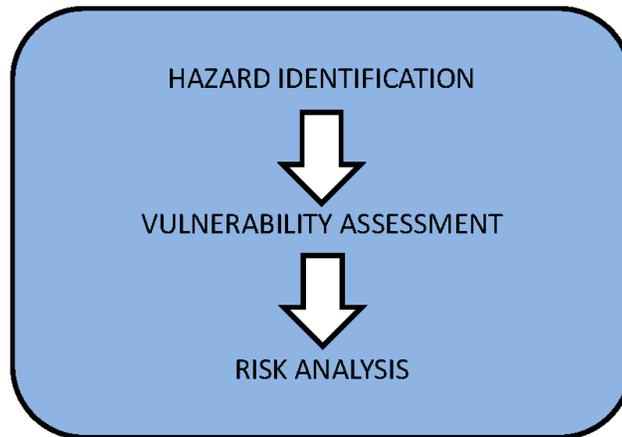


4.0 Risk Assessment

Risk Assessments consist of three phases of analysis: hazard identification, vulnerability assessment and risk analysis.

Figure 4.0a: Three Phases of Risk Assessment



Risk Assessments should generally be conducted in the order identified in Figure 4.0a as each phase utilizes information from previous phases.

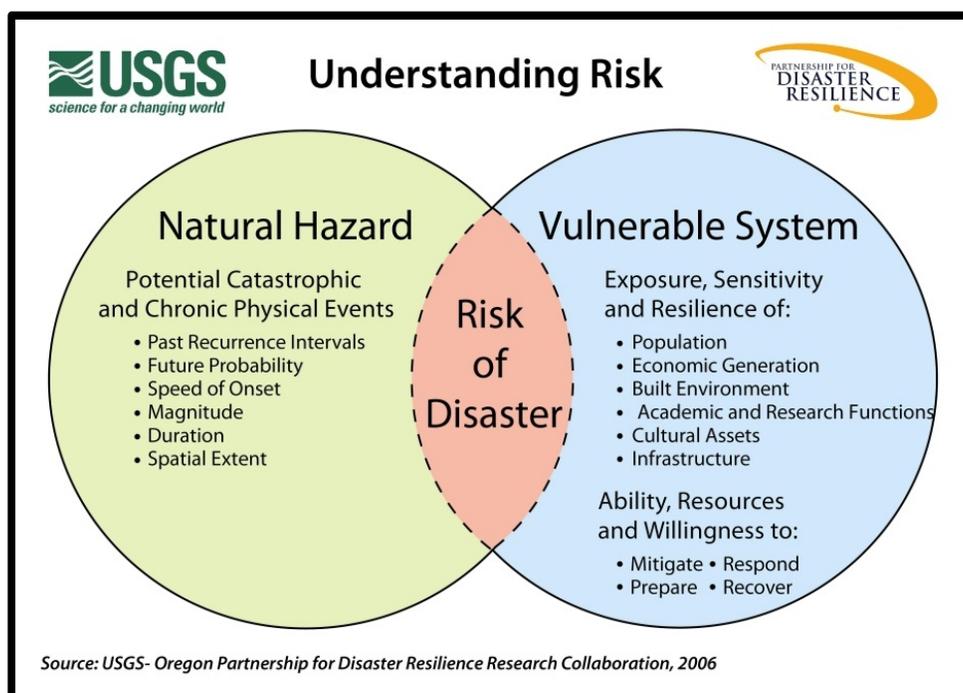
The first phase, *hazard identification*, calls on the community to identify all potential hazards, document their geographic extent, probability of occurrence and anticipated intensity. This phase will also incorporate the best available data on anticipated climate projections and states the intended impacts as they relate to each hazard.

The next phase, *vulnerability assessment*, utilizes the information obtained through the first phase and analyzes it with local information of properties and populations exposed to that hazard. As a part of this phase both current and future development potentials will be analyzed.

The last phase, *risk analysis*, estimates the damage, injuries, and costs likely to occur as a result of that hazard in the community. The picture of risk is broken down into both magnitude and probability of harm occurring. For many hazards this phase of risk assessment will not be realized.

Figure 4.0b was established by the Oregon Partners for Disaster Resilience, an applied research firm which works toward the mission of creating a disaster-resilient and sustainable state, and the United States Geological Society (USGS). This figure depicts the risk assessment process and points out that the goal of hazard mitigation is to “reduce the area where hazards and vulnerable systems overlap.”

