



5.2 IDENTIFICATION OF HAZARDS OF CONCERN

To provide a strong foundation for mitigation actions considered in Sections 6 and 9, Washington 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; review of the New York State Hazard Mitigation Plan (NYS HMP); review of the previous Washington County 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 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 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 and Steering Committees chose to group some hazards together, based on the similarity of hazard events, their typical concurrence or their impacts, consideration of how hazards have been grouped 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”; FEMA’s Local Mitigation Planning Handbook), and consideration of hazard grouping in the NYS HMP.

The “Flood” hazard includes riverine flooding, flash flooding, ice jam flooding, dam failure flooding, and flooding due to beaver dams. Inclusion of the various forms of flooding under a general “Flood” hazard is consistent with the approach used in FEMA’s “Multi-Hazard Identification and Risk Assessment” guidance and the NYS HMP.

The “Severe Storm” hazard includes windstorms and a variety of other influencing weather conditions including thunderstorms, hail, lightning, and tornadoes. Tropical disturbances (hurricanes, tropical storms and tropical depressions) are often identified as a type of severe storm. For the purpose of this HMP update, “Severe Storm” includes thunderstorms, hail, lightning, tornadoes, hurricanes, tropical storms, and Nor’Easters.

The “Severe Winter Storm” hazard includes heavy snowfall, blizzards, freezing rain/sleet, and ice storms. This grouping is consistent with the NYS HMP.



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Hazard	Is this a hazard that may occur in Washington 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"> Avalanches can occur in any situation where snow, slope and weather conditions combine to create proper conditions. About 90% of all avalanches start on slopes of 30 to 45 degrees and about 98% of all avalanches occur on slopes of 25 to 50 degrees. The topography of Washington County does not support the occurrence of an avalanche. New York State, in general, has a very low occurrence of avalanche events based on statistics provided by National Avalanche Center – American Avalanche Association (NAC-AAA) between 1998 and 2016. Avalanche was identified as a hazard in the NYS HMP and there have been occurrences in the State; however, there have been no occurrences in Washington County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees Review of NAC-AAA database between 1998 and 2016
Coastal Erosion	No	No	<ul style="list-style-type: none"> The NYS HMP identifies coastal erosion has a hazard of concern for New York State. Erosion can impact all of the State’s coastal counties along: Lake Erie and the Niagara River, Lake Ontario and the St. Lawrence River, Atlantic Ocean and Long Island Sound, Hudson River south of the federal dam in Troy, the East River, the Harlem River, the Kill van Kull and Arthur Kill, and all connecting waterbodies, bays, harbors, shallows and wetlands. Washington County is not bordered by any coastal waters; therefore, coastal erosion is not an identified hazard of concern for the County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees
Dam Failure	Yes	Yes	<ul style="list-style-type: none"> The 2014 NYS HMP identifies dam failure as a hazard of concern for New York State and includes it in the Flood hazard profiles. There are 81 dams located in Washington County: 55 Class A, 9 Class B, 3 Class C, and 11 Class D). The dams are located in Battenville (Town of Greenwich), Center Falls (Town of Greenwich), Chamberlain Mills (Town of Salem), Coila (Town of Cambridge), Cossayuna (Town of Argyle), Dunham Basin (Town of Kingsbury), East Hartford (Town of Hartford), Town of Easton, Town of Fort Ann, Town of Granville, Town of Greenwich, Town of Hampton, Town of Hartford, Hillsdale (Town of Granville), Village of Hudson Falls, Hulets Landing (Town of Dresden), Middle Falls (Town of Greenwich), Middle Granville (Town of Granville), North Argyle (Town of Argyle), North Hebron (Town of Hebron), Town of Salem, Smith Basin (Town of Kingsbury), Truthville (Town of Granville), West Fort Ann (Town of Fort Ann), West Hebron (Town of Hebron), and Town of Whitehall. The Steering and Planning Committees identified dam failure as a hazard of concern for Washington County. Dam failure is included in the Flood hazard profile. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees NYSDEC NYS GIS
Disease Outbreak	Yes	No	<ul style="list-style-type: none"> The 2014 NYS HMP does not identify disease outbreak as a hazard of concern for New York State. While the County has been impacted by various diseases (influenza), the Steering and Planning Committees did not identify disease outbreak as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees



