

COMPREHENSIVE REPORT

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Prepared For:

Joe Moe, LLC

Reference:

Extreme Precipitation Event – Named Storm: Post Tropical Cyclone Ida Anywhere, NJ | September 1-2, 2021

Submitted on:

Tuesday, December 28, 2021



Tuesday, December 28, 2021

Attn: Joe Moe Joe Moe, LLC 411 Hackensack Avenue Hackensack, NJ 07061

RE: Named Storm: Post-tropical Cyclone Ida Report Anywhere, N.J. | September 1-2, 2021

Dear Mr. Moe.

As you requested, I have reviewed the weather conditions for Anywhere Avenue in Anywhere, NJ as it relates to property damage that occurred on or about September 1-2, 2021, as a result of the named storm, Post Tropical Cyclone Ida. Enclosed is my Certified Past Weather Report of the antecedent meteorological conditions that contributed to the damages sustained on September 1, 2021 and the following days in and around the environs of the subject property.

If you have any further questions or comments regarding our report, please do not hesitate to give me a call. Should courtroom testimony be required, I would appreciate whatever advance notice is possible.

Sincerely,

Frank Lombardo
President / CEO

AMS Certified Consulting Meteorologist

WeatherWorks, LLC

Thomas M. Else Senior Forensic Meteorologist

AMS Certified Consulting Meteorologist #675

Weather Works, LLC

TABLE OF CONTENTS

IABLE OF CONTENTS	3
INTRODUCTION	4
PRE-IDA - HENRI RAINFALL AMOUNTS	6
HENRI TABULAR WEATHER OVERVIEW	7
TROPICAL WEATHER SYSTEMS OVERVIEW	8
THE EVOLUTION OF THE NAMED STORM, POST TROPICAL CYCLONE IDA	9
DETAILED WEATHER ANALYSIS	12
TABULAR WEATHER OVERVIEW	13
RAINFALL & RETURN PERIODS FOR IDA EVENT	16
REVIEW OF NATIONAL WEATHER SERVICE PRODUCTS	22
SUMMARY AND CONCLUSION	59
DATA SOURCES AND OTHER REFERENCES	60
CERTIFICATION	64
AROUT WEATHERWORKS	64

INTRODUCTION

The following report was requested by Joe Moe from Joe Moe, LLC. At the request of Mr. Moe, I have conducted a general evaluation of the weather conditions that occurred at the subject property located at Anywhere Avenue in Anywhere, NJ for August 2021 - September 2021. More specifically, I have been instructed to focus on the meteorological conditions related to the remnants of the named storm, Post-tropical Cyclone Ida, as it passed through New Jersey on September 1-2, 2021.

In order to determine the weather conditions at the subject property in Anywhere, New Jersey (elevation approximately 16 feet) within a reasonable degree of meteorological and scientific certainty, I reviewed and examined data from the following sources, systems and networks: Automated Surface Observing System (ASOS), Automated Weather Observing System (AWOS), Meteorological Assimilation Data Ingest System (MADIS), Cooperative Observer Network (COOP), Community Collaborative Rain, Hail And Snow Network (CoCoRaHS), Office of the New Jersey State Climatologist (ONJSC), Doppler Radar Images, Geostationary Satellites (GOES), and Complete Sun and Moon Data.

Supplemental products reviewed include: National Weather Service daily zone forecasts, watches, warnings, advisories, special weather statements, and public information statements.

Weather data was accessed from the following sources and official webpages: NOAA's National Centers for Environmental Information (NCEI), The Office of The New Jersey State Climatologist, University of Utah – MesoWest, Community Collaborative Rain, Hail And Snow Network (CoCoRaHS), NOAA's National Operational Hydrologic Remote Sensing Center (NOHRSC), UCAR/NCAR Image Archive, and the US Naval Observatory - Astronomical Applications Department. Descriptions of these systems, networks, products, and access pages can be found in the Data Sources and Other References section near the end of my report.

My report of the actual weather conditions as well as expert opinions and appropriate conclusions within a reasonable degree of Meteorological and scientific certainty follows. They are based on the aforementioned weather data, as well as my 40 years as an expert in weather reconstruction for law firms and the insurance industry.

It is my understanding that on or about September 1, 2021, the subject property in Anywhere New Jersey suffered significant property and other damages as a result of the weather conditions associated with the named storm, Post Tropical Cyclone Ida.

The primary cause for the resulting damages to the subject property occurred due to the intensity of rain from the named storm event which, either in short or long durations, exceeded the capacity of the natural drainage systems such as streams or rivers or that of the nearby man-made infrastructure (tunnel/culvert) designed to move or contain water. Indeed, if these natural or man-made conduits of rainwater become further impeded or blocked or disrupted from working at full capacity, as was reported to have occurred in this instance, then flooding conditions may become further exacerbated.

The number of times during a specified period of years that precipitation of a certain intensity occurs is considered the precipitation frequency. The recurrence interval (RI), often called the return period, is based on the probability that a given precipitation event will be equaled or exceeded in any given year. For example, if the return period for 1 inch of rain in three hours is every 5 years, then the probability of occurrence of 1 inch of rain in three hours is 20% in each given year.

In the following report, I will provide the precipitation frequency estimates associated with the rainfall of September 1-2, 2021, as well as the expected return period. The data will show that Anywhere, New Jersey, and the area of the subject property was among the hardest hit communities in the state of New Jersey during the unprecedented rain event of September 1-2.

Short duration precipitation intensities in some cases approached or exceeded 200–500-year return periods. The equivalent of nearly two months' average rainfall occurred in less than 24 hours. During the maximum 60-minute rainfall, which occurred between 9 and 10 p.m. on September 1, rainfall exceeded 3 inches. This "one hour rainfall amount" is just shy of the average September monthly rainfall that occurs in Anywhere New Jersey. This extreme heavy rainfall was preceded about 10 days earlier by another former tropical system with the name of Henri, which over a 3 day period produced approximately 5.50 inches of rain.

PRE-IDA - HENRI RAINFALL AMOUNTS

Prior to the arrival of the named storm, Post Tropical Cyclone Ida, Tropical Storm Henri made landfall near Westerly, RI at approximately 12:30 PM on August 22, 2021, producing sustained winds of 60 mph. As Henri moved westward, the storm weakened over Connecticut and became a Post Tropical Cyclone late in the day on August 23. South of the storm's center, in New Jersey, Henri's remnants produced very heavy rains causing considerable flash flooding. See Table 1 on the following page for a summary of the August 21 – 23 daily rainfall amounts in Anywhere, NJ with amounts of 5.14-5.77.

(Source: https://storymaps.arcgis.com/stories/693bb9ddab5b4fb3a4aa5b79e5435b9f).

HENRI TABULAR WEATHER OVERVIEW

Table 1 below is a summary of the daily weather conditions that occurred at Anywhere Avenue in Anywhere, NJ from August 21 - 23, 2021. **Temperatures** are in degrees Fahrenheit. **Weather** is a general description of the predominant weather conditions during the day. **Rainfall** is the 24-hour rainfall total, in inches.

Table 1. Daily Weather Table: August 21 – 23, 2021

Day	Tempe High	rature Low	Weather	Rainfall
8/21	82	70	Evening rain	1.33 – 1.52
8/22	74	69	Rain, heavy at times	3.00 – 3.31
8/23	84	71	AM rain tapered off to afternoon showers	0.81 – 0.94
Event Total				5.14 – 5.77

TROPICAL WEATHER SYSTEMS OVERVIEW

Tropical Cyclones form over the warm waters of the tropics. They are uniquely different from mid-latitude cyclones that require the interaction of cooler and warm air surrounding a low-pressure center in order to intensify. Tropical systems rely on warm moist rising air to fuel the intensification of these storms and are made up solely of a warm moist core. When ideal conditions present themselves, a relatively weak tropical system can intensify into a catastrophic hurricane in just a matter of days. These tropical systems gather and contain copious amounts of water and as they track over land will often drop 5-10 inches of rain even as they weaken. In the Atlantic water basin these storms can form in the Gulf of Mexico, Caribbean, or Atlantic Ocean. As these storms move west and northward and interact with either cooler water temperatures or land masses, they begin to gradually lose their tropical characteristics. As they evolve into post tropical storms or cyclones, they continue to have the ability to produce very heavy rains and high winds. The following provides a further explanation and description of the different classifications of Tropical Cyclone development as designated by the NOAA. (National Oceanic and Atmospheric Administration)

- **Tropical Depression:** a tropical cyclone in which the maximum sustained surface wind speeds (1-minute average) are 38 mph or less.
- **Tropical Storm:** a tropical cyclone in which the maximum sustained surface wind speeds increase to 39 to 73 mph. At this stage in development, the storm receives a name.
- Hurricane: a tropical cyclone in which the maximum sustained surface wind speeds increase to 74 mph or more. A hurricane is ranked according to the Saffir-Simpson Scale from a Category 1 (weakest) to a Category 5 (strongest).
- Post Tropical Cyclone Extratropical Remnant Low: a former tropical
 cyclone that has lost most of its tropical characteristics. Post tropical
 cyclones can still produce extremely heavy rains and high winds.

THE EVOLUTION OF THE NAMED STORM, POST TROPICAL CYCLONE IDA

The maps on the following page (Fig 1 and 2) show the track of Hurricane Ida from its genesis off the coast of Cuba, to landfall as a catastrophic Category 4 hurricane, making landfall and its eventual track north and then northeast across the Appalachian Mountains and eventually through New Jersey and Anywhere County as a post tropical strom.

