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-20-18-06	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Two structures on Broad Street are vacant and deteriorating.	Purchase properties and demolish.	\$70,000	Low	50% Complete
		<b>Hazard Type</b>					
		Hazardous Materials					
16-20-17-09	New Bethlehem Boro. Council	Natural Systems Protection	Tree debris in Redbank Creek at various locations that may lead to additional flooding and stress on dam.	Clear debris and dredge from Redbank Creek at specific locations.	\$25,000	Med	Lack of funding. Waiting on DEP permits.
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Water Control Failure					

16-20-17-10	New Bethlehem Boro. Council	Natural Systems Protection	Debris buildup from Leisure Run and Redbank Creek directs water to the side of Penn St. Stone Arch culvert plus recent flash flood is causing deterioration. Culvert is the only access to Smucker Plant.	Remove debris from waterways, repair stone culvert.	\$170,000	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Subsidence					
16-20-19-11	New Bethlehem Boro. Council	Natural Systems Protection	Flash flood on July 19, 2019 deposited 16-20 triaxle loads of debris in Redbank Creek from Leisure Run creating a dam that will cause ice jams & flooding impacting businesses, high school & SR-28.	Remove debris from waterways.	\$200,000	High	In progress
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Water Control Failure					
16-20-19-12	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Several vacant residential structures pose threats to life and environment.	Remove blighted and vacant residential properties	\$40,000	Med	Lack of funding & acquisition
		<b>Hazard Type</b>					
		Hazardous Materials					
16-20-19-13	New Bethlehem Boro. Council	Structure & Infrastructure Projects	Storm sewers in poor conditions in various places throughout borough	Work with Redbank Valley Municipal Authority to replace storm sewers.	\$1,000,000	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## PAINT TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-21-17-02	Paint Twp. Supervisors	Structure and Infrastructure Projects	Hearst Road - bridge catches debris, backs up water on road.	Install new bridge with greater clear span opening.	\$35,000	Low	Ongoing
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-17-03	Paint Twp. Supervisors	Structure and Infrastructure Projects	Poor drainage leading to sheet flow and erosion damage to roads.	Replace undersized and damaged culvert pipes, add new locations where needed, reshape and stabilize ditches throughout the township.	\$200,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-17-04	Paint Twp. Supervisors	Structure and Infrastructure Projects	Marianne Estates - flooding during heavy rains on Highland Drive and Woodland Drive.	Install adequate drainage to Marianne Estates in form of storm water system.	\$2,500,000	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-17-05	Paint Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 3 Orphaned/Abandon wells within the Township	\$120,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					

16-21-17-06	Paint Twp. Supervisors	Structure and Infrastructure Projects	Amsler Road flooding from undersized and lack of culverts.	Obtain right of way and install culverts.	\$176,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-17-07	Paint Twp. Supervisors	Structure and Infrastructure Projects	Kiser-Wagner Road bridge catches debris scours at wing walls.	Install new bridge with greater clear span opening.	\$700,000	Med	Completed in 2020
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-22-01	Paint Twp. Supervisors	Structure and Infrastructure Projects	Banner Road has flooding during heaving rains.	Install stormwater system and road needs profiled. Install curbs and gutters.	\$282,086	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-22-02	Paint Twp. Supervisors	Structure and Infrastructure Projects	Bigly Road is access road to Paint Township and used as backup emergency road.	Safety and drainage improvements needed.	\$64,000	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-21-22-03	Paint Twp. Supervisors	Structure and Infrastructure Projects	Steiner Road floods during heavy rain. Ice backs up during winter.	Elevate road, install culvert, increase grating to larger size.	\$38,300	High	Lack of funding
		<b>Hazard Type</b>					

		Flooding, Flash flooding					
16-21-22-04	Paint Twp. Supervisors	Structure and Infrastructure Projects <b>Hazard Type</b> All hazards	Rails to Trails safety improvements for hikers	Install emergency call box to 9-1-1	\$30,000	Med	Lack of funding

## PERRY TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-22-17-01	Perry Twp. Supervisors	Structure and Infrastructure Projects <b>Hazard Type</b> Flooding, Flash flooding	Flooding of Stevens Road.	Elevate Road above Stream Grade.	\$100,000	Low	Completed in 2021
16-22-17-02	Perry Twp. Supervisors	Natural Systems Protection <b>Hazard Type</b> Oil & Gas Wells	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 4 Orphaned/Abandon wells within the Township	\$90,000	Low	Lack of funds
16-22-17-03	Perry Twp. Supervisors	Structure and Infrastructure Projects <b>Hazard Type</b>		Repetitive loss structure, acquisition or elevation of structure	\$50,000 - \$ 500,000	High	Lack of funds

		Flooding, Flash flooding					
16-22-17-04	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Foust Road.	Install large drainpipes.	\$1,200	Low	Lack of funds
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-17-05	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Pickard Valley Road.	Install large drainpipes cut bleeders.	\$2,500	Low	Completed in 2021
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-17-06	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Bartow Road.	Install large drainpipes.	\$3,000	Low	Lack of funds
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-17-07	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Sportman Road.	Install more drainpipes.	\$2,500	Low	Completed in 2021
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-17-08	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Monterey Road.	Install more drainpipes.	\$3,500	Low	Completed in 2021



		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-17-09	Perry Twp. Supervisors	Structure and Infrastructure Projects	Flooding on Pollack Lane.	Install more drainpipes.	\$2,500	Low	Complete in 2019
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-22-18-10	Perry Twp. Supervisors	Natural Systems Protection	Water well pipe collapse.	Drill new well.		High	Complete in 2018
		<b>Hazard Type</b>					
		Oil & Gas Wells					