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Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
Drought	Yes	No	<ul style="list-style-type: none"> • The NYS HMP identifies drought as a hazard of concern for the State. Washington County has been impacted by several drought events that have occurred in New York State. • The NOAA-NCDC Storm Events Database did not identify any drought events between 1950 and 2016 in the County. • New York State has been included in one FEMA drought-related disaster declaration; however, Washington County was not included in the declaration. • The Washington County HAZNY ranked drought as a low hazard. • Washington County has been included in three recent drought-related USDA disaster declarations; however, damages were minimal. The USDA designates counties as disaster areas to make emergency loans available to producers suffering losses in those counties. <ul style="list-style-type: none"> ○ S3427 – Drought / Excessive Heat – 2012 ○ S3441 – Drought – 2012 ○ S3887 – Drought – 2015 • According to the NRCC, Washington County is located within two climate divisions: Hudson Valley and Champlain Valley. All of which have been impacted by periods of severe and extreme drought and include the following events: <ul style="list-style-type: none"> ○ November 1908 – January 1909 ○ November 1909 – January 1910 ○ May-November 1911 ○ April-June 1915 ○ October 1930 – April 1931 ○ October-December 1934 ○ December 1939 – January 1940 ○ August 1941 – February 1942 ○ October-December 1949 ○ June-July 1950 ○ November-December 1953 ○ February-May 1957 ○ August-November 1957 ○ June 1964 – August 1966 ○ April-May 1985 ○ August-September 1995 ○ July-August 1999 ○ November 2001 – April 2002 	<ul style="list-style-type: none"> • NYS DHSES • FEMA • USDA • Input from Steering and Planning Committees • NOAA-NCDC • NRCC



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Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
			<ul style="list-style-type: none"> Based on input from the Steering and Planning Committees, the low ranking in the County’s HAZNY, and the minimal impacts of recent events in the County, drought was not identified as a hazard of concern for Washington County. 	
Earthquake	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified earthquake as a hazard of concern for the State. New York State has been included in one FEMA earthquake-related disaster declaration (DR-1145); Washington County was included in this declaration. According to the NYS HMP, between 1973 and 2012, there have been 189 earthquakes epicentered in the State. Of those 189 events, only two had an epicenter in Washington County. There have been four earthquakes with epicenters located in Washington County. Based on previous occurrences and input from the Steering and Planning Committees, earthquake was identified as a hazard of concern for Washington County. Additionally, the Steering Committee identified dam failures as a result of an earthquake as a concern to the County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees USGS – Earthquake Hazards Program, Review of USGS Seismic Maps
Expansive Soils	Yes	No	<ul style="list-style-type: none"> The NYS HMP identified expansive soils has a hazard of concern for New York State. However, a majority of Washington County is underlain by soils with little to no swelling potential and contains areas with less than 50% of the area is underlain by soils with abundant clays of slight to moderate swelling potential. The Steering and Planning Committees did not identify expansive soils as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees Review of USGS 1989 Swelling Clays Map of the Conterminous United States
Extreme Temperature	Yes	No	<ul style="list-style-type: none"> The NYS HMP identified extreme temperatures as a hazard of concern for New York State. According to the NOAA-NCDC database, between 1950 and 2016, there have been 17 extreme temperature events in Washington County. Washington County has not been included in any FEMA disaster declarations for extreme temperature-related events; however, the County has been included in one recent USDA disaster declaration (S3427 in 2012). The Steering and Planning Committees did not identify extreme temperatures as a hazard of concern for the County. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees NOAA-NCDC
Flood (riverine, ice jam, dam failure and flash)	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified flooding as a hazard of concern for New York State. The County has been included in seven flood-related FEMA disaster declarations: <ul style="list-style-type: none"> FEMA-DR-515 (Severe Storms and Flooding) – July 21, 1976 FEMA-DR-1095 (Severe Storms and Flooding) – January 19-20, 1996 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees



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Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
			<ul style="list-style-type: none"> o FEMA-DR-1534 (Severe Storms and Flooding) – May-June 2004 • Between 1780 and 2015, there have been 43 ice jams in the County that have occurred along Batten Kill, Bond Creek, Hoosic River, Hudson River, and Mettawee River. • The Steering and Planning Committees identified flooding as a hazard of concern for the County. 	<ul style="list-style-type: none"> • FEMA • NOAA-NCDC • USACE CRREL Ice Jam Database
Hailstorm	Yes	Yes	Please see Severe Storm	
Hurricane	Yes	No	Please see Severe Storm	
Ice Jams	Yes	Yes	Please see Flood	
Ice Storm	Yes	Yes	Please see Severe Winter Storm	
Infestation	Yes	No	<ul style="list-style-type: none"> • The 2014 NYS HMP does not identify infestation as a hazard of concern for New York State. • According to the New York Invasive Species Map, there have been no reported infestations of invasive insects in Washington County. • The Steering and Planning Committees did not identify infestation as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> • NYS DHSES • Input from Steering and Planning Committees • USDA • NYSDEC
Land Subsidence	Yes	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 Washington County as a county that has experienced land subsidence in the past. In general, moderate to low land subsidence susceptibility exists for New York State, however, it was identified that this hazard has a very low risk to population or property. • Sinkholes often occur in areas underlain by carbonate rock, limestone, salt beds or rocks that naturally dissolve by groundwater circulating through them. Portions of western Washington County are underlain by carbonate rock. • The Steering and Planning Committees did not identify land subsidence as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> • NYS DHSES • Input from Steering and Planning Committees • USGS
Landslide	Yes	No	<ul style="list-style-type: none"> • The NYS HMP includes landslide as a hazard of concern for New York State. According to the NYS HMP, 5,039 people in Washington County live within a high incidence of landslide area. The remainder of the population lives within a high susceptibility/moderate incidence area. • Between 1954 and 2016, New York State was included in one landslide-related disaster declaration; however, Washington County was not included in the declaration. • The Steering and Planning Committees did not identify landslide as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> • NYS DHSES • Input from Steering and Planning Committees • FEMA