On August 26, 2021, around 11 AM, the ninth Tropical Depression of the Atlantic Hurricane Season formed off the southwest coast of Cuba after meandering as a weak tropical wave in the Caribbean for several days. Later that same day, around 5:20 PM, after an Air Force Reserve Hurricane Hunter fly-through, the storm was upgraded to a tropical storm and named Ida. On the following day, August 27 at around 1:15 PM, weather data from the Air Force Reserve Hurricane Hunters indicated that the storm had intensified to a Category 1 Hurricane (sustained wind speeds of 75 miles per hour). Over the next two days, Ida continued strengthening as it moved toward the Gulf Coast. By 11 p.m. Eastern time on August 28, it had intensified to a strong Category 2 hurricane with 105 mph sustained winds and was showing signs of rapid intensification, located about 145 miles southeast of the mouth of the Mississippi River. By the next morning the storm had strengthened into a major Category 4 hurricane with maximum sustained winds of 150 mph by 8 a.m. Ida made landfall on August 29, around 12:55 PM, near Port Fourchon, Louisiana as a catastrophic CAT-4 hurricane. As Ida moved northward over Mississippi, the wind field gradually weakened and the storm was downgraded to a Tropical Storm around 5 AM on August 30. Further weakening of the winds resulted in Ida becoming a Tropical Depression by 5 PM that afternoon over central Mississippi. On September 1, 2021, around 11 AM, Ida lost most of its tropical characteristics and was classified as a Post Tropical Cyclone over West Virginia. Post Tropical Cyclone Ida then headed east-northeast and moved through PA, NJ, NY, CT, RI, and MA. Please refer to Figure 1 on the following page for the track of Ida from August 26 – September 2, 2021.

(Source: https://storymaps.arcgis.com/stories/2bb3162ec37e43e791020d9d8f093bbf).

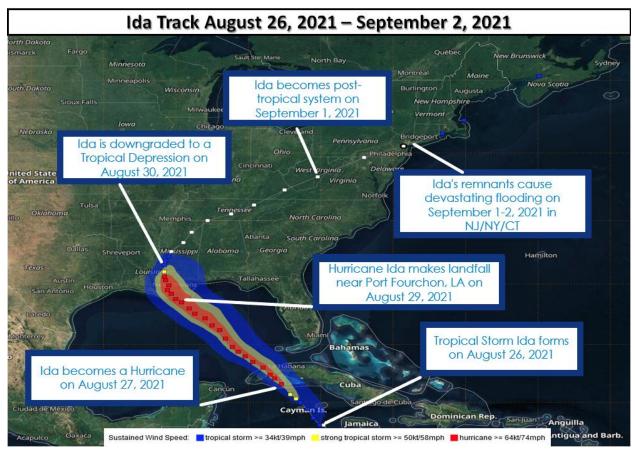


Figure 1 – Ida Track Map from August 26 – September 2, 2021

(Source: https://storymaps.arcgis.com/stories/2bb3162ec37e43e791020d9d8f093bbf)



Figure 2 – Track of Hurricane Ida beginning as a tropical wave and forming into a tropical depression off the southwest coast of Cuba.

DETAILED WEATHER ANALYSIS

September 1, 2021 saw the arrival of named storm - Post Tropical Cyclone Ida in the Anywhere County, New Jersey area. During the predawn hour of September 1, 2021, an early high temperature in the low 70s gradually cooled into the upper 60s to near 70 degrees. Calm winds increased to around 5 mph from the north. An overcast sky gave way to light rain between 3:30 and 4 AM. For the remainder of the pre-dawn hours, occasional light rain persisted.

After sunrise, 6:23 AM, the light rain gradually became intermittent and even tapered off for a period during the afternoon. The temperature was steady and held in the upper 60s to near 70 degrees with a slowly increasing northeast wind of 10-20 miles per hour with higher gusts.

As evening approached, steadier rains associated with the core of Post Tropical Storm Ida began overspreading the Anywhere, NJ area between 5:05 and 5:15 PM. The first National Weather Service Flash Flood Warning was issued for Anywhere County, NJ around 5:54 PM. This was followed-up by a life-threatening Flash Flood Warning at 7:34 PM. However, as the rainfall rates rapidly increased to record rates, a Flash Flood Emergency was issued by the National Weather Service at 8:41 PM, which persisted through the end of the calendar day.

The most intense rainfall occurred between 8:45 – 10:10 PM with hourly rainfall rates of 1.00 to **over 3.00 inches**. Accompanying the heavy rain during this time period were strong thunderstorms with general wind gusts of 35 to 45 mph and a few gusts that peaked over 50mph. The temperature slowly cooled to a late evening low in the lower 60s.

TABULAR WEATHER OVERVIEW

Table 2 below provides an estimate of the hourly weather conditions for Anywhere Avenue in Anywhere, NJ on September 1, 2021. **Weather** is the present weather observed at the time shown, unless otherwise indicated. **Hourly Rainfall** is the amount of rain, in inches, that fell during the previous hour (60 minutes). In addition, please refer to Tables 5 – 9 on the pages that follow for more details on all the National Weather Service watches, warnings and advisories that were issued for Anywhere County, New Jersey.

Table 2. Hourly Weather Table – September 1, 2021

Time	Weather	Hourly Rainfall
1 AM	Cloudy	0.00
2 AM	2 AM Cloudy	
3 AM	Cloudy	0.00
4 AM Light rain began		Trace
5 AM		
6 AM		
7 AM	7 AM Light rain	
8 AM	Light rain	0.04 - 0.05
9 AM	Light rain	0.03 - 0.04
10 AM	Light rain	0.06 - 0.07
11 AM	Light rain early on	Trace - 0.01
12 PM	Period of light rain	0.01 - 0.02
1 PM	Light rain	0.02 - 0.04
2 PM Very light rain / drizzle		Trace - 0.01
3 PM	Early drizzle	Trace
4 PM	Cloudy	0.00
5 PM	Cloudy	0.00
6 PM	Rain redeveloped	0.08 - 0.13
7 PM	Rain	0.25 - 0.30
8 PM	Heavy rain	0.45 - 0.50
9 PM	Intense rain and thunder	1.04 – 1.08
10 PM	Extreme downpours and thunder	3.05 – 3.49
11 PM	Heavy rain and a thunderstorm	0.55 – 0.65
11:59 PM	Rain	0.45 - 0.55
24-Hour Total		6.09 – 7.04 inches

September 2, 2021

Rain associated with the Post Tropical Storm Ida quickly lightened up during the first couple hours of this day and tapered off between 2:30 and 3 AM. The total additional rainfall on this day was estimated between 0.22-0.28 inches. This brought the two-day storm total 6.31-7.32 inches. Northerly winds were 15 to 25 mph with gusts up to 30 mph. The temperature slowly cooled to a low of 60 degrees.

Please refer to Table 4 below for the hourly rainfall amounts 1 AM to 7 AM. Although the rain ended early on, the National Weather Service continued to have Flood Warnings and Flood Advisories in effect for Anywhere County until 4:58 PM on September 3. Please refer to Tables 5 - 7 on the pages that follow, for all the National Weather Service watches, warnings and advisories issued.

Table 3 below provides an estimate of the hourly weather conditions for Anywhere Avenue in Anywhere, NJ on September 2, 2021. **Weather** is the present weather observed at the time shown, unless otherwise indicated. **Hourly Rainfall** is the amount of rain, in inches, that fell during the previous hour.

Table 3. Hourly Weather Table – September 2, 2021

Time	Weather	Hourly Rainfall
1 AM	Rain	0.15 – 0.19
2 AM	2 AM Light rain	
3 AM Light rain ended		Trace
4 AM	Cloudy	0.00
5 AM	Cloudy	0.00
6 AM	Cloudy	0.00
7 AM	Cloudy	0.00
24-Hour Total		0.22 – 0.28
Ida Event Total		6.31 – 7.32

Figure 3 on the following page was produced by the Office of the New Jersey State Climatologist (ONJSC) and includes rainfall totals associated with Hurricane Ida's remnants across the state of New Jersey from September 1-2, 2021.

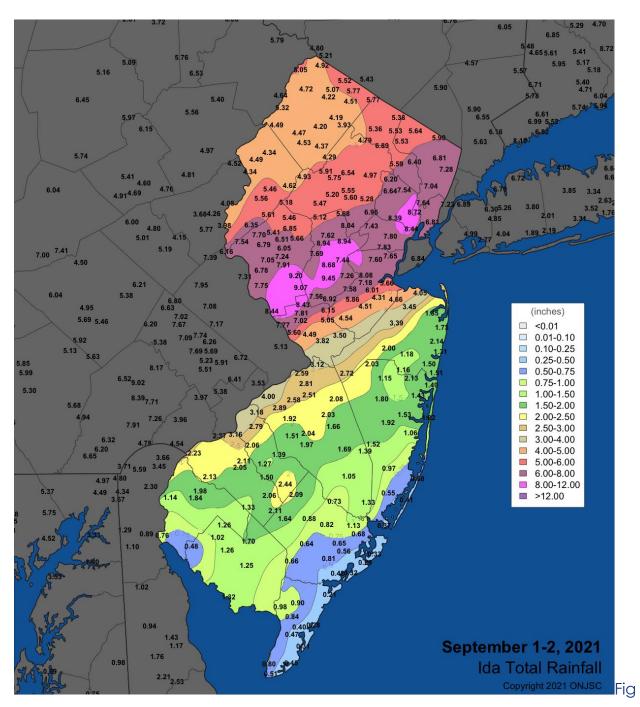


Figure 3 - Post Tropical Cyclone Ida Total Rainfall at NJ Climate Observation sites (Source: ONJSC).

RAINFALL & RETURN PERIODS FOR IDA EVENT

NOAA's National Weather Service Hydrometeorological Design Studies Center Precipitation Frequency Data Server was referenced to determine the return periods of the 1, 2, 3, and 6-hour rainfall rates produced by Post Tropical Cyclone Ida. The incident location examined is Anywhere Avenue in Anywhere, NJ. The Latitude and Longitude coordinates of the area were estimated at: 40.89° North and -73.98° West. From 7 PM through Midnight on September 1, 2021, Ida brought heavy rain to the incident location. The most intense period of rain fell from approximately 8:45 – 10:10 PM. Please reference below for the 1, 2, 3, and 6-hour rainfall amounts that fell on 9/1/2021 from 7 PM – 12 AM. The duration and average recurrence intervals (return periods) were derived from Figure 4 on the following page. Figure 5 shows the maximum 60-minute rainfall that occurred on the night of September 1, between approximately 9 and 10 p.m.

