



SECTION 4. RISK ASSESSMENT

4.1 IDENTIFICATION OF HAZARDS OF CONCERN

To provide a strong foundation for mitigation strategies considered in Section 6 (Mitigation Strategy), Burlington County considered a full range of natural hazards that could impact the area, and then identified and ranked those hazards that presented the greatest concern. The natural hazard of concern identification process incorporated input from the County and participating jurisdictions; review of the State of New Jersey Hazard Mitigation Plan and previous hazard identification efforts; research and local, state, and federal information on the frequency, magnitude, and costs associated with the various hazards that have previously, or could feasibly, impact the region; and qualitative or anecdotal information regarding natural hazards and the perceived vulnerability of the study area's assets to them.

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

For the purposes of this planning effort, the Planning Partnership chose to group some natural hazards together, based on the similarity of hazard events, their typical concurrence or their impacts, consideration of how hazards have been grouped in FEMA guidance documents (FEMA 386-1, "Understanding Your Risks, Identifying Hazards and Estimating Losses; FEMA's "Multi-Hazard Identification and Risk Assessment – The Cornerstone of the National Mitigation Strategy"), and consideration of hazard groupings in the State of New Jersey HMP.

4.1.1 Changes from the 2019 Hazard Mitigation Plan

Since the development of the last plan, hazards and disasters not assessed in the prior plan have occurred in the Planning Area. These hazards were identified by stakeholders as areas to address in the plan. Many of the hazards of concern for the Burlington County 2024 HMP update are the same as Burlington County's 2019 plan. A few hazards were renamed to be more encompassing, and a few hazards were removed.

- The prior plan did not address Disease Outbreak. Beginning in March 2020, the Planning Area was hit with the COVID-19 pandemic along with the rest of the world. The new Disease Outbreak hazard profile includes Influenza, West Nile Virus, Lyme Disease, and the novel coronavirus (COVID-19).
- The prior plan addressed extreme temperature in the Severe Weather hazard profile. The update addresses extreme temperatures as its own section.
- The prior plan addressed dam failure in the Flood hazard profile. The update addresses dam failure as its own section.
- The plan update removed the Coastal Erosion hazard profile and incorporated it into the Flood hazard profile. After reviewing the 2019 HMP and current conditions, the Steering Committee noted that coastal erosion in the County is primarily associated with flooding events. The plan update also



includes riverine flooding, coastal flooding, flash flooding, stormwater flooding, ice jams, and sea level rise in the Flood hazard profile.

- The Landslide hazard profile was removed from this 2024 update in recognition of the infrequency and low risk of the hazard in Burlington County.
- The 2024 Burlington County Hazard Mitigation Plan Update includes best available data throughout the plan to present an updated understanding the Planning Area's risk.

4.1.2 Hazard Groupings

As per the 2019 Burlington County HMP, the Planning Team maintained the grouping of hazards based on the similarity of hazard events, typical concurrence or impacts, consideration of how hazards have been grouped in FEMA guidance documents (*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 consideration of hazard grouping in the State of New Jersey HMP.



The *Dam Failure* profile addresses dam failures that may impact the Planning Area.



The *Disease Outbreak* hazard profile addresses diseases with the potential to impact the Planning Area, including Influenza, West Nile Virus, Lyme Disease, and the novel coronavirus (COVID-19).



The *Drought* hazard profile specifically addresses drought events that may impact the Planning Area.



The *Earthquake* hazard profile addresses earthquake events that may impact the Planning Area.



The *Extreme Temperature* hazard profile specifically addresses periods of extreme heat and cold that may impact the Planning Area.



The *Flood* hazard addressed various flood hazards with the potential to impact the Planning Area, including riverine flooding, coastal flooding, flash flooding, stormwater flooding, ice jams, erosion, and sea level rise. Inclusion of the various forms of flooding is consistent with that used in FEMA's *Multi-Hazard Identification and Risk Assessment* guidance.



The *Severe Weather* hazard profile specifically addresses high wind events, tornadoes, thunderstorms and lightning, hailstorms, and hurricanes and tropical storms that may impact the Planning Area. This grouping is consistent with the State of New Jersey HMP.