### PINEY TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-23-17-01	Piney Twp. Supervisors	Structure and Infrastructure Projects	Flooding of Campbell Road caused by debris in Little Licking Creek between Campbell Road and Logue Road	Clean creek channel from Campbell Road to Logue Road	\$30,000	Low	10% complete (2019)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

16-23-17-02	Piney Twp. Supervisors	Structure and Infrastructure Projects	Township EOC has no backup power.	Install backup generator at the Township EOC.	\$10,000	Med	Lack of funding
		<b>Hazard Type</b>					
		All hazards					
16-23-17-03	Piney Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 2 Orphaned/Abandon wells within the Township.	\$60,000	Low	Interstate Gas logging old wells
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-23-17-04	Piney Twp. Supervisors	Structure and Infrastructure Projects	Campbell Road flooding issues culvert pipe failing.	Replace culvert pipe with larger pipe.	\$12,500	Low	Researching
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-23-17-05	Piney Twp. Supervisors	Structure and Infrastructure Projects	Anti-skid/salt building to small and crumbling.	Replace with larger building.	\$70,000	Low	Completed in 2018
		<b>Hazard Type</b>					
		Transportation accidents					
16-23-17-06	Piney Twp. Supervisors	Structure and Infrastructure Projects	On site systems are too small.	Extend sewage line to nursing facilities.	\$150,000	Med	Completed in 2019
		<b>Hazard Type</b>					

		Hazardous Materials					
16-23-17-07	Piney Twp. Supervisors	Structure and Infrastructure Projects	Building are condemned.	Purchase and demolish structures to prevent injuries and protect the community	\$50,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Hazardous Materials					
16-23-17-08	Piney Twp. Supervisors	Education and Awareness Programs	Lack of notification capabilities. Establish means of reaching residents, i.e. website, text message/call chains, other means of communications.	Newsletter/mailings	\$1,500	Low	Lack of funding
		<b>Hazard Type</b>					
		All hazards					
16-23-17-09	Piney Twp. Supervisors	Structure and Infrastructure Projects	Laurel Road flooding.	Replace undersized with larger pipes.	\$112,000	Low	Completed in 2019
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## PORTER TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-24-17-01	Porter Twp. Supervisors	Structure and Infrastructure Projects	Stewart Road - flooding caused by excessive water runoff overflowing current drains.	Replace current piping with either larger or more pipes.	\$5,000	Low	Ongoing
		<b>Hazard Type</b>					

		Flooding, Flash flooding					
16-24-17-02	Porter Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 12 Orphaned/Abandon wells within the Township	\$360,000	Low	Ongoing
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-24-17-03	Porter Twp. Supervisors	Structure and Infrastructure Projects	Bridge on Route 861 over Leatherwood Creek in poor condition	Replace bridge	\$1.5-2.5 M	High	Completed in 2021
		<b>Hazard Type</b>					
		Earthquakes, Flooding, Flash flooding					
16-24-17-04	Porter Twp. Supervisors	Structure and Infrastructure Projects	Bridge on Olean Trail over Jack Run in poor condition	Replace bridge	\$1 M	High	Completed in 2018
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Earthquakes					
16-24-17-05	Porter Twp. Supervisors	Structure and Infrastructure Projects	Bridge on Reidsburg Road over Jack Run in poor condition	Replace bridge	\$1 M	High	Completed in 2020
		<b>Hazard Type</b>					
		Earthquakes, Flooding, Flash flooding					

16-24-19-06	Porter Twp. Supervisors	Structure and Infrastructure Projects	Leatherwood Station Road - flooding caused by excessive water runoff over-flowing current drains.	Replace current piping with either larger or more pipes and replace road base.	\$30,790	High	Completed in 2020
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## REDBANK TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-25-17-01	Redbank Twp. Supervisors	Structure and Infrastructure Projects	Pine Creek - flooding during heavy rains	Clear vegetation from approximately 3 miles of Pine Creek	\$100,000	Low	Lack of funds
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-25-17-02	Redbank Twp. Supervisors	Structure and Infrastructure Projects	Bridge over Pine Creek on Shannondale Road in poor condition	Replace bridge. Stream needs straightened.	\$200,000	Low	Lack of funds
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-25-17-03	Redbank Twp. Supervisors	Natural Systems Protection	Abandoned deep mine water run-off into small streams.	Reclamation of abandoned mine to include removal of underground storage tank, removal/disposal of mine	\$1 million	Med	Partial completion – Lack of funding
		<b>Hazard Type</b>					

		Oil & Gas Wells		structure, piping of direct water runoff to alkaline area then into small streams and seal 2 mine entries.			
16-25-17-04	Redbank Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 12 Orphaned/Abandon wells within the Township	\$540,000	Low	Lack of funds
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-25-22-01	Redbank Twp. Supervisors	Structure and Infrastructure Projects	Culvert is damaged and collapsing from multiple floods.	Work with PennDOT to replace 5-foot culvert which runs to catch box under Route 28.	\$85,000	High	Critical: PennDOT pushing for project completion
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## RICHLAND TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-26-17-01	Richland Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 20 Orphaned/Abandon wells within the Township	\$700,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					