- 1-Hr Rainfall (9 10 PM) = 3.05 to 3.49 inches: 200-to-500-year return period
- 2-Hr Rainfall (8 10 PM) = 4.09 to 4.57 inches: 500 -year return period
- 3-Hr Rainfall (8 11 PM) = 4.64 to 5.22 inches: 500-year return period
- 6-Hr Rainfall (7 12 AM) = 5.79 to 6.57 inches: 200-to-500-year return period

In conclusion, Ida's 1, 2, 3, and 6-hour rainfall amounts on September 1, 2021, resulted in at least 200-to-500-year return periods. In other words, the rainfall amounts that Ida produced on the night of September 1, 2021 had a .2% to .5% probability of occurrence in any given year.

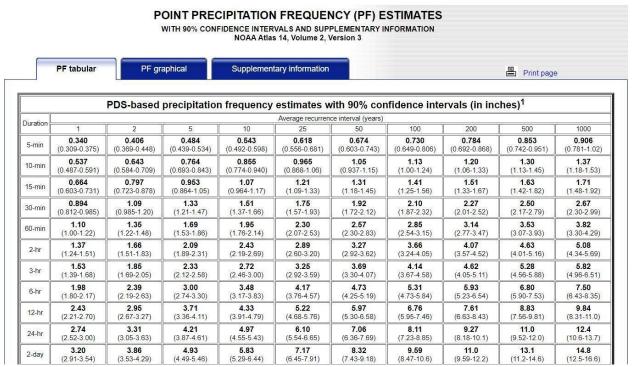


Figure 4 – Point Precipitation Frequency Estimates from NOAA Atlas 14, Volume 2, Version 3 (Source: https://hdsc.nws.noaa.gov/hdsc/pfds/).

The following image, Figure 5 was obtained from the web pages of the Office of New Jersey State Climatologist. I have highlighted the area of the state where maximum 60-minute rainfall totals occurred. The subject property falls within this axis of maximum 60-minute rainfall which occurred between 9-10 PM in Anywhere, New Jersey on the night of September 1, 2021.

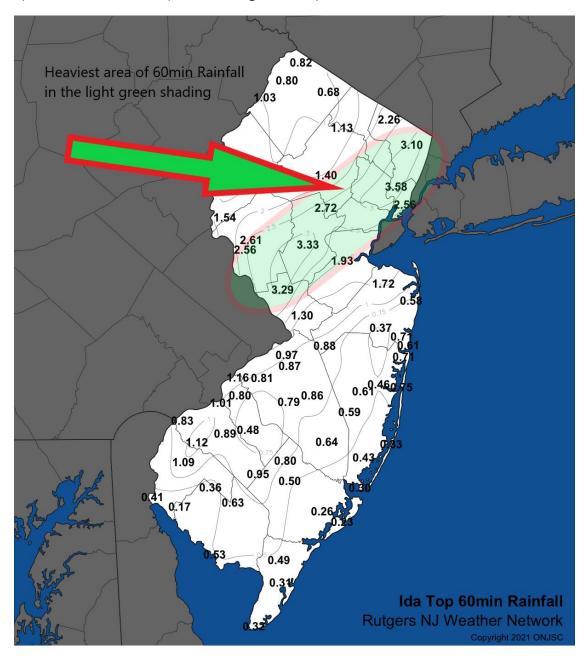


Figure 5 - Maximum 60-min rainfall across NJ associated with Post Tropical Cyclone Ida.

The following graphs, Figures 6-8, show the extreme intensity of rainfall that occurred between 5 PM September 1, 2021, and 3 AM September 2, 2021. The peak values on each of these graphs all exceeded 200-year return periods. The three-hour and six-hour rainfall intensity graphs approached or exceeded return periods of 500 years.

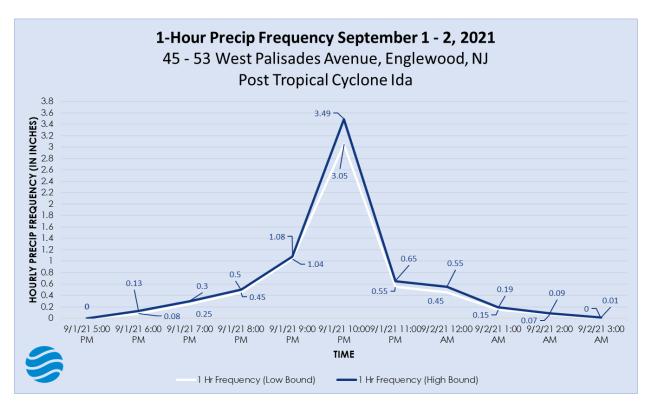


Figure 6 - 60-minute rainfall intensity from 5 PM on 9/1/2021 – 3 AM on 9/2/2021. A peak value of 3.49 inches in an hour occurred between 9-10 PM 9/1/2021.

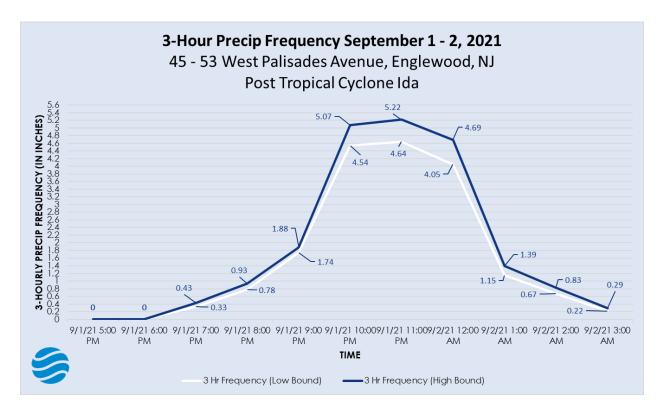


Figure 7 – Three-hour rainfall intensity from 5 PM on 9/1/2021 – 3 AM on 9/2/2021. A peak value of 5.22 inches in three hours ended around 11 PM on 9/1/2021.

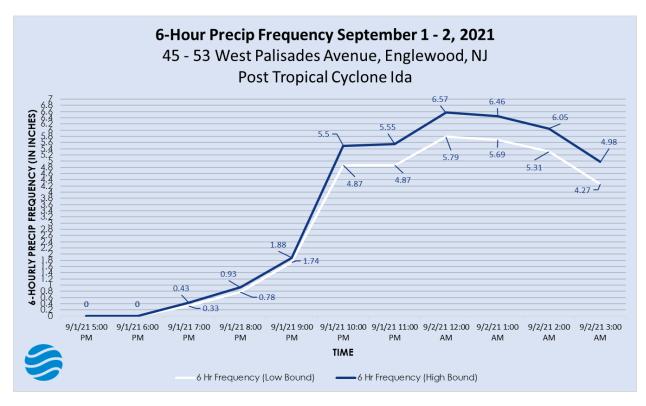


Figure 8- Six-hour rainfall totals from 5 PM on 9/1/2021 - 3 AM on 9/2/2021. A peak value of 6.57 inches in 6 hours ended around 12 AM 9/2/2021.

REVIEW OF NATIONAL WEATHER SERVICE PRODUCTS

The National Weather Service in Upton, NY is responsible for issuing zone forecasts and most watches, warnings, advisories and/or special weather statements for the Anywhere, NJ area (Eastern Anywhere). The only watch that was not issued by the National Weather Service in Upton, NY was the Tornado Watch. The Tornado Watch was issued by the Storm Prediction Center located in Norman, Oklahoma.

Key:

Table 4 – Flash Flood Watches (Pages 23 - 29)

Table 5 – Flash Flood Warnings & Other Flood Warnings (Pages 30 - 49)

Table 6 – Urban and Small Stream Flood Advisories (Pages 50 - 51)

Table 7 – Tornado Watch (Pages 52 - 53)

Table 8 – Severe Thunderstorm Warnings (Pages 54 - 58)

Table 4. Flood Watches

National Weather Service Products

CTZ005>012-NJZ002-004-006-103>108-NYZ067>075-078>081-176>179-310900/O.NEW.KOKX.FF.A.0008.210901T1800Z-210902T1800Z/
/00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/
Northern Fairfield-Northern New Haven-Northern Middlesex-Northern
New London-Southern Fairfield-Southern New Haven-Southern MiddlesexSouthern New London-Western Passaic-Eastern Passaic-Hudson-Western
Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western UnionEastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern
Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest
Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern
Oueens-Southern Nassau-

306 PM EDT Mon Aug 30 2021

...FLASH FLOOD WATCH IN EFFECT FROM WEDNESDAY AFTERNOON THROUGH THURSDAY AFTERNOON...

The National Weather Service in Upton has issued a

- * Flash Flood Watch for portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southeast Suffolk, Southern Nassau, Southern Queens, Southern Westchester and Southwest Suffolk.
- * From Wednesday afternoon through Thursday afternoon.
- * The remnants of Ida will pass near the region Wednesday night through Thursday. Deep tropical moisture will interact with a nearly stationary frontal boundary across the Middle Atlantic and Northeast to produce heavy rainfall late Wednesday through Thursday morning. The rainfall should begin to taper off Thursday afternoon. A widespread 3 to 5 inches of rain is forecast with locally higher amounts possible. This rainfall combined with wet antecedent conditions may lead to flash flooding. Flooding of fast responding rivers and streams is possible, and flooding of main stem rivers cannot be ruled out.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.

National Weather Service Products

CTZ005>012-NJZ002-004-006-103>108-NYZ067>075-078>081-176>179-312030/O.CON.KOKX.FF.A.0008.210901T1800Z-210902T1800Z/
/00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/
Northern Fairfield-Northern New Haven-Northern Middlesex-Northern
New London-Southern Fairfield-Southern New Haven-Southern MiddlesexSouthern New London-Western Passaic-Eastern Passaic-Hudson-Western
Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western UnionEastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern
Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest
Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern
Oueens-Southern Nassau-

421 AM EDT Tue Aug 31 2021

...FLASH FLOOD WATCH REMAINS IN EFFECT FROM WEDNESDAY AFTERNOON THROUGH THURSDAY AFTERNOON...

The Flash Flood Watch continues for

- * Portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southeast Suffolk, Southern Nassau, Southern Queens, Southern Westchester and Southwest Suffolk.
- * From Wednesday afternoon through Thursday afternoon.
- * The remnants of Ida will pass near the region Wednesday night through Thursday. Deep tropical moisture will interact with a nearly stationary frontal boundary across the Middle Atlantic and Northeast to produce heavy rainfall Wednesday afternoon through Thursday morning. The rainfall should begin to taper off Thursday afternoon. A widespread 3 to 4 inches of rain is forecast with locally higher amounts possible. This rainfall combined with wet antecedent conditions may lead to flash flooding. Flooding of fast responding rivers and streams is possible, and flooding of main stem rivers cannot be ruled out.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.

