



APPENDIX E. RISK ASSESSMENT SUPPLEMENT

This appendix contains supporting information for the Risk Assessment (Section 4) as available. It contains excerpts of the previous events and losses as presented in the 2015 HMP, organized by hazard of concern. This information has been compiled into one appendix for ease of reference; however, it has not been updated or verified, and is reproduced as documented in the 2015 plan.

In order to create a more streamlined plan, the 2020 HMP was reorganized and condensed into a practical and more readable document for the public with the goal of providing a plan easier to implement for the County and all municipalities to support future risk reduction. The information in this appendix supplements the information provided in Section 4.3 of this plan.

E.1 CRITICAL FACILITIES AND LIFELINES

The identification of community lifelines across Morris County provides an enhancement to the 2020 HMP.

FEMA defines a lifeline as: *“providing indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security.”* Identifying community lifelines will help government officials and stakeholders to prioritize, sequence, and focus response efforts towards maintaining or restoring the most critical services and infrastructure within their respective jurisdiction(s). Identifying potential impacts to lifelines can help to inform the planning process and determining priorities in the event an emergency occur. The following page is FEMA’s factsheet that describes lifelines further.



National Response Framework Update (Fourth Edition)

A lifeline provides indispensable service that enables the continuous operation of critical business and government functions, and is critical to human health and safety, or economic security.

Why a lifelines construct?

Decision-makers must rapidly determine the scope, complexity, and interdependent impacts of a disaster. Applying the lifelines construct allows decision-makers to:

- Prioritize, sequence, and focus response efforts towards maintaining or restoring the most critical services and infrastructure
- Utilize a common lexicon to facilitate unity of purpose across all stakeholders
- Promote a response that facilitates unity of purpose and better communication amongst the whole community (Federal, state, tribal, territorial, and local governments, and private sector and non-governmental entities)
- Clarify which components of the disaster are complex (multifaceted) and/or complicated (difficult), requiring cross-sector coordination

How will lifelines be used?

- Enhance the ability to gain, maintain, and communicate situational awareness for the whole community in responding to disasters
- Analyze impacts to the various lifelines and develop priority focus areas for each operational period during response
- Identify and communicate complex interdependencies to identify major limiting factors hindering stabilization
- Update the National Response Framework to reflect use of lifelines in response planning

What are the opportunities of lifelines?

- Enable a true unity of effort between government, non-governmental organizations, and the private sector, including infrastructure owners and operators
- Integrate preparedness efforts, existing plans, and identify unmet needs to better anticipate response requirements
- Refine reporting sources and products to enhance situational awareness, best determine capability gaps, and demonstrate progress towards stabilization

Lifelines



Visit us at <http://www.fema.gov/national-planning-frameworks>



E.2 HISTORY OF HAZARD EVENTS IN THE COUNTY

To supplement the information provided in this plan, events documented in the 2015 HMP are included below by hazard of concern. The previous events and losses listed were directly carried over from the 2015 HMP and reflects events identified from 2008 to 2014. With many sources reviewed for the purpose of this HMP, loss and impact information for events could vary depending on the source. Therefore, the accuracy of monetary figures discussed is based only on the available information identified during research for this HMP.

E.2.1 Dam Failure

Table E-1. Dam Failure Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
June 18, 2009	Dam Incident	N/A	N/A	Due to heavy rains, water went over and around the spillway of the Openaki Lake Dam on Shogun Road in Denville Township. There was possible undermining of Openaki Road Bridge which was closed.
March 12 – April 15, 2010	Severe Weathers and Flooding	DR-1897	Yes	<p>A Nor'Easter developed off the Delmarva peninsula, producing heavy rain across the northeast U.S. In New Jersey, this event caused widespread flooding across portions of northeast New Jersey. Strong to high winds downed thousands of trees and hundreds of telephone poles, causing a record breaking outage for PSE&G. Dozens of homes were damaged, numerous roads were closed and there were three injuries. Peak wind gusts ranged from 45 mph to 73 mph. Four days of rain, with the heaviest on March 13th, caused major flooding in the Passaic and Raritan River Basins and flooding throughout New Jersey. Storm totals ranged from 2.5 inches to six inches, with the highest amounts in the Raritan and Passaic Basins. Overall damages in the State were approximately \$30 million. A state of emergency was declared on March 14th.</p> <p>In Morris County, large parts of Whippany, Hanover, East Hanover and Morris Townships lost power. Approximately 1,300 homes and businesses were damaged. This storm caused the highest flooding along the Passaic and Pompton Rivers since April 1984. In Pequannock Township, about 300 people were evacuated and 1,000 homes were flooded. Two shelters were opened. In Lincoln Park, about 260 residents were evacuated. In Boonton Township, a retaining wall collapsed onto Main Street. Many roads were closed throughout the County, including Routes 23 and 206.</p> <p>The heavy rain caused a breach in the dam at Lake Shawnee in Jefferson Township. The County had approximately \$15 million in property damage.</p>
August 26 – September 5, 2011	Hurricane Irene	DR-4021	Yes	Hurricane Irene moved north along the Atlantic Coast, making landfall near Cape Lookout, North Carolina, on August 27 th . The hurricane moved back over open water before making landfall for a second time at Little Egg Inlet in New Jersey on August 28 th . This was the first time since 1903 that a hurricane made landfall in New Jersey. Rain fell for an 18-hour period, with totals ranging from six to eight inches across New Jersey. Higher amounts were observed in southwestern, central, and northeastern



Table E-1. Dam Failure Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				<p>New Jersey. Irene brought tropical storm force winds, destructive storm surge, and record-breaking freshwater inland flooding across northeast New Jersey. There were thousands of mandatory and voluntary evacuations along the coast and rivers from surge and freshwater flooding, and widespread power outages that lasted for up to two weeks.</p> <p>Thirty-nine of the 94 USGS gages with greater than or equal to 20 years of record had record high peaks. Thirty-three gages experienced peaks equal to or greater than the 100-year recurrence interval. NWS climate site at Newark recorded 8.92 inches of rain. The NJDEP Bureau of Dam Safety reported the failure of six dams as a result of Irene.</p> <p>In Morris County, the Pompton River had major flooding and record-breaking crests throughout its entire length, surpassing the flooding that occurred in April 1984. The Rockaway, Pequannock and Passaic Rivers, along with Whippany Creek, all experienced major flooding and record-breaking crests. Rainfall totals in the County ranged from 8.94 inches in Roxbury Township to 10.52 inches in Jefferson Township. There was one fatality as a result of this storm.</p> <p>Hurricane Irene also led to a dam failure in Morris County. The Saffin Pond Dam is a significant class dam and located on Weldon Brook (Jefferson Township), a tributary to Lake Hopatcong, failed completely. The failure of this dam led to evacuations of all lakefront property owners.</p>