16-26-17-02	Richland Twp. Supervisors	Structure and Infrastructure Projects	Smokey Road floods from heavy rain.	Replace small drainage pipes with larger pipes.	\$35,000	Low	75% Complete
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-26-17-04	Richland Twp. Supervisors	Structure and Infrastructure Projects	Roads flood from heavy rain.	Replace small drainage pipes with larger pipes.	\$40,000	Low	50% Complete (2018)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-26-17-05	Richland Twp. Supervisors	Structure and Infrastructure Projects	Heeter Road floods from heavy rain.	Replace small drainage pipes with larger pipes.	\$50,000	Low	50% Complete (2018)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-26-22-01	Allegheny-Clarion Valley School District & Richland Township	Structure and Infrastructure Projects	Culverts not adequate enough to hold heavy stormwater and floods Fox View Road several times a year. This cuts off access to school buses. Rain is washing out culvert project.	Dredging pond, replace culvert and rebuild dike system to reduce flooding.	\$75,000	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					



## RIMERSBURG BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-27-17-01	Rimersburg Boro. Council/ Rimersburg Boro. Mun. Auth.	Structure and Infrastructure Projects	Water pump station has no backup generator. The water plant provides water for 4 municipalities.	Install backup generator (50KW) at the water pump station along Route 68 near East Brady Borough.	\$50,000	High	Completed in 2020
		<b>Hazard Type</b>					
		All hazards					
16-27-17-02	Rimersburg Boro. Council/ Rimersburg Boro. Mun. Auth.	Structure and Infrastructure Projects	Wastewater plant and infrastructure at end of life.	Upgrade and replacement of plant and infrastructure.	\$6 Million	High	Submitted Act 537 Plan/working on permits & funding (2019)
		<b>Hazard Type</b>					
		All hazards					
16-27-22-01	Rimersburg Boro. Council/ Rimersburg Boro. Mun. Auth.	Structure and Infrastructure Projects	Main Street hydrants have little water flow to effectively fight fires.	Current lines along state road. Move and replace old and corroded lead water lines to borough roads to increase water flow to hydrants. Replace hydrants.	\$1 million	High	Ongoing
		<b>Hazard Type</b>					
		Wildfires, Fires					

## SALEM TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-28-19-01	Salem Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or	Work with DEP to plug 10 Orphaned/Abandon wells within the Township	\$300,000	Low	No funding

		<b>Hazard Type</b>	orphaned which pose as environmental threat.				
		Oil & Gas Wells					
16-28-18-02	Salem Twp. Supervisors	Education and Awareness Programs	Identifying residents within the Township that have special needs in case of emergency.	Complete a survey of all Township residents to identify those with special needs in case of emergency.	\$500	High	Ongoing
		<b>Hazard Type</b>					
		All hazards					
16-28-17-04	Salem Twp. Supervisors	Structure and Infrastructure Projects	Roads flood from heavy rain.	Replace small drainage pipes with larger pipes.	\$60,000	Low	80% complete (2019)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-28-18-05	Salem Twp. Supervisors	Structure and Infrastructure Projects	Lakeview Road flood from heavy rain.	Replace small drainage pipes with larger pipes	\$20,000	Low	Completed in 2019
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## SHIPPENVILLE BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-29-17-01	Shippenville Boro. Council	Structure and Infrastructure Projects	2 <sup>nd</sup> Street washes out in heavy rain.	Replace small drainage pipes with large pipes.	\$10,000	Low	Lack of funding

		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-29-17-02	Shippenville Boro. Council	Structure and Infrastructure Projects	South School Street washes out in heavy rain.	Replace small drainage pipes with large pipes.	\$10,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-29-17-03	Shippenville Boro Council	Structure and Infrastructure Projects	Locations currently prone to flooding during heavy rain events.	Upgrade and repair exiting storm water facilities and pipes in various locations in the Borough. The project would also map and inventory the assets to identify additional areas that contribute to hazardous conditions.	\$1 million	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-29-17-04	Shippenville Boro Council	Natural Systems Protection		Vegetation control would identify and evaluate hazardous trees within the Borough limits, remove or trim trees within right of ways to correct the hazard. Possible extension of the project would be to work with private owners to correct hazards to private structures.	\$90,00	High	Lack of funding
		<b>Hazard Type</b>					
		Transportation accidents					

**SLIGO BOROUGH**

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-30-22-01	Sligo Boro. Council	Structure and Infrastructure Projects	Licking Creek floods during heavy rains causing significant flood damage to approximately ten houses as well as a lift station for the wastewater pump station. Flooding is eroding banks on private lands, flooding basements and cause backflow to drainage system. The flooding stretches for one-half mile. Flooding reoccurs every couple years.	Work with PennDOT to remove debris and dredge creek. DEP denied Borough permission to dredge creek or remove any debris.	\$75,000	High	Ongoing
		<b>Hazard Type</b>					
		Flooding, Flash flooding, Hazardous Materials					
16-30-22-02	Sligo Boro. Council	Structure and Infrastructure Projects	Little Licking Creek floods during heavy rains causing flood damage to approximately 20 residential structures and properties and one commercial structures. Flooding is eroding banks on private lands, flooding basements and cause backflow to drainage system. The flooding stretches for three-quarters mile. Flooding runs over Colerain Street (Route 68), Licking, and Penn	Work with PennDOT to remove debris and dredge creek.	\$125,000	High	Ongoing
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

			streets. Flooding reoccurs every couple years.				
16-30-22-03	Sligo Boro. Council	Structure and Infrastructure Projects	Sligo Borough Municipal building is heated by coal and electrical system needs updating. Structure runs on single ground wire. Structure is considered critical infrastructure due to it being municipal building, EOC, recreational facility and emergency shelter for school district, long-term health care facilities, and local residents.	Replace coal furnace with natural gas furnace and update electrical system.	\$300,000	Med	Lack of funds
		<b>Hazard Type</b>					
		All hazards					