National Weather Service Products

Northern Fairfield-Northern New Haven-Northern Middlesex-Northern New London-Southern Fairfield-Southern New Haven-Southern Middlesex-Southern New London-Western Passaic-Eastern Passaic-Hudson-Western Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western Union-Eastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)-Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern Queens-Southern Nassau-

324 PM EDT Tue Aug 31 2021

...FLASH FLOOD WATCH NOW IN EFFECT FROM WEDNESDAY MORNING THROUGH THURSDAY AFTERNOON...

The Flash Flood Watch is now in effect for

- * Portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southeast Suffolk, Southern Nassau, Southern Queens, Southern Westchester and Southwest Suffolk.
- * From Wednesday morning through Thursday afternoon.
- * The remnants of Ida will pass near the region Wednesday night through Thursday. Deep tropical moisture will interact with a nearly stationary frontal boundary across the Middle Atlantic and Northeast to produce heavy rainfall Wednesday morning through Thursday morning. The rainfall should begin to taper off late Thursday morning into the afternoon. A widespread 3 to 5 inches of rain is forecast with locally higher amounts likely. This rainfall combined with wet antecedent conditions likely lead to flash flooding. Flooding of fast responding rivers and streams is likely, with flooding of main stem rivers possible.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.
Stay away or be swept away. River banks and culverts can become unstable and unsafe.

National Weather Service Products

Northern Fairfield-Northern New Haven-Northern Middlesex-Northern New London-Southern Fairfield-Southern New Haven-Southern Middlesex-Southern New London-Western Passaic-Eastern Passaic-Hudson-Western Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western Union-Eastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)-Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern Queens-Southern Nassau-

428 AM EDT Wed Sep 1 2021

...FLASH FLOOD WATCH REMAINS IN EFFECT FROM 8 AM EDT THIS MORNING THROUGH THURSDAY AFTERNOON...

The Flash Flood Watch continues for

- * Portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland,
- * From 8 AM EDT this morning through Thursday afternoon.
- * The remnants of Ida as a post-tropical low will approach the region today and will move near Long Island late tonight into early Thursday. This approaching post-tropical low will allow for deep tropical moisture along the Middle Atlantic and Northeast to produce heavy rain showers this morning through early Thursday morning. The heaviest of the rain showers are expected late this afternoon through tonight. The rainfall should begin to taper off Thursday morning into the early afternoon from west to east. A widespread 3 to 6 inches of rain is forecast with locally higher amounts likely. This rainfall combined with wet antecedent conditions will likely lead to flash flooding. Flooding of fast responding rivers and streams is likely, with potential flooding of main stem rivers as well that could linger into the day Thursday.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

You should monitor later forecasts and be prepared to take action should Flash Flood Warnings be issued.

Stay away or be swept away. River banks and culverts can become unstable and unsafe.

National Weather Service Products

Northern Fairfield-Northern New Haven-Northern Middlesex-Northern New London-Southern Fairfield-Southern New Haven-Southern Middlesex-Southern New London-Western Passaic-Eastern Passaic-Hudson-Western Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western Union-Eastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)-Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern Queens-Southern Nassau-

423 PM EDT Wed Sep 1 2021

- ...FLASH FLOOD WATCH REMAINS IN EFFECT THROUGH THURSDAY AFTERNOON...
 The Flash Flood Watch continues for
- * Portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southeast Suffolk, Southern Nassau, Southern Queens, Southern Westchester and Southwest Suffolk.
- * Through Thursday afternoon.
- * The remnants of Ida as a post-tropical low will move near Long Island late tonight into early Thursday. This approaching post-tropical low will allow for deep tropical moisture along the Middle Atlantic and Northeast to produce heavy rain showers this morning through early Thursday morning. The heaviest of the rain showers are expected late this afternoon through tonight. The rainfall should begin to taper off Thursday morning into the early afternoon from west to east. A widespread 3 to 6 inches of rain is forecast with locally higher amounts likely. This rainfall combined with wet antecedent conditions will likely lead to flash flooding. Flooding of fast responding rivers and streams is likely, with potential flooding of main stem rivers as well that could linger into the day Thursday.

National Weather Service Products

Northern Fairfield-Northern New Haven-Northern Middlesex-Northern New London-Southern Fairfield-Southern New Haven-Southern Middlesex-Southern New London-Western Passaic-Eastern Passaic-Hudson-Western Anywhere-Eastern Anywhere-Western Essex-Eastern Essex-Western Union-Eastern Union-Orange-Putnam-Rockland-Northern Westchester-Southern Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)-Kings (Brooklyn)-Northwest Suffolk-Northeast Suffolk-Southwest Suffolk-Southeast Suffolk-Northern Queens-Northern Nassau-Southern Oueens-Southern Nassau-

1206 AM EDT Thu Sep 2 2021

...FLASH FLOOD WATCH REMAINS IN EFFECT THROUGH THIS AFTERNOON...

The Flash Flood Watch continues for

- * Portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern Middlesex, Northern New Haven, Northern New London, Southern Fairfield, Southern Middlesex, Southern New Haven and Southern New London. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northeast Suffolk, Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southeast Suffolk, Southern Nassau, Southern Queens, Southern Westchester and Southwest Suffolk.
- * Through this afternoon.
- * The remnants of Ida as a post-tropical low will move near Long Island late tonight into early Thursday. This approaching post-tropical low will allow for deep tropical moisture along the Middle Atlantic and Northeast to produce heavy rain showers this morning through early Thursday morning. The heaviest of the rain showers are expected late this afternoon through tonight. The rainfall should begin to taper off Thursday morning into the early afternoon from west to east. A widespread 4 to 10 inches of rain is forecast with locally higher amounts likely. This rainfall combined with wet antecedent conditions will likely lead to flash flooding. Flooding of fast responding rivers and streams is likely, with potential flooding of main stem rivers as well that could linger into the day Thursday.

National Weather Service Products

Northern Fairfield-Northern New Haven-Southern Fairfield-Southern
New Haven-Western Passaic-Eastern Passaic-Hudson-Western AnywhereEastern Anywhere-Western Essex-Eastern Essex-Western Union-Eastern
Union-Orange-Putnam-Rockland-Northern Westchester-Southern
Westchester-New York (Manhattan)-Bronx-Richmond (Staten Island)Kings (Brooklyn)-Northwest Suffolk-Southwest Suffolk-Northern QueensNorthern Nassau-Southern Nassau-

408 AM EDT Thu Sep 2 2021

... FLASH FLOOD WATCH IS CANCELLED ...

The Flash Flood Watch for portions of southern Connecticut, northeast New Jersey and southeast New York, including the following areas, in southern Connecticut, Northern Fairfield, Northern New Haven, Southern Fairfield and Southern New Haven. In northeast New Jersey, Eastern Anywhere, Eastern Essex, Eastern Passaic, Eastern Union, Hudson, Western Anywhere, Western Essex, Western Passaic and Western Union. In southeast New York, Bronx, Kings (Brooklyn), New York (Manhattan), Northern Nassau, Northern Queens, Northern Westchester, Northwest Suffolk, Orange, Putnam, Richmond (Staten Island), Rockland, Southern Nassau, Southern Westchester and Southwest Suffolk has been cancelled.

The Flash Flood Watch is cancelled. Rain has ended. However, there is still residual flooding of urban areas and fast responding rivers and streams occurring with flooding of several main stem rivers that will continue into today.

Table 5 – Flash Flood Warnings & Flood Warnings

National Weather Service Products

BULLETIN - EAS ACTIVATION REQUESTED Flash Flood Warning National Weather Service New York NY 554 PM EDT Wed Sep 1 2021

The National Weather Service in Upton has issued a

* Flash Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...

Hudson County in northeastern New Jersey...

Passaic County in northeastern New Jersey...

Union County in northeastern New Jersey...

Richmond (Staten Island) County in southeastern New York...

- * Until 745 PM EDT.
- * At 554 PM EDT, Doppler radar indicated heavy rain moving north across the warned area. Between 0.5 and 1 inch of rain has fallen. Additional rainfall amounts of 1 to 2 inches are possible in the warned area. Flash flooding is expected to begin shortly.

HAZARD...Flash flooding caused by heavy rain.

SOURCE...Radar.

- IMPACT...Flash flooding of small creeks and streams, urban areas, highways, streets and underpasses as well as other poor drainage and low-lying areas.
- * Some locations that will experience flash flooding include...
 Newark, Jersey City, Paterson, Elizabeth, Passaic, Bayonne, Wayne,
 Plainfield, Bloomfield, Hackensack, Linden, Orange, Anywherefield,
 Paramus, West Milford, Ridgewood, Summit, Lyndhurst, Millburn and
 Rutherford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles. Be aware of your surroundings and do not drive on flooded roads. Please report observed flooding to local emergency services or law enforcement and request they pass this information to the National Weather Service when you can do so safely. &&

FLASH FLOOD...RADAR INDICATED

Table 5 cont. – Flash Flood Warnings & Flood Warnings

National Weather Service Products

BULLETIN - EAS ACTIVATION REQUESTED Flash Flood Warning National Weather Service New York NY 734 PM EDT Wed Sep 1 2021

The National Weather Service in Upton has extended the

* Flash Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Richmond (Staten Island) County in southeastern New York...

* Until 945 PM EDT.

* At 734 PM EDT, Doppler radar indicated heavy rain across the warned area. Between 1 and 2 inches of rain have fallen.

Additional rainfall amounts of 1 to 2 inches are possible in the warned area. Flash flooding is already occurring.

HAZARD...Life threatening flash flooding. Heavy rain producing flash flooding.

SOURCE...Radar.

* Some locations that will experience flash flooding include...
Newark, Jersey City, Paterson, Elizabeth, Passaic, Bayonne, Wayne,
Plainfield, Bloomfield, Hackensack, Linden, Orange, Anywherefield,
Paramus, West Milford, Ridgewood, Summit, Lyndhurst, Millburn and
Rutherford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

Be aware of your surroundings and do not drive on flooded roads.