Figure 4.0b: The Risk Assessment Process



Orange County is vulnerable to numerous natural, technological, and human-caused hazards. The historic documentation associated with past hazard events that was included in the County's 2011 HMP has been expanded as part of the risk assessment to include the most recent data available, as well as analysis of identified potential impacts from a changing climate and crude oil trains and pipelines in the region. Some of the key revisions that are included in this section of the plan update include: results of Orange County's 2014 risk assessment, profiles of new hazards, and the establishment of updated hazard rankings and hazard mitigation planning goals.

4.1 Risk Assessment Tools

4.1.1 County Emergency Preparedness Assessment (CEPA)

All applicable hazards were evaluated, reviewed, and ranked during a risk assessment session moderated by the New York State Department of Homeland Security and Emergency Services (NYS DHSES) using the automated County Emergency Preparedness Assessment (CEPA) program. The key component of CEPA is an in-person meeting between State and local subject matter experts (SMEs) to discuss and analyze local hazard and capability information and potential resource gaps. DHSES provides a facilitator and scribe for each CEPA session. During the session, hazard risks are assessed along with response capabilities within the County.

In January 2018, local, county, and state stakeholders participated in the CEPA for Orange County. The 2018 Orange County CEPA can be found in Appendix D. The listing of CEPA participants for the County is listed below in Figure 4.1a:

Figure 4.1a: 2018 Orange County CEPA Participants
(Orange County CEPA, 2018)

Name	Agency	Email Address
Alan Mack	Emergency Management	amack@orangecountygov.com
Anthony Weed	Orange County Sheriff's Office	aweed@orangecountygov.com
Brendon Casey	Orange County Emergency Services	bcasey@orangecountygov.com
Craig Cherry	Orange County Emergency Services	ccherry@orangecountygov.com
Dan Leggett	OCDPW	dleggett@co.orange.ny.us
Dave Graves	NYS Dept. of Transportation	dave.graves@dot.ny.gov
Dina Sena	Aging	dsena@orangecountygov.com
Dominick Greene	Orange County Hazard Mitigation	dgreene@orangecountygov.com
Duane Lopez	Orange Count Sheriff Office	dlopez@orangecountygov.com
Erik Denega	OCDPW	edenega@orangecountygov.com
Fayola Creft	NYSDOH	fayola.creft@health.ny.gov
Frank Cassanite	OCDES/ OCEMS	fcassanite@orangecountygov.com
Gary Tuthill	NYS DHSES OEM	Gary.Tuthill@dhSES.ny.gov
Gene Lucchese	NYS DHSES OEM	eugene.lucchese@dhSES.ny.gov
Gregory Tyrrell	NYS DEC	gregory.tyrrell@dec.ny.gov

Name	Agency	Email Address
Gyongyi McQueston	NYSDOH	gyongyi.mcqueston@health.ny.gov
Jennifer L. Roman	OCDOH/OCMF	JLRoman@orangecountygov.com
Jim Bakun	Orange County OEM	jbakun@orangecountygov.com
Marailyn L. Schrader	NYSOFPC	marilyn.schrader@dhSES.ny.gov
Matt Curran	NYS DHSES	matthew.curran@dhSES.ny.gov
Michael Bello	NYS DEC Police	michael.bello@hotmail.com
Pat Campion	DHSES	patrick.campion@dhSES.ny.gov
Patrick Rivers	DHSES/OEM	patrick.rivers@dhSES.ny.gov
Rich Magoch	DSS	rmagoch@orangecountygov.com
Rich Mayfield	Community Development	dmayfield@orangecountygov.com
Tammy Bernard	NYS DHSES	tammy.bernard@dhSES.ny.gov
Thomas Bolzana	Mental Health	tbazan@orangecountygov.com
Vini Tankasali	Orange County Fire	vtankasali@orangecountygov.com

Participants rated natural, technological, and human-caused disasters based upon probability (likelihood) and severity of impact (consequence).