E.2.2 Drought

Table E-2. Drought Incidents in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
Summer and Fall 2010	Dry Conditions / Drought	N/A	N/A	<p>During the summer and fall, New Jersey experienced its hottest and 10th driest summer since 1895. The drought watch originally was declared for Bergen, Essex, Hudson, Morris, and Passaic Counties, then was expanded statewide. It was the first time since 2005 that a statewide drought watch had been declared. The drought continued through the summer and into the fall until a wet October led to the cancellation of the drought watch on October 26, 2010. The drought was taxing for New Jersey farmers and the United States Secretary of Agriculture Thomas Vilsack declared all counties in southern, central and northwest New Jersey to be natural disaster areas. The declaration made farm operators eligible for assistance from the Farm Service Agency. The assistance included low interest loans which could cover up to 100% of the dollar</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				<p>value of the crop losses.</p> <p>On August 5, the NJDEP issued a drought watch for northeast New Jersey (Bergen, Essex, Hudson, Morris and Passaic Counties). On a statewide average, August 2010 was the 15th driest August on record (dating back to 1895) with 2.37 inches of rain. The meteorological summer was the 10th driest (8.65 inches) on record dating back to 1895 in New Jersey and was also the driest summer since 1966. At the Atlantic City International Airport, it was the fourth driest August (1.09 inches) and fifth driest meteorological summer (5.92 inches) on record. In Trenton, it was the third driest August (0.80 inches) and fifth driest meteorological summer (5.90 inches) on record. In Morris County, young trees were showing signs of both heat stress and drought. Older trees began to lose color and drop their leaves.</p> <p>In September, the NJDEP announced a statewide drought watch as heat and lack of rainfall continued to deplete the State's water resources. Residents were asked to reduce their water use whenever possible. Sixteen counties in New Jersey were declared to be natural disaster areas by the USDA due to drought and heat between June 1st and September 30th.</p>
April - June 2012	Drought / Excessive Heat	N/A	N/A	<p>Throughout the months and April and May, the State of New Jersey abnormally dry to moderate drought conditions, including Morris County.</p> <p>There were extended dry episodes during the month of June 2012. The last 10 days of the month had 90°F or higher temperatures in several locations. The first heat wave began on June 20th. The second heat wave began on June 27th and extended into early July. Dry conditions in the State struck between June 14th and June 21st. Precipitation for the month of June was much below normal for all of New Jersey.</p> <p>The combined effects of drought, high winds, hail, excessive heat, excessive rain, flash flooding, Hurricane Sandy, snowstorm, and a Nor'Easter, the USDA issued a disaster declaration for the State of New Jersey (S3487) which included Morris County.</p>
October - November 2013	Drought	N/A	N/A	<p>In October, according to a CoCoRaHS report from the Randolph station, there was no water spilling over the Shongum Lake Dam.</p> <p>Northern New Jersey, including Morris County, was considered to be in a moderate drought at the beginning of November. Portions of the State have been exceedingly dry for the past several months. Some areas of the State saw rainfall deficits of six to nine inches.</p>
August – September 2014	Dry Conditions	N/A	N/A	<p>September 2014 – According to a CoCoRaHS report from the Randolph Township station, water was not flowing over Shongum Lake Dam and the bottom of rain gauge had cobwebs. A CoCoRaHS report from the Denville Township station indicated that the very top of the Tourne Park was beginning to turn brown as a result of the lack of meaningful precipitation over the last month.</p>

Source(s): NOAA-NCDC 2014; NJHMP 2014; FEMA 2014; ONJSC 2012; NCDC 2012; U.S. Drought Monitor 2014; Drought Impact Reporter 2014



DR Major Disaster Declaration (FEMA)
 FEMA Federal Emergency Management Agency
 N/A Not Applicable
 NJDEP New Jersey Department of Environmental Protection
 USGS U.S. Geological Survey

E.2.3 Earthquake

Table E-3. Earthquake Events Impacting Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
February 3, 2009	Earthquake 3.0	N/A	N/A	A small earthquake hit northern New Jersey. Its epicenter was in Victory Gardens (3.5km SSW of Rockaway Township) in Morris County; however, it could be felt throughout portions of New Jersey. In Morris County, there were reports of having felt the earthquake in Rockaway Township, Town of Dover and Borough of Morris Plains. No damages or injuries were reported.
February 14, 2009	Earthquake 2.4	N/A	N/A	The earthquake had its epicenter 5 km NNE of Boonton Township. The Township received nearly 20 calls after the earthquake, and an additional 70 calls from Montville. There were no reports of structural damage.
February 16, 2009	Earthquake 2.3	N/A	N/A	The earthquake had its epicenter 2 km SSE of the Town of Dover.
February 18, 2009	Earthquake 1.1	N/A	N/A	The earthquake had its epicenter 3 km SSW of the Borough of Kinnelon
December 26, 2009	Earthquake 2.0	N/A	N/A	The earthquake had its epicenter 8 km NW of the Borough of Morris Plains
August 23, 2011	Earthquake 5.8	DR-4042 (Virginia) DR-4044 (DC)	No	A moderate earthquake occurred in central Virginia and was felt throughout most of the east, from Georgia to southern Canada and from Indiana to coastal Maine. It was followed by four aftershocks. In New Jersey, the intensity ranged from 1 to 4 (weak to light). Areas underlain by thick silt and clay felt a stronger ground motion than did those where rock was very close to the surface. There was minor scattered power outages reported throughout the State. In Morris County, there were numerous reports of people having felt the earthquake throughout the County.
July 17, 2012	Earthquake 1.1	N/A	N/A	16 km NW of Morristown, NJ
July 18, 2012	Earthquake 1.1	N/A	N/A	18 km NW of Morristown, NJ
June 23, 2013	Earthquake 2.1	N/A	N/A	1 km E of Rockaway, NJ
May 31, 2014	Earthquake 1.9	N/A	N/A	6 km N of Boonton, NJ



Source: NJGWS 2014; USGS 2014; New Jersey State HMP 2014; FEMA 2015
 E East
 km Kilometers
 N North
 N/A Not Applicable/Not Available
 S South
 W West

E.2.4 Extreme Temperature

Table E-4. Extreme Temperature Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
June 7-10, 2008	Excessive Heat	N/A	N/A	Temperatures in New Jersey ranged from 100°F to 105°F. Most of the highest temperatures occurred on June 10 th . The excessive heat caused many heat-related injuries. Numerous cooling centers were opened. The heat also caused roadways to buckle and some schools cancelled.
July 16-22, 2008	Excessive Heat	N/A	N/A	This was the longest heat wave of the 2008 summer. High temperatures were mainly in the lower to mid-90s throughout the heat wave. In Morris County, temperatures reached 95°F in Boonton Township.
January 16-19, 2009	Wind Chill	N/A	N/A	An arctic air mass kept maximum temperatures in the teens and single digits across northwestern New Jersey. In Morris County, a low of 2°F was reported in the Borough of Netcong.
April - June 2012	Drought / Excessive Heat	N/A	N/A	Throughout the months of April and May, the State of New Jersey abnormally dry to moderate drought conditions, including Morris County. There were extended dry episodes during the month of June 2012. The last 10 days of the month had 90°F or higher temperatures in several locations. The first heat wave began on June 20 th . The second heat wave began on June 27 th and extended into early July. Dry conditions in the State struck between June 14 th and June 21 st . Precipitation for the month of June was much below normal for all of New Jersey. The combined effects of drought, high winds, hail, excessive heat, excessive rain, flash flooding, Hurricane Sandy, snowstorm, and a Nor’Easter, the USDA issued a disaster declaration for the State of New Jersey (S3487) which included Morris County.
July 15-20, 2013	Heat Wave	N/A	N/A	Widespread high temperatures reached into the mid to upper 90s with morning lows near 80°F. Counties and municipalities opened cooling centers for its residents. In Morris County, cooling centers were opened and temperatures reached 95°F in Parsippany Township.