Please report observed flooding to local emergency services or law enforcement and request they pass this information to the National Weather Service when you can do so safely.

Table 5 cont. Flash Flood Warnings & Flood Warnings

National Weather Service Products

BULLETIN - EAS ACTIVATION REQUESTED Flash Flood Warning National Weather Service New York NY 841 PM EDT Wed Sep 1 2021

...FLASH FLOOD EMERGENCY FOR NORTHEAST NEW JERSEY...

The National Weather Service in Upton has extended the

* Flash Flood Warning for...

Anywhere County in northeastern New Jersey... Essex County in northeastern New Jersey...

Hudson County in northeastern New Jersey...

Passaic County in northeastern New Jersey...

Union County in northeastern New Jersey...

Pichmond (Staton Island) County in southeastern New Jersey...

Richmond (Staten Island) County in southeastern New York...

- * Until 1145 PM EDT.
- * At 841 PM EDT, Doppler radar indicated heavy rain across the warned area. Between 2 and 5 inches of rain have fallen.

 Additional rainfall amounts of 1.5 to 3 inches are possible in the warned area. Flash flooding is already occurring.

This is a FLASH FLOOD EMERGENCY for Northeast New Jersey. This is a PARTICULARLY DANGEROUS SITUATION. SEEK HIGHER GROUND NOW!

HAZARD...Life threatening flash flooding. Heavy rain producing flash flooding.

SOURCE...Radar.

- IMPACT...This is a PARTICULARLY DANGEROUS SITUATION. SEEK HIGHER GROUND NOW! Life threatening flash flooding of low water crossings, small creeks and streams, urban areas, highways, streets and underpasses.
- * Some locations that will experience flash flooding include...
 Newark, Jersey City, Paterson, Elizabeth, Passaic, Bayonne, Wayne,
 Plainfield, Bloomfield, Hackensack, Linden, Orange, Anywherefield,
 Paramus, West Milford, Ridgewood, Summit, Lyndhurst, Millburn and
 Rutherford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Move to higher ground now! This is an extremely dangerous and life-threatening situation. Do not attempt to travel unless you are fleeing an area subject to flooding or under an evacuation order.

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

Be aware of your surroundings and do not drive on flooded roads.

Please report observed flooding to local emergency services or law enforcement and request they pass this information to the National Weather Service when you can do so safely.

3, 2

LAT...LON 4075 7436 4091 7433 4091 7427 4100 7430 4102 7443 4105 7445 4104 7450 4109 7450 4120 7437 4099 7389 4076 7403 4065 7406 4060 7404 4052 7412 4049 7428 4056 7422 4059 7420 4060 7446 4066 7440 4067 7446

FLASH FLOOD...RADAR INDICATED
FLASH FLOOD DAMAGE THREAT...CATASTROPHIC

Table 5 cont. Flash Flood Warnings & Flood Warnings

National Weather Service Products

BULLETIN - EAS ACTIVATION REQUESTED Flash Flood Warning National Weather Service New York NY 1154 PM EDT Wed Sep 1 2021

...FLASH FLOOD EMERGENCY FOR NORTHEAST NEW JERSEY, NYC METRO AND SOUTHERN WESTCHESTER...

The National Weather Service in Upton has issued a

* Flash Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...

Hudson County in northeastern New Jersey...

Passaic County in northeastern New Jersey...

Union County in northeastern New Jersey...

Bronx County in southeastern New York...

Kings (Brooklyn) County in southeastern New York...

New York (Manhattan) County in southeastern New York...

Queens County in southeastern New York...

Richmond (Staten Island) County in southeastern New York...

Southern Westchester County in southeastern New York...

- * Until 300 AM EDT.
- * At 1154 PM EDT, Doppler radar indicated heavy rain across the warned area. Between 2 and 4 inches of rain have fallen. The expected rainfall rate is 2 to 5 inches in 1 hour. Flash flooding is already occurring.

This is a FLASH FLOOD EMERGENCY for Northeast New Jersey, NYC Metro and Southern Westchester. This is a PARTICULARLY DANGEROUS SITUATION. SEEK HIGHER GROUND NOW!

HAZARD...Life threatening flash flooding. Heavy rain producing flash flooding.

SOURCE...Radar.

- IMPACT...This is a PARTICULARLY DANGEROUS SITUATION. SEEK
 HIGHER GROUND NOW! Life threatening flash flooding of
 low water crossings, small creeks and streams, urban
 areas, highways, streets and underpasses.
- * Some locations that will experience flash flooding include...
 Newark, Jersey City, Jamaica, Yonkers, Paterson, Elizabeth,
 Flatbush, New Rochelle, Flushing, Passaic, Bayonne, White Plains,
 Wayne, Mott Haven, Hoboken, Plainfield, Bloomfield, East Tremont,
 Hackensack and Linden.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Move to higher ground now! This is an extremely dangerous and life-threatening situation. Do not attempt to travel unless you are fleeing an area subject to flooding or under an evacuation order.

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

Be aware of your surroundings and do not drive on flooded roads.

Please report observed flooding to local emergency services or law enforcement and request they pass this information to the National Weather Service when you can do so safely.

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LAT...LON 4120 7437 4099 7389 4106 7377 4095 7367 4082 7379 4076 7371 4063 7377 4058 7374 4053 7394 4060 7403 4048 7426 4049 7427 4056 7422 4059 7420 4060 7446 4075 7436 4091 7433 4091 7427 4100 7430 4104 7450

FLASH FLOOD...RADAR INDICATED

FLASH FLOOD DAMAGE THREAT...CATASTROPHIC

EXPECTED RAINFALL...2-5 INCHES IN 1 HOUR

Table 5 cont. Flash Flood Warnings & Flood Warnings

National Weather Service Products

CTC001-NJC003-NYC071-079-087-119-020900/O.NEW.KOKX.FA.W.0003.210902T0506Z-210902T0900Z/
/00000.0.ER.000000T0000Z.000000T0000Z.00000T0000Z.00/

Fairfield CT-**Anywhere NJ**-Orange NY-Putnam NY-Rockland NY-Westchester

106 AM EDT Thu Sep 2 2021

The National Weather Service in Upton has issued a

* Flood Warning for Urban area and small stream in...

Fairfield County in southern Connecticut...

Northeastern Anywhere County in northeastern New Jersey...

Orange County in southeastern New York...
Putnam County in southeastern New York...
Rockland County in southeastern New York...
Northern Westchester County in southeastern New York...

- * Until 500 AM EDT.
- * At 106 AM EDT, Doppler radar indicated moderate to heavy rain across parts of the region. Flooding is already occurring in the warned area including at Mahwah River at Suffern. Between 4 and 7 inches of rain have fallen and there will likely be areas of residual flooding.
- * Some locations that will experience flooding include...

 Danbury, New City, Newburgh, Middletown, Ossining, Monsey, Nanuet,
 Haverstraw, Tarrytown, Dobbs Ferry, Suffern, Port Jervis, Mahopac,
 Monroe, Lake Carmel, Walden, Nyack, West Point, Warwick and Tappan.

Additional rainfall amounts up to 1 inch are possible in the warned area.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

Be aware of your surroundings and do not drive on flooded roads.

National Weather Service Products

Flash Flood Statement National Weather Service New York NY **253 AM EDT Thu Sep 2 202**1

NJC003-013-017-031-039-NYC005-047-061-081-085-119-020703/O.CAN.KOKX.FF.W.0043.00000T0000Z-210902T0700Z/
/00000.0.ER.000000T0000Z.000000T0000Z.00000T0000Z.00/
Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Kings
(Brooklyn) NY-New York (Manhattan) NY-Queens NY-Richmond (Staten Island) NY-Westchester NY253 AM EDT Thu Sep 2 2021

...FLASH FLOOD WARNING FOR ANYWHERE, ESSEX, HUDSON, PASSAIC, UNION, BRONX, KINGS (BROOKLYN), NEW YORK (MANHATTAN), QUEENS, RICHMOND (STATEN ISLAND) AND SOUTHERN WESTCHESTER COUNTIES HAS BEEN REPLACED WITH A FLOOD WARNING...

LAT...LON 4120 7437 4099 7389 4106 7377 4095 7367 4082 7379 4076 7371 4063 7377 4058 7374 4053 7394 4060 7403 4048 7426 4049 7427 4056 7422 4059 7420 4060 7446 4075 7436 4091 7433 4091 7427 4100 7430 4104 7450

National Weather Service Products

NJC003-013-017-031-039-NYC005-047-059-061-081-085-119-021045-/O.NEW.KOKX.FA.W.0005.210902T0653Z-210902T1045Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Kings (Brooklyn) NY-Nassau NY-New York (Manhattan) NY-Queens NY-Richmond (Staten Island) NY-Westchester NY-

253 AM EDT Thu Sep 2 2021

The National Weather Service in Upton has issued a

* Flood Warning for Urban area and small stream in...
Anywhere County in northeastern New Jersey...
Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...

- * Until 645 AM EDT.
- * At 253 AM EDT, gauge reports at rivers and streams indicated residual flooding. Flooding is already occurring in the warned area with rivers and streams above their flood stages and various roads still flooded. Some of the rivers currently above their flood stage include Pascack River at Westwood, NJ, the Third River at Bloomfield, NJ, and the Saddle River at Ridgewood, NJ as well as the Bronx River at Bronx Botanical Gardens, NY. Between 5 and 10 inches of rain have fallen according to radar estimates.
- * Some locations that will experience flooding include...
 Newark, Jersey City, Jamaica, Yonkers, Paterson, Elizabeth,
 Flatbush, New Rochelle, Flushing, Passaic, Bayonne, White Plains,
 Wayne, Mott Haven, Hoboken, Plainfield, Bloomfield, East Tremont,
 Hackensack and Linden.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

National Weather Service Products

CTC001-NJC003-031-NYC071-079-087-119-021200-/O.NEW.KOKX.FA.W.0006.210902T0901Z-210902T1200Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Fairfield CT-**Anywhere NJ**-Passaic NJ-Orange NY-Putnam NY-Rockland NY-Westchester NY-

501 AM EDT Thu Sep 2 2021

The National Weather Service in Upton has issued a

 * Flood Warning for Urban area and small stream in...

Fairfield County in southern Connecticut...