### SAINT PETERSBURG BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-31-18-01	St. Petersburg Boro. Council	Structure and Infrastructure Projects	Water system becoming dated and in need of being replaced.	In process of replacing water plant and adding new water lines.	\$4,400,000	High	To be completed 06-2021
		<b>Hazard Type</b>					
		All hazards					
16-31-18-02	St. Petersburg Boro. Council	Natural Systems Protection	Closing of Open Deep Mine Shafts		Unknown	High	Ongoing

		<b>Hazard Type</b>					
		Subsidence					
16-31-18-03	St. Petersburg Boro. Council	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Plug 2 abandoned wells within borough	\$60,000	Low	Ongoing
		<b>Hazard Type</b>					
		Oil & Gas Wells					

### STRATTANVILLE BOROUGH

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-32-17-01	Strattanville Boro. Council	Structure & Infrastructure Projects	No backup power for emergency shelter (fire hall) in the Borough.	Install emergency generator at shelter.	\$10,000	Low	Lack of funding
		<b>Hazard Type</b>					
		All hazards					
16-32-17-02	Strattanville Boro. Council	Structure & Infrastructure Projects	Sludge buildup at sewage plant.	Remove sludge in compliance with DEP regulations.	\$160,000	High	Completed in 2018
		<b>Hazard Type</b>					
		Hazardous Materials					
16-32-17-03	Strattanville Boro. Council	Structure & Infrastructure Projects	Water runoff from rainstorms is causing ponding on 1 <sup>st</sup> Street.	Place storm drains and piping to drain water.	\$15,000	Low	Completed in 2019

		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-32-17-04	Strattanville Boro. Council	Structure & Infrastructure Projects	Water runoff from rainstorms is causing ponding on North Pine Street.	Place storm drains and piping to drain water.	\$27,000	Low	Waiting for funding (keep till 2023)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-32-17-05	Strattanville Boro. Council	Structure & Infrastructure Projects	Water runoff from rainstorms is causing ponding on South Pine Street.	Place storm drains and piping to drain water.	\$28,600	Low	Waiting for funding (keep till 2023)
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-32-19-06	Strattanville Boro. Council	Structure & Infrastructure Projects	Emergency project: Retro Waste pump station for 10- 12 homes on Pine Street with several companies working together on project.		\$100,000	High	Completed in 2021
		<b>Hazard Type</b>					
		Hazardous Materials					
16-32-21-01	Strattanville Boro. Council	Structure & Infrastructure Projects	Sludge buildup at sewage plant at Pond #1	Remove sludge in compliance with DEP regulations. Pond needs dredge by machinery.	\$300,000	High	New in 2021
		<b>Hazard Type</b>					
		Hazardous Materials					



16-32-21-02	Strattanville Boro. Council	Structure & Infrastructure Projects	Ridge Ave. is eroding on either side with potential to create hazard to vehicles. Ponds on either side of the street. High rain amounts wash out any fill and is eroding pavement. Wintertime creates freezing/thawing damage.	Install multiple catch basins and piping along either side of the road. Sections of the road will need to be repaved.	\$1 million	High	New in 2021
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

## TOBY TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-33-17-01	Toby Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 4 Orphaned/Abandon wells within the Township	\$120,000	Low	Working on funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					
16-33-17-02	Toby Twp. Supervisors	Structure and Infrastructure Projects	Roads flood from heavy rain.	Replace small drainage pipes with larger pipes.	\$10,000	Low	No funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-33-17-03	Toby Twp. Supervisors	Structure and Infrastructure Projects	Deck and wing walls failing on Henry Road bridge.	Replace bridge.	\$50,000	Med	No funding

		<b>Hazard Type</b>				
		Earthquakes, Flooding, Flash flooding				

## WASHINGTON TOWNSHIP

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-34-17-01	Washington Twp. Supervisors	Structure and Infrastructure Projects	Dempstons Road - Bridge to small, road and bridge floods	Enlarge bridge	\$715,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-34-17-02	Washington Twp. Supervisor.	Structure and Infrastructure Projects	Eisenman Road – Bridge is too small, roads and bridges flood	Enlarge bridge	\$260,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-34-17-03	Washington Twp. Supervisors	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 9 Orphaned/Abandon wells within the Township	\$270,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Oil & Gas Wells					

16-34-17-04	Washington Twp. Supervisors	Structure and Infrastructure Projects	Gowdy Bridge - bridge to small, road and bridge floods	Enlarge bridge	\$460,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-34-17-05	Washington Twp. Supervisors	Structure and Infrastructure Projects	Licking Rd. lack of cross culverts causes road washouts.	Install 9 additional culverts.	\$54,000	Low	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					
16-34-17-06	Washington Twp. Supervisors	Structure and Infrastructure Projects	Dempstytown Road – roads floods during heavy rain, washes out ditches and floods basements.	Install storm water system, replace undersized pipes and create sediment traps.	\$415,000	Med	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash flooding					

### ALLEGHENY-CLARION VALLEY SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S01-22-01	Allegheny-Clarion Valley School District	Structure and Infrastructure Projects	Culverts not adequate enough to hold heavy stormwater and floods Fox View Road several times a year. This cuts off	Dredging pond, replace culvert and rebuild dike system to reduce flooding.	\$75,000	Med	Lack of funding
		<b>Hazard Type</b>					

