

## 5.2 IDENTIFICATION OF HAZARDS OF CONCERN

To provide a strong foundation for mitigation actions considered in Sections 6 (Mitigation Strategy) and 9 (Jurisdictional Annexes), Wyoming 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 2019); review of the 2014 Wyoming County HMP (2014 Wyoming County Multi-Jurisdictional Hazard Mitigation Plan); 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 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. Specific hazards not identified as a hazard of concern for Wyoming County will not be further discussed in detail.

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

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

### 5.2.1 Changes from 2014 Hazard Mitigation Plan

The 2014 Wyoming County Hazard Mitigation Plan assessed impacts of the following hazards of concern: flood, severe storms, ice storms, winter storms, tornado, earthquake, epidemic, fire, hazardous materials in-transit, water supply contamination, hazardous materials fixed site, transportation accident and utility failure. In the 2021 HMP, ice storms are now combined into the severe winter storm analysis. Likewise, tornadoes are a part of the severe storm analysis. Finally, hazardous materials (fixed site) are a stand-alone analysis, while transportation of hazardous materials is part of the transportation accidents profile.



Source: NYIS (2019)

The 2021 Wyoming County Hazard Mitigation Plan Update includes best available data throughout the plan to present an updated understanding of Wyoming County’s risk.

### 5.2.2 Hazard Groupings

As per the 2014 Wyoming County HMP, the Steering Committee and Planning Partnership maintained the grouping of hazards based on the similarity of hazard events, typical concurrence or 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; Multi-Hazard Identification and Risk Assessment – The Cornerstone of the National Mitigation Strategy; Local Mitigation Planning Handbook*), and consideration of hazard grouping in the NYS HMP. This HMP update specifically addresses the following natural hazards:

- An *Epidemic* exists when there are more cases of a particular disease than expected in a given area, or among a specific group of people, over a particular period of time. In an outbreak or epidemic, it is presumed that the cases are related to one another or that they have a common cause.
- The *Flood* hazard includes riverine flooding, flash flooding, shallow flooding, ice jam flooding, and dam failure flooding. 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 and the NYS HMP.

- The *Severe Storm* hazard includes windstorms that often entail 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 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.
- The *Earthquake* hazard 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 by a man-made explosion.
- The *Wildfire* hazard profile specifically addresses wildfires that occur in Wyoming County or have a considerable impact on the county.

Technological and man-made hazards are also addressed in this 2021 HMP planning process. This plan specifically addresses the following technological/man-made hazards:

- The *Hazardous Materials* hazard includes materials and wastes considered severely harmful to human health and the environment, as defined by the United States Environmental Protection Agency (EPA). Many hazardous materials are commonly used substances, which are harmless in their normal uses but are quite dangerous if released.
- *Utility or Power Failure* is defined as any interruption or loss of electrical service caused by disruption of power transmission due to accident, sabotage, natural hazards, or equipment failure (also referred to as a loss of power or power outage). A significant power failure is defined as any incident of a long duration that would require involvement of local and/or state emergency management organizations to coordinate provision of food, water, heating, cooling, and shelter.
- *Water Supply Contamination* includes groundwater contamination and harmful algal blooms (HAB), which are the main water supply contamination types of concern for Wyoming County. Groundwater contamination is defined as the addition of elements, compounds, and/or pathogens to groundwater that alter its composition.
- *Transportation Accidents* include the following: vehicular, aviation, hazardous materials in-transit, at-grade railroad crossings, and roadways. A transportation hazard may be defined as a condition created by movement of anything by common carrier. Transportation hazards can be divided into two categories: hazards created by the material being transported and hazards created by the transportation medium.