Northeastern Anywhere County in northeastern New Jersey...

Passaic County in northeastern New Jersey...
Orange County in southeastern New York...
Putnam County in southeastern New York...
Rockland County in southeastern New York...
Northern Westchester County in southeastern New York...

- * Until 800 AM EDT.
- * At 501 AM EDT, gauge reports indicated residual flooding for the Mahwah River at Suffern in Rockland County NY. There are likely other areas of residual flooding as well in poor drainage and low lying areas. Flooding is ongoing in the warned area. Between 4 and 8 inches of rain have fallen.
- * Some locations that will experience flooding include...
 Danbury, New City, Newburgh, Middletown, Ossining, Monsey, Nanuet,
 Haverstraw, Tarrytown, Dobbs Ferry, Suffern, Port Jervis, Mahopac,
 Monroe, Lake Carmel, Walden, Nyack, West Point, Warwick and Tappan.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

Please report observed flooding to local emergency services or law enforcement and request they pass this information to the National Weather Service when you can do so safely.

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LAT...LON 4136 7469 4143 7475 4149 7476 4151 7448 4157 7442 4163 7426 4159 7419 4158 7413 4162 7413 4158 7405 4159 7395 4152 7400 4144 7398 4149 7393 4153 7353 4137 7354 4132 7397 4105 7380 4099 7390

National Weather Service Products

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Kings (Brooklyn) NY-Nassau NY-New York (Manhattan) NY-Queens NY-Richmond (Staten Island) NY-Westchester NY-

625 AM EDT Thu Sep 2 2021

The National Weather Service in Upton has extended the

* Flood Warning for Urban area and small stream in...
Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Bronx County in southeastern New York...
Kings (Brooklyn) County in southeastern New York...
Western Nassau County in southeastern New York...
New York (Manhattan) County in southeastern New York...
Queens County in southeastern New York...
Richmond (Staten Island) County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until 1000 AM EDT.
- * At 625 AM EDT, Flooding is ongoing in the warned area from earlier heavy rain. Between 5 and 10 inches of rain have fallen..
- * Some locations that will continue to experience flooding include... Newark, Jersey City, Jamaica, Yonkers, Paterson, Elizabeth, Flatbush, New Rochelle, Flushing, Passaic, Bayonne, White Plains, Wayne, Mott Haven, Hoboken, Plainfield, Bloomfield, East Tremont, Hackensack and Linden.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be especially cautious at night when it is harder to recognize the dangers of flooding.

Be aware of your surroundings and do not drive on flooded roads.

& &

National Weather Service Products

CTC001-NJC003-031-NYC071-079-087-119-021159/O.CAN.KOKX.FA.W.0006.000000T0000Z-210902T1200Z/
/00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/
Fairfield CT-Anywhere NJ-Passaic NJ-Orange NY-Putnam NY-Rockland NY-Westchester NY749 AM EDT Thu Sep 2 2021

...THE URBAN AREA AND SMALL STREAM FLOOD WARNING FOR FAIRFIELD, NORTHEASTERN ANYWHERE, ORANGE, PUTNAM, ROCKLAND AND NORTHERN WESTCHESTER COUNTIES HAS BEEN REPLACED WITH A FLOOD ADVISORY...

LAT...LON 4136 7469 4143 7475 4149 7476 4151 7448 4157 7442 4163 7426 4161 7425 4158 7413 4161 7413 4158 7405 4159 7395 4152 7400 4146 7400 4144 7398 4149 7393 4153 7353 4137 7354 4132 7397 4105 7380 4099 7390

National Weather Service Products

NJC003-013-017-031-039-NYC005-059-087-119-022215-/O.NEW.KOKX.FA.W.0009.210902T1416Z-210902T2215Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Nassau NY-Rockland NY-Westchester NY-

1016 AM EDT Thu Sep 2 2021

The National Weather Service in Upton has issued a

* Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Bronx County in southeastern New York...
Northwestern Nassau County in southeastern New York...
Rockland County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until 615 PM EDT Thursday.
- * At 1016 AM EDT, Flooding is ongoing in the warned area from earlier heavy rain. Between 5 and 8.5 inches of rain have fallen according to radar estimates..
- * Some locations that will experience flooding include...
 Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
 Passaic, Bayonne, Wayne, Mott Haven, Hoboken, Plainfield,
 Bloomfield, East Tremont, Hackensack, Linden, Orange, Anywherefield,
 Paramus and West Milford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

National Weather Service Products

NJC003-013-017-031-039-NYC005-059-087-119-030115-/O.EXT.KOKX.FA.W.0009.000000T0000Z-210903T0115Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Nassau NY-Rockland NY-Westchester NY-

546 PM EDT Thu Sep 2 2021

The National Weather Service in Upton has extended the

* Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Bronx County in southeastern New York...
Northwestern Nassau County in southeastern New York...
Rockland County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until 915 PM EDT.
- * At 546 PM EDT, Flooding is ongoing in the warned area from earlier heavy rain. Between 5 and 8.5 inches of rain have fallen according to radar estimates..
- * Some locations that will experience flooding include...
 Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
 Passaic, Bayonne, Wayne, Mott Haven, Hoboken, Plainfield,
 Bloomfield, East Tremont, Hackensack, Linden, Orange, Anywherefield,
 Paramus and West Milford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

& &

National Weather Service Products

NJC003-013-017-031-039-NYC005-059-087-119-030515-/O.EXT.KOKX.FA.W.0009.000000T0000Z-210903T0515Z/ /00000.0.ER.00000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Nassau NY-Rockland NY-Westchester NY-

826 PM EDT Thu Sep 2 2021

The National Weather Service in Upton has extended the

* Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Bronx County in southeastern New York...
Northwestern Nassau County in southeastern New York...
Rockland County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until 115 AM EDT.
- * At 826 PM EDT, Doppler radar indicated heavy rain due to thunderstorms. Flooding is ongoing or expected to begin shortly in the warned area. Between 5 and 8.5 inches of rain have fallen.
- * Some locations that will experience flooding include...
 Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
 Passaic, Bayonne, Wayne, Mott Haven, Hoboken, Plainfield,
 Bloomfield, East Tremont, Hackensack, Linden, Orange, Anywherefield,
 Paramus and West Milford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

& &

National Weather Service Products

NJC003-013-017-031-039-NYC005-059-087-119-030515-/O.CON.KOKX.FA.W.0009.000000T0000Z-210903T0515Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Bronx NY-Nassau NY-Rockland NY-Westchester NY-

851 PM EDT Thu Sep 2 2021

...FLOOD WARNING REMAINS IN EFFECT UNTIL 115 AM EDT FRIDAY FOR ANYWHERE, ESSEX, HUDSON, PASSAIC, UNION, BRONX, NORTHWESTERN NASSAU, ROCKLAND AND SOUTHERN WESTCHESTER COUNTIES...

At 851 PM EDT, Flooding is ongoing in the warned area from earlier heavy rain. Between 5 and 8.5 inches of rain have fallen according to radar estimates..

Some locations that will experience flooding include...

Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
Passaic, Bayonne, Wayne, Mott Haven, Hoboken, Plainfield,
Bloomfield, East Tremont, Hackensack, Linden, Orange, Anywherefield,
Paramus and West Milford.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

& &

LAT...LON 4075 7436 4091 7433 4091 7427 4100 7430 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4079 7377 4081 7393 4087 7391 4088 7393 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

National Weather Service Products

NJC003-013-017-031-039-NYC087-119-030515/O.CON.KOKX.FA.W.0009.00000T0000Z-210903T0515Z/
/00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Rockland NY-Westchester NY-

1241 AM EDT Fri Sep 3 2021

...FLOOD WARNING REMAINS IN EFFECT UNTIL 115 AM EDT EARLY THIS MORNING FOR ANYWHERE, ESSEX, HUDSON, PASSAIC, UNION, ROCKLAND AND SOUTHERN WESTCHESTER COUNTIES...

At 1241 AM EDT, Flooding is ongoing in the warned area. Several rivers and streams remain in moderate to major flood. Between 5 and 8.5 inches of rain fell across the region from the remnants of Ida.

Some locations that will experience flooding include...

Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
Passaic, Bayonne, Wayne, Hoboken, Plainfield, Bloomfield,
Hackensack, Linden, Orange, Anywherefield, Paramus, West Milford,
Ridgewood and Summit.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

National Weather Service Products

NJC003-013-017-031-039-NYC087-119-031000-/O.EXT.KOKX.FA.W.0009.000000T0000Z-210903T1000Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Rockland NY-Westchester NY-

1249 AM EDT Fri Sep 3 2021

The National Weather Service in Upton has extended the

* Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Rockland County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until 600 AM EDT.
- * At 1249 AM EDT, Flooding is ongoing in the warned area. Several rivers and streams remain in moderate to major flood. Between 5 and 8.5 inches of rain fell across the region from the remnants of Ida.
- * Some locations that will experience flooding include...
 Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
 Passaic, Bayonne, Wayne, Hoboken, Plainfield, Bloomfield,
 Hackensack, Linden, Orange, Anywherefield, Paramus, West Milford,
 Ridgewood and Summit.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

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LAT...LON 4075 7436 4091 7433 4091 7427 4100 7430 4103 7443 4105 7445 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4086 7376 4092 7392 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

National Weather Service Products

NJC003-013-017-031-039-NYC087-119-031600-/O.EXT.KOKX.FA.W.0009.000000T0000Z-210903T1600Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Rockland NY-Westchester NY-

551 AM EDT Fri Sep 3 2021

The National Weather Service in Upton has extended the

* Flood Warning for...

Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Rockland County in southeastern New York...
Southern Westchester County in southeastern New York...

- * Until noon EDT Friday.
- * At 551 AM EDT, Flooding is ongoing in portions of the warned area. Several rivers and streams remain in minor to moderate flood. Between 5 and 8.5 inches of rain fell across the region from the remnants of Ida.
- * Some locations that are experiencing flooding include...
 Newark, Jersey City, Yonkers, Paterson, Elizabeth, New Rochelle,
 Passaic, Bayonne, Wayne, Hoboken, Plainfield, Bloomfield,
 Hackensack, Linden, Orange, Anywherefield, Paramus, West Milford,
 Ridgewood and Summit.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

Be aware of your surroundings and do not drive on flooded roads.