	& Richland Township	Flooding, Flash flooding	access to school buses. Rain is washing out culvert project.				
16-S01-22-02	Allegheny-Clarion Valley School District	Natural Systems Protection	Identify wells which have been abandoned or orphaned which pose as environmental threat.	Work with DEP to plug 3 Orphaned/Abandon wells on school grounds	\$80,000	Low	Lack of funding
		<b>Hazard Type</b> Oil & Gas Wells					
16-S01-22-03	Allegheny-Clarion Valley School District	Structure and Infrastructure Projects	Fire system is dated and obsolete. Fire system panel caught fire at one point.	Replace fire system at both buildings.	\$40,000	High	Lack of funding
		<b>Hazard Type</b> Wildfire, Fires					
16-S01-22-04	Allegheny-Clarion Valley School District	Structure and Infrastructure Projects	Windows create vulnerability by not being bullet proof.	Replace windows with bulletproof windows.	\$2 million	Med	Lack of funding
		<b>Hazard Type</b> Terrorism, Kidnapping/ Hostage					

### CLARION AREA SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S02-20-01	Clarion Area School District	Structure and Infrastructure Projects	High School Building vulnerable to accidental or	Installed bollards at the entrance of the High School	\$23,800	Med	Complete

		<b>Hazard Type</b>	intentional vehicle wrecks into the building	for student protection from any vehicle incident.			
		Terrorism, Kidnapping/ Hostage					
16-S02-20-02	Clarion Area School District	Structure and Infrastructure Projects	Installed security film on all entrances to the Elementary Building and reflective film on all ground level classrooms.		\$26,995	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S02-20-03	Clarion Area School District	Structure and Infrastructure Projects	Public access to High School building unsecure allowing trespassers direct access into building without checkpoint	Installed a new security vestibule in the main entrance of the High School	\$138,500	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S02-20-04	Clarion Area School District	Structure and Infrastructure Projects	Installation of new access controls on the main entrance doors at the High School.		\$36,800	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S02-20-05	Clarion Area School District	Structure and Infrastructure Projects	Elementary Building vulnerable to accidental or intentional vehicle wrecks into the building	Install bollards at the entrance of the Elementary Building for student protection from any vehicle incident.	\$15,000	Med	Completed in 2021
		<b>Hazard Type</b>					

		Terrorism, Kidnapping/ Hostage					
16-S02-20-06	Clarion Area School District	Structure and Infrastructure Projects <b>Hazard Type</b> Tornados	Replacement of 6 rooftops on the High School		\$124,100	Low	Complete
16-S02-20-07	Clarion Area School District	Structure and Infrastructure Projects <b>Hazard Type</b> Extreme Temperatures	Water heaters reaching end of life	Replacement of “On Demand” water heaters	\$5,000	Low	Complete
16-S02-20-08	Clarion Area School District	Structure and Infrastructure Projects <b>Hazard Type</b> Extreme Temperatures	17 HVAC units reaching end of life	Replace 17 HVAC units	\$500,000	Med	2023
16-S02-20-09	Clarion Area School District	Structure and Infrastructure Projects <b>Hazard Type</b> Terrorism, Kidnapping/ Hostage	Elementary School still vulnerable of terroristic threat of vehicle being driven into the building.	Install additional bollards.	\$10,000	Med	2022
16-S02-22-09	Clarion Area School District	Structure and Infrastructure Projects	Water runoff High School rooftop washes out road by football field	Install 2,000 gal. tank to hold stormwater and use water	\$15,000	Low	New

		<b>Hazard Type</b>		from the tank to water the football field.			
		Flooding, Flash Flooding					
16-S02-22-09	Clarion Area School District	Structure and Infrastructure Projects	Public staircase leading to Elementary School is being eroded away due to weak foundation.	Eliminate staircase.	\$30,000	Low	New
		<b>Hazard Type</b>					
		Flooding, Flash Flooding					

### CLARION COUNTY CAREER CENTER

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S03-20-01	Clarion County Career Center	Structure & Infrastructure Projects	Stormwater system culverts and pipes around property are collapsing causing erosion in road, parking lot and sidewalks.	Survey and identify weak areas of stormwater system. Replace culverts.	\$400,000	Med	New project
		<b>Hazard Type</b>					
		Flooding, Flash Flooding					
16-S03-20-02	Clarion County Career Center	Structure & Infrastructure Projects	Secure visitor entrance	Create secure area for visitors with identification check point.	\$140,000	High	Summer 2022 (New 2021)
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					



16-S03-20-03	Clarion County Career Center	Structure & Infrastructure Projects	Video surveillance leaves some areas vulnerable to missing a security threat or an accident.	Upgrade Cameras/Camera System	\$12,000	Med	Winter 2021 / Spring 2022 (New 2021)
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H hostage					

### PENNWEST UNIVERSITY CLARION

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S04-20-01	PennWest Clarion	Education & Awareness Programs	Replace outdated & inaccurate signage		\$120,000	Low	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S04-20-02	PennWest Clarion	Structure & Infrastructure Projects	Update fire suppression system to University Server facility.		\$125,000	Med	Planning
		<b>Hazard Type</b>					
		Wildfires, Fires					
16-S04-20-03	PennWest Clarion	Structure & Infrastructure Projects	Remove and clean up UST Fuel storage containers		\$35,000	High	Underway
		<b>Hazard Type</b>					

		Hazardous Materials					
16-S04-20-04	PennWest Clarion	Structure & Infrastructure Projects	Demolition of unused facilities (Thorn 1 & 2)		\$75,000	Low	Planned for Summer '22
		<b>Hazard Type</b>					
		Hazardous Materials					
16-S04-22-01	PennWest Clarion	Structure & Infrastructure Projects	Full renovation with abatement of asbestos in Egbert				Planned '22-'23
		<b>Hazard Type</b>					
		Hazardous Materials					
16-S04-22-02	PennWest Clarion	Education & Awareness Programs	Security cameras installed at Stadium. None now	Install security cameras	\$50,000		Ongoing
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S04-22-03	PennWest Clarion	Structure & Infrastructure Projects	Carrier is scheduled for demolition. (Asbestos)				Within 2025
		<b>Hazard Type</b>					
		Hazardous Materials					