Source: NOAA-NCDC 2014; FEMA 2014; New Jersey State HMP 2014
 °F degrees Fahrenheit
 DR Major Disaster Declaration (FEMA)
 FEMA Federal Emergency Management Agency
 N/A Not Applicable
 NOAA National Oceanic Atmospheric Administration





NCDC National Climate Data Center
 USDA U.S. Department of Agriculture

Flood

Table E-5. Flooding Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
March 8, 2008	Thunderstorms, Strong Winds and Flooding	N/A	N/A	<p>Strong to damaging wind gusts affected New Jersey during the evening of March 8th after a line of severe thunderstorms passed through southwest and northern New Jersey. NJ Transit trains suspended service in Morris County due to downed trees. The combination of thunderstorms and high winds caused approximately 275,000 homes and businesses throughout the State to be without power. The storm also brought heavy rain which caused flash flooding of smaller streams, poor drainage, and basement flooding across central and northwest New Jersey. Storm totals ranged from one to four inches, with the highest amounts in Morris County.</p> <p>Flash flooding and poor drainage flooding impacted Morris County. The runoff also caused flooding along some of the larger rivers in the County, including the Rockaway and Passaic Rivers (both exceeded their flood stages). Numerous roads were flooded and closed throughout the County. In Jefferson Township, flooding was reported along Route 15 and an overflowing retention basin flooded a home. Downed trees closed the northbound lanes of I-287 in the Town of Morristown. Rainfall totals ranged from 2.3 inches in Boonton Township to 3.91 inches in Morris Township. The County had over \$100,000 in property damage.</p>
March 12 – April 15, 2010	Severe Weathers and Flooding	DR-1897	Yes	<p>A Nor'Easter developed off the Delmarva peninsula, producing heavy rain across the northeast U.S. In New Jersey, this event caused widespread flooding across portions of northeast New Jersey. Strong to high winds downed thousands of trees and hundreds of telephone poles, causing a record breaking outage for PSE&G. Dozens of homes were damaged, numerous roads were closed and there were three injuries. Peak wind gusts ranged from 45 mph to 73 mph. Four days of rain, with the heaviest on March 13th, caused major flooding in the Passaic and Raritan River Basins and flooding throughout New Jersey. Storm totals ranged from 2.5 inches to six inches, with the highest amounts in the Raritan and Passaic Basins. Overall damages in the State were approximately \$30 million. A state of emergency was declared on March 14th.</p> <p>In Morris County, large parts of Whippany, Hanover, East Hanover and Morris Townships lost power. Approximately 1,300 homes and businesses were damaged. This storm caused the highest flooding along the Passaic and Pompton Rivers since April 1984. In Pequannock Township, about 300 people were evacuated and 1,000 homes were flooded. Two shelters were opened. In Lincoln Park, about 260 residents were evacuated. In Boonton Township, a retaining wall collapsed onto Main Street. The heavy rain caused a breach in the dam at</p>



Table E-5. Flooding Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				Lake Shawnee in Jefferson Township. Many roads were closed throughout the County, including Routes 23 and 206. The Rockaway, Pompton, and Passaic Rivers all were above their flood stages. The East Ditch and Whippany Creek also were above their flood stages. Rainfall totals in the County ranged from 3.95 inches in Boonton Township to 5.72 inches in New Vernon. The County had approximately \$15 million in property damage.
March 7, 2011	Heavy Rains and Flooding	N/A	N/A	Between 1.5 and four inches of rain fell across northern New Jersey, with snow falling at times over the higher terrain of northwest New Jersey. A state of emergency was declared for the State. Throughout New Jersey, 683 dwellings were affected by flooding and 207 suffered at least major damage. In Morris County, sections of the Pompton and Passaic Rivers were over their flood stages, causing major flooding on both rivers. Some sections of the rivers did not fall below flood stage until March 13 th . Over 1,000 homes in Pequannock and Lincoln Park were flooded. Approximately 1,500 people were evacuated in Pequannock and 2,000 residents were impacted by flooding. State Route 23 was closed due to flooding. In Lincoln Park, 12 homes were evacuated and 200 homes were affected by flood waters. A shelter was opened. Route 202 was closed. Rainfall totals ranged from 2.82 inches in Parsippany Township to 2.98 inches in Lincoln Park. The County had approximately \$10.6 million in property damage.
March 10-13, 2011	Flooding	N/A	N/A	Significant rain fell across eastern Pennsylvania into northern and central New Jersey. Streams and creeks overflowed their banks and moderate to major flooding impacted northern New Jersey and eastern Pennsylvania. Rainfall totals ranged from one to 2.5 inches. In Morris County, rain totals ranged from 2.18 inches in Boonton Township to 4.86 inches in Jefferson Township.
April 16-22, 2011	Heavy Rain and Flooding	N/A	N/A	Heavy rain caused poor drainage flooding in New Jersey, with stream and river flooding mainly in west-central and northern New Jersey. Major flooding occurred in sections of the Passaic River Basin. Rainfall totals ranged from two to four inches along the I-95 corridor and Morris County and one to two inches elsewhere in the State. In Morris County, the heavy rain caused poor drainage and river flooding. Moderate to major flooding occurred along the Passaic and Pompton Rivers, forcing evacuations in Lincoln Park and Pequannock. Approximately 30 homes in Pequannock were damaged by the Pompton River. Route 23 was closed due to flooding as well. The Passaic, Pompton, Pequannock and Rockaway Rivers were all above their flood stages. Rainfall totals in the County ranged from 2.84 inches in Long Hill to 3.82 inches in Butler. The County had approximately \$250,000 in property damage.
August 26-27,	Hurricane Irene	DR-4021	Yes	Hurricane Irene moved north along the Atlantic Coast, making landfall near Cape Lookout, North Carolina, on August 27 th .



Table E-5. Flooding Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
2011				<p>The hurricane moved back over open water before making landfall for a second time at Little Egg Inlet in New Jersey on August 28th. This was the first time since 1903 that a hurricane made landfall in New Jersey. Rain fell for an 18-hour period, with totals ranging from six to eight inches across New Jersey. Higher amounts were observed in southwestern, central, and northeastern New Jersey. Irene brought tropical storm force winds, destructive storm surge, and record-breaking freshwater inland flooding across northeast New Jersey. There were thousands of mandatory and voluntary evacuations along the coast and rivers from surge and freshwater flooding, and widespread power outages that lasted for up to two weeks. The Governor of New Jersey declared a state of emergency on August 25th.</p> <p>Thirty-nine of the 94 USGS gages with greater than or equal to 20 years of record had record high peaks. Thirty-three gages experienced peaks equal to or greater than the 100-year recurrence interval.</p> <p>Morris County was greatly affected by flooding from Irene, especially along the Passaic and Pompton Rivers. The Pompton River had major flooding and record breaking crests throughout its entire length, surpassing the flooding that occurred in April 1984. The Rockaway, Pequannock and Passaic Rivers, along with Whippany Creek, all experienced major flooding and record breaking crests. The flooding affected and closed numerous roads, including I-287 in Boonton Township when the northbound shoulder collapsed from the force of the Rockaway River. Other major roadways that were closed due to flooding included State Routes 10, 23, 46 and 53. Approximately 4,000 homes in the County were flooded in Pequannock, Lincoln Park, Dover, Parsippany, and Denville. Rainfall totals in the County ranged from 8.94 inches in Roxbury Township to 10.52 inches in Jefferson Township. There were two fatalities as a result of this storm. Morris County had approximately \$200 million in property damage.</p>
September 6-14, 2011	Remnants of Tropical Storm Lee	DR-4039	No	<p>The remnants of Tropical Storm Lee arrived in New Jersey on September 5, 2011, bringing heavy rains throughout the State. Parts of Trenton and other municipalities along the Delaware River were inundated. Hundreds of residents along the Passaic River and its tributaries had to evacuate. There were a total of 162 roads closed due to flooding throughout the State of New Jersey. Storm totals ranged from three to eight inches of rain. The heavy rain and flooding impacted crops, with farmers reporting up to 75% losses of pumpkin and tomato crops. The State had an estimated \$11.5 million in damages.</p> <p>Widespread flooding impacted Morris County, with major flooding levels reached along the Passaic and Pompton Rivers. Voluntary evacuations were requested along these rivers in Pequannock and Lincoln Park. The Musconetcong River</p>



