



5.2 IDENTIFICATION OF HAZARDS OF CONCERN

To provide a strong foundation for the mitigation actions presented in Sections 6 and 9 of this Hazard Mitigation Plan (HMP), Monroe County focused on considering a full range of hazards that could impact the area, and then identified and ranked those hazards that presented the greatest concern. The hazard of concern identification process incorporated input from the county and participating jurisdictions; a review of the New York State Hazard Mitigation Plan (NYS HMP); 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 region's assets. Table 5.2-1 documents the process of identifying the hazards of concern for further profiling and evaluation.

Hazards of Concern are 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 Committee chose to group some hazards together based on the similarity of hazard events, their typical concurrence, and their impacts. The Planning Committee also considered hazard groupings determined in Federal Emergency Management Agency (FEMA) guidance documents (FEMA 386-2, "Understanding Your Risks, Identifying Hazards and Estimating Losses;" FEMA's "Multi-Hazard Identification and Risk Assessment – The Cornerstone of the National Mitigation Strategy;" and FEMA's Local Mitigation Planning Handbook), and the NYS HMP.

The "Severe Storm" hazard includes windstorms that often entail a variety of other influencing weather conditions, including thunderstorms, hurricanes and tropical cyclones, hail, lightning, and tornadoes.

The "Flood" hazard includes riverine flooding, flash flooding, coastal (lacustrine) flooding, dam failures, and ice jams. 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.

The "Severe Winter Storm" hazard includes heavy snowfall, blizzards, and ice storms. This grouping is consistent with that used in the NYS HMP.

The "Hazardous Materials" hazard includes releases of hazardous materials from fixed facilities and in-transit vehicles, including automotive/truck, rail, and air.



Table 5.2-1. Identification of Hazards of Concern for Monroe County

Hazard	Is this a hazard that may occur in Monroe County?	If yes, does this hazard pose a significant threat to the county?	Why was this determination made?	Source(s)
Avalanche	No	No	<ul style="list-style-type: none"> The topography and climate of Monroe County does not support the occurrence of an avalanche event. Avalanche was identified as a hazard in the NYS HMP; however, there have been no occurrences in Monroe County. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee
Coastal Erosion	Yes	No	<ul style="list-style-type: none"> Although Monroe County has a coastline along Lake Ontario, coastal erosion was not identified as a significant concern by the Planning Committee. Coastal erosion is briefly discussed in the “Flood” profile. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee
Coastal Storm (tropical and extra-tropical cyclones)	No	No	<ul style="list-style-type: none"> Although Monroe County has a coastline along Lake Ontario, coastal storms do not impact the county. The effects of tropical cyclones are discussed in the “Severe Storm” profile. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee
Civil Unrest	Yes	Yes	<ul style="list-style-type: none"> The Planning Committee identified terrorism as a hazard of concern, based on the county’s history. 	<ul style="list-style-type: none"> Input from Planning Committee
Drought	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identifies drought as a hazard of concern for the State of New York. Monroe County has been impacted by many drought events that have occurred in New York State. Agriculture is a substantial industry in Monroe County. Drought conditions would severely impact the county’s economy. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee USDA Drought Monitor
Earthquake	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified earthquakes as a hazard of concern for the state. USGS indicates that the 2008 PGA with a 10% probability of exceedance in 50 years for Monroe County is between 2 and 3%. According to FEMA, any jurisdiction that has a PGA of 3% or greater is required to fully profile the earthquake hazard. According to the NYS HMP, between 1973 and 2012, the epicenters of 189 earthquakes have been in the state. Of those 189 events, none were reported in Monroe County. Two notable earthquakes were felt in the western part of the state on June 23, 2010, and then again in northern New York on May 17, 2013 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee NOAA – Review of NGDC Earthquake Database from 1800 to present USGS
Expansive Soils	No	No	<ul style="list-style-type: none"> USGS indicated that Monroe County does not have the type of soils (swelling clay) that would result in expansive or swelling soils; therefore, Monroe County has little to no swelling potential. Expansive soils are not identified as a hazard in the NYS HMP. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee Review of USGS 1989 Swelling Clays Map of the Conterminous United States



