

Hazard Name	Hazard Description
<p style="text-align: center;">Coastal Erosion</p>	<p>Coastal erosion is a natural coastal process in which sediment outflow exceeds sediment inflow. This movement of sediment can be caused by large storms, flooding, strong wave action, sea level rise, or human activities. Coastal erosion can take place very slowly, with the shoreline shifting only inches to a foot per year (chronic erosion); or more rapidly, with changes exceeding ten feet per year due to a single storm or series of storms (episodic erosion). Apart from portions of Erie County, coastal erosion is not a hazard for communities in Pennsylvania.</p>
<p style="text-align: center;">Drought</p>	<p>Drought is defined as a deficiency of precipitation experienced over an extended period of time, usually a season or more. Droughts increase the risk of other hazards, like wildfires, flash floods, and landslides or debris flows. This hazard is of particular concern in Pennsylvania due to the prevalence of farms and other water-dependent industries, water dependent recreation uses, and residents who depend on wells for drinking water.</p>
<p style="text-align: center;">Earthquake</p>	<p>An earthquake is the motion or trembling of the ground produced by sudden displacement of rock usually within the upper 10-20 miles of the Earth's crust. Earthquakes result from crustal strain, volcanism, landslides, or the collapse of underground caverns. Earthquakes can affect hundreds of thousands of square miles, cause damage to property measured in the tens of billions of dollars, result in loss of life and injury to hundreds of thousands of persons and disrupt the social and economic functioning of the affected area.</p>
<p style="text-align: center;">Expansive Soils</p>	<p>Clay soils have the potential to shrink and swell when they become wetted or dried. Expansive soils do not change size quickly, but over time can result in significant movement that can damage supply lines (e.g. roads, power lines, railways, bridges, etc.) and structures that lack proper design.</p>

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<p style="text-align: center;">Extreme Temperature</p>	<p>Extreme heat often results in the highest number of annual deaths of all weather-related hazards. In most of the United States, extreme heat is defined as a long period (2 to 3 days) of high heat and humidity with temperatures above 90 degrees. Extremely cold air comes every winter in at least part of the country and affects millions of people across the United States. The arctic air, together with brisk winds, can lead to dangerously cold wind chill values. People exposed to extreme cold are susceptible to frostbite and hypothermia in a matter of minutes</p>
<p style="text-align: center;">Flood, Flash Flood, Ice Jam</p>	<p>Flooding is the temporary condition of partial or complete inundation of normally dry land, and it is the most frequent and costly of all-natural hazards in Pennsylvania. Flash flooding is usually a result of heavy localized precipitation falling in a short time period over a given location, often along mountain streams and in urban areas where much of the ground is covered by impervious surfaces. Winter flooding can include ice jams which occur when warm temperatures and heavy rain cause snow to melt rapidly. Snow melt combined with heavy rains can cause frozen rivers to swell, which breaks the ice layer on top of a river. The ice layer often breaks into large chunks, which float downstream, piling up in narrow passages and near other obstructions such as bridges and dams</p>
<p style="text-align: center;">Hailstorm</p>	<p>Hailstorms occur when ice crystals form within a low-pressure front due to the rapid rise of warm air into the upper atmosphere and the subsequent cooling of the air mass. Frozen droplets gradually accumulate on the ice crystals until, having developed sufficient weight, they fall as precipitation in the form of balls or irregularly shaped masses of ice greater than 0.75 inches in diameter. Hailstorms can cause significant damage to homes, vehicles, livestock, and people.</p>