High rated hazards:

- Flooding (Tropical Storm-based)
- Major Transportation Accident
- Hazardous Materials Release – In Transit
- Flooding (Precipitation)
- Cyber Attack

Medium rated hazards:

- Critical Infrastructure Failure
- Wildfire
- Active Shooter
- Pandemic
- Hurricanes/Tropical Storms (Wind & Surge)
- Improvised Explosive Devices
- Improvised Nuclear Devices
- Cyber Attack
- Major Fires (Non-wildfire)
- Sustained Power Outage (Three days or more)
- Hazardous Materials Release
- Severe Wind/Tornado
- Radiological Release (Fixed-site)
- Radiological Dispersal Device (RDD)
- Ice Jams
- Severe Winter Snowstorms

Low rated hazards:

- Radiological Release (Fixed Site)
- Radiological Dispersal Device (RDD)
- Food Contamination
- Extreme Temperatures
- Ice Storms (½ inch or more)
- Drought
- Civil Unrest
- Biological Agent Release
- Animal Disease/Foreign Animal Disease
- Earthquakes
- Landslides

A narrative with descriptions of hazards, their past occurrences, and potential impacts of each is included in Section 5.0 – Hazard Profiles.

A bar charts and relative risk score chart depicting the hazard ratings and rankings of each of the natural hazards, along with human-caused or technological hazards, are displayed on the following Figures 4.1b and 4.1c.

Of note, ice jams did not appear in the Hazard Assessment in the 2014 Orange County CEPA – the most recent hazard risk assessment. During the initial stages of the individual jurisdiction working groups for this project, ice jams were identified as potential hazard in some communities. As a result, ice jams are not included in the hazard rankings, yet are relevant hazards in certain jurisdictions along the Wallkill, Shawangunk, and Delaware Rivers. Ice jams do appear in the Hazard Assessment (Figure 4.1b) in the 2018 Orange County CEPA.

Figure 4.1b: Orange County Hazard Assessment Bar Chart
(Orange County CEPA, 2018)

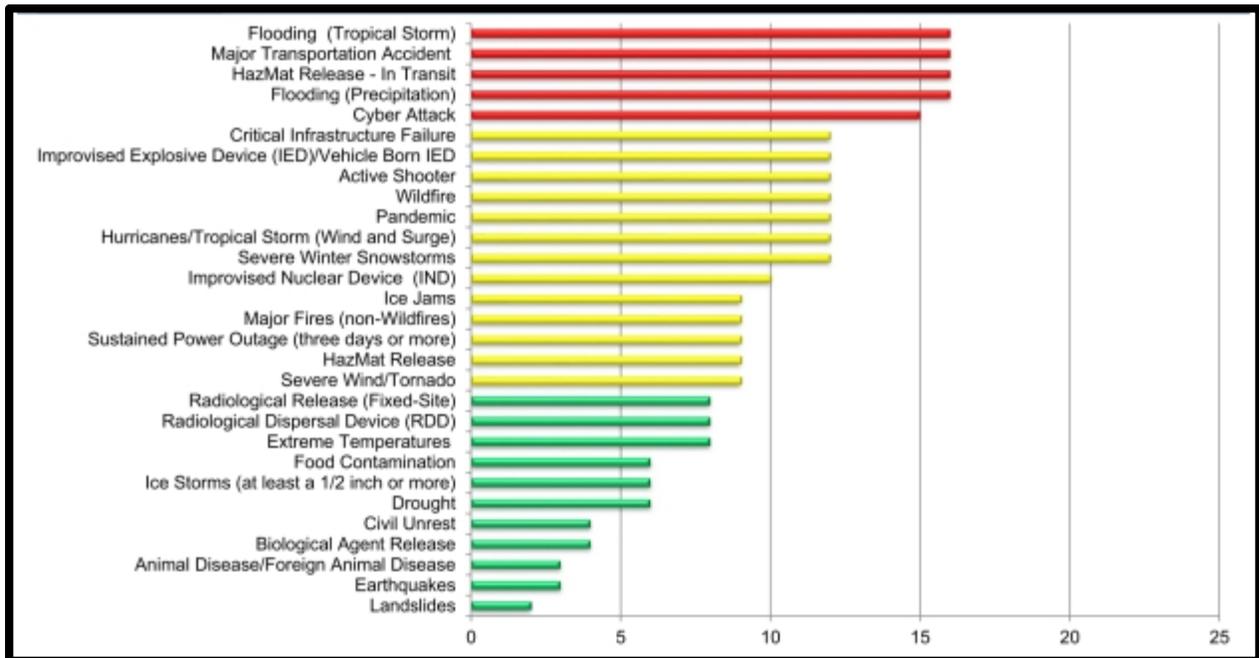


Figure 4.1c: Orange County Hazard Likelihood, Consequence, and Relative Risk Score Chart
(Orange County CEPA, 2018)