Hazard	Is this a hazard that may occur in Monroe County?	If yes, does this hazard pose a significant threat to the county?	Why was this determination made?	Source(s)
Extreme Temperature	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified extreme temperatures as a hazard of concern for New York State. Monroe County has experienced 13 extreme temperature events between 2005 and 2015. The Planning Committee identified extreme temperatures as a significant hazard impacting the county. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee NOAA-NCDC
Flood (riverine, flash, coastal, and sea-level rise)	Yes	Yes	<ul style="list-style-type: none"> Monroe County has experienced multiple flood events. Since 1954, Monroe County was included in four Presidential Disaster Declarations for flood events; one of those has occurred since 2004: <ul style="list-style-type: none"> FEMA-DR-1564 (Severe Storms and Flooding) – August – September 2004 According to the NFIP statistics, over 630 flood-related claims have been made between 1978 and 2015 in Monroe County, with nearly \$3,400,000 in flood-related losses paid to the towns and villages of the county. The NYS HMP includes ice jams in the flood hazard profile and identifies ice jams as a hazard of concern for the state. Historically, 74 ice jams have been reported along the Oatka Creek, Honeoye Creek, Genesee River, Black Creek, Crystal Brook, Canandigua Lake Outlet, Cayuga Inlet, Fall Creek, Flint Creek, Hemlock Creek, Ninemile Creek, Onondaga Creek, Owasco Outlet, Seneca River, Northrup Creek, West Creek, Sterling Creek, and Allen Creek. 	<ul style="list-style-type: none"> Input from Planning Committee NYS HMP Update FEMA NOAA-NCDC USACE CRREL Ice Jam Database
Groundwater Contamination (Natural)	No	No	<ul style="list-style-type: none"> The Planning Committee did not identify groundwater contamination to be a concern in the County. 	<ul style="list-style-type: none"> Input from Planning Committee
Hailstorm	Yes	Yes	<ul style="list-style-type: none"> The effects of hailstorms are discussed in the “Severe Storm” profile. 	
Hazardous Materials	Yes	Yes	<ul style="list-style-type: none"> Monroe County has many roadways, railways, and pipelines that may carry hazardous materials through the county. Monroe County is also home to the Greater Rochester International Airport (ROC), which offers another avenue for hazardous materials transit. The New York State Department of Environmental Conservation (NYS DEC) Spill Incidents Database lists 2,062 spill incidents throughout the county from January 1, 2010, through August 2, 2015. 	<ul style="list-style-type: none"> Input from Planning Committee Monroe County OEM
Hurricane (tropical cyclones, including tropical storms and tropical depressions)	Yes	Yes	<ul style="list-style-type: none"> The effects of hurricanes are discussed in the “Severe Storm” profile. Although only the remnants of hurricanes impact the county, the Planning Committee identified it as a hazard of concern since mutual aid agreements for hurricane response can still impact county capabilities (based on Superstorm Sandy). 	
Ice Jams	Yes	No	<ul style="list-style-type: none"> The effects of ice jams are discussed in the “Flood” profile. Despite a higher number of incidents, the Planning Committee determined this hazard to be not significant due to a lack of impact on county residents and assets. 	
Ice Storm	Yes	Yes	<ul style="list-style-type: none"> The effects of ice storms are discussed in the “Severe Winter Storm” profile. 	