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Hazard	Is this a hazard that may occur in Wyoming County?	If yes, does this hazard pose a significant threat to Wyoming County?	Why was this determination made?	Source(s)
Avalanche	No	No	<ul style="list-style-type: none"> <li>The NYS HMP identifies avalanche as a hazard of concern.</li> <li>Avalanches can occur in any situation where snow, slope, and weather conditions combine to create proper conditions. About 90 percent of all avalanches start on slopes of 30 to 45 degrees and about 98 percent of all avalanches occur on slopes of 25 to 50 degrees. The topography of Wyoming County does not support the occurrence of an avalanche.</li> <li>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 2018.</li> <li>There have been no avalanche occurrences in Wyoming County. The Steering Committee and Planning Partnership do not consider the hazard to be a significant concern.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>NAC-AAA</li> </ul>
Coastal Erosion	No	No	<ul style="list-style-type: none"> <li>The NYSHMP identifies coastal erosion as 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.</li> <li>As stated above, Coastal Erosion is limited to the state’s coastal counties. Wyoming County is not a coastal county; therefore, the Steering Committee and Planning Partnership do not consider the hazard to be a significant concern.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>
Dam Failure	Yes	Yes	<ul style="list-style-type: none"> <li>The 2019 NYS HMP does not identify dam failure as a hazard of concern for New York State, though it is included in the Flood hazard profile.</li> <li>According to the NYS DEC there are 155 dams within Wyoming County, as shown in Section 4. Of these, 58 are low hazard, eight are intermediate hazard, and one is high hazard (NYS DEC 2018).</li> <li>Dam failure is included within the flood profile.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> <li>NYSDEC</li> <li>NYS GIS</li> </ul>
Disease Outbreak	Yes	Yes	<ul style="list-style-type: none"> <li>The 2019 NYS HMP does not identify disease outbreak as a hazard of concern for New York.</li> <li>Diseases that impact Wyoming County include foodborne illness, vaccine-preventable disease, and vector-borne diseases (tick-borne and mosquito-borne). However, for the disease outbreak profile, the county identified influenza, the Ebola virus, and COVID-19 as the diseases that may lead to an epidemic.</li> <li>The Steering Committee and Planning Partnership identified epidemic as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>NYS DEC</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>

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Hazard	Is this a hazard that may occur in Wyoming County?	If yes, does this hazard pose a significant threat to Wyoming County?	Why was this determination made?	Source(s)
Drought	Yes	No	<ul style="list-style-type: none"> <li>• The NYS HMP identifies drought as a hazard of concern for the state. Wyoming County has been impacted by several drought events that have occurred in New York State.</li> <li>• Drought conditions can cause shortages in water for human consumption, impact agricultural production, and lead to reduced local firefighting capabilities. A majority of Wyoming County relies on groundwater for their potable water, and droughts can impact groundwater resources significantly, limiting the availability of drinking water to county residents.</li> <li>• New York State was included in one FEMA drought-related disaster declaration, which did not include Wyoming County.</li> <li>• Wyoming County was included in five recent drought-related USDA disaster declarations:               <ul style="list-style-type: none"> <li>○ S3441 – Drought - 2012</li> <li>○ S3427 – Drought / Excessive Heat – 2012</li> <li>○ S4023 – Drought / Excessive Heat – 2016</li> <li>○ S4031 – Drought / Excessive Heat – 2016</li> </ul> </li> <li>• According to the NRCC, Wyoming County is in the Central Lakes Climate Division. This division has been impacted by periods of severe and extreme drought, including the following events:               <ul style="list-style-type: none"> <li>○ October – November 1985</li> <li>○ November 1908 – January 1909</li> <li>○ October 1930 – June 1931</li> <li>○ June 1934 – March 1935</li> <li>○ September – October 1936</li> <li>○ November 1941 – January 1942</li> <li>○ November – December 1949</li> <li>○ June – July 1955</li> <li>○ November – December 1957</li> <li>○ November 1960 – January 1961</li> <li>○ October 1964 – March 1965</li> <li>○ May – October 1965</li> <li>○ August 1991 – March 1992</li> <li>○ August – September 1995</li> <li>○ November – December 2001</li> </ul> </li> <li>• The Steering Committee and Planning Partnership did not identify drought as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>• NYS DHSES</li> <li>• FEMA</li> <li>• USDA</li> <li>• Input from Steering Committee and Planning Partnership</li> <li>• NOAA-NCEI</li> <li>• NRCC</li> </ul>

