



5.2 IDENTIFICATION OF HAZARDS OF CONCERN

2016 HMP Update Changes

- The 2010 HMP hazard identification was presented in Section 3. For the 2016 HMP update, the hazard identification is presented in subsection 5.2 (Risk Assessment – Identification of Hazards of Concern).
- The Steering Committee chose to group some natural hazards together based on the similarity of hazard events, their typical occurrence or impacts, and consideration of hazard grouping in the 2014 State of New Jersey Hazard Mitigation Plan (NJ HMP).

To provide a strong foundation for mitigation strategies considered in Section 6, Cape May 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 2014 NJ HMP and previous hazard identification efforts; research of 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. Table 5.2-1 documents the process of identifying the natural hazards of concern for further profiling and evaluation.

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 Steering Committee 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 grouping in the 2014 NJ HMP.

The “Flood” hazard includes riverine (inland) and coastal flooding. Other types of flooding that can occur in the county include flooding from dam failures which is further discussed under the dam failure hazard in Section 5.4.1 (Dam Failure). Inclusion of the various forms of flooding under a general “Flood” hazard is consistent with that used in FEMA’s *Multi-Hazard Identification and Risk Assessment* guidance.

Tropical cyclones (hurricanes, tropical storms, and tropical depressions) and extra-tropical cyclones (Nor’Easters) were grouped under the “Hurricane/Tropical” and “Nor’Easter” hazards, respectively. The “Severe Weather” hazard includes windstorms that often entail a variety of other influencing weather conditions including thunderstorms, extreme temperatures, hail, lightning, and tornadoes.

The “Severe Winter Weather” hazard includes heavy snowfall, blizzards, freezing rain/sleet, and ice storms. This grouping is consistent with that used in the 2014 NJ HMP.



Table 5.2-1. Identification of Hazards of Concern for Cape May County

Hazard	Is this a hazard that may occur in Cape May County?	If yes, does this hazard pose a significant threat to Cape May County?	Why was this determination made?	Source(s)
Avalanche	No	No	<ul style="list-style-type: none"> The 2014 NJ HMP does not identify avalanche as a hazard of concern for New Jersey. The topography and climate of Cape May County does not support the occurrence of an avalanche event. New Jersey in general has a very low occurrence of avalanche events based on statistics provided by the National Avalanche Center-American Avalanche Association (NAC-AAA) between 1950 and 2014. 	<ul style="list-style-type: none"> 2014 NJ HMP Review of NAC-AAA database between 1998 and 2014 Steering Committee Input
Climate Change and Sea Level Rise	Yes	Yes	<ul style="list-style-type: none"> Numerous studies and reports are available documenting the occurrence and risks associated with climate change and sea level rise, on global, regional, state and even local scales. While climate change and sea level rise act as exacerbating conditions for the primary hazards of concern (flood, severe storm, wildfire, etc.), the Steering Committee has elected to develop a separate hazard profile for climate change and sea level rise for this update. 	<ul style="list-style-type: none"> Various studies and reports from Federal and State agencies and other interested Steering Committee Input
Coastal Erosion	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies coastal erosion as a hazard of concern for New Jersey. Counties bounded by coastal waters are most affected by coastal erosion. A majority of Cape May County is bounded by coastal waters; therefore, coastal erosion was identified as a hazard of concern by the Steering Committee. Coastal Cape May municipalities have a long history of coastal erosion. 	<ul style="list-style-type: none"> 2014 NJ HMP NJDEP NOAA Steering Committee Input
Coastal Storm	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies coastal storms as a hazard of concern for New Jersey. For the purpose of this HMP Update, hurricanes and tropical storms will be included in 'Hurricanes/Tropical Storms' and Nor'Easters will be included separately in 'Nor'Easters'. Please see those sections for information regarding hurricanes, tropical storms, and Nor'Easters in Cape May County. 	<ul style="list-style-type: none"> 2014 NJ HMP FEMA NOAA Steering Committee Input
Dam Failure	Yes	No	<ul style="list-style-type: none"> The 2014 NJ HMP identifies dam/levee failure as a hazard of concern for New Jersey. There are eight dams located in Cape May County; however, none of these dams are identified as high hazard dams and there have been no incidents recorded at these dams. The Steering Committee did not identify dam failure as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> 2014 NJ HMP USACE Steering Committee Input
Disease Outbreak	Yes	No	<ul style="list-style-type: none"> The 2014 NJ HMP identifies disease outbreak as a hazard of concern for New Jersey. Infestations of ticks, mosquitoes, and/or other types of pest may be present in Cape May County; however, the Steering Committee did not identify disease outbreak as a hazard of concern. 	<ul style="list-style-type: none"> 2014 NJ HMP Steering Committee Input
Drought	Yes	No	<ul style="list-style-type: none"> The 2014 NJ HMP identifies drought as a hazard of concern for New Jersey. 	<ul style="list-style-type: none"> 2014 NJ HMP