Hazard	Likelihood	Consequence	Relative Risk Score
HazMat Release - In Transit	High	High	16
Major Transportation Accident	High	High	16
Flooding (Tropical Storm)	High	High	16
Cyber Attack	Medium	Very High	15
Hurricanes/Tropical Storm (Wind and Surge)	Medium	High	12
Pandemic	Medium	High	12
Wildfire	High	Medium	12
Active Shooter	Medium	High	12
Improvised Explosive Device (IED)/Vehicle Born IED	Medium	High	12
Critical Infrastructure Failure	Medium	High	12
Severe Winter Snowstorms	High	Medium	12
Improvised Nuclear Device (IND)	Low	Very High	10
Severe Wind/Tornado	Medium	Medium	9
Ice Jams	Medium	Medium	9
HazMat Release	Medium	Medium	9
Sustained Power Outage (three days or more)	Medium	Medium	9
Major Fires (non-Wildfires)	Medium	Medium	9
Radiological Dispersal Device (RDD)	Low	High	8
Radiological Release (Fixed-Site)	Low	High	8
Extreme Temperatures	High	Low	8
Drought	Low	Medium	6
Ice Storms (at least a 1/2 inch or more)	Low	Medium	6
Food Contamination	Low	Medium	6
Biological Agent Release	Very Low	High	4
Civil Unrest	Low	Low	4
Earthquakes	Very Low	Medium	3
Animal Disease/Foreign Animal Disease	Very Low	Medium	3
Landslides	Very Low	Low	2

4.1.2 Hazards U.S. – Multi-Hazard (HAZUS-MH)

In 1997, FEMA developed a standardized model for estimating losses caused by earthquakes, known as Hazards U.S. or HAZUS. HAZUS was developed in response to the need for more effective national-, state-, and community-level planning and the need to identify areas that face the highest risk and potential for loss. HAZUS was expanded into a multi-hazard methodology, HAZUS-MH with new models for estimating potential losses from wind (hurricanes) and flood (riverine and coastal) hazards. HAZUS-MH is a Geographic Information System (GIS)-based software tool that applies engineering and scientific risk calculations, which have been developed by hazard and information technology experts, to provide defensible damage and loss estimates. These methodologies are accepted by FEMA and provide a consistent framework for assessing risk across a variety of hazards. The GIS framework also supports the evaluation of hazards and assessment of inventory and loss estimates for these hazards.

HAZUS-MH uses GIS technology to produce detailed maps and analytical reports that estimate a community's direct physical damage to building stock, critical facilities, transportation systems and utility systems. To generate this information, HAZUS-MH uses default HAZUS-MH provided data for inventory, vulnerability, and hazards; this default data can be supplemented with local data to provide a more refined analysis. Damage reports can include induced damage (inundation, fire, threats posed by hazardous materials and debris) and direct economic and social losses (casualties, shelter requirements, and economic impact) depending on the hazard and available local data. HAZUS-MH's open data architecture can be used to manage community GIS data in a central location. The use of this software also promotes consistency of data output now and in the future and standardization of data collection and storage. The guidance *Using HAZUS-MH for Risk Assessment: How-to Guide (FEMA 433)* was used to support the application of HAZUS-MH for this risk assessment and plan. More information on HAZUS-MH is available at <http://www.fema.gov/plan/prevent/hazus/index.shtm>.

In general, probabilistic analyses were performed to develop expected/estimated distribution of losses (mean return period losses) for the flood and wind hazards. The probabilistic hazard generates estimates of damage and loss for specified return periods (e.g., 100- and 500-year). For annualized losses, HAZUS-MH version 2.1 calculates the maximum potential annual dollar loss resulting from various return periods averaged on a "per year" basis. It is the summation of all HAZUS-supplied return periods (e.g., 10, 50, 100, 200, 500) multiplied by the return period probability (as a weighted calculation). In summary, the estimated cost of a hazard each year is calculated.

4.2 Hazard Identification

In order to ascertain which hazards affect Orange County, several resources were accessed and reviewed. Utilized sources included reviews of available reports or plans, consultation with community experts, accessing available information online, and documenting information provided by the public during public meetings.

On the basis of this review, the most prevalent and potentially the most damaging hazards that could affect the County were included in the 2018 Orange County Single Jurisdiction Hazard Mitigation Plan and the County's 2018 CEPA risk assessment. The chosen hazards are mainly

caused by various types of storms, especially those that create cascading effects like power outages, flooding, or structural damage. Other hazards appear to occur on a less frequent basis or normally have an insignificant impact based on the historic data collected.