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Hazard	Is this a hazard that may occur in Wyoming County?	If yes, does this hazard pose a significant threat to Wyoming County?	Why was this determination made?	Source(s)
Earthquake	Yes	No	<ul style="list-style-type: none"> <li>The NYS HMP identified earthquake as a hazard of concern for the state.</li> <li>Wyoming County has a PGA below 3%. According to the FEMA document “Understanding Your Risks: Identifying Hazards and Estimating Losses,” areas with 3% PGA should conduct a risk assessment for earthquakes.</li> <li>New York State was included in one FEMA earthquake-related disaster declaration (DR-1415); Wyoming County was not included in this declaration.</li> <li>According to the NYS HMP, between 1973 and 2012, there were 189 earthquakes epicentered in the state. Of those 189 events, none had an epicenter in Wyoming County.</li> <li>Based on input from the Steering Committee and Planning Partnership, earthquake is identified as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> <li>USGS – Earthquake Hazards Program, Review of USGS Seismic Maps</li> </ul>
Expansive Soils	Yes	No	<ul style="list-style-type: none"> <li>The NYS HMP identified expansive soils as a hazard of concern for New York State. However, a majority of Wyoming County is underlain by soils with little to no swelling potential and less than 50% of the area is underlain by soils with abundant clays of slight to moderate swelling potential.</li> <li>The Steering Committee and Planning Partnership did not identify expansive soils as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> <li>Review of USGS 1989 Swelling Clays Map of the Conterminous United States</li> </ul>
Extreme Temperature	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified extreme temperatures as a hazard of concern for New York State.</li> <li>Wyoming County was included in nine recent USDA disaster declarations related to extreme temperature events:               <ul style="list-style-type: none"> <li>S3250 – March 2012 – Unseasonably Warm Temperatures, and Excessive Heat</li> <li>S3427 – June 2012 – Excessive Heat (also included Drought)</li> <li>S4031 – July 2016 – Heat, Excessive Heat (also included Drought)</li> <li>S4023 – August 2016 – Heat, Excessive Heat</li> </ul> </li> <li>The Steering Committee and Planning Partnership did not identify extreme temperature as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> <li>NOAA-NCEI</li> <li>USDA</li> </ul>
Flood (riverine, ice jam, dam failure and flash)	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified flooding as a hazard of concern for New York State.</li> <li>Between 1956 and 2020, Wyoming County was included in three FEMA flood-related declarations.               <ul style="list-style-type: none"> <li>FEMA-DR-338 (Tropical Storm Agnes) – June 1972</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and</li> </ul>

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			<ul style="list-style-type: none"> <li>○ FEMA-DR-1095 (Severe Storms and Flooding) – January 1996</li> <li>○ FEMA-DR-1993 (Flood: Severe Storms, Flooding, Tornadoes, and Straight-Line Winds) – April/May 2011</li> <li>● Between 1950 and 2018, there have been three ice jams in the county.</li> <li>● Based on the history of flooding and its impacts on Wyoming County and input from the Steering Committee and Planning Partnership, flooding has been identified as a hazard of concern for the county.</li> </ul>	Planning Partnership <ul style="list-style-type: none"> <li>● FEMA</li> <li>● NOAA-NCEI</li> <li>● USACE CRREL Ice Jam Database</li> </ul>
Hailstorm	Yes	Yes	Please see Severe Storm.	
Hurricane	Yes	Yes	Please see Severe Storm.	
Ice Jams	Yes	Yes	Please see Flood.	
Ice Storm	Yes	Yes	Please see Severe Winter Storm.	
Infestation	Yes	No	Please see Invasive Species.	
Invasive Species	Yes	Yes	<ul style="list-style-type: none"> <li>● The 2019 NYS HMP does not identify invasive species as a hazard of concern for New York State.</li> <li>● New York State has been affected by various instances of invasive ticks and mosquitos.</li> <li>● The NYS DEC has identified Wyoming County to be located within the emerald ash borer restricted zone and identified several known locations of the emerald ash borer within the county.</li> <li>● The Wyoming County Steering Committee and Planning Partnership did not identify invasive species as a hazard of concern within Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>● NYS DEC</li> <li>● Input from Steering Committee and Planning Partnership</li> </ul>
Land Subsidence	Yes	No	<ul style="list-style-type: none"> <li>● 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,” according to the 2014 NYS HMP.</li> <li>● The Steering Committee and Planning Partnership did not identify land subsidence as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>● NYS DHSES</li> <li>● Input from Steering Committee and Planning Partnership</li> <li>● USGS</li> </ul>
Landslide	Yes	No	<ul style="list-style-type: none"> <li>● The 2019 NYS HMP includes landslide as a hazard of concern for New York State. According to the NYS HMP.</li> <li>● Between 1954 and 2018, New York State has been included in one landslide-related disaster declaration, which did not include Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>● NYS DHSES</li> <li>● Input from Steering Committee and</li> </ul>