Table E-5. Flooding Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				flooding in Netcong and homes were flooded along Lake Hopatcong. The Rockaway River flooded in Denville and the Nescopeck Creek flooded homes in Butler. Sections of Route 46 and 23 were closed. Rainfall totals in the County ranged from 6.03 inches in Randolph Township to 8.7 inches in Lake Hopatcong (Jefferson Township). The County had approximately \$1 million in damages.
June 18, 2013	Flash Flood	N/A	N/A	Thunderstorms caused heavy rain fell across New Jersey which led urban and poor drainage flooding. Rainfall totals ranged from one to three inches. In Morris County, the storms caused flash flooding in the Township of Parsippany. U.S. Route 46 was closed in both directions between Baldwin and South Beverwyck Roads. Homes and businesses had damage to plumbing systems. Approximately 1.87 inches fell in Parsippany. The County had approximately \$10,000 in property damage.
April 30, 2014	Heavy Rain and Flooding	N/A	N/A	Heavy rain fell across New Jersey, with precipitation totals averaging three to six inches. This caused widespread flooding, including flooding of creeks and rivers throughout the State. There were 146 major roadways flooded and closed throughout the State. In Morris County, heavy rain caused poor drainage flooding as well as minor to moderate flooding in the Passaic Basin. In Roxbury Township, the exit ramps off of Route 46 were flooded and closed. NJ Transit suspended service on the Montclair-Boonton Line. The Passaic River flooded sections of Long Hill Township and Chatham Borough. Many of the rivers in the County were above their flood stages, with minor to moderate flooding reported. Rainfall totals in the County ranged from 4.53 inches in Morris Township to 4.89 inches in Chatham Borough. The County had approximately \$1.25 million in property damage.

Source: NOAA-NCDC 2014; NWS 2014; FEMA 2014; SPC 2014
 DR Disaster Declaration (FEMA)
 FEMA Federal Emergency Management Agency
 mph miles per hour
 N/A Not Applicable
 NOAA National Oceanic and Atmospheric Administration
 NCDC National Climatic Data Center
 NWS National Weather Service
 SPC Storm Prediction Center



E.2.5 Geological Hazards

Table E-6. Geological Hazard Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
August 2008	Rockfall	N/A	N/A	In Washington Township, there was a small rockfall along Schooley’s Mountain Road. There was no damage, injuries or fatalities as a result of this event.
March 30, 2011	Rockslide	N/A	N/A	A large, 100-foot long rockslide occurred during the evening of March 30 th in the Borough of Riverdale. This blocked access to a housing development and the road was closed for a week. No injuries or fatalities were reported.
August 28, 2011	Hurricane Irene	DR-4021	Yes	<p>Hurricane Irene moved north along the Atlantic Coast, making landfall near Cape Lookout, North Carolina, on August 27th. The hurricane moved back over open water before making landfall for a second time at Little Egg Inlet in New Jersey on August 28th. This was the first time since 1903 that a hurricane made landfall in New Jersey. Rain fell for an 18-hour period, with totals ranging from six to eight inches across New Jersey. Higher amounts were observed in southwestern, central, and northeastern New Jersey. Irene brought tropical storm force winds, destructive storm surge, and record-breaking freshwater inland flooding across northeast New Jersey. There were thousands of mandatory and voluntary evacuations along the coast and rivers from surge and freshwater flooding, and widespread power outages that lasted for up to two weeks. The Governor of New Jersey declared a state of emergency on August 25th.</p> <p>Morris County was greatly affected by flooding from Irene, especially along the Passaic and Pompton Rivers. Rainfall totals in the County ranged from 8.94 inches in Roxbury Township to 10.52 inches in Jefferson Township. There were two fatalities as a result of this storm. In addition to heavy rain and flooding, the County was impacted by landslides. In the Town of Dover, a small debris flow occurred on a hillside along Segur Street. In Randolph Township, there was a debris flow along Reservoir Avenue near reservoir outlet area due to the storm. A slump occurred along Route 287 in Boonton Township. The roadway collapsed due to the Rockaway River washing out the riverbank due to the heavy rain. Also in the Township, a debris flow along the Rockaway River cause two homes on Harrison Street to become uninhabitable due to slope instability after the slide. A small debris flow occurred along Route 206 in Roxbury Township on a steep slope. Overall, the County had \$200 million in damages as a result of Hurricane Irene.</p>
September 8, 2011	Remnants of Tropical Storm Lee	DR-4039	No	The remnants of Tropical Storm Lee arrived in New Jersey on September 5, 2011, bringing heavy rains throughout the State. Parts of Trenton and other municipalities along the Delaware River were inundated. Hundreds of residents along the Passaic River and its tributaries had to evacuate. There were a total of 162 roads closed due to flooding throughout the State of New Jersey. Storm totals ranged from three to eight inches of rain. The heavy rain and flooding



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				<p>impacted crops, with farmers reporting up to 75% losses of pumpkin and tomato crops. The State had an estimated \$11.5 million in damages.</p> <p>Widespread flooding impacted Morris County, with major flooding levels reached along the Passaic and Pompton Rivers. Rainfall totals in the County ranged from 6.03 inches in Randolph Township to 8.7 inches in Lake Hopatcong (Jefferson Township). In addition to flooding, the County had several landslides occur. In the Town of Dover, heavy rain from the storm triggered a reactivation of a repaired mudslide on Segur Street from 10 days prior during Irene. In Washington Township, a debris flow led to the temporary closure of Stephensburg Road. There was also a debris flow along Naughtright Road. The County had approximately \$1 million in damages.</p>
February 2013	Rockfall	N/A	N/A	A rockfall occurred along Route 10 West in Randolph Township.
March 2014	Rockfall	N/A	N/A	A rockfall occurred along Route 15 in Jefferson Township.
2014	Rockfall	N/A	N/A	There was a small rockfall adjacent to Timber Ridge Road in the Borough of Riverdale.