The following hazards are those included in the CEPA program, not just the hazard selected for additional analysis during Orange County's recent risk assessment event. These descriptions, which include natural, technological, and human-caused hazards, summarize the types of hazards and their applicability and ability to affect Orange County. This section of the plan is mirrored after the step-by-step process outlined in FEMA's publication 386-2 entitled "Understanding Your Risks, identifying hazards and estimating losses."

Air Contamination: Air contamination is indicative of pollution caused by atmospheric conditions such as temperature inversion induced smoggy condition sufficiently serious to create some danger to human health. This hazard is not profiled further in this plan update.

Avalanche: An avalanche occurs when a significant amount of snow slides off mountainous terrain. Although Orange County is subject to significant snow storms, no avalanches were found to be an issue at this time. Therefore, this hazard is not profiled further in this mitigation plan update.

Civil Unrest: Civil unrest is when an individual or collective action causes serious interference with the peace, security, and/or functioning of a community. While civil unrest events do occur in Orange County from time to time, it is not profiled in Section 5 of this plan update.

Coastal Storm: Coastal storms cause increases in tidal elevations, wind speed, and erosion, caused both by extra-tropical events and tropical cyclones. Orange County is located in an area of New York State that is susceptible to coastal storms and while they are not specifically identified as a profiled hazard, their impacts are accounted for as hurricanes and tropical storms and severe winter storms in Section 5.

Dam Failure: Dam failures consist of flood damage specifically caused by the structural failure of a man-made water impoundment structure. Orange County has several significant water impoundments that are controlled by dams. This hazard is not evaluated in Section 5 due to its infrequent occurrence and limited impact on communities within the County.

Drought: Drought is the loss of water supply due to the lack of rainfall. The majority of water supply in Orange County is obtained from groundwater wells, with the remainder sources from surface waters and the New York City aqueduct system. Groundwater levels are less susceptible to seasonal and droughty conditions than surface waters. Given the importance of the “Black Dirt” agricultural areas of Orange County and the role that climate change may have on future drought events, drought is further detailed as a hazard profile in Section 5.

Earthquake: Earthquakes are described as a shaking or trembling of the earth that is volcanic or tectonic in origin. There is potential for earthquake tremors to be felt within Orange County. The concerns surrounding this hazard are compounded by the fact that the Indian Point Energy Center and nuclear facility is located within the County. Though this hazard is not likely to cause extensive damage within Orange County, because of the County’s location within New York State and its adjacency to nuclear facilities, it is included in the HMP Update risk assessment.

Epidemic: An epidemic is the spreading of a contagious disease on a mass basis. The frequency of widespread human epidemics within Orange County is not high, though the County’s proximity to the New York City metropolitan area may increase vulnerability. This hazard was not included for further detail in Section 5.

Explosion: Explosions included the rapid burning of material and gases yielding the violent release of energy. There is no known history of explosions within the County. Therefore, this hazard is not analyzed further in regards to its potential impacts on Orange County.

Extreme Temperatures: Extreme temperatures include extended periods of excessive hot or cold weather with a serious impact on human and/or animal populations. Cascade effects can include enhanced fire/wildfire potential and drought. In past years, periods of extreme heat have had a greater impact within Orange County than extreme cold. Vulnerable populations, such as

the elderly, reside within the County, elevating the potential risk of an extreme temperature event. The effect that climate change may have on yearly temperatures is a growing concern. Therefore, this hazard was assessed and is documented in the hazard profile section.

Fire: Fire is the uncontrolled burning of residential, commercial, industrial, institutional, or other property. As is common in many populated areas, structural fires frequently occur within Orange County. While this specific hazard is not profiled in Section 5, an analysis of wildfires in the County is included.

Flash Flood: Flooding is the submergence of lands in the vicinity of rising waterway levels generally adjacent to water bodies and drainage areas. A distinction may be made between flash flooding, short-term, rapid flooding events, and lake flooding. Almost all of the documented damage that has occurred in Orange County as a result of flooding is related to flash flooding events. Such an event is normally caused by excessive rainfall or rapid thaw of snow packs. Details surrounding this hazard event and how its frequency, onset, and damage potential might change due to climate change are included in Section 5.

Food Shortage: A food shortage occurs when the normal distribution pattern and/or timely delivery of foodstuffs to retail establishments for normal consumer demand is interrupted for a substantial period of time. Orange County has Stewart International Airport, which has an agricultural reception center for imported exotic animals (USDA) which serves as a quarantine center for disease control. Nonetheless, there is no historic documentation pointing to a food shortage within Orange County; therefore this hazard is not analyzed further in this document.