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			<ul style="list-style-type: none"> <li>Based on previous occurrences and input from the Steering Committee and Planning Partnership, the landslide hazard was not identified as a hazard of concern for Wyoming County.</li> </ul>	Planning Partnership <ul style="list-style-type: none"> <li>FEMA</li> </ul>
Nor'easters	Yes	Yes	Please see Severe Storm.	
Severe Storm (windstorms, thunderstorms, hurricanes / tropical storms, Nor'easters, hail and tomatoes)	Yes	Yes	<ul style="list-style-type: none"> <li>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 thunderstorms, lightning, hail, tornadoes, high winds, and hurricanes/tropical storms. For the Wyoming County HMP, the hazards were combined into one profile.</li> <li>Between 1954 and 2020, Wyoming County was included in 5 FEMA severe storm-related declarations.               <ul style="list-style-type: none"> <li>FEMA-DR-1222 (Severe Storms and Tornadoes) – June 1998</li> <li>FEMA-DR-1233 (Severe Storms and Flooding) – January 1998</li> <li>FEMA-DR-1486 (Severe Storms, Flooding, and Tornadoes) – July-August 2003</li> <li>FEMA-DR-1534 (Severe Storms and Flooding) – May-June 2004</li> <li>FEMA-EM-3351 (Hurricane Sandy) – October-November 2012</li> </ul> </li> <li>According to the SPC, three tornadoes impacted Wyoming County between 1950 and 2019.</li> <li>Based on previous occurrences and input from the Steering Committee and Planning Partnership, severe storms are identified as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>FEMA</li> <li>NOAA-NCEI</li> <li>SPC</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>
Severe Winter Storm (heavy snow, blizzards, ice storms)	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified severe winter storm as a hazard of concern for New York State. According to the 2019 NYS HMP, Wyoming County’s annual average snowfall is between 60 and 95 inches and their average annual winter storm losses is \$6,250.</li> <li>FEMA included Wyoming County in 11 winter storm-related disaster declarations:               <ul style="list-style-type: none"> <li>FEMA-DR-494 (Ice Storm, Severe Storms and Flooding) – March 1976</li> <li>FEMA-EM-3027 (Snowstorms) – January 1977</li> <li>FEMA-DR-527 (Snowstorms) – February 1977</li> <li>FEMA -EM-898 (Severe Winter Storm) – March 1990</li> <li>FEMA-EM-3107 (Severe Blizzard) – March 1993</li> <li>FEMA-EM-3136 (Snow) – January 1999</li> <li>FEMA-EM-3138 (Snow) – March 1999</li> <li>FEMA-EM-3170 (Snow) – December 2001</li> <li>FEMA-DR-1467 (Ice) – April 2003</li> <li>FEMA-EM-3268 (Lake Effect Snowstorm) – June 10, 2011</li> <li>FEMA-DR-4204 (Severe Winter Storm and Snowstorm) – November 2014</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>FEMA</li> <li>NOAA-NCEI</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>

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			<ul style="list-style-type: none"> <li>Based on previous occurrences and input from the Steering Committee and Planning Partnership, severe winter storms are identified as a hazard of concern for Wyoming County.</li> </ul>	
Tornado	Yes	Yes	Please see Severe Storm.	
Tsunami	No	No	<ul style="list-style-type: none"> <li>Tsunami is not identified as a hazard of concern in the NYS HMP.</li> <li>The Steering Committee and Planning Partnership do not consider tsunami to be a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>
Volcano	No	No	<ul style="list-style-type: none"> <li>The NYS HMP did not identify volcano as a hazard of concern for New York State and, therefore, the Steering Committee and Planning Partnership does not consider volcano to be a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> </ul>
Wildfire	Yes	Yes	<ul style="list-style-type: none"> <li>The NYS HMP identified wildfire as a hazard of concern for New York State.</li> <li>Wyoming County was not included in any FEMA wildfire-related disaster declarations.</li> <li>The age of many residential structures within the region, combined with changes in building construction and materials, creates a threat of fire loss to any structure within the county. There were 296 reported structural fires in the county between 2016-2019.</li> <li>Based on available data, the Steering Committee and Planning Partnership identified wildfire as a hazard of concern for Wyoming County.</li> </ul>	<ul style="list-style-type: none"> <li>NYS DHSES</li> <li>Input from Steering Committee and Planning Partnership</li> <li>FEMA</li> </ul>
Windstorm	Yes	Yes	Please see Severe Storm.	

CRREL *Cold Regions Research and Engineering Laboratory*      USDA *U.S. Department of Agriculture*  
 DR *Presidential Disaster Declaration Number*      USGS *United States Geological Survey*  
 EM *Presidential Disaster Emergency Number*  
 FEMA *Federal Emergency Management Agency*  
 NCEI *National Centers for Environmental Information*  
 NRCC *Northeast Regional Climate Center*  
 NYS DEC *New York State Department of Environmental Conservation*  
 NYS DHSES *New York State Division of Homeland Security and Emergency Services*  
 NYS HMP *New York State Hazard Mitigation Plan*  
 PGA *Peak ground acceleration*  
 SPC *Storm Prediction Center*

### **5.2.3 Summary of Hazards of Concern**

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In summary, a total of 10 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):

- Earthquake
- Epidemic
- Fire
- Flood (riverine, dam failure, flash, and ice jam)
- Hazmat
- Severe Storm (thunderstorm, hail, wind, tornado, hurricane/tropical storm, and Nor'easter)
- Severe Winter Storm
- Transportation Accident
- Utility Failure
- Water Supply

Other hazards of concern that might have occurred in Wyoming County but have a low potential to occur or result in significant impacts can be considered in future updates to this plan.