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			<ul style="list-style-type: none"> • Since 2009, Cape May County has been impacted by two drought events. Additionally, USDA has included Cape May County in two agriculture disaster declarations related to drought, between 2012 and 2015: <ul style="list-style-type: none"> ○ S3487 – June-November 2012 ○ S3932 – July-September 2015 • Cape May County is located in the Southern and Coastal Climate Divisions. According to the NRCC, these climate divisions has been impacted by the following periods of severe and extreme drought: <ul style="list-style-type: none"> ○ December 1930 – February 1931 ○ November 1931 – February 1932 ○ November 1949 – February 1950 ○ July-November 1957 ○ October-December 1964 ○ May 1965 – June 1966 ○ July-August 1977 ○ March-June 1985 ○ May-June 1986 ○ September-October 1986 ○ January-May 1992 ○ November-December 1998 ○ July-August 1999 ○ November 2001 – September 2002 ○ August-September 2010 ○ November-December 2010 • The Steering and Planning Committees did not identify earthquake as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> • USGS • USDA • NRCC • NOAA • NOAA-NCDC Storm Database • Steering Committee Input
Earthquake	Yes	No	<ul style="list-style-type: none"> • The 2014 NJ HMP identifies earthquake as a hazard of concern for New Jersey. Although they are known to occur on a regular basis, records indicate that no major earthquakes have struck the state since the establishment of historical record-keeping (1500s). Between 1783 and 2015, there have been 191 documented earthquakes in New Jersey. One of these events have been epicentered in Cape May County. • Cape May County is located in an area with less than 2%g (peak acceleration) and has relatively low seismic risk. • The Steering Committee did not identify earthquake as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> • 2014 NJ HMP • NJDEP • NJGWS • USGS • Steering Committee Input



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Hazard	Is this a hazard that may occur in Cape May County?	If yes, does this hazard pose a significant threat to Cape May County?	Why was this determination made?	Source(s)
Expansive Soils	No	No	<ul style="list-style-type: none"> • Soils that expand (swell) as they become wet and contract (shrink) as they dry are called expansive soils. This change can cause the ground to move up and down several inches during a cycle of wetting and drying. Expansive soils that are predominately clay minerals have the ability to absorb water. • In Cape May County, the entire area is underlain by soils with little to no swelling clays. • Based on the soil type and no history of expansive soils, the Steering Committee did not identify expansive soils as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> • 2014 NJ HMP • USGS • Steering Committee Input
Extreme Temperature	Yes	Yes	Please see “Severe Weather”	
Flood	Yes	Yes	<ul style="list-style-type: none"> • The 2014 NJ HMP identifies flooding as a hazard of concern in New Jersey. • There are 39,623 (40.7% of total population) people in Cape May County living in the 1% annual chance flood zone. • The County has 34,561 NFIP policies with total loss payments equaling over \$374 million. Of the total NFIP policies, 911 are repetitive loss properties and 333 are severe repetitive loss properties. • Between 2009 and 2015, the County was included in two FEMA declarations related to flooding: <ul style="list-style-type: none"> ○ November 11-15, 2009 – FEMA-DR-1867 – Severe Storms and Flooding Associated with Tropical Storm Ida and a Nor'Easter ○ March 12-April 15, 2010 – FEMA-DR-1897 – Severe Storms and Flooding • The Steering Committee identified flooding as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> • 2014 NJ HMP • FEMA • FEMA FIS • NFIP • NOAA-NCDC Storm Database • Steering Committee Input
Geological Hazards	Yes	No	<ul style="list-style-type: none"> • The 2014 NJ HMP identifies geological hazards as a hazard of concern for New Jersey. • According to NJGWS, Cape May County does not have a history of landslide occurrences. • Cape May County is located within a low susceptibility and low incidence landslide areas. Additionally, the County is not underlain by carbonate rock. • The Steering and Planning Committees did not identify geological hazards as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> • 2014 NJ HMP • NJGWS • NJDEP • Steering and Planning Committee Input
Hailstorm	Yes	Yes	Please see “Severe Weather”	
Hazardous Materials	Yes	No	<ul style="list-style-type: none"> • The 2014 NJ HMP identifies hazardous materials as a hazard of concern for New Jersey. 	<ul style="list-style-type: none"> • 2014 NJ HMP • Steering and Planning Committee Input