Fuel Shortage: Similar to the above, a fuel shortage may occur when the normal distribution pattern and/or timely delivery of fuel to retail establishments for normal consumer demand is interrupted for a substantial period of time. The assessment of this hazard focused on potential long-range impacts that could occur if the supply of fuel continued to decrease while the demand increased. Few incidences of a fuel shortage have occurred within Orange County. This hazard is not further detailed in Section 5.

HAZMAT – Fixed Sites: Hazardous materials at fixed site locations is defined as the discharge of hazardous materials (toxic, flammable or corrosive) into the environment from a facility located at a specific location. While some sites such as the Indian Point Energy Center exist within the County, this hazard is not included in further assessments.

HAZMAT – In Transit: Hazardous materials in transit is the discharge of hazardous materials (toxic, flammable or corrosive) during their transport via a variety of transportation means (motor vehicle, truck, train, boat or plane). This hazard scored a high number in Orange County's CEPA, but because it is a human-caused or technological event, this hazard was not included for further detail in Section 5.

Hurricane: A hurricane is a type of tropical cyclone with winds exceeding 74 miles per hour (mph) accompanied by rain, thunder and lightning. High wind events are commonly documented within Orange County, but by definition are classified in this Plan Update as severe storm events. Weather patterns that begin as hurricanes are often re-classified as tropical storms or tropical depressions (two other types of tropical cyclones) by the time they reach New York

State. Tropical storms are organized systems of strong thunderstorms with a defined circulation and maximum sustained winds of 39 to 73 mph. Tropical depressions are organized systems of clouds and thunderstorms with a defined circulation and maximum sustained winds of 38 mph or less. Hurricane events have been occurring in the northeastern United States at an increased rate in recent years. Though this hazard has a moderately low potential, hurricane was included in the County's risk assessment process and will be further detailed below.

Ice Jam: Ice jams occur when water bodies are clogged with large blocks of ice. The ice is normally formed by the freezing of the water body and becomes dislodged due to hydraulic conditions whereby the ice floats and may jam at sections of the water body that have a limited cross section (i.e., at bridges and natural channel contractions). Ice jam events have occurred occasionally the County especially along the Delaware River, Shawangunk Kill, Neversink River, Ramapo River, and Wallkill River. Rare occasions of Hudson River ice jams have produced minor damage. This hazard is profiled in Section 5.

Ice Storm: Ice storms include freezing rains which cause icing of roads, structures, and vegetation, and can cause structural damages and create hazardous slippery conditions. Ice storms have frequently occurred in the County based upon discussion during the risk assessment. These events routinely cause trees to topple due to the weight of the ice which has the potential to cause structural damage and utility failures. This hazard is not specifically profiled further in Section 5, but is included as part of the severe winter storm hazard profile.

Infestation: An infestation event is characterized by an excessive population of plants, insects, rodents, or other animals requiring control measures due to their potential to carry diseases, destroy crops, or harm the environment. Infestation has occurred infrequently in the past in Orange County and was not included in the hazard profiles of Section 5.

Landslide: Landslides are defined as the downward movement of a sloped land mass under the force of gravity. Based upon historic information, landslides have occurred in the County on a localized basis. The potential for this hazard was determined to be low, though the potential for cascading hazards to occur was noted. This hazard is profiled further in Section 5.

Mine Collapse: Mine collapse is the structural failure of an underground mine used to harvest minerals from the earth. While mining activities occur within Orange County, mine collapse is a human-caused or technological event and was not included in the risk assessment process.

Oil Spill: Oil spills include the discharge of oil into the environment by a fixed site or mobile site (vehicles). This hazard is similar to what has been mentioned with respect to hazardous material hazards. Historically, it is known that fuel oil spills have resulted due to the lack of maintenance of oil storage facilities or due to damage as a consequence of a cascade effect resulting in the structural damage of an oil containing vessel. As a major transportation crossroads on roadways, rails, and the Hudson River, spills are a concern within Orange County. However, oil spills are human-caused or technological events and are not further detailed in Section 5.

Radiological – Fixed Site: Radiological materials at fixed sites is defined as the release or threat of release of radioactive material from a nuclear power generating station or research reactor or other stationary source of radioactivity. While some sites such as the Indian Point Energy Center exist within the County, this hazard is not included in further assessments.

Radiological – In Transit: Radiological materials in transit constitutes a release of radioactive material into the environment while in transit due possibly to an accident or malfunction in the container which holds the material. This hazard has the potential to occur in Orange County, but because it is a human-caused or technological event, this hazard was not included for further detail in Section 5.