Source: NJDEP 2014; NJGWS 2014; NOAA-NCDC 2014
 DR Major disaster declaration (DR)
 FEMA Federal Emergency Management Agency
 N/A Not applicable
 NCDC National Climatic Data Center
 NJDEP New Jersey Department of Environmental Protection
 NJGWS New Jersey Geological and Water Survey
 NOAA National Oceanic and Atmospheric Administration

E.2.6 Severe Weather

Table E-7. Severe Weather Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
March 8, 2008	Thunderstorms, Strong Winds and Flooding	N/A	N/A	<p>Strong to damaging wind gusts affected New Jersey during the evening of March 8th after a line of severe thunderstorms passed through southwest and northern New Jersey. NJ Transit trains suspended service in Morris County due to downed trees. The combination of thunderstorms and high winds caused approximately 275,000 homes and businesses throughout the State to be without power. The storm also brought heavy rain which caused flash flooding of smaller streams, poor drainage, and basement flooding across central and northwest New Jersey. Storm totals ranged from one to four inches, with the highest amounts in Morris County.</p> <p>Flash flooding and poor drainage flooding impacted Morris County. The runoff also caused flooding along some of the</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				larger rivers in the County, including the Rockaway and Passaic Rivers (both exceeded their flood stages). Numerous roads were flooded and closed throughout the County. In Jefferson Township, flooding was reported along Route 15 and an overflowing retention basin flooded a home. Downed trees closed the northbound lanes of I-287 in the Town of Morristown. Rainfall totals ranged from 2.3 inches in Boonton Township to 3.91 inches in Morris Township. The County had over \$100,000 in property damage.
June 16, 2008	Severe Thunderstorm	N/A	N/A	A severe thunderstorm downed trees and power lines in western Morris County. In Jefferson Township, downed trees blocked the northbound lane of Route 15. Downed trees and wires were also reported in the Townships of Rockaway, Roxbury and Denville. In Denville Township, downed trees tore down some wires which damaged the electrical wiring in seven homes. A bedroom fire started in one home. Nearly 10,000 homes and businesses were without power. The County had approximately \$50,000 in property damage.
October 28, 2008	Strong Winds	N/A	N/A	Northwest winds that reached 66 mph occurred across New Jersey. The combination of the strong winds and heavy wet snow led to widespread power outages in northwest New Jersey. In Morris County, the Townships of Mount Olive, Washington and Jefferson were the hardest hit. More than 10,000 homes and businesses lost power in those townships. Numerous roads were closed throughout the County. The County had approximately \$1 million in property damage.
February 12, 2009	Strong Winds	N/A	N/A	Strong to high winds affected New Jersey, with peak wind gusts averaging between 50 and 60 mph and downed numerous trees and power lines. In Morris County, one person was injured near Harding. In Denville Township, Morris Catholic High School was evacuated after foam and asphalt were blown from the roof of the gym. Downed trees caused sections of several major roadways to close throughout the County, including Route 53, Route 10 and Route 46. The County had approximately \$450,000 in property damage.
June 9, 2009	Thunderstorms and Lightning	N/A	N/A	Isolated thunderstorms moved across northern New Jersey bringing strong winds and lightning. In Morris County, lightning struck a home in Hanover Township, causing an attic fire. The County had approximately \$250,000 in property damage.
July 17, 2009	Thunderstorms and Lightning	N/A	N/A	Strong to severe thunderstorms impacted the northern half of New Jersey. Thousands of homes and businesses were without power. In Morris County, lightning struck a home and caused a fire in Hanover Township. The County had approximately \$10,000 in property damage.
August 2, 2009	Thunderstorms	N/A	N/A	Strong to severe thunderstorms moved across New Jersey. In Morris County, numerous trees were knocked down from Morris Township northeast through the Borough of Morris Plains and Parsippany Township. The County had approximately \$20,000 in property damage.
August 21, 2009	Thunderstorms	N/A	N/A	Thunderstorms moved from west to east in New Jersey, impacting Morris County. Lightning struck a home in Boonton Township, sparking a fire and causing water and electrical damage. Two firefighters were injured. The County had approximately \$50,000 in property damage.