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			<ul style="list-style-type: none"> Several major transportation routes are located in Cape May County and pose a threat to spills, accidents, and incidents. The Steering and Planning Committees did not identify hazardous materials as a hazard of concern for Cape May County. 	
Hurricane (and other Tropical Cyclones)	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies hurricanes and tropical storms as hazards of concern for New Jersey. According to FEMA, between 2009 and 2015, Cape May County was included in three declarations associated with hurricanes and tropical storms. <ul style="list-style-type: none"> November 11-15, 2009 – FEMA-DR-1867 – Severe Storms and Flooding Associated with Tropical Storm Ida and a Nor'Easter August 26-September 5, 2011 – FEMA-DR-4021 – Hurricane Irene October 26-November 8, 2011 – FEMA-DR-4086 – Hurricane Sandy Since 2008, there have been four tropical cyclones tracked within 65 nautical miles of Cape May County. The Steering and Planning Committees identified hurricanes and tropical storms as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> 2014 NJ HMP NOAA – NCDC NHC FEMA Steering and Planning Committee Input
Infestation	Yes	No	Please see “Disease Outbreak”	
Land Subsidence	Yes	No	Please see “Geological Hazards”	
Landslide	Yes	No	Please see “Geological Hazards”	
Nor'Easters	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies Nor'Easters as hazards of concern for New Jersey. According to FEMA, between 2009 and 2015, Cape May County was included in two declarations associated with Nor'Easters. <ul style="list-style-type: none"> November 11-15, 2009 – FEMA-DR-1867 – Severe Storms and Flooding Associated with Tropical Storm Ida and a Nor'Easter October 29, 2011 – FEMA-DR-4048 – Severe Weather (snowstorm/Nor'Easter) The Steering and Planning Committees identified Nor'Easter events as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> 2014 NJ HMP NOAA – NCDC FEMA Steering and Planning Committee Input
Severe Weather (Windstorms, Thunderstorms, Hail, Lightning, Extreme Temperature, and Tornadoes)	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies thunderstorms, lightning, tornadoes, extreme winds and extreme temperature as hazards of concern for New Jersey. According to FEMA, between 2009 and 2015, Cape May County was included in three declarations associated with severe weather events. <ul style="list-style-type: none"> November 11-15, 2009 – FEMA-DR-1867 – Severe Storms and Flooding Associated with Tropical Depression Ida and a Nor'Easter March 12-April 15, 2010 – FEMA-DR-1897 - Severe Storms and Flooding 	<ul style="list-style-type: none"> 2014 NJ HMP NOAA – NCDC FEMA SPC Steering and Planning Committee Input