## CLARION-LIMESTONE SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S05-20-02	Clarion-Limestone School District	Structure and Infrastructure Projects	Domestic Boiler replacement tank and valve at the high school		\$48,000	High	Not started
		<b>Hazard Type</b>					
		Extreme Temperatures					
16-S05-20-03	Clarion-Limestone School District	Structure and Infrastructure Projects	High School roof		\$85,000	High	Not started
		<b>Hazard Type</b>					
		All hazards					
16-S05-20-04	Clarion-Limestone School District	Structure and Infrastructure Projects	Domestic Boiler replacement in the elementary school kitchen		\$8,000	High	Not started
		<b>Hazard Type</b>					
		Extreme Temperatures					
16-S05-20-05	Clarion-Limestone School District	Structure and Infrastructure Projects	Security fencing the entire way around the elementary school playground		\$25,000	Low	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					

## KEYSTONE SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S06-20-01	Keystone School District	Structure and Infrastructure Projects	Elementary school security bollard & concrete project		\$135,455	Med	Complete in 2020
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S06-20-02	Keystone School District	Structure and Infrastructure Projects	High school roof replacement		\$573,875	Low	Complete in 2020
		<b>Hazard Type</b>					
		All hazards					
16-S06-20-03	Keystone School District	Structure and Infrastructure Projects	Elementary school boiler replacement		\$381,372	Med	Complete in 2020
		<b>Hazard Type</b>					
		Extreme Temperatures					
16-S06-20-04	Keystone School District	Structure and Infrastructure Projects	High school water main replacement		\$32,990	Low	Complete in 2020
		<b>Hazard Type</b>					
		All hazards					

16-S06-20-05	Keystone School District	Structure and Infrastructure Projects	High school make-up water tank for boilers replacement		\$19,938	Low	Complete in 2020
		<b>Hazard Type</b>					
		All hazards					
16-S06-22-01	Keystone School District	Structure and Infrastructure Projects	Security minimal at Elementary School	Install security vestibule	\$300,000	Low	New
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S06-22-02	Keystone School District	Structure and Infrastructure Projects	Access to both buildings is not controlled well. Many people have keys	Re-key all locks in both buildings.	\$60,000	Med	New
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S06-22-03	Keystone School District	Structure and Infrastructure Projects	Security and emergency system in need of being expanded and updated.	Add cameras in areas needed such as playground areas. Replace PA system in schools. Update intercom fire alarm system.	\$500,000	High	New
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					

## NORTH CLARION SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S07-20-01	North Clarion School District	Structure and Infrastructure Projects	Elementary School security vestibule		\$120,000	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S07-20-02	North Clarion School District	Structure and Infrastructure Projects	Elementary School classroom door replacement		\$25,000	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S07-20-03	North Clarion School District	Structure and Infrastructure Projects	Elementary School hallway security door installation		\$25,000	Med	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					
16-S07-22-01	North Clarion School District	Structure and Infrastructure Projects	High School classroom interior door replacement for safety and security. Install fob system for keyless entry.	Install new doors and swipe card entry.	\$100,000	Med	New
		<b>Hazard Type</b>					

		Terrorism, Kidnapping/ Hostage					
16-S07-22-01	North Clarion School District	Structure and Infrastructure Projects	High School and Elementary School windows are single pane with aging framing	Replace windows in both school.	\$900,000	Med	New
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/ Hostage					

## REDBANK VALLEY SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S08-20-01	Redbank Valley School District	Structure and Infrastructure Projects	Phone System for 3 campuses	Upgrade phone system to one	\$53,629	Med	Complete
		<b>Hazard Type</b>					
		All hazards					
16-S08-20-02	Redbank Valley School District	Structure and Infrastructure Projects	Camera System for 3 campuses		\$128,276	Low	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					

16-S08-20-03	Redbank Valley School District	Structure and Infrastructure Projects	PA System with phones for 3 campuses		\$19,375	Low	Complete
		<b>Hazard Type</b>					
		All hazards					
16-S08-20-04	Redbank Valley School District	Structure and Infrastructure Projects	Unit Ventilators for Primary School campus (as a result of flood in 2019)		\$234,100	High	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S08-20-05	Redbank Valley School District	Structure and Infrastructure Projects	Boilers for Primary School campus (as a result of flood in 2019)		\$26,400	High	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S08-20-06	Redback Valley School District	Structure and Infrastructure Projects	Metal Detectors (5 units) for 3 campuses		\$13,995	Low	Complete
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S08-22-01	Redback Valley School District & New	Structure and Infrastructure Projects	Stormwater drain on road that leads to parking lot eroding pavement.	Borough needs to clean/replace storm drain.	\$60,000	Low	Lack of funding



	Bethlehem Borough	<b>Hazard Type</b>		School needs to repave parking lot.			
		Flooding, Flash Flooding					
16-S08-22-02	Redback Valley School District	Structure and Infrastructure Projects	Section (built in 1987) of Primary School is sinking. One classroom is not used due to safety concerns. At least six classrooms and library in section.	Have engineer determine integrity of section and building. Possibly demolish rebuild section or entire building.	\$2 mil	High	Lack of funding
		<b>Hazard Type</b>					
		Flooding, Flash Flooding, Subsidence					
16-S08-22-03	Redback Valley School District	Structure and Infrastructure Projects	Improve security at all three buildings. Recommended by PSP safety assessment.	Install security vestibule, bollards at all three buildings.	\$1.5 mil	Med	Lack of funding
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					

