



5. IDENTIFICATION OF HAZARDS OF CONCERN

5.1 REVIEW OF POTENTIAL HAZARDS

To provide a strong foundation for mitigation actions in this plan, Sussex County considered a full range of hazards that could impact the area and then identified and ranked those that present the greatest concern. These hazards of concern were identified based on the following:

- Input from all Planning Partners
- Review of the New Jersey State Hazard Mitigation Plan
- Review of the 2021 Sussex County HMP
- Research on the frequency, magnitude, and costs associated with hazards that have previously or could feasibly impact the region
- Qualitative information regarding natural (not human-caused) hazards and the perceived vulnerability of the study area's assets to them.

Hazards of Concern are hazards that are considered most likely to impact a community. These are identified using available data and local knowledge.

Natural Hazards are hazards that are a source of harm or difficulty created by a meteorological, environmental, or geological event.

Table 5-1 documents the process of identifying the hazards of concern for further profiling and evaluation. Based on the review of potential hazards of concern, 13 hazards of concern were identified as significant hazards affecting the entire County, to be addressed at the County level in this plan (shown here in alphabetical order):

- Dam failure
- Disease outbreak
- Drought
- Earthquake
- Flood
- Geological hazards
- Hazardous materials
- Hurricane
- Infestation
- Nor'easter
- Severe weather
- Severe winter weather
- Wildfire

Other natural and human-caused hazards of concern have occurred within Sussex County, but have a low potential to occur, are addressed by other planning mechanisms, and/or do not result in significant impacts within the County. Therefore, these hazards are not addressed in this update. If deemed necessary by the County, these hazards may be considered in future plan updates.



Table 5-1. Review of Hazards of Concern for Sussex County

Hazard	May Occur in the County?	Poses Significant Threat to the County?	Why was this determination made?	Sources
Animal Disease	Yes	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies animal disease as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider animal disease to be a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Civil Unrest	Yes	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies civil unrest as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider civil unrest to be a hazard of concern for this HMP as it is addressed in other preparedness plans. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Coastal Erosion	Yes	Yes	Please see Flood	
Crop Failure	Yes	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies crop failure as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider crop failure to be a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Cyber Attack	Yes	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies cyber-attack as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider cyber-attack to be a hazard of concern for this HMP as it is addressed in other preparedness plans. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Dam and Levee Failure	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies dam failure as a hazard of concern for New Jersey. Sussex County has 40 dams classified high hazard and 39 dams classified significant hazard. The Planning Partnership identified dam failure as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input USACE National Inventory of Dams
Disease Outbreak	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies pandemic as a hazard of concern for New Jersey. Sussex County has been identified in two FEMA declarations for COVID-19. Sussex County has been impacted by mosquito and tick-borne diseases, and recently, the COVID-19 pandemic. The Planning Partnership identified disease outbreak as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA Sussex County Department of Health Planning Partnership Input



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Hazard	May Occur in the County?	Poses Significant Threat to the County?	Why was this determination made?	Sources
Drought	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies drought as a hazard of concern for New Jersey. New Jersey has entered periods of drought and Sussex County has experienced droughts classified in the abnormally dry and moderate categories. The Planning Partnership identified drought as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI USDA U.S. Drought Monitor NDMC Planning Partnership Input
Earthquake	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies earthquakes as a hazard of concern for New Jersey. Although the County has not experienced a major earthquake, there have been 17 instances where the epicenter of an earthquake was located in Sussex County, the most recent occurring in 2020. The Planning Partnership identified earthquake as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NJGWS USGS Planning Partnership Input
Economic Collapse	Yes	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies economic collapse as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider economic collapse to be a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Extreme Temperature	Yes	Yes	Please see Severe Weather and Winter Weather	
Fishing Failure	No	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies fishing failure as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider fishing failure to be a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Flood (riverine, lakeshore, ice jam, dam failure, urban flooding, and flash flooding)	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies flood as a hazard of concern for New Jersey. Sussex County was included in 9 FEMA declarations where flooding may have occurred. Sussex County has been included in numerous flood and flash flood events from the NOAA database since 2018. The Planning Partnership identified flood as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input



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Hazard	May Occur in the County?	Poses Significant Threat to the County?	Why was this determination made?	Sources
Geological Hazards	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies landslides and land subsidence as hazards of concern for New Jersey. Carbonate rock formations are found in the northern portion of the County, which are susceptible to natural subsidence. Between January 2015 and May 2021, there have been no identified geological hazard events in Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA 2021 Sussex County HMP USGS NJGWS Planning Partnership Input
Hurricane (tropical cyclones, including tropical storms and tropical depressions)	Yes	Yes	<ul style="list-style-type: none"> The New Jersey State HMP identifies hurricanes/tropical storms as hazards of concern for New Jersey. Due to its proximity to the Atlantic Ocean, Sussex County is susceptible to hurricanes and tropical storms. From 2018 to present, two tropical storms came within 50 nautical miles of Sussex County and three hurricanes came within 50 nautical miles. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NHC NOAA NCEI Planning Partnership Input
Ice Jams	Yes	Yes	Please see Flood	
Ice Storm	Yes	Yes	Please see Severe Winter Weather	
Invasive Species/ Infestation	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP does not identify invasive species as a hazard of concern for New Jersey. Sussex County has a diverse landscape with development woven through natural areas. Pests in Sussex County that compete for natural resources or transmit diseases to humans, livestock, and the environment include insects and invasive plants. Due to the large, forested area in the southern portion of the County and the abundance of parkland throughout, emerald ash borer and other pests that damage trees have become an increased focus. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Land Subsidence	Yes	Yes	Please see Geological Hazards	
Landslide	Yes	Yes	Please see Geological Hazards	
Nor'easters (extra-tropical cyclones, including severe winter low-pressure systems)	Yes	Yes	<ul style="list-style-type: none"> The New Jersey State HMP identifies nor'easters as a hazard of concern for New Jersey. Due to its proximity to the Atlantic Ocean and location geographically, Sussex County is susceptible to nor'easters. Between 2018 and 2023, Sussex County experienced several impactful nor'easter events. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NOAA NCEI Storm Database Planning Partnership Input