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<p>Hurricane, Tropical Storm, Nor'easter</p>	<p>Hurricanes, tropical storms, and nor'easters are classified as cyclones and are any closed circulation developing around a low-pressure center in which the winds rotate counterclockwise (in the Northern Hemisphere) and whose diameter averages 10-30 miles across. Potential threats from hurricanes include powerful winds, heavy rainfall, storm surges, coastal and inland flooding, rip currents, tornadoes, and landslides. The Atlantic hurricane season runs from June 1 to November 30.</p>
<p>Invasive Species</p>	<p>An invasive species is a species that is not indigenous to the ecosystem under consideration and whose introduction causes or is likely to cause economic, environmental, or human harm. These species can be any type of organism: plant, fish, invertebrate, mammal, bird, disease, or pathogen.</p>
<p>Landslide</p>	<p>In a landslide, masses of rock, earth or debris move down a slope. Landslides can be caused by a variety of factors, including earthquakes, storms, fire, and human modification of land. Areas that are prone to landslide hazards include previous landslide areas, areas on or at the base of slopes, areas in or at the base of drainage hollows, developed hillsides with leach field septic systems, and areas recently burned by forest or brush fires.</p>
<p>Lightning Strike</p>	<p>Lightning is a giant spark of electricity resulting from the build-up of positive and negative charges within a thunderstorm. The flash or "bolt" of light can occur within the thunderstorm cloud or between the cloud and the ground. Lightning is a leading cause of injury and death from weather-related hazards. Although most lightning victims survive, people struck by lightning often report a variety of long-term, debilitating symptoms.</p>

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Pandemic and Infectious Disease	A pandemic is a global outbreak of disease that occurs when a new virus emerges in the human population, spreading easily in a sustained manner, and causing serious illness. An epidemic describes a smaller scale infectious outbreak, within a region or population, that emerges at a disproportional rate. Infectious disease outbreaks may be widely dispersed geographically, impact large numbers of the population, and could arrive in waves lasting several months at a time.
Radon Exposure	Radon is a radioactive gas produced by the breakdown of uranium in soil and rock that can lead to lung cancer in people exposed over a long period of time. Most exposure comes from breathing in radon gas that enters homes and buildings through foundation cracks and other openings. According to the DEP, approximately 40% of Pennsylvania homes have elevated radon levels.
Subsidence, Sinkhole	Land subsidence is a gradual settling or sudden sinking of the ground surface due to the movement of subsurface materials. A sinkhole is a subsidence feature resulting from the sinking of surficial material into a pre-existing subsurface void. Subsidence and sinkholes are geologic hazards that can impact roadways and buildings and disrupt utility services. Subsidence and sinkholes are most common in areas underlain by limestone and can be exacerbated by human activities such as water, natural gas, and oil extraction.

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<p style="text-align: center;">Tornado, Windstorm</p>	<p>A tornado is a narrow, violently rotating column of air that extends from the base of a thunderstorm to the ground. About 1,250 tornadoes hit the U.S. each year, with about 16 hitting Pennsylvania. Damaging winds exceeding 50-60 miles per hour can occur during tornadoes, severe thunderstorms, winter storms, or coastal storms. These winds can have severe impacts on buildings, pulling off the roof covering, roof deck, or wall siding and pushing or pulling off the windows.</p>
<p style="text-align: center;">Wildfire</p>	<p>A wildfire is an unplanned fire that burnt in a natural area. Wildfires can cause injuries or death and can ruin homes in their path. Wildfires can be caused by humans or lightning, and can happen anytime, though the risk increases in period of little rain. In Pennsylvania, 98% of wildfires are caused by people.</p>
<p style="text-align: center;">Winter Storm</p>	<p>A winter storm is a storm in which the main types of precipitation are snow, sleet, or freezing rain. A winter storm can range from a moderate snowfall or ice event over a period of a few hours to blizzard conditions with wind-driven snow that lasts for several days. Most deaths from winter storms are not directly related to the storm itself, but result from traffic accidents on icy roads, medical emergencies while shoveling snow, or hypothermia from prolonged exposure to cold.</p>
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<p style="text-align: center;">Building and Structure Collapse</p>	<p>Buildings and other engineered structures, including bridges, may collapse if their structural integrity is compromised, especially due to effects from other natural or human-made hazards. Older buildings or structures, structures that are not built to standard codes, or structures that have been weakened are more susceptible to be affected by these hazards.</p>
<p style="text-align: center;">Civil Disturbance</p>	<p>A civil disturbance is defined by FEMA as a civil unrest activity (such as a demonstration, riot, or strike) that disrupts a community and requires intervention to maintain public safety</p>