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Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
Nor'Easters	Yes	Yes	Please see Severe Storm	
Severe Storm (windstorms, thunderstorms, hurricanes / tropical storms, Nor'Easters, hail and tornados)	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified severe storm as a hazard of concern for New York State. However, for the State HMP, the hazards were profiled in individual sections: hailstorm, high wind, and hurricane. For the purpose of the Washington County HMP update, the hazards were combined into one profile. The NOAA-NCDC Storm Events Database indicated that Washington County was impacted by 395 severe storm-related events between 1950 and 2016. According to the SPC, four tornadoes have impacted Washington County between 1950 and 2016. FEMA included Washington County in five severe storm-related disaster declarations: <ul style="list-style-type: none"> FEMA-DR-515 (Severe Storms and Flooding) – July 21, 1976 FEMA-DR-1095 (Severe Storms and Flooding) – January 19-20, 1996 FEMA-DR-1534 (Severe Storms and Flooding) – May-June 2004 FEMA-DR-4020 (Hurricane Irene) – August 28, 2011 FEMA-EM-3351 (Hurricane Sandy) – October 28, 2012 The Steering and Planning Committees identified severe storms as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> NYS DHSES FEMA NOAA-NCDC SPC Input from Steering and Planning Committees
Severe Winter Storm (heavy snow, blizzards, ice storms)	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified severe winter storm as a hazard of concern for New York State. The NOAA-NCDC Storm Events Database indicated that Washington County was impacted by 197 winter storm events between 1950 and 2016. FEMA included Washington County in two winter storm-related disaster declarations: <ul style="list-style-type: none"> FEMA-DR-801 (Severe Winter Storm) – October 4, 1987 FEMA-DR-1827 (Severe Winter Storm) – December 11-31, 2008 The Planning and Steering Committees identified severe winter storm as a hazard of concern for Washington County. 	<ul style="list-style-type: none"> NYS DHSES FEMA NOAA-NCDC Input from Steering and Planning Committees
Tornado	Yes	Yes	Please see Severe Storm	
Tsunami	No	No	<ul style="list-style-type: none"> Tsunami is not identified as a hazard of concern in the NYS HMP. The Planning and Steering Committees does not consider tsunami to be a significant concern to the planning area. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning Committees
Volcano	No	No	<ul style="list-style-type: none"> The NYS HMP did not identify volcano as a hazard of concern for New York State. The Planning and Steering Committees does not consider volcano to be a hazard of concern for the planning area. 	<ul style="list-style-type: none"> NYS DHSES Input from Steering and Planning



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Hazard	Is this a hazard that may occur in Washington County?	If yes, does this hazard pose a significant threat to the County?	Why was this determination made?	Source(s)
				Committees
Wildfire	Yes	Yes	<ul style="list-style-type: none"> The NYS HMP identified wildfire as a hazard of concern for New York State. Washington County was not included in any FEMA wildfire-related disaster declarations. The NOAA-NCDC Storm Events Database identified two wildfire events in Washington County between 1950 and 2016. The County has also been impacted by other wildfire events not identified in the NOAA-NCDC Storm Events Database. The Planning and Steering Committees did identified wildfire as a hazard of concern for Washington County due to concerns regarding impacts from drought conditions and the amount of woodland in the County. 	<ul style="list-style-type: none"> NYS DHSES NOAA-NCDC FEMA NYSDEC Input from Steering and Planning Committees
Windstorm	Yes	Yes	Please see Severe Storm	

- CRREL *Cold Regions Research and Engineering Laboratory*
- DR *Presidential Disaster Declaration Number*
- EM *Presidential Disaster Emergency Number*
- FEMA *Federal Emergency Management Agency*
- NAC-AAA *National Avalanche Center – American Avalanche Association*
- NCDC *National Climatic Data Center*
- NOAA *National Oceanic and Atmospheric Administration*
- NRCC *Northeast Regional Climate Center*
- NYSDEC *New York State Department of Environmental Conservation*
- NYS DHSES *New York State Division of Homeland Security and Emergency Services*
- NYS GIS *New York State Geographic Information Services*
- NYS HMP *New York State Hazard Mitigation Plan*
- SPC *Storm Prediction Center*
- USACE *U.S. Army Corps of Engineers*
- USDA *U.S. Department of Agriculture*
- USGS *United States Geologic Survey*





Section 5.2: Identification of Hazards of Concern

In summary, a total of five natural hazards of concern were identified as significant hazards affecting the entire planning area, to be addressed at the county level in this plan (shown here in alphabetical order):

- Earthquake
- Flood (riverine, urban/stormwater; dam failure, flash, ice jam, beaver dam)
- Severe Storm (windstorms, thunderstorms, hail, lightning and tornados)
- Severe Winter Storm (heavy snow, blizzards, ice storms)
- Wildfire

Other natural hazards of concern that have occurred within Washington County, but have a low potential to occur and/or result in significant impacts, may be considered in future versions of the Plan.