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
March 12 – April 15, 2010	Severe Weathers and Flooding	DR-1897	Yes	<p>A Nor'Easter developed off the Delmarva peninsula, producing heavy rain across the northeast U.S. In New Jersey, this event caused widespread flooding across portions of northeast New Jersey. Strong to high winds downed thousands of trees and hundreds of telephone poles, causing a record breaking outage for PSE&G. Dozens of homes were damaged, numerous roads were closed and there were three injuries. Peak wind gusts ranged from 45 mph to 73 mph. Four days of rain, with the heaviest on March 13th, caused major flooding in the Passaic and Raritan River Basins and flooding throughout New Jersey. Storm totals ranged from 2.5 inches to six inches, with the highest amounts in the Raritan and Passaic Basins. Overall damages in the State were approximately \$30 million. A state of emergency was declared on March 14th.</p> <p>In Morris County, large parts of Whippany, Hanover, East Hanover and Morris Townships lost power. Approximately 1,300 homes and businesses were damaged. This storm caused the highest flooding along the Passaic and Pompton Rivers since April 1984. In Pequannock Township, about 300 people were evacuated and 1,000 homes were flooded. Two shelters were opened. In Lincoln Park, about 260 residents were evacuated. In Boonton Township, a retaining wall collapsed onto Main Street. The heavy rain caused a breach in the dam at Lake Shawnee in Jefferson Township. Many roads were closed throughout the County, including Routes 23 and 206. The Rockaway, Pompton, and Passaic Rivers all were above their flood stages. The East Ditch and Whippany Creek also were above their flood stages. Rainfall totals in the County ranged from 3.95 inches in Boonton Township to 5.72 inches in New Vernon. The County had approximately \$15 million in property damage.</p>
November 17, 2010	Thunderstorms and Strong Winds	N/A	N/A	<p>Severe thunderstorms and strong winds caused about 35,000 homes and businesses to lose power. In Morris County, the storms knocked down several trees in Jefferson Township. The downed trees damaged homes and vehicles in the Township, causing approximately \$50,000 in property damage.</p>
March 7, 2011	Heavy Rains and Flooding	N/A	N/A	<p>Between 1.5 and four inches of rain fell across northern New Jersey, with snow falling at times over the higher terrain of northwest New Jersey. A state of emergency was declared for the State. Throughout New Jersey, 683 dwellings were affected by flooding and 207 suffered at least major damage.</p> <p>In Morris County, sections of the Pompton and Passaic Rivers were over their flood stages, causing major flooding on both rivers. Some sections of the rivers did not fall below flood stage until March 13th. Over 1,000 homes in Pequannock and Lincoln Park were flooded. Approximately 1,500 people were evacuated in Pequannock and 2,000 residents were impacted by flooding. State Route 23 was closed due to flooding. In Lincoln Park, 12 homes were evacuated and 200 homes were affected by flood waters. A shelter was opened. Route 202 was closed. Rainfall totals ranged from 2.82 inches in Parsippany Township to 2.98 inches in Lincoln Park. The County had approximately \$10.6 million in property damage.</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
April 22, 2011	Heavy Rain and Flooding	N/A	N/A	<p>Heavy rain caused poor drainage flooding in New Jersey, with stream and river flooding mainly in west-central and northern New Jersey. Major flooding occurred in sections of the Passaic River Basin. Rainfall totals ranged from two to four inches along the I-95 corridor and Morris County and one to two inches elsewhere in the State.</p> <p>In Morris County, the heavy rain caused poor drainage and river flooding. Moderate to major flooding occurred along the Passaic and Pompton Rivers, forcing evacuations in Lincoln Park and Pequannock. Approximately 30 homes in Pequannock were damaged by the Pompton River. Route 23 was closed due to flooding as well. The Passaic, Pompton, Pequannock and Rockaway Rivers were all above their flood stages. Rainfall totals in the County ranged from 2.84 inches in Long Hill to 3.82 inches in Butler. The County had approximately \$250,000 in property damage.</p>
August 26-27, 2011	Hurricane Irene	DR-4021	Yes	<p>Hurricane Irene moved north along the Atlantic Coast, making landfall near Cape Lookout, North Carolina, on August 27th. The hurricane moved back over open water before making landfall for a second time at Little Egg Inlet in New Jersey on August 28th. This was the first time since 1903 that a hurricane made landfall in New Jersey. Rain fell for an 18-hour period, with totals ranging from six to eight inches across New Jersey. Higher amounts were observed in southwestern, central, and northeastern New Jersey. Irene brought tropical storm force winds, destructive storm surge, and record-breaking freshwater inland flooding across northeast New Jersey. There were thousands of mandatory and voluntary evacuations along the coast and rivers from surge and freshwater flooding, and widespread power outages that lasted for up to two weeks. The Governor of New Jersey declared a state of emergency on August 25th.</p> <p>Thirty-nine of the 94 USGS gages with greater than or equal to 20 years of record had record high peaks. Thirty-three gages experienced peaks equal to or greater than the 100-year recurrence interval.</p> <p>Morris County was greatly affected by flooding from Irene, especially along the Passaic and Pompton Rivers. The Pompton River had major flooding and record breaking crests throughout its entire length, surpassing the flooding that occurred in April 1984. The Rockaway, Pequannock and Passaic Rivers, along with Whippany Creek, all experienced major flooding and record breaking crests. The flooding affected and closed numerous roads, including I-287 in Boonton Township when the northbound shoulder collapsed from the force of the Rockaway River. Other major roadways that were closed due to flooding included State Routes 10, 23, 46 and 53. Approximately 4,000 homes in the County were flooded in Pequannock, Lincoln Park, Dover, Parsippany, and Denville. Rainfall totals in the County ranged from 8.94 inches in Roxbury Township to 10.52 inches in Jefferson Township. There were two fatalities as a result of this storm. Morris County had approximately \$200 million in property damage.</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
September 6-14, 2011	Remnants of Tropical Storm Lee	DR-4039	No	<p>The remnants of Tropical Storm Lee arrived in New Jersey on September 5, 2011, bringing heavy rains throughout the State. Parts of Trenton and other municipalities along the Delaware River were inundated. Hundreds of residents along the Passaic River and its tributaries had to evacuate. There were a total of 162 roads closed due to flooding throughout the State of New Jersey. Storm totals ranged from three to eight inches of rain. The heavy rain and flooding impacted crops, with farmers reporting up to 75% losses of pumpkin and tomato crops. The State had an estimated \$11.5 million in damages.</p> <p>Widespread flooding impacted Morris County, with major flooding levels reached along the Passaic and Pompton Rivers. Voluntary evacuations were requested along these rivers in Pequannock and Lincoln Park. The Musconetcong River flooding in Netcong and homes were flooded along Lake Hopatcong. The Rockaway River flooded in Denville and the Nescopeck Creek flooded homes in Butler. Sections of Route 46 and 23 were closed. Rainfall totals in the County ranged from 6.03 inches in Randolph Township to 8.7 inches in Lake Hopatcong (Jefferson Township). The County had approximately \$1 million in damages.</p>
October 29, 2011	Severe Weather (Snowstorm)	DR-4048	Yes	<p>A historic and unprecedented early-season winter storm impacted the mid-Atlantic coast, bringing more than a foot of snow to the interior portions of northeast New Jersey. Thousands of people were without power. Governor Christie declared a state of emergency for New Jersey. Shelters and warming stations were opened. Approximately 25 major roadways were closed and 60 others had partial closures. Downed trees and power lines caused major disruptions of rail service in the northern part of the state. Snowfall totals averaged six to 12 inches with higher terrain around 15 inches. Morris County was one of the hardest hit counties.</p> <p>In Morris County, I-287 was closed in six different locations. Other sections of major roadways closed in the County included I-80, U.S. Routes 46 and 206, State Routes 10, 24, 54 and 124. Two shelters were opened in the County. Snowfall totals in the County ranged from 4.6 inches in the Town of Morristown to 17 inches in Lake Hopatcong.</p>
June 10, 2012	Severe Thunderstorms	N/A	N/A	<p>Strong and severe thunderstorms developed across northern New Jersey and northeast Pennsylvania. Wind gusts from the storms downed trees and power lines, leaving 11,000 customers without power in Morris, Sussex and Somerset Counties. The storms also dropped hail in Morris County. The storms caused extensive damage to Morris County, with a majority of the damage east of Lake Hopatcong (Jefferson Township). Other areas with widespread damage into Rockaway, Dover, Wharton and Harding. Morris County had approximately \$20,000 in property damage.</p>
July 26, 2012	Severe Thunderstorm	N/A	N/A	<p>A line of strong to severe thunderstorms moved across central and northern New Jersey, downing large tree limbs and power lines. In Morris County, a thunderstorm downed several trees in Rockaway Township. One tree fell into a home, injuring three people. The County had approximately \$25,000 in property damage.</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
October 26 – November 8, 2012	Hurricane Sandy	DR-4048	Yes	<p>Hurricane Sandy was the costliest natural disaster by far in the State of New Jersey. Record-breaking high tides and wave action combined with sustained winds as high as 60 to 70 mph with wind gusts as high as 80 to 90 mph to batter the State. Statewide, Sandy caused an estimated \$29.4 billion in damage, destroyed or significantly damaged 30,000 homes and businesses, affected 42,000 additional structures, and was responsible directly or indirectly for 38 deaths. A new temporary inlet formed in Mantaloking (Ocean County) where some homes were swept away. About 2.4 million households in the State lost power. It would take two weeks for power to be fully restored to homes and businesses that were uninhabitable. Also devastated by the storm was New Jersey’s shellfish hatcheries including approximately \$1 million of losses to buildings and equipment, and product losses in excess of \$10,000 at one location alone.</p> <p>As storm surge from Sandy was pushed into the New York and Raritan Bays, sea water piled up within the Hudson River and coastal waterways and wetlands of northeastern New Jersey, including Newark Bay, Passaic and Hackensack Rivers, Kill van Kull, and Arthur Kill. Mandatory evacuations of people living along the coasts and rivers in Union, Essex, and Hudson Counties. Record breaking high tides and wave action was combined with sustained winds of 40 to 60 mph with gusts of 70 to 80 mph. Mandatory evacuations of people living along the coasts and rivers of Union, Essex, and Hudson Counties were conducted. Widespread power outages to more than one million people lasted up to two weeks. Overall, Sandy caused approximately \$30 billion in damages in New Jersey and caused 12 deaths in the State.</p> <p>In Morris County, nearly 90% of the entire County was without power. In Denville Township, 180 trees were knocked down. The County had three deaths attributed to the storm. A peak wind gust of 70 mph was recorded in Parsippany Township. The County had approximately \$50,000 in property damage.</p>
April 30, 2014	Heavy Rain and Flooding	N/A	N/A	<p>Heavy rain fell across New Jersey, with precipitation totals averaging three to six inches. This caused widespread flooding, including flooding of creeks and rivers throughout the State. There were 146 major roadways flooded and closed throughout the State.</p> <p>In Morris County, heavy rain caused poor drainage flooding as well as minor to moderate flooding in the Passaic Basin. In Roxbury Township, the exit ramps off of Route 46 were flooded and closed. NJ Transit suspended service on the Montclair-Boonton Line. The Passaic River flooded sections of Long Hill Township and Chatham Borough. Many of the rivers in the County were above their flood stages, with minor to moderate flooding reported. Rainfall totals in the County ranged from 4.53 inches in Morris Township to 4.89 inches in Chatham Borough. The County had approximately \$3 million in property damage.</p>