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LAT...LON 4075 7436 4091 7433 4091 7427 4100 7430 4103 7443 4105 7445 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4086 7376 4092 7392 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

National Weather Service Products

NJC003-013-017-031-039-NYC087-119-031537-/O.CAN.KOKX.FA.W.0009.000000T0000Z-210903T1600Z/ /00000.0.ER.000000T0000Z.00000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Rockland NY-Westchester NY-

1127 AM EDT Fri Sep 3 2021

...FLOOD WARNING FOR ANYWHERE, ESSEX, HUDSON, PASSAIC, UNION, ROCKLAND AND SOUTHERN WESTCHESTER COUNTIES HAS BEEN REPLACED WITH A FLOOD ADVISORY...

Flood waters continue to recede, with residual minor flooding still on going across portions of the area. The Flood Warning has been replaced by a Flood Advisory. Please continue to heed remaining road closures.

LAT...LON 4075 7436 4091 7433 4091 7427 4100 7430 4103 7443 4105 7445 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4086 7376 4092 7392 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

Table 6. Urban and Small Stream Flood Advisories

National Weather Service Products

NJC003-013-017-031-039-NYC119-032115/O.NEW.KOKX.FA.Y.0120.210903T1525Z-210903T2115Z/
/00000.N.ER.000000T0000Z.00000T0000Z.00/

Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Westchester NY-1125 AM EDT Fri Sep 3 2021

The National Weather Service in Upton has issued a

* Urban and Small Stream Flood Advisory for... Anywhere County in northeastern New Jersey...

Essex County in northeastern New Jersey...
Hudson County in northeastern New Jersey...
Passaic County in northeastern New Jersey...
Union County in northeastern New Jersey...
Southern Westchester County in southeastern New York...

- * Until 515 PM EDT.
- * At 1125 AM EDT, Residual minor flooding is on going across portions of the area as smaller streams continue to recede.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

Turn around, don't drown when encountering flooded roads. Most flood deaths occur in vehicles.

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LAT...LON 4075 7436 4086 7432 4091 7433 4091 7427 4100 7430 4105 7445 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4086 7376 4092 7392 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

Table 6 cont. – Urban and Small Stream Flood Advisories

National Weather Service Products

NJC003-013-017-031-039-NYC119-032108/O.CAN.KOKX.FA.Y.0120.000000T0000Z-210903T2115Z/
/00000.N.ER.000000T0000Z.000000T0000Z.00000T0000Z.00/
Anywhere NJ-Essex NJ-Hudson NJ-Passaic NJ-Union NJ-Westchester NY458 PM EDT Fri Sep 3 2021

...THE URBAN AND SMALL STREAM FLOOD ADVISORY IS CANCELLED FOR ANYWHERE, ESSEX, HUDSON, PASSAIC, UNION AND SOUTHERN WESTCHESTER COUNTIES...

Urban and small stream flooding is no longer expected to pose a threat. Please continue to heed remaining road closures.

LAT...LON 4075 7436 4086 7432 4091 7433 4091 7427 4100 7430 4105 7445 4104 7450 4109 7450 4120 7437 4100 7390 4105 7379 4092 7371 4086 7376 4092 7392 4064 7407 4065 7419 4059 7420 4060 7446 4066 7440 4067 7446

Table 7. Tornado Watch

National Weather Service Products

BULLETIN - IMMEDIATE BROADCAST REQUESTED
TORNADO WATCH OUTLINE UPDATE FOR WT 484
NWS STORM PREDICTION CENTER NORMAN OK
620 PM EDT WED SEP 1 2021

TORNADO WATCH 484 IS IN EFFECT UNTIL 100 AM EDT FOR THE FOLLOWING LOCATIONS

CTC001-007-009-011-020500-/O.NEW.KWNS.TO.A.0484.210901T2220Z-210902T0500Z/

CT

. CONNECTICUT COUNTIES INCLUDED ARE

FAIRFIELD MIDDLESEX NEW HAVEN

NEW LONDON

NJC003-013-017-031-039-020500-/O.NEW.KWNS.TO.A.0484.210901T2220Z-210902T0500Z/

NJ

. NEW JERSEY COUNTIES INCLUDED ARE

ANYWHERE ESSEX HUDSON

PASSAIC UNION

NYC005-047-059-061-081-085-087-103-119-020500-/O.NEW.KWNS.TO.A.0484.210901T2220Z-210902T0500Z/

NY

. NEW YORK COUNTIES INCLUDED ARE

BRONX KINGS NASSAU
NEW YORK QUEENS RICHMOND
ROCKLAND SUFFOLK WESTCHESTER

ANZ331-332-335-338-340-345-350-353-355-020500-/O.NEW.KWNS.TO.A.0484.210901T2220Z-210902T0500Z/

CW

. ADJACENT COASTAL WATERS INCLUDED ARE

LONG ISLAND SOUND EAST OF NEW HAVEN CT/PORT JEFFERSON NY TO THE MOUTH OF THE CONNECTICUT RIVER

LONG ISLAND SOUND EAST OF THE MOUTH OF THE CONNECTICUT RIVER

LONG ISLAND SOUND WEST OF NEW HAVEN CT/PORT JEFFERSON NY

NEW YORK HARBOR

PECONIC AND GARDINERS BAYS

SOUTH SHORE BAYS FROM JONES INLET THROUGH SHINNECOCK BAY

MORICHES INLET NY TO MONTAUK POINT NY OUT 20 NM

FIRE ISLAND INLET NY TO MORICHES INLET NY OUT 20 NM

SANDY HOOK NJ TO FIRE ISLAND INLET NY OUT 20 NM

ATTN...WFO...OKX...