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			<ul style="list-style-type: none"> ○ October 29, 2011 – FEMA-DR-4048 – Severe Weather • New Jersey has experienced 147 tornadoes between 1950 and 2014, with nine of those occurring in Cape May County. However, there have been no confirmed tornadoes in the County since 2003. • NOAA’s NCDC storm events database indicates that Cape May County was impacted by approximately 237 severe weather events between 2009 and 2015 causing a total of over \$214.4 million in property damages. • The Steering and Planning Committees identified severe weather (windstorms, thunderstorms, hail, lightning, extreme temperatures, and tornadoes) as a hazard of concern for Cape May County. 	
Severe Winter Weather (Heavy Snow, Blizzards, Freezing Rain/Sleet, Ice Storms)	Yes	Yes	<ul style="list-style-type: none"> • The 2014 NJ HMP identifies severe winter weather as a hazard of concern for New Jersey and includes snow, blizzards, and ice storms. For the purpose of this HMP update, Cape May County is including blizzards, heavy snow, and ice storms under the severe winter weather hazard. • According to FEMA, between 2009 and 2015, Cape May County was included in two declarations associated with severe winter weather events. <ul style="list-style-type: none"> ○ February 5-6, 2010 – FEMA-DR-1889 – Severe Winter Storm and Snowstorm ○ December 26-27, 2010 – FEMA-DR-1954 – Severe Winter Storm and Snowstorm • NOAA-NCDC has indicated that Cape May County has experienced the impacts of 95 winter storm events between 2009 and 2015. • Based on the history of occurrences and losses, and based on input from the Planning and Steering Committees, Cape May County identified severe winter weather as a hazard of concern. 	<ul style="list-style-type: none"> • 2014 NJ HMP • FEMA • NOAA – NCDC Storm Database • ONJSC • Steering and Planning Committee Input
Tornado	Yes	Yes	Please see “Severe Weather”	
Tsunami	Yes	Yes	<ul style="list-style-type: none"> • The 2014 NJ HMP does not identify tsunami as a hazard of concern for New Jersey. • Cape May County exposure and vulnerability to coastal flooding is well recognized, as documented in the associated hazard profiles in this update to the HMP. • The Cape May County Steering Committee identified tsunami as a hazard of concern for the County in the 2010 HMP, and recognizes it as an ongoing risk during this update process. As with earthquake risk in many parts of the state, while the probability of tsunami occurrence is believed to be very low, even a moderate tsunami would have vast impacts throughout the County. 	<ul style="list-style-type: none"> • 2014 NJ HMP • Steering and Planning Committee Input
Volcano	No	No	<ul style="list-style-type: none"> • The 2014 NJ HMP does not identify volcano as a hazard of concern for New Jersey. 	<ul style="list-style-type: none"> • 2014 NJ HMP



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			<ul style="list-style-type: none"> The Steering and Planning Committees did not identify volcano as a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> Steering and Planning Committee Input
Wildfire	Yes	Yes	<ul style="list-style-type: none"> The 2014 NJ HMP identifies wildfire as a hazard of concern for New Jersey. In Cape May County, approximately 137.8 square miles (48.3%) of the County is located in the low to moderate NJFFS Fuel Hazard Area and 61.8 square miles (21.7%) is located in the high to extreme risk area. The northern area of the County has the highest risk to wildfires due to its location within the New Jersey Pine Barrens. Between 2009 and 2016, there have several reports of wildfires and brush fires in Cape May County. Based on input from the Steering Committee and the amount of land vulnerable to wildfires, wildfire is considered a hazard of concern for Cape May County. 	<ul style="list-style-type: none"> 2014 NJ HMP NOAA – NCDC Storm Events Query USGS NJFFS Steering Committee Input
Windstorm	Yes	Yes	Please see “Severe Weather”	

- DR Presidential Disaster Declaration Number
- FEMA Federal Emergency Management Agency
- HMP Hazard Mitigation Plan
- NAC-AAA National Avalanche Center-American Avalanche Association
- NCDC National Climatic Data Center
- NFIP National Flood Insurance Program
- NJ New Jersey
- NJDEP New Jersey Department of Environmental Protection
- NJDOH New Jersey Department of Health
- NJFFS New Jersey Forest Fire Service
- NJGWS New Jersey Geological and Water Survey
- NJ HMP State of New Jersey Hazard Mitigation Plan
- NJOEM New Jersey Office of Emergency Management
- NRCC Northeast Regional Climate Center
- NOAA National Oceanic and Atmospheric Administration
- ONJSC Office of the New Jersey State Climatologist
- SPC Storm Prediction Center
- USDA U.S. Department of Agriculture
- USGS U.S. Geological Survey



According to input from the county, and review of all available resources, a total of 9 hazards of concern were identified as significant hazards affecting the entire planning area, to be addressed at the county level in this plan:

- Climate Change and Sea Level Rise
- Coastal Erosion
- Flooding (including riverine, flash and coastal)
- Hurricanes/Tropical Storms
- Nor'Easter
- Severe Weather (High Winds, Tornadoes, Thunderstorms, Hail, Extreme Temperatures)
- Severe Winter Weather (Heavy Snow, Blizzards, Ice Storms)
- Tsunami
- Wildfire

Other natural and human-caused hazards of concern have occurred within Cape May County, but have a low potential to occur and/or result in significant impacts within the county. Therefore, these hazards will not be further addressed within this version of the HMP. However, if deemed necessary by the county, these hazards may be considered in future HMP updates.