The Severe *Winter Weather* profile includes blizzards, heavy snow, ice storms, nor'easters, and sleet that may impact the Planning Area. This grouping is consistent with the State of New Jersey HMP.



The *Wildfire* profile addresses wildfires that may impact the Planning Area.

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4.1.3 Hazards of Concern for the 2024 Hazard Mitigation Plan

Table 4.1-1 documents the process of identifying the natural hazards of concern for further profiling and evaluation.

Table 4.1-1. Identification of Hazards of Concern for Burlington County

Hazard	Is this a hazard that may occur in Burlington County?	Why was this determination made?	Source(s)
Coastal Erosion	Yes, see Flood profile	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies coastal erosion as a hazard of concern for New Jersey in the Coastal Erosion and Sea Level Rise hazard profile. Burlington County stretches from the Delaware River to the Mullica River, in which coastal erosion has the potential to occur along tidal waterways. Fluvial erosion can occur along rivers, streams, and creeks in the County. The Planning Partnership identified erosion as a hazard that may impact the County. However, the coastal erosion hazard was identified as a condition associated with flooding and has included erosion within the flood hazard profile. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI USACE Stockton Coastal Research Center Planning Partnership Input
Dam Failure	Yes	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Dam Failure as a hazard of concern for New Jersey. Burlington County has 10 high hazard classified dams and 40 dams with a significant hazard potential classification. The Planning Partnership identified Dam Failure as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input USACE National Inventory of Dams
Disease Outbreak	Yes – Influenza, West Nile Virus, Lyme Disease, and the novel coronavirus (COVID-19)	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Pandemic as a hazard of concern for New Jersey. Burlington County State has been identified in 2 FEMA declarations for COVID-19. Burlington 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 Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA Burlington County Department of Health Planning Partnership Input
Drought	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 Burlington County has experienced droughts classified in the abnormally dry and moderate categories. The Planning Partnership identified Drought as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI USDA U.S. Drought Monitor NDMC Planning Partnership Input



Hazard	Is this a hazard that may occur in Burlington County?	Why was this determination made?	Source(s)
Earthquake	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 has been 10 instances where the epicenter of an earthquake was located in Burlington County, the most recent occurring in 2018. The Planning Partnership identified Earthquake as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NJGWS USGS Planning Partnership Input
Extreme Temperature	Yes – heat and cold	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Flood as a hazard of concern for New Jersey. Burlington County has been included in four documented NOAA events since 2021. One being cold/wind chill, and the remaining three being extreme heat. The Planning Partnership identified Extreme Temperature as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> FEMA NOAA NCEI Planning Partnership Input
Flood	Yes – riverine, coastal, flash flooding, stormwater flooding, ice jams, erosion, and sea level rise	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Flood as a hazard of concern for New Jersey. Burlington County was included in 32 emergency declaration where flooding may have occurred. Burlington County has been included in numerous flood and flashflood events from the NOAA database since 2018. The Planning Partnership identified Flood as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Geologic Hazards	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Landslides and Land Subsidence as hazards of concern for New Jersey. Previous analysis of Burlington County has shown that the risks associated with geologic hazards are extremely minimal. The Planning Partnership elected to not include this hazard. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA 2019 Burlington County HMP USGS NJGWS Planning Partnership Input
Invasive Species	No	<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. It is understood that invasive species are present in the County; however, the actions to mitigate invasive species are few, and unlikely to occur or be funded. The Planning Partnership elected to not include invasive species as a hazard of concern. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA Planning Partnership Input