### UNION SCHOOL DISTRICT

Project Number	Responsible Jurisdiction	Mitigation Action Type	Mitigation Goals	Objectives & Strategies	Est. Cost	Rank	Status
16-S09-20-01	Union School District	Structure & Infrastructure Projects	Glycol in water heater preventing pipes freezing		\$11,000	High	Completed
		<b>Hazard Type</b>					

		Extreme temperatures					
16-S09-20-02	Union School District	Local Planning & Regulations	Consolidated facilities		\$20,000	High	Completed
		<b>Hazard Type</b>					
		All hazards					
16-S09-20-03	Union School District	Structure & Infrastructure Projects	Replace roof over High School gym		\$1,185,000	High	Completed in 2021
		<b>Hazard Type</b>					
		All hazards					
16-S09-20-04	Union School District	Structure & Infrastructure Projects	Installed metal detectors at entry way		\$85,000	High	Completed
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/Hoisting					
16-S09-20-05	Union School District	Structure & Infrastructure Projects	Replace PA system for better communication		\$28,000	Med	Completed
		<b>Hazard Type</b>					
		All hazards					
16-S09-20-06	Union School District	Education & Awareness Programs	Investigating new fire alarm system at elementary school		\$50,000	Med	Planned for 2022
		<b>Hazard Type</b>					

		Wildfires, Fires					
16-S09-20-07	Union School District	Education & Awareness Programs	Bus Camera System		\$6,600	Med	Completed in 2021
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage Harassment					
16-S09-20-08	Union School District	Structure & Infrastructure Projects	High school entry door locking hardware/electronic locks		\$10,000	High	Completed in 2021
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S09-20-09	Union School District	Structure & Infrastructure Projects	Installation of water filling stations with carbon filters		\$4,000	Med	Completed in 2021
		<b>Hazard Type</b>					
		Hazardous Materials					
16-S09-20-10	Union School District	Education & Awareness Programs	Scheduled Risk and Vulnerability Assessment through PSP		\$0	High	Completed in 2021
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					

16-S09-20-11	Union School District	Education & Awareness Programs	Contract with new Cyber Security/Filter		\$20,000	High	Completed in 2021
		<b>Hazard Type</b>					
		Cyber Security					
16-S09-20-12	Union School District	Structure & Infrastructure Projects	Installation of additional cameras		\$10,000	Med	Partially Completed
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S09-20-13	Union School District	Structure & Infrastructure Projects	Replace windows at Elementary School.	Higher quality for weather resistant and for security threats.	\$296,000	Med	Scheduled for Summer '22
		<b>Hazard Type</b>					
		Terrorism, Kidnapping/H ostage					
16-S09-20-14	Union School District	Education & Awareness Programs	Lack of mass communication	Install PA system for emergency alerts	\$25,000	Low	Scheduled for Summer '22
		<b>Hazard Type</b>					
		All hazards					

## PROJECT NUMBER GUIDE

16                      01                      20                      01

COUNTY              MUNICIPALITY      YEAR SUBMITTED      PROJECT NUMBER

**Appendix G**  
**Public Service Announcements/News Release Chart**

<b>DATE</b>	<b>Item</b>
1/8/19	News release for 2018 End of Year Report
10/22/19	News release for annual hazard mitigation team meeting
10/22/19	News release for public comment for 2019 end of year report
1/14/20	News release for 2019 End of Year Report
1/2/20	Letter to PEMA with 2019 annual report
9/14/20	Press release and letter to municipalities, school districts, PennWest Clarion for yearend review
11/4/20	Team/public meeting annual review
1/8/21	Letter to PEMA with 2020 annual report
1/13/21	Annual review sent to municipalities, school districts, PennWest Clarion for yearend review
7/26/22	Team/public meeting draft review
8/29/22	Letter to municipalities for revised draft plan review
9/26/22	Public meeting for comments on draft plan

## **Appendix H**

### **Public, School Districts, PennWest Clarion and Municipal Comments**

There were no Public or Municipal comments regarding the current plan except for the municipalities that added or updated the progress of current projects.

Several comments were made during the revised draft plan review:

- Elk Township made corrections to some of their hazard mitigation projects.
- Clarion County Career Center suggested corrections to several page numbers in the index and suggested to introduce Clarion Hospital as Butler Health Systems Clarion Hospital.
- Knox Borough updated several of their mitigation projects.

**Appendix I**  
**County, School Districts and Municipality Plan Adoption**  
**Adoption Chart**  
**(Resolutions are kept on file at Clarion County EMA office)**

JURISDICTION	DATE OF ADOPTION
Clarion County	
Ashland Township	
Beaver Township	
Brady Township	
Callensburg Borough	
Clarion Borough	
Clarion Township	
East Brady Borough	
Elk Township	
Farmington Township	
Foxburg Borough	
Hawthorn Borough	
Highland Township	
Knox Borough	
Knox Township	
Licking Township	
Limestone Township	
Madison Township	
Millcreek Township	
Monroe Township	
New Bethlehem Borough	
Paint Township	
Perry Township	
Piney Township	
Porter Township	
Redbank Township	
Richland Township	
Rimersburg Borough	
Salem Township	
Shippenville Borough	
Sligo Borough	
St. Petersburg Borough	
Strattanville Borough	
Toby Township	
Washington Township	
Allegheny-Clarion Valley SD	
Clarion Area SD	
Clarion-Limestone Area SD	
Keystone SD	
North Clarion County SD	
Redbank Valley SD	
Union SD	
PennWest Clarion	