Source: NCDC 2014; ONJSC Rutgers University 2013; SPC 2014; FEMA 2014
 DR Major Disaster Declaration (FEMA)
 FEMA Federal Emergency Management Agency





mph *miles per hour*
N/A *Not Applicable*
NCDC *National Climatic Data Center*
ONJSC *Office of the New Jersey State Climatologist*
SPC *Storm Prediction Center*



E.2.7 Severe Winter Weather

Table E-8. Severe Winter Weather Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
February 12, 2008	Winter Storm	N/A	N/A	<p>A winter storm brought snow, sleet and freezing rain to northwest New Jersey and most of the Raritan River Basin. The greatest combination of winter weather affected Sussex, Morris, and Warren Counties. Many schools were canceled or closed early, numerous accidents were reported, and approximately 45,000 homes and businesses were without power due to downed trees and power lines.</p> <p>In Morris County, several accidents were reported. JCP&L reported less than 500 customers without power. In Boonton (Township and Borough) and Montville Township, Boonton Avenue was closed due to black ice and flooding. Approximately \$50,000 in property damage.</p>
December 26-27, 2010	Severe Winter Storm and Snowstorm	DR-1954	Yes	<p>A major winter storm impacted eastern New Jersey. Snowfall averaged around two feet for the coastal counties, as well as Middlesex and Morris Counties. A state of emergency was declared for New Jersey.</p> <p>In Morris County, snowfall totals ranged from 11 inches in Marcella (Rockaway Township) to 29 inches in the Borough of Lincoln Park. Approximately \$1,000 in property damage in the County.</p>
February 1, 2011	Winter Storm	N/A	N/A	<p>A winter storm brought freezing rain and several inches of snow and sleet to northwest New Jersey. Ice accretions took down weak trees, tree limbs and power lines. Approximately 36,000 homes and businesses were without power. Amtrak service between Philadelphia and New York City was disrupted. Many schools were closed.</p> <p>In Morris County, there were three rollover accidents on Route 80 that resulted in three injuries. Public bus service was suspended in Parsippany. A barn collapsed due to the weight of snow and ice in Long Valley. Approximately \$50,000 in property damage in the County.</p>
October 29, 2011	Severe Weather (Snowstorm)	DR-4048	Yes	<p>A historic and unprecedented early-season winter storm impacted the mid-Atlantic coast, bringing more than a foot of snow to the interior portions of northeast New Jersey. Thousands of people were without power. Governor Christie declared a state of emergency for New Jersey. Shelters and warming stations were opened. Approximately 25 major roadways were closed and 60 others had partial closures. Downed trees and power lines caused major disruptions of rail service in the northern part of the state. Snowfall totals averaged six to 12 inches with higher terrain around 15 inches. Morris County was one of the hardest hit counties.</p>



Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
				In Morris County, I-287 was closed in six different locations. Other sections of major roadways closed in the County included I-80, U.S. Routes 46 and 206, State Routes 10, 24, 54 and 124. Two shelters were opened in the County. Snowfall totals in the County ranged from 4.6 inches in the Town of Morristown to 17 inches in Lake Hopatcong.
January 21-22, 2014	Winter Storm	N/A	N/A	Heavy snow, cold temperatures and winds impacted the mid-Atlantic coast. Snowfall totals in Morris County ranged from 3.5 inches in Milton to 12 inches in the Town of Parsippany.
February 4-5, 2014	Snow and Ice	N/A	N/A	Across New Jersey, snowfall totals ranged from seven to 10 inches. The storm caused hazardous travel conditions with numerous accidents occurring across the region. Many businesses and schools were closed prior to the storm. The snow and ice downed tree limbs and power lines, causing many to be without power. Snowfall totals in Morris County ranged from 2.4 inches in the Town of Morristown to 5.2 inches in the Borough of Butler. In addition to the snow, ice impacted the County as well, with totals ranged from 0.10 inches in the Town of Boonton to 0.40 inches in the Township of Rockaway.

Source: NOAA-NCDC 2014; NWS 2014; FEMA 2014; SPC 2014
 DR Disaster Declaration
 FEMA Federal Emergency Management Agency
 N/A Not Applicable
 NCDC National Climatic Data Center
 NOAA National Oceanic and Atmospheric Administration
 NWS National Weather Service
 SPC Storm Prediction Center



E.2.8 Wildfire

Table E-9. Wildfire Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
April 24, 2010	Brush Fire	N/A	N/A	A brush fire broke out in the woods that border Mount Olive and Roxbury, burning 11 acres. Firefighters from Flanders, Budd Lake, Roxbury, Chester and the NJFFS responded. It took approximately four hours to bring the fire under control. Three fire fighters were injured.
April 8, 2013	Brush Fire	N/A	N/A	A large brush fire burned along Waterloo Valley Road in Mount Olive Township. Other calls came in for several other fires in the area and mutual aid was needed to cover fires all along train tracks which stretched from Netcong to Hackettstown. Overall, there were 16 fires that burned 52 acres and over 75 firefighters were working four major areas of the fires.
May 1, 2013	Brush Fire	N/A	N/A	A brush fire broke out at the Nature's Choice Corporation in Roxbury Township. Route 46 was completely covered by smoke and along Route 80, travelers' experienced limited visibility.
December 31, 2013	Brush Fire	N/A	N/A	A brush fire was reported at Ackerson field in Jefferson Township, which was actually found near Sar's Auto Wreckers located on Schoolhouse Road. Water had to be requested from surrounding counties. Over 25 different municipalities responded to this fire.
April 19, 2014	Brush Fire	N/A	N/A	There were multiple reports of a brush fire in Jefferson Township near Davenport and Cozy Lake Roads. NJFFS was dispatched to assist.
April 23, 2014	Brush Fire	N/A	N/A	A brush fire in Parsippany forced two lanes of Route 10 West to close, from Route 53 to Powdermill Road.

Source(s): Morris County OEM; NJ.com 2010; 7online.com 2013; Jefferson Township Fire Department 2014

FEMA Federal Emergency Management Agency

N/A Not Applicable

NJFFS New Jersey Forest Fire Service

OEM Office of Emergency Management

E.2.9 Disease Outbreak

Table E-10. Disease Outbreak Events in Morris County, 2008 to 2014

Date(s) of Event	Disease Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
2008	Campylobacteriosis	N/A	N/A	There were 44 reported cases of campylobacteriosis in Morris County.
2008	Mumps	N/A	N/A	There were three reported cases of mumps in Morris County.
2008	Tick-Borne	N/A	N/A	There were two reported cases of anaplasmosis and 726 cases of Lyme disease in Morris County.
2009	Campylobacteriosis	N/A	N/A	There were 44 reported cases of campylobacteriosis in Morris County.
2009	Mumps	N/A	N/A	There were two reported cases of mumps in Morris County.