Severe Storm: A severe storm hazard event includes hail storms, windstorms, and severe thunderstorms (with associated severe wind events such as derechos, gustnados, and downbursts). Severe storm was included in the CEPA risk assessment completed by Orange County. This hazard frequently occurs within the County and, while not specifically profiled, is included under the severe thunderstorm, wind, and tornado hazard profile in Section 5.

Severe Thunderstorm: Severe thunderstorms can produce tornados, hail, flooding, or high winds. These three potential side effects of severe thunderstorms are fully described and included under the hazards severe storm (includes hail events and high winds) and tornado. This hazard is profiled as “severe thunderstorms, wind, and tornadoes” in Section 5.

Structural Collapse: Structural collapse is the failure and caving in of a structure. In and of itself, potential for the structural collapse of a structure within the County was not historically found to be an issue, unless it was caused by another hazard. Generally, building code enforcement prevents flagrant issues from arising. In addition, programs for the demolition of abandoned structures have helped to remove abandoned structures before they collapse. Because programs are in place to mitigate this potential hazard, structural collapse is not analyzed in this plan.

Terrorism: Terrorism is the systematic use of violence committed by groups in order to intimidate a population or government into granting their demands. Though the potential for terrorism exists within Orange County in its population centers, major shopping centers, mass transit facilities, and ethnic enclaves, this hazard is a human-caused or technological event and is not profiled in Section 5.

Tornado: Tornados are violent destructive whirling winds accompanied by a funnel-shaped cloud that progresses in a narrow path over the land. Historic tornados have been recorded within New York State. Though an infrequent event within in Orange County, such an event has the potential to cause a large amount of damage. This hazard is profiled as “severe thunderstorms, wind, and tornadoes” in Section 5.

Tsunami-wave Action: Tsunamis are a series of enormous waves created by an underwater disturbance such as an earthquake, landslide, volcanic eruption, or meteorite. While Orange County is located in the Hudson River Estuary, its inland position largely protects it from tsunami-wave action. This hazard is not included further in this plan update.

Transportation Accident: A transportation accident is an unexpected happening causing loss or injury. Historically, minor traffic accidents frequently occur in Orange County. Some of these events are due to the cascading effects caused by other hazards such as severe winter weather or ice storms. More severe accidents are fairly common, especially within densely populated areas of the County or on main transportation routes. While major transportation accidents scored highly on the CEPA risk assessment, the hazard is a human-caused or technological event and will not be profiled in Section 5.

Utility Failure: Utility failure is defined as the loss of electric and/or natural gas supply, telephone service, or public water supply, as a result of an internal system failure and not by the effects of disaster agents. The potential for this hazard to occur exists, particularly as a cascading event of other hazards. However, it is not profiled in Section 5 due to its human-caused or technology-related nature.

Water Supply Contamination: Water supply contamination includes the contamination or potential contamination of surface or subsurface public water supply by chemical or biological materials that results in restricted or diminished ability to use the water source. While the potential for this hazard to occur exists, particularly as a cascading event of other hazards, it was not included for further detailed analysis in Section 5 because of its human-caused or technology-related nature.