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Hazard	May Occur in the County?	Poses Significant Threat to the County?	Why was this determination made?	Sources
Pandemic	Yes	Yes	Please see Disease Outbreak	
Power Failure	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies power failure as a hazard of concern for New Jersey. Sussex County experiences utility failures (generally power outages) several times each year. These failures are usually due to severe storms or severe winter storms that affect the county. The Steering Committee and Planning Partnership consider utility failure a cascading impact of severe storm, severe winter storm, and flooding events and included discussion of utility failure in those hazard profiles. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Sea Level Rise	Yes	Yes	Please see Flood	
Seiche / Coastal Flood	Yes	Yes	Please see Flood	
Severe Weather (windstorms, thunderstorms, hail, and tornadoes)	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies severe weather as a hazard of concern for New Jersey. Sussex County was included in 7 FEMA declarations between 2000-2023 in relation to severe storms. The Planning Partnership identified severe weather as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Severe Winter Weather (heavy snow, blizzards, ice storms)	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies severe winter weather as a hazard of concern for New Jersey. Sussex County was included in 4 FEMA disaster declarations for winter weather between 1993-2023. The Planning Partnership identified severe winter weather as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Terrorism	No	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies terrorism as a hazard of concern for New Jersey. The Steering Committee and Planning Partnership do not consider terrorism to be a hazard of concern for this HMP as it is addressed in other preparedness plans. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Tornado	Yes	Yes	Please see Severe Weather hazard	
Utility Failure	Yes	Yes	Please see Power Failure	



Hazard	May Occur in the County?	Poses Significant Threat to the County?	Why was this determination made?	Sources
Wildfire	Yes	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies wildfire as a hazard of concern for New Jersey. There have been many occurrences of wildfires of varying severity in Sussex County. The Planning Partnership identified wildfire as a hazard of concern for Sussex County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA New Jersey Forest Fire Service Planning Partnership Input

- FEMA Federal Emergency Management Agency
- HMP Hazard Mitigation Plan
- NDMC National Drought Mitigation Center
- NCEI National Centers for Environmental Information
- NHC National Hurricane Center
- NJGWS New Jersey Geological and Water Survey
- NOAA National Oceanic and Atmospheric Administration
- USDA U.S. Department of Agriculture
- USGS United States Geologic Survey

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5.2 HAZARD DEFINITIONS AND GROUPINGS

The Steering Committee approved use of the following hazard definitions and groupings:

- Dam failures are any instances when a dam is damaged, destroyed or otherwise overtopped, releasing water or other liquid stored behind the dam.
- Disease outbreak occurs when a new virus emerges in the human population, spreading easily in a sustained manner and causing serious illness. Of particular concern in Sussex County are viruses with biological transmission to susceptible hosts (mammals, such as humans) from blood-feeding arthropods (mosquitos and ticks).
- A drought is a period characterized by long durations of below normal precipitation.
- An earthquake is the sudden movement of the earth's surface caused by the release of stress accumulated within or along the edge of the earth's tectonic plates, a volcanic eruption, or a man-made activities that cause geologic stresses.
- The flood hazard includes riverine flooding, flash flooding, urban and stormwater flooding, coastal flooding, and ice jam flooding. Inclusion of these forms of flooding under a general flood hazard is consistent with that used in FEMA's Multi-Hazard Identification and Risk Assessment guidance and the New Jersey HMP.
- Geological hazards include landslides, subsidence, and sinkholes. A landslide refers to the downslope movement of earthen materials as falls, topples, slides, spreads, or flows. Subsidence occurs when groundwater is withdrawn from an area characterized predominantly of fine-grained sediment rocks.
- The hazardous materials profile includes materials and wastes that are considered severely harmful to human health and the environment, as defined by the U.S. Environmental Protection Agency (EPA) Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) (also known as Superfund). Many hazardous materials are commonly used substances, which are harmless in their normal uses but are quite dangerous if released.
- A hurricane is a tropical cyclone with maximum sustained winds of at least 74 miles per hour. In this hazard profile, all tropical cyclones are discussed – tropical depressions, tropical storms, hurricanes, and major hurricanes.
- An infestation is the presence of native or invasive pest organisms within an area or field, on the surface of a host, or in soil at numbers or quantities large enough to harm, threaten, or otherwise negatively affect native plants, animals, and humans.
- A nor'easter is a cyclonic storm that moves along the east coast of North America. It is called a nor'easter because the damaging winds over coastal areas blow from a northeasterly direction. Nor'easters are most frequent and strongest between September and April.
- The severe weather hazard includes windstorms that often entail a variety of other influencing weather conditions. For this HMP update, severe weather includes thunderstorms, lightning, hail, high winds, tornadoes, and extreme temperature.
- The severe winter weather hazard includes heavy snow, blizzards, ice storms, sleet, and freezing rain.
- Wildfire is any non-structural fire that occurs in the wildland. Wildfires result in the disturbance of forest and brush and destruction of real estate and personal property and have secondary impacts on other hazards, such as flooding, by removing vegetation and disturbing watersheds.

These definitions and groupings are the same as those provided by FEMA (FEMA 386-2 Understanding Your Risks, Identifying Hazards and Estimating Losses; Multi-Hazard Identification and Risk Assessment – The Cornerstone of



the National Mitigation Strategy; Local Mitigation Planning Handbook) and take into consideration the hazard grouping in the New Jersey HMP.

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