Table E-10. Disease Outbreak Events in Morris County, 2008 to 2014

Date(s) of Event	Disease Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
2009	Tick-Borne	N/A	N/A	There were four reported cases of anaplasmosis and 641 cases of Lyme disease in Morris County.
2009	Influenza	N/A	N/A	There were 183 reported cases of influenza in Morris County.
2010	Campylobacteriosis	N/A	N/A	There were 64 reported cases of campylobacteriosis in Morris County.
2010	Mumps	N/A	N/A	There were two reported cases of mumps in Morris County.
2010	Tick-Borne	N/A	N/A	There were five reported cases of anaplasmosis, 479 cases of Lyme disease, and one case of RMSF in Morris County.
2010	Influenza	N/A	N/A	There were 20 reported cases of influenza in Morris County.
2011	Campylobacteriosis	N/A	N/A	There were 69 reported cases of campylobacteriosis in Morris County.
2011	Mumps	N/A	N/A	There was one reported cases of mumps in Morris County.
2011	Tick-Borne	N/A	N/A	There were 11 reported cases of anaplasmosis, 478 cases of Lyme disease, and one case of RMSF in Morris County.
2011	West Nile Virus	N/A	N/A	There was one reported case of WNV in Morris County.
2011	Influenza	N/A	N/A	There were 92 reported cases of influenza in Morris County.
2012	Campylobacteriosis	N/A	N/A	There were 67 reported cases of campylobacteriosis in Morris County.
2012	Influenza	N/A	N/A	There were 81 reported cases of influenza in Morris County.
2012	Tick-Borne	N/A	N/A	There were eight reported cases of anaplasmosis, 401 cases of Lyme disease, and four cases of RMSF in Morris County.
2012	West Nile Virus	N/A	N/A	A 43-state WNV outbreak was reported by the CDC which included New Jersey. There were no positive human cases of WNV in Morris County; however, there were mosquito and bird positive cases.
2013	Campylobacteriosis	N/A	N/A	There were 75 reported cases of campylobacteriosis in Morris County.
2013	Influenza	N/A	N/A	There were 108 reported cases of influenza in Morris County.
2013	Mumps	N/A	N/A	There were seven reported cases of mumps in Morris County.
2013	Tick-Borne	N/A	N/A	There were 13 reported cases of anaplasmosis, 558 cases of Lyme disease, and one case of RMSF in Morris County.
2013	West Nile Virus	N/A	N/A	There was one reported case of WNV in Morris County.
2014	Influenza	N/A	N/A	There is widespread influenza activity reported by 43 states, including New Jersey. By the end of the year, more than half the state had a high influenza activity level, including Morris County.
2014	Ebola	N/A	N/A	The 2014 Ebola epidemic was the largest in history, affecting multiple countries in West Africa. In the U.S., there were two imported cases, one death and two locally acquired cases in healthcare workers have been reported. Even though it was not reported in New Jersey or Morris County, state and local health department's actively monitored persons who visited to or traveled from an Ebola-impacted country.

Source: NJDOH 2015; Morris County Office of Health Management 2015
 CDC Center for Disease Control and Prevention
 FEMA Federal Emergency Management Agency
 N/A Not Applicable
 NJDOH New Jersey Department of Health
 RMSF Rocky Mountain spotted fever



E.2.10 Hazardous Materials

Table E-11. Hazardous Substances Events in Morris County, 2008 to 2014

Date(s) of Event	Event Type	FEMA Declaration Number (if applicable)	Morris County Designated?	Description
May 7, 2008	Chemical Spill	N/A	N/A	A tanker truck overturned on Route 287 in the Borough of Riverdale, spilling a chemical onto the highway just north of Route 52.
August 20, 2008	Acid Spill	N/A	N/A	A drum of phosphoric acid was leaking inside a tractor trailer out onto the parking area of a rest area on Route 80 in the Township of Roxbury. State Police, County HAZMAT crews and an environmental cleanup company cleared the area.
August 5, 2009	Fuel Spill	N/A	N/A	A massive fuel spill in Morris Township was caused by an overturn tanker truck carrying 8,700 gallons of fuel on the Columbia Turnpike. Areas of Hanover and Morris Townships were evacuated. The spill leaked into the Whippany River. Police, Hazmat teams and NJDEP responded. It was estimated that 3,000 gallons were lost in the spill.
January 12, 2010	Fuel Spill	N/A	N/A	Employees were evacuated from their office in Hanover Township after a pickup truck carrying a leaking 100-pound propane cylinder was stopped by police outside of the building.
April 5, 2010	Fuel Spill	N/A	N/A	A garbage truck caught fire on Route 10 in the Borough of Morris Plains. Fire departments from Morris Plains and Cedar Knolls extinguished the fire and the Whippany and County HAZMAT teams responded to deal with a fuel spill from the garbage truck.
June 5, 2012	Fuel Oil Spill	N/A	N/A	A leaking oil tank at a residential home in Parsippany Township led to the response of the police and fire department. The County Hazmat team cleaned up the material.
June 14, 2012	Fuel Spill	N/A	N/A	Morris County and local Hazmat teams responded to a large fuel spill on Route 287 in Parsippany Township. Approximately 40 gallons of diesel fuel leaked onto the roadway.
October 3, 2013	Diesel Fuel Spill	N/A	N/A	A dump truck and tractor trailer crashed on Route 80 in Parsippany Township. The County Hazmat team responded to the scene due to diesel fuel leaking from both trucks.
November 19, 2013	Diesel Fuel Spill	N/A	N/A	Two tractor trailers were involved in an accident on Route 80 in Rockaway Township. One of the tractor trailers was hauling 45,000 pounds of wine and the other was carrying baked and canned goods. The highway was shut down for several hours. Diesel fuel also spilled which required cleanup efforts by the NJDOT, NJDEP and the Morris County Hazmat team.
March 21, 2014	Fuel Leak	N/A	N/A	A motor vehicle accident involving a tractor trailer shutdown the express lanes on Route 80 West in Parsippany Township. The Hazmat team was dispatched due to a fuel leak in the tractor trailer.
August 12, 2014	Diesel Fuel Spill	N/A	N/A	A delivery of diesel fuel was being transferred from a delivery truck to a fuel station's underground storage tank in Montville Township. A spill occurred during the transfer and HAZMAT teams had to respond. Approximately 400 gallons of diesel fuel spilled and migrated from the truck to Rockaway River via the property's stormwater system.
December 23, 2014	Diesel Fuel Leak	N/A	N/A	A school bus at the middle school in Parsippany Township was leaking diesel fuel.

Source: North American Hazmat Situations and Deployments Map 2014; FEMA 2014; Parsippany Focus 2014; NJ.com 2014





E.2.11 Infestation

Between 1954 and 2015, FEMA included the State of New Jersey in one infestation-related emergency (EM) classified as a virus threat (West Nile Virus) (EM-3156 in November 2000). Morris County as included in this declaration (FEMA 2015).