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<p style="text-align: center;">Cyber Terrorism</p>	<p>Cyber terrorism refers to acts of terrorism committed using computers, networks, and the Internet. The most widely cited definition comes from Denning’s Testimony before the Special Oversight Panel on Terrorism: “Cyberterrorism...is generally understood to mean unlawful attacks and threats of attack against computers, networks, and the information stored therein when done to intimidate or coerce a government or its people in furtherance of political or social objectives. Further, to qualify as cyberterrorism, an attack should result in violence against persons or property, or at least cause enough harm to generate fear.”</p>
<p style="text-align: center;">Dam Failure</p>	<p>Dam failure is the uncontrolled release of water (and any associated wastes) from a dam. This hazard often results from a combination of natural and human causes, and can follow other hazards such as hurricanes, earthquakes, and landslides. The consequences of dam failures can include property and environmental damage and loss of life.</p>
<p style="text-align: center;">Disorientation</p>	<p>Large numbers of people are attracted to Pennsylvania’s rural areas for recreational purposes such as hiking, camping, hunting, and fishing. As a result, people can become lost or trapped in remote and rugged wilderness areas. Search and rescue may be required for people who suffer from medical problems or injuries and those who become accidentally or intentionally disoriented. Search and rescue efforts are focused in and around state forest and state park lands.</p>

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<p style="text-align: center;">Drowning</p>	<p>Drowning is death from suffocation, typically associated with swimming, fishing, boating or bridge accidents, or suicide. It can be a significant hazard in communities with numerous residential pools or water bodies (e.g. ponds, lakes, rivers, etc...) and extensive outdoor recreational activity. Drowning rates are particularly high for children ages 1-14. The Centers for Disease Control and Prevention estimates that drowning is the second leading cause of injury death (after motor vehicle crashes) among children ages 1-14.</p>
<p style="text-align: center;">Environmental Hazards – Coal Mining</p>	<p>Major impacts from coal mining include subsidence, landscape changes, and the chemical degradation of surface and subsurface waters. In addition, active and abandoned mines can result in injury and loss of human life. In active mines, workers can be injured or killed by mine collapse, entrapment, poisonous gases, inundation, explosions, fires, equipment malfunction, or improper ventilation. In abandoned mines, causes of injury or death include falling and drowning.</p>
<p style="text-align: center;">Environmental Hazards – Coal Mining</p>	<p>Many of the hazards associated with conventional oil and gas extraction relate to the contamination of surface and subsurface waters. Abandoned oil and gas wells that are not properly plugged can contaminate groundwater and pollute domestic drinking water wells. In addition, surface waters and soil can be contaminated by brine, a salty wastewater product of oil and gas well drilling, or by oil spills. This pollution can degrade public drinking water supplies and disrupt aquatic ecosystems.</p>

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<p align="center">Environmental Hazards – Gas and Liquid Pipelines</p>	<p>Pipeline failures are low-probability, potentially high-consequence events. Although gas and liquid pipeline failures are infrequent, the hazardous and inflammable materials released by these events can pose a significant threat to public safety and the built and natural environment. Explosions associated with pipeline failures, for example, can cause severe injury to nearby residents and destroy homes and other property.</p>
<p align="center">Environmental Hazards – Hazardous Materials Releases</p>	<p>Hazardous material releases can contaminate air, water, and soils and have the potential to cause injury or death. Dispersion can take place rapidly when transported by water and wind. While often accidental, releases can occur as a result of human carelessness, intentional acts, or natural hazards. When caused by natural hazards, these incidents are known as secondary events.</p>
<p align="center">Environmental Hazards – Unconventional Oil and Gas Wells</p>	<p>In addition to the hazards associated with conventional oil and gas extraction, potential hazards from Marcellus Shale gas wells include surface water depletion affecting drinking water supplies and aquatic ecosystems; contaminated surface and groundwater resulting from hydraulic fracturing and the recovery of contaminated hydraulic fracturing fluid; and mishandling of solid toxic waste.</p>
<p align="center">Levee Failure</p>	<p>A levee is a human-made structure, usually an earthen embankment, designed and constructed in accordance with sound engineering practices to contain, control, or divert the flow of water to provide protection from temporary flooding (FEMA, 2016). A levee failure or breach occurs when a levee fails to prevent flooding on the landside of the levee. The consequences of a sudden levee failure can be catastrophic, with the resulting flooding causing loss of life, emergency evacuations, and significant property damage.</p>