4.1 | IDENTIFICATION OF HAZARDS OF CONCERN



Hazard	Is this a hazard that may occur in Burlington County?	Why was this determination made?	Source(s)
Land Subsidence (includes abandoned mines)	No	Please see Geological Hazards	
Landslide (includes mudslides)	No	Please see Geological Hazards	
Sea Level Rise	Yes – this is profiled in with flooding	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies sea level rise as a hazard of concern for New Jersey in the Coastal Erosion and Sea Level Rise hazard profile. Burlington County stretches from the Delaware River to the Mullica River. These rivers and their tributaries are tidally influenced and are likely to be impacted by sea level rise. The Planning Partnership identified Sea Level Rise as a hazard that may impact the County and has included sea level rise in the Flood hazard profile. 	<ul style="list-style-type: none"> New Jersey State HMP NOAA Rutgers University Planning Partnership Input
Seiche / Coastal Flooding	Yes – this is profiled in with flooding	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies seiche/coastal flooding as a hazard of concern for New Jersey with the Flood hazard profile. Burlington County stretches from the stretches from the Delaware River to the Mullica River. These rivers and their tributaries are tidally influenced and are impacted by coastal flooding. The Planning Partnership identified Coastal Flooding as a hazard that may impact the County and has included coastal flooding in the Flood hazard profile. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Severe Weather	Yes – high wind events, tornadoes, thunderstorms and lightning, hailstorms, and hurricanes and tropical storms	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Severe Weather as a hazard of concern for New Jersey. Burlington County was included in 28 FEMA declarations between 1985-2022 in relation to severe storms. The Planning Partnership identified Severe Weather as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Severe Winter Weather	Yes – blizzards, heavy snow, ice storms, nor'easters, and sleet	<ul style="list-style-type: none"> The 2019 New Jersey State HMP identifies Severe Winter Weather as a hazard of concern for New Jersey. Burlington County was included in 4 FEMA disaster declarations for winter weather between 2000-2022. The Planning Partnership identified Severe Winter Weather as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input

4.1 | IDENTIFICATION OF HAZARDS OF CONCERN



Hazard	Is this a hazard that may occur in Burlington County?	Why was this determination made?	Source(s)
Space Weather	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP does not identify Space Weather as a hazard of concern for New Jersey. The Planning Partnership elected to not include this hazard. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Storm Surge	Yes – this is profiled in with flooding	<ul style="list-style-type: none"> The 2019 New Jersey State HMP discusses storm surge within the Hurricane and Tropical Storm hazard profile. Burlington County stretches from the stretches from the Delaware River to the Mullica River. These rivers and their tributaries are tidally influenced and are impacted by storm surges. The Planning Partnership identified storm surge as a hazard that may impact the County and has included storm surge/ coastal flooding in the Flood hazard profile. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Tornado	Yes – this is profiled in with severe weather	<ul style="list-style-type: none"> The 2019 New Jersey State HMP discusses tornadoes within the Severe Weather hazard profile. Burlington County has had 5 tornadoes since 2018, according to NOAA NCEI. The Planning Partnership identified tornado as a hazard that may impact the County and has included tornado in the Severe Weather hazard profile 	<ul style="list-style-type: none"> New Jersey State HMP FEMA NOAA NCEI Planning Partnership Input
Tsunami	No	<ul style="list-style-type: none"> The 2019 New Jersey State HMP does not identify tsunami as a hazard of concern for New Jersey. While Burlington County is located on the Atlantic coast, it is not likely to be impacted by tsunami's. The Planning Partnership elected to not include tsunami as a hazard of concern. 	<ul style="list-style-type: none"> New Jersey State HMP Planning Partnership Input
Wildfire	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 Burlington County. The Planning Partnership identified Wildfire as a hazard of concern for Burlington County. 	<ul style="list-style-type: none"> New Jersey State HMP FEMA New Jersey Forest Fire Service Planning Partnership Input

Notes:



According to input from the County, and review of all available resources, a total of nine hazards concern were identified as significant hazards affecting the entire planning area, to be addressed at the county level in this plan:

- Dam Failure
- Disease Outbreak
- Drought
- Earthquake
- Extreme Temperature
- Flood
- Severe Weather
- Severe Winter Weather
- Wildfire

Other natural and human-caused hazards of concern have occurred within Burlington County, have a low potential to occur and/or result in significant impacts within the County, or are covered in other plans that specifically address technological and intentional hazards. Therefore, these hazards will not be further addressed within this version of the plan. However, if deemed necessary by the County, these hazards may be considered in future versions of the HMP.