## Appendix J Plan Distribution

**Note: All copies are distributed electronically except printed copy at Commissioners Office**

Agency	Distributed By	Date	Receipt Form
Clarion County Commissioners			
PEMA Harrisburg Office			
PEMA Western Area Office			
Ashland Township			
Beaver Township			
Brady Township			
Callensburg Borough			
Clarion Borough			
Clarion Township			
East Brady Borough			
Elk Township			
Farmington Township			
Foxburg Borough			
Hawthorn Borough			
Highland Township			
Knox Borough			
Knox Township			
Licking Township			
Limestone Township			
Madison Township			
Millcreek Township			
Monroe Township			
New Bethlehem Borough			
Paint Township			
Perry Township			
Piney Township			
Porter Township			
Redbank Township			
Richland Township			
Rimersburg Borough			
Salem Township			
Shipperville Borough			
Sligo Borough			
St. Petersburg Borough			
Strattanville Borough			
Toby Township			
Washington Township			
PennWest Clarion			
Allegheny-Clarion Valley SD			
Clarion Area SD			
Clarion-Limestone Area SD			
Keystone SD			
North Clarion County SD			
Redbank Valley SD			
Union SD			



## **Appendix K**

### **Public Information Brochures**

The following brochures are available on the Clarion County website ([www.co.clarion.pa.us](http://www.co.clarion.pa.us)).

After a Disaster Hiring a Contractor  
DEP Mine Information Pamphlet  
Family Disaster Supply Kit  
Fire Safety During and After a Flood  
Floods and Flash Floods  
Hazardous Materials  
House and Building Fires  
Know How to Use the Phone You Own  
Landslides and Mudflows  
Lyme Disease Factsheet for Hikers/Campers  
Lyme Disease Factsheet for Golfers  
Lyme Disease Factsheet for Outdoor Workers  
Lyme Disease Factsheet for Parents  
Lyme Disease Factsheet for Pregnant Woman  
Mine Consumer Brochure  
Pets and Disasters  
Preparedness for People with Disabilities  
Protect Yourself from H1N1  
Protecting Your Property – Fire  
Protecting Your Property – Flooding  
Safe Computing Tips  
Terrorism  
Thunderstorms and Lightning  
Tornadoes  
Wildland Fires  
Winter Driving  
Winter Storms

**Appendix L**  
**Stormwater Management Ordinance Municipal Participation**

MUNICIPALITY	COUNTY ORDINANCE	DATE RESOLUTION PASSED	MUNICIPAL ORDINANCE	DATE MUNICIPAL ORDINANCE ADOPTED
Ashland Township	Yes	03/07/13		
Beaver Township	Yes	03/04/13		
Brady Township	Yes	03/13/13		
Callensburg Borough	Yes	05/02/13		
Clarion Borough	Yes	04/03/13		
Clarion Township	Yes	04/08/13		
East Brady Borough	Yes	04/16/13		
Elk Township	Yes	03/11/13		
Farmington Township	Yes	03/06/13		
Foxburg Borough	Yes	05/06/13		
Hawthorn Borough	Yes	03/05/13		
Highland Township	Yes	03/19/13		
Knox Borough	Yes	04/01/13		
Knox Township	Yes	03/04/13		
Licking Township			Yes	08/08/12
Limestone Township	Yes	03/12/13		
Madison Township	Yes	04/02/13		
Millcreek Township	Yes	04/02/13		
Monroe Township	Yes	03/07/13		
New Bethlehem Borough	Yes	02/19/13		
Paint Township	Yes	03/11/13		
Perry Township	Yes	03/11/13		
Piney Township	Yes	04/10/13		
Porter Township	Yes	03/11/13		
Redbank Township	Yes	06/11/13		
Richland Township	Yes	03/12/13		
Rimersburg Borough	Yes	03/12/13		
Salem Township	Yes	03/04/13		
Shippenville Borough	Yes	03/13/13		
Sligo Borough	Yes	03/05/13		
St. Petersburg Borough	Yes	02/28/13		
Strattanville Borough	Yes	03/13/13		
Toby Township	Yes	04/10/13		
Washington Township	Yes	03/14/13		

**Appendix M**  
**Floodplain Ordinances Adopted by Municipalities**

<b>Jurisdiction</b>	<b>Adopted</b>	<b>Date</b>
Ashland Township	Yes	9/8/2011
Beaver Township	Yes	11/7/2011
Brady Township	Yes	12/3/2014
Callensburg Borough	Yes	2/4/2015
Clarion Borough	Yes	11/2/2011
Clarion Township	Yes	7/11/2011
East Brady Borough	Yes	11/18/2014
Elk Township	Yes	7/11/2011
Farmington Township	Yes	11/2/2011
Foxburg Borough	Yes	11/3/2014
Hawthorn Borough	Yes	10/7/2014
Highland Township	Yes	11/15/2011
Knox Borough	Yes	8/1/2011
Knox Township	Yes	12/2/2011
Licking Township	Yes	11/9/2011
Limestone Township	Yes	11/8/2011
Madison Township	Yes	12/2/2014
Millcreek Township	Yes	10/26/2011
Monroe Township	Yes	9/12/2011
New Bethlehem Borough	Yes	10/21/2014
Paint Township	Yes	11/21/2011
Perry Township	Yes	11/19/2014
Piney Township	Yes	11/16/2011
Porter Township	Yes	11/10/2014
Redbank Township	Yes	12/9/2014
Richland Township	Yes	12/9/2014
Rimersburg Borough	<b>Not Required</b>	
Salem Township	Yes	11/7/2011
Shippenville Borough	<b>Not Required</b>	
Sligo Borough	Yes	9/6/2011
St. Petersburg Borough	<b>Not Required</b>	
Strattanville Borough	<b>Not Required</b>	
Toby Township	Yes	11/4/2011
Washington Township	Yes	11/10/2011