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<p>Mass Food/Animal Feed Contamination</p>	<p>Mass food or animal feed contamination hazards occur when food or food sources are contaminated with pathogenic bacteria, viruses, or parasites, or with chemical or natural toxins. Mass food contamination can occur during the production, processing, or distribution of foods. Incidences of mass contamination may lead to foodborne illnesses and/or interruptions in the food supply.</p>
<p>Nuclear Incident</p>	<p>Nuclear explosions can cause significant damage and casualties from blast, heat, and radiation. The primary concern following a nuclear accident or nuclear attack is the extent of radiation, inhalation, and ingestion of radioactive isotopes which can cause acute health effects (e.g. death, burns, severe impairment), chronic health effects (e.g. cancer), and psychological effects.</p>
<p>Opioid Addiction</p>	<p>Opioid addiction occurs when an individual becomes physically dependent on opioids, which include opiates and narcotics. Opioids are a synthetic substance found in certain prescription pain medications: morphine, codeine, methadone, oxycodone, hydrocodone, fentanyl, and hydromorphone, and street drugs like heroin. Opioids block the body's ability to feel pain and can create a sense of euphoria. Individuals often build a tolerance to opioid drugs, which leads them to take more of the medication than originally prescribed.</p>
<p>Terrorism</p>	<p>Terrorism is use of force or violence against persons or property with the intent to intimidate or coerce. Acts of terrorism include threats of terrorism; assassinations; kidnappings; hijackings; bomb scares and bombings; cyber-attacks (computer-based); and the use of chemical, biological, nuclear, and radiological weapons. Cyber-attacks have become an increasingly pressing concern.</p>

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<p style="text-align: center;">Transportation Accident</p>	<p>Transportation accidents are technological hazards involving the nation’s system of land, sea, and air transportation infrastructure. A flaw or breakdown in any component of this system can and often does result in a major disaster involving loss of life, injuries, property and environmental damage, and economic consequences.</p>
<p style="text-align: center;">Urban Fire and Explosion</p>	<p>Urban fire and explosion hazards include vehicle and building/structure fires as well as overpressure rupture, overheating, or other explosions that do not ignite. This hazard occurs in denser, more urbanized areas statewide and most often occurs in residential structures. Nationally, fires cause over 3,000 deaths and approximately 16,000 injuries each year.</p>
<p style="text-align: center;">Utility Interruption</p>	<p>Utility interruption hazards are hazards that impair the functioning of important utilities in the energy, telecommunications, public works, and information network sectors. Utility interruption hazards include the following:</p> <ul style="list-style-type: none"> • Geomagnetic Storms • Fuel or Resource Shortage • Electromagnetic Pulse • Information Technology Failure • Ancillary Support Equipment • Public Works Failure • Telecommunications System Failure • Transmission Facility or Linear Utility Accident • Major Energy, Power, Utility Failure

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<p style="text-align: center;">War and Criminal Activity</p>	<p>War and criminal activity hazards are intentional acts of violence, damage to property, and other criminal activities. This category specifically includes the following hazards:</p> <ul style="list-style-type: none"> • War, Enemy Attack; foreign attack on territory of the United States • Disinformation, Sabotage; intentionally spread inaccurate information, for example, interfering or impairing an operator’s management or control of an organization • Criminal Activity; lawlessness, acts committed for which punishment is imposed upon conviction after due process • Physical or Information Security Breach; contravening security and confidentiality laws and procedures; burglary, unreasonable search, and seizure, for example • Workplace, School Violence; some environments are more likely than others to experience violence including occupations involving contact with the public • Harassment; a pattern of conduct that causes substantial emotional distress with no legal purpose • Discrimination; widespread treatment based on class, category, or prejudice rather than merit, applies extensively to civil and labor law