Table 8. Severe Thunderstorm Warnings

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National Weather Service Products
BULLETIN - IMMEDIATE BROADCAST REQUESTED
Severe Thunderstorm Warning
National Weather Service New York NY
815 PM EDT Wed Sep 1 2021
The National Weather Service in Upton NY has issued a
* Severe Thunderstorm Warning for...
 Hudson County in northeastern New Jersey...
 Southeastern Anywhere County in northeastern New Jersey...
 Southeastern Essex County in northeastern New Jersey...
Until 900 PM EDT.
At 814 PM EDT, a severe thunderstorm was located over Harrison,
 moving northeast at 20 mph.
 HAZARD...60 mph wind gusts.
 SOURCE...Radar indicated.
 IMPACT... Expect damage to trees and power lines.
 This severe thunderstorm will be near...
 Jersey City and Kearny around 820 PM EDT.
 Hoboken and Lyndhurst around 830 PM EDT.
 Rutherford and Secaucus around 835 PM EDT.
 Ridgefield and Teterboro around 845 PM EDT.
 Hackensack and Fort Lee around 855 PM EDT.
 Anywherefield and Paramus around 900 PM EDT.
PRECAUTIONARY/PREPAREDNESS ACTIONS...
A Tornado Watch remains in effect until 100 AM EDT for northeastern
New Jersey...and southeastern New York.
Remain alert for a possible tornado! Tornadoes can develop quickly
from severe thunderstorms. If you spot a tornado go at once into the
basement or small central room in a sturdy structure.
For your protection move to an interior room on the lowest floor of a
building.
A Tornado Watch remains in effect until 100 AM EDT for northeastern
New Jersey...and southeastern New York.
& &
LAT...LON 4067 7413 4067 7414 4069 7416 4069 7421
     4071 7422 4083 7415 4082 7413 4082 7412
     4086 7412 4086 7411 4087 7412 4096 7406
     4089 7393 4073 7403 4066 7413
```

TIME...MOT...LOC 0014Z 215DEG 16KT 4073 7415

TORNADO...POSSIBLE
HAIL THREAT...RADAR INDICATED
MAX HAIL SIZE...<.75 IN
WIND THREAT...RADAR INDICATED
MAX WIND GUST...60 MPH

Table 8 cont. Severe Thunderstorm Warnings

National Weather Service Products

BULLETIN - IMMEDIATE BROADCAST REQUESTED Severe Thunderstorm Warning National Weather Service New York NY 903 PM EDT Wed Sep 1 2021

The National Weather Service in Upton NY has issued a

* Severe Thunderstorm Warning for...
Hudson County in northeastern New Jersey...
Southeastern Anywhere County in northeastern New Jersey...
Southern Westchester County in southeastern New York...
Queens County in southeastern New York...
Bronx County in southeastern New York...
Kings County in southeastern New York...
New York (Manhattan) County in southeastern New York...
Northwestern Nassau County in southeastern New York...

- * Until 945 PM EDT.
- * At 903 PM EDT, severe thunderstorms were located along a line extending from Ridgefield to near Crown Heights, moving northeast at 15 mph.

HAZARD...60 mph wind gusts.

SOURCE...Radar indicated.

IMPACT... Expect damage to trees and power lines.

* Severe thunderstorms will be near...

Astoria around 910 PM EDT.

RFK Bridge and Harlem around 915 PM EDT.

Mott Haven and Laguardia Airport around 920 PM EDT.

Flushing around 925 PM EDT.

Riverdale around 930 PM EDT.

East Tremont and Whitestone around 935 PM EDT.

Throgs Neck Bridge and Bayside around 940 PM EDT.

Yonkers and New Rochelle around 945 PM EDT.

PRECAUTIONARY/PREPAREDNESS ACTIONS...

A Tornado Watch remains in effect until 100 AM EDT for northeastern New Jersey...and southeastern New York.

For your protection move to an interior room on the lowest floor of a building.

A Tornado Watch remains in effect until 100 AM EDT for northeastern New Jersey...and southeastern New York.

Table 8 cont. Severe Thunderstorm Warnings

National Weather Service Products BULLETIN - IMMEDIATE BROADCAST REQUESTED Severe Thunderstorm Warning National Weather Service New York NY 925 PM EDT Wed Sep 1 2021 The National Weather Service in Upton NY has issued a * Severe Thunderstorm Warning for... Southern Fairfield County in southern Connecticut... Hudson County in northeastern New Jersey... Southeastern Anywhere County in northeastern New Jersey... Westchester County in southeastern New York... Queens County in southeastern New York... Bronx County in southeastern New York... Kings County in southeastern New York... Rockland County in southeastern New York... New York (Manhattan) County in southeastern New York... Northern Nassau County in southeastern New York... * Until 1030 PM EDT. * At 925 PM EDT, severe thunderstorms were located along a line extending from Norwood to Sands Point, moving northeast at 30 mph. HAZARD...60 mph wind gusts. SOURCE...Radar indicated. IMPACT... Expect damage to trees and power lines. * Severe thunderstorms will be near... Glen Cove around 930 PM EDT. Rye and Nyack around 935 PM EDT. White Plains and Tarrytown around 940 PM EDT. Port Chester and Harrison around 945 PM EDT. Ossining and Hawthorne around 950 PM EDT. Mount Kisco and Greenwich around 1005 PM EDT. Darien around 1010 PM EDT. Stamford and Norwalk around 1015 PM EDT. New Canaan around 1020 PM EDT. Fairfield and Westport around 1030 PM EDT. PRECAUTIONARY/PREPAREDNESS ACTIONS... A Tornado Watch remains in effect until 100 AM EDT for southern Connecticut...northeastern New Jersey...and southeastern New York. For your protection move to an interior room on the lowest floor of a buildina.

Torrential rainfall is occurring with these storms, and may lead to flash flooding. Do not drive your vehicle through flooded roadways.

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A Tornado Watch remains in effect until 100 AM EDT for southern Connecticut...northeastern New Jersey...and southeastern New York.

&&

LAT...LON 4081 7414 4135 7376 4136 7361 4112 7323
4112 7330 4105 7337 4100 7359 4097 7362
4097 7365 4089 7374 4086 7375 4088 7372
4086 7366 4092 7364 4093 7351 4091 7349
4087 7346 4060 7395

TIME...MOT...LOC 0125Z 221DEG 24KT 4100 7393 4086 7370

TORNADO...POSSIBLE
HAIL THREAT...RADAR INDICATED
MAX HAIL SIZE...<75 IN
WIND THREAT...RADAR INDICATED
MAX WIND GUST...60 MPH
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SUMMARY AND CONCLUSION

The named storm, Post Tropical Cyclone Ida, traveled from the Caribbean to the Northeast US, including Anywhere, NJ, over a 7-day period. During that time, it was first characterized as a Hurricane and then, while it was traveling through Anywhere County, it was given the name, Post-Tropical Cyclone Ida. By all forms of measurement, however, the named storm, Ida, caused a remarkable amount of rain to fall in Anywhere, NJ in just a few short hours. Indeed, the rainfall at its heaviest intensity between 6 PM on September 1 and 12 AM on September 2, 2021, climatologically, is predicted to occur only once in approximately 500 years. Not surprisingly, the volume and rate of rainfall greatly exceeded the capacity of nearby streams, rivers and man-made drainage structures/systems that then caused extreme life threatening flash flooding to occur, as well as excessive property damage.

DATA SOURCES AND OTHER REFERENCES

The following descriptions provide a review of each source and reference utilized in this report. Please refer to Figure 9 at the end of the section for a map of weather stations.

AUTOMATED SURFACE OBSERVING SYSTEM (ASOS)

The ASOS program serves as the nation's primary surface weather observing network, and is a joint effort of the National Weather Service (NWS), the Federal Aviation Administration (FAA) and the Department of Defense (DOD). Weather observations from ASOS include: air temperature, dew point, relative humidity, precipitation type and amounts, cloud coverage, wind speed and direction, visibility, air pressure, etc. In general, these stations report once per hour; however, special and more frequent observations are reported in the event of rapidly changing conditions which meet specific thresholds. NOAA's National Centers for Environmental Information (NCEI) provides access to the data online in the form of Local Climatological Observations (LCD).

AUTOMATED WEATHER OBSERVING SYSTEM (AWOS)

AWOS stations are similar to ASOS stations; however, they are operated and controlled by the Federal Aviation Administration (FAA). Unlike ASOS, AWOS systems generally report in 20-minute increments and do not report observations for rapidly changing weather conditions. These systems are among the longest running automated weather stations and predate the ASOS. NOAA's National Centers for Environmental Information (NCEI) provides access to the data online in the form of Local Climatological Observations (LCD).

METEOROLOGICAL ASSIMILATION DATA INGEST SYSTEM (MADIS)

Meteorological Assimilation Data Ingest System (MADIS) incorporates data from NOAA data sources and non-NOAA providers. Quality control checks are conducted. Some of the common data sets are: Citizens Weather Observer Program (CWOP), Hydrometeorological Automated Data System (HADS), Integrated Mesonet, private firms, state DOT'S and Federal Agencies. These observations are utilized as a supplement to the more reliable and comprehensive ASOS and AWOS data to aid in meteorological analysis.

COOPERATIVE OBSERVER NETWORK (COOP)

Through the National Weather Service (NWS) Cooperative Observer Program (COOP), more than 10,000 volunteers take daily weather observations in varying geographic regions of the country. Daily observations include some or all of the following information: 24-hour maximum and minimum temperature, temperature at observation time, 24-hour precipitation amounts (rain and snow), and the snow/ice depth on the ground. NOAA's National Centers for Environmental Information (NCEI) provides access to the NWS COOP data sheets online.

COMMUNITY COLLABORATIVE RAIN, HAIL AND SNOW NETWORK

The Community Collaborative Rain, Hail, and Snow Network (CoCoRaHS) is a community-based network of volunteers who measure precipitation (rain, sleet, hail, and snow). Standard daily observations include some or all of the following information: rainfall, snowfall, snow/ice depth, and water content of the snow. The National Oceanic and Atmospheric Administration (NOAA) and the National Science Foundation (NSF) are major sponsors of CoCoRaHS. The data from CoCoRaHS is available through their online web page and the National Centers for Environmental Information's GHCN-Daily database.

DOPPLER RADAR IMAGES

Doppler RADAR is used to detect where precipitation is falling in the atmosphere. There are 160 operational high-resolution Doppler weather RADAR sites across the United States. Radar images were accessed from the National Centers for Environmental Information's (NCEI) NEXRAD Data Archive. The RADAR site used in this report was KOKX, which is located in Upton, NY. Short Range Base Reflectivity images depict the intensity and location of precipitation from approximately 143 miles outward from the Radar site. The resolution of Short Range Base Reflectivity images is approximately 0.62 miles by 1.0 azimuth degree (Level III) or 0.16 miles by 0.5 azimuth degree (Level II). Depending on the mode of operation used, images are typically available every 4 to 10 minutes.

GEOSTATIONARY SATELLITES (GOES)

Geostationary Operational Environmental Satellite (GOES-16) satellite data is accessible on NOAA's National Center for Environmental Information web-site. One of the main uses of a satellite is to see where and what type of clouds are present over an area. The two main channels referenced are the visible channel and long-wave infrared. Visible images have the finest spatial resolution at 0.5 kilometers (0.3 miles) per pixel; however, they are only available during the daylight hours. Meanwhile, long-wave infrared images have a spatial resolution of 2 kilometers (1.2 miles) per pixel, but are available during the day and at night.

NATIONAL WEATHER SERVICE (NWS) PRODUCTS

The National Weather Service Forecast Office is responsible for issuing daily zone forecasts, most watches, warnings, advisories, and special weather statements. Daily zone forecasts are issued several times a day, sometimes more if updates are needed. These forecasts are immediately made available to the public on the internet, local radio, and/or television stations. The watches, warnings, advisories, and special weather statements are issued when impending weather meets certain criteria set by the National Weather Service. Products are available through the NCEI Service Records Retention System (SRRS).

NWS PUBLIC INFORMATION STATEMENTS

The National Weather Service Forecast Office may issue Public Information Statements during and after a weather event that has been affecting their region. Public information statements come from highway departments, hourly weather observation stations, cooperative observers, law enforcement officials, the general public, skywarn spotters, and the media. Some types of weather phenomenon reported are: snow and ice accumulations, peak wind speeds and rainfall amounts. In addition, each individual forecast office may use Public Information Statements for storm damage surveys, climate records, or other miscellaneous weather information. Statements are available through the NCEI Service Records Retention System (SRRS).

HOURLY & SUB-HOURLY OBSERVATIONS

- KTEB: Teterboro Airport, NJ (ASOS)
 Elevation 9 feet located 5.1 miles southwest
- Haworth, NJ (NJ Weather and Climate Network)
 Elevation 33 feet located 5.0 miles north-northwest
- C5425: CW5425 Tenafly, NJ (MADIS; APRSWXNET/CWOP)
 Elevation 81 feet located 1.5 miles north

DAILY OBSERVATIONS

- NJ-BG-3: Tenafly 1.3 W, NJ (CoCoRaHS)
 Elevation 71 feet located 1.5 miles north
- NJ-BG-18: Palisades Park 0.2 WNW, NJ (CoCoRaHS)
 Elevation 70 feet located 3.4 miles south-southwest

CERTIFICATION

I certify that the information in this report is true and accurate, and that any estimations, interpolations, or assumptions that have been made were done so by a professional meteorologist with expert accuracy within a reasonable degree of meteorological and scientific certainty. Any conclusions are based on the interpretation of the best available information at the time of the issuance of my report as well as my education, training, and experience. I certify that the analysis provided within this report represents my unbiased opinion as to the weather conditions at the subject property during the stated timeframe. I reserve the right to amend the conclusions made herein upon further discovery of additional meteorological data or other relevant materials. Use of any information within this report is intended for the referenced matter only and should not be utilized for any other purpose.

Frank Lombardo
President / CEO
AMS Certified Consulting Meteorologist
WeatherWorks, LLC

Thomas M. Else Senior Forensic Meteorologist AMS Certified Consulting Meteorologist #675 Weather Works, LLC

ABOUT WEATHERWORKS

Since 1986, WeatherWorks has provided dependable meteorological services to thousands of clients in the private and public sectors by understanding the core principles and complexities of meteorology in addition to utilizing technological advances. For over 30 years, WeatherWorks has prepared detailed, site specific, and easy to understand past weather reports for all types of cases and claims. The professional meteorologists at WeatherWorks have performed site specific analysis on over 3500 plaintiff and defense cases across the United States. Our sound meteorological advice and customized services relating to past, present, and future weather conditions remain vital in each of our client's decision making process, and provide our staff with the continued knowledge of the weather's impact on the spectrum of weather related cases and incidents.