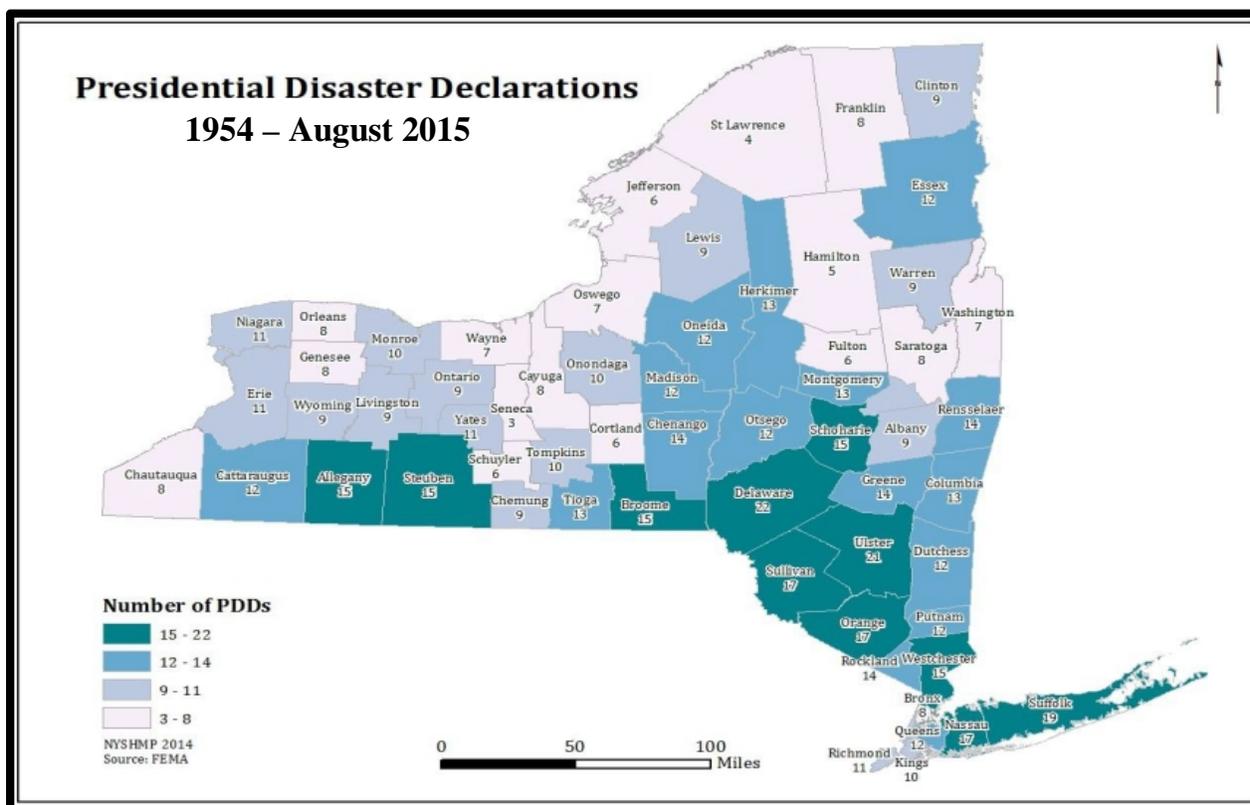
Wildfire: Wildfires are described as the uncontrollable combustion of trees, brush, or grass involving a substantial land area which may have the potential for threatening human life and property. This hazard was analyzed as part of Orange County's CEPA risk assessment and is profiled in further detail in Section 5.

Winter Storm (Severe): Winter storms include heavy snowfall and extreme cold and can immobilize an entire region. Major snowstorms have occurred in Orange County in the past, placing high demands on the Public Works Departments of the County, Cities, Towns, and Villages, and adding risks for emergency response personnel. This hazard is included in the County's risk assessment and hazard profiles of Section 5 due to its frequent occurrence.

4.3 Presidential Disaster Declaration

After a state has declared a State Disaster Area as the result of a particular disaster event, that state and its local governments will evaluate recovery options, capabilities, and costs. If the damage from the disaster event is beyond the recovery capabilities of the state, the governor will send a letter to the President, through FEMA, detailing the situation. The president then makes the decision whether to declare a major disaster or emergency. After a presidential declaration is made, FEMA designates the impacted area eligible for assistance and announces the types of assistance available. FEMA provides supplemented assistance for the recovery of state and local governments; the federal share will always be at least 75 percent of the total eligible costs (FEMA, Presidential Disaster Declarations, 2009). Figure 4.3a shows the total number of Presidential Disaster Declarations that have occurred between 1954 and 2015 for every County in New York State. Orange County has had 17 declarations (13 flood-related) within this time period.

Figure 4.3a: Presidential Disaster Declarations for New York State, 1954-2015



4.4 Crude Oil Transportation

A recent study in the Hudson River Valley by the NYS Water Resources Institute found that while most communities are aware that oil trains pass through their communities and have some form of emergency plans, most communities rely on local volunteer emergency services that may not have the capacity to respond if a major accident were to occur.

Crude oil transport by rail has increased dramatically since 2010. Many Orange County communities such as Newburgh, New Windsor, and Cornwall-on-Hudson are located along the routes where oil trains travel every day. There are increased risks to communities traversed by crude oil trains. Although train accidents have detrimental environmental, human and economic consequences, prior research that assesses whether communities have adequate emergency preparations is limited. This issue was addressed and considered at the local jurisdiction level. Communities where this topic is of concern considered the inclusion of mitigation actions and strategies that could be implemented to minimize the potential impacts from crude oil transport within their municipal boundaries. Such actions and strategies, if proposed, can be found in the municipal sections located in Section 10 of this document.