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Hazard	Is this a hazard that may occur in Monroe County?	If yes, does this hazard pose a significant threat to the county?	Why was this determination made?	Source(s)
Infestation	Yes	Yes	<ul style="list-style-type: none"> The Planning Committee considers infestation to be a potential hazard to agriculture and recreation in the County. The stinkbug infestation of 2010 destroyed over \$46,000 worth of the crops in the County. The county has also experienced infestations from West Nile virus, Armyworm, Emerald ash borers, and Dutch elm disease. 	<ul style="list-style-type: none"> Input from Planning Committee
Land Subsidence	No	No	<ul style="list-style-type: none"> NYS HMP indicates New York State is vulnerable to land subsidence; however, this hazard is “extremely localized” and poses a “very low risk to population and property.” NYS HMP does not identify Monroe County as a community that has experienced land subsidence in the past. In general, moderate to low land subsidence susceptibility exists for New York State; however, the NYS HMP states that this hazard has a very low risk to population or property. The Planning Committee did not identify land subsidence as a hazard of concern for Monroe County. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee USGS Fact Sheet 165-00
Landslide	Yes	Yes	<ul style="list-style-type: none"> USGS indicates within the National Atlas Map Maker program that Monroe County is identified as having low landslide incidence, with pockets of moderate incidence. The NYS HMP identifies landslide as a hazard of concern. The Planning Committee does not consider landslide as a significant hazard affecting the county. Although parts of the county have been identified with a low-to-moderate incident rate, no landslides have occurred in the county since 2009. 	<ul style="list-style-type: none"> NYS DHSES Input from Planning Committee USGS
Nor’Easters (extra-tropical cyclones, including severe winter low-pressure systems)	No	No	<ul style="list-style-type: none"> Monroe County is located in the western part of New York State, and is therefore not highly susceptible to Nor’Easter systems that come up the eastern seaboard. This hazard is briefly mentioned in the “Severe Storms” profile. 	<ul style="list-style-type: none"> FEMA NYS DHSES NOAA-NCDC Input from Planning Committee
Severe Storm (windstorms, thunderstorms, tropical cyclones, hail, and tornados)	Yes	Yes	<ul style="list-style-type: none"> NOAA’s NCDC storm events database indicates that Monroe County was impacted by approximately 141 severe storm events between 1973 and 2015. NYS HMP indicates hurricanes and tornadoes are significant hazards that impact New York State. A total of two tornadoes have impacted Monroe County from 1950 to 2015, both of which were classified as EF0. The Planning Committee identified severe storms as a significant hazard affecting the county. 	<ul style="list-style-type: none"> NOAA – NCDC FEMA NYS DHSES Input from Planning Committee
Severe Winter Storm (heavy snow, blizzards, and ice storms)	Yes	Yes	<ul style="list-style-type: none"> Monroe County experienced 34 major winter storm events since 1960, with several smaller storms each year. The Planning Committee identified severe winter storms as a significant hazard affecting the county. 	<ul style="list-style-type: none"> FEMA NYS HMP NOAA-NCDC Input from Planning Committee





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Hazard	Is this a hazard that may occur in Monroe County?	If yes, does this hazard pose a significant threat to the county?	Why was this determination made?	Source(s)
Shallow (elevated) Groundwater Flooding	No	No	<ul style="list-style-type: none"> Shallow groundwater flooding was not identified as a hazard in the NYS HMP. Shallow groundwater conditions are not typically found within the county. 	<ul style="list-style-type: none"> Input from Planning Committee NYS HMP
Terrorism	Yes	Yes	<ul style="list-style-type: none"> The Planning Committee identified terrorism as a hazard of concern, based on the county's history and proximity to an international border. 	<ul style="list-style-type: none"> Input from Planning Committee Monroe County OEM
Tornado	Yes	Yes	<ul style="list-style-type: none"> The effects of tornados are discussed in the "Severe Storm" profile. 	
Tsunami	No	No	<ul style="list-style-type: none"> Monroe County has no ocean coastline. 	
Utility Failure	Yes	Yes	<ul style="list-style-type: none"> Monroe 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. 	<ul style="list-style-type: none"> Input from Planning Committee Monroe County OEM NOAA-NCDC
Volcano	No	No	<ul style="list-style-type: none"> There are no volcanoes located in New York State. 	<ul style="list-style-type: none"> NYS HMP Update Input from Planning Committee
Wildfire	Yes	Yes	<ul style="list-style-type: none"> Wildfires have occurred within Monroe County. The county's agriculture industry could be severely impacted by a large wildfire. 	<ul style="list-style-type: none"> NYS HMP Input from Planning Committee FEMA NYSDEC
Windstorm	Yes	Yes	<ul style="list-style-type: none"> The effects of windstorms are discussed in the "Severe Storm" profile. 	

Notes:

CRREL	Cold Regions Research and Engineering Laboratory	NYS DHSES	New York State Division of Homeland Security and Emergency Services
DR	Presidential Disaster Declaration Number	NYS HMP	New York State Hazard Mitigation Plan
FEMA	Federal Emergency Management Agency	OEM	Office of Emergency Management
NGDC	National Geophysical Data Center	PGA	Peak Ground Acceleration
NOAA	National Oceanic and Atmospheric Administration	USACE	United States Army Corps of Engineers
NYSDEC	New York State Department of Environmental Conservation	USGS	United States Geologic Survey





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Based on the hazard of concern identification process described above, a total of nine natural and four man-made/technological hazards of concern were identified as significant hazards, affecting the entire county, to be addressed in this plan. The 13 hazards of concern are listed below in alphabetical order:

- Civil Unrest
- Drought
- Earthquake
- Extreme Temperatures
- Flood
- Hazardous Materials
- Infestation
- Landslide
- Severe Storm
- Severe Winter Storm
- Terrorism
- Utility Failure
- Wildfire