

# MONROE COUNTY 2017 RAIN GAGE NETWORK SUMMARY



Monroe County Department of Environmental Services

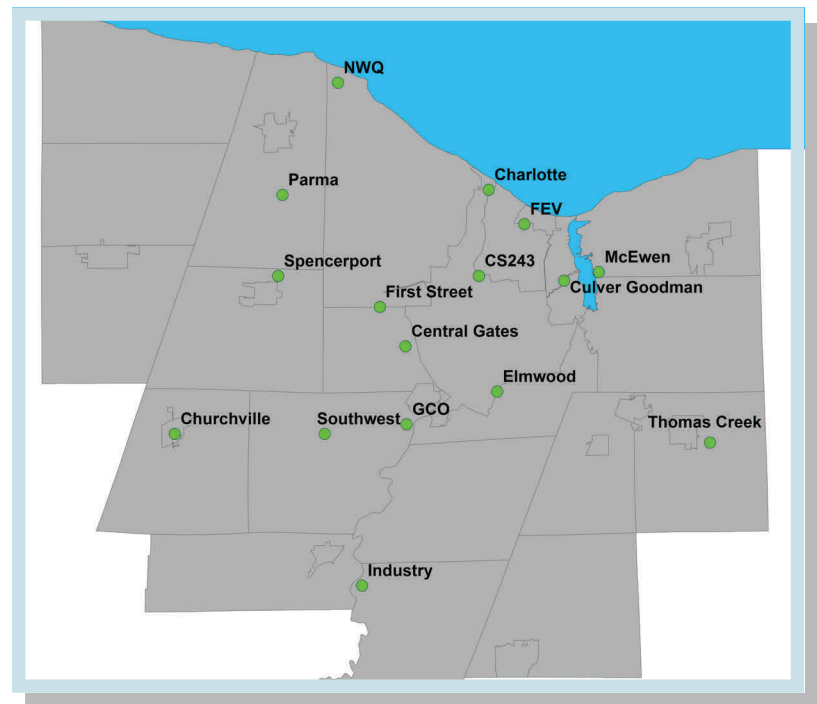
Cheryl Dinolfo  
County Executive

## Highlights

- 2017 had the highest annual precipitation in the past 5 years
- October 9 was the highest single day total rainfall

## RAIN GAGE NETWORK

The Monroe County Department of Environmental Services has been collecting rainfall information through a network of gages for over 15 years. The network has grown over that time with its main purpose being to provide real time rainfall information that can be used to predict sewer flows to the wastewater treatment plants. There are currently 16 gages in operation with the goal of establishing 4 new locations in 2018. The new sites will provide better coverage to the east and south as well as in the Town of Greece.



Monroe County Rain Gage Locations

## HOW RAIN DATA IS COLLECTED

The style of rain gage being used is called a “tipping-bucket” gage. Rain falls within the “bucket” and the volume is recorded every minute. The minute totals are summed up in real-time and made available to emergency management and municipal officials.

The daily totals generated by the gages are also useful at measuring monthly and seasonal totals allowing for a comparison to historical averages.



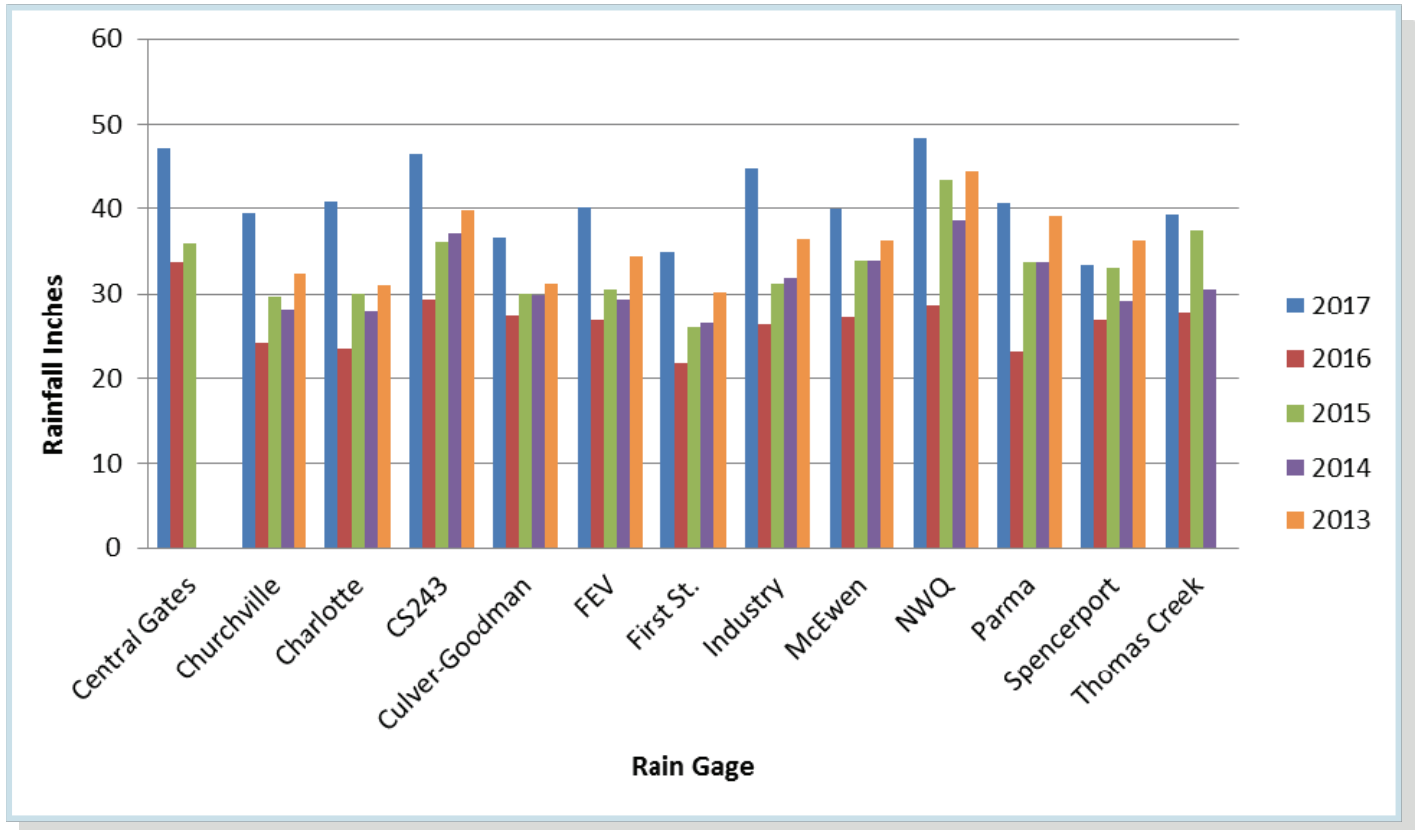
Tipping Bucket Gage

What's Inside	
2017 Annual Rainfall	2
Storm Events	3
Storm Frequency	3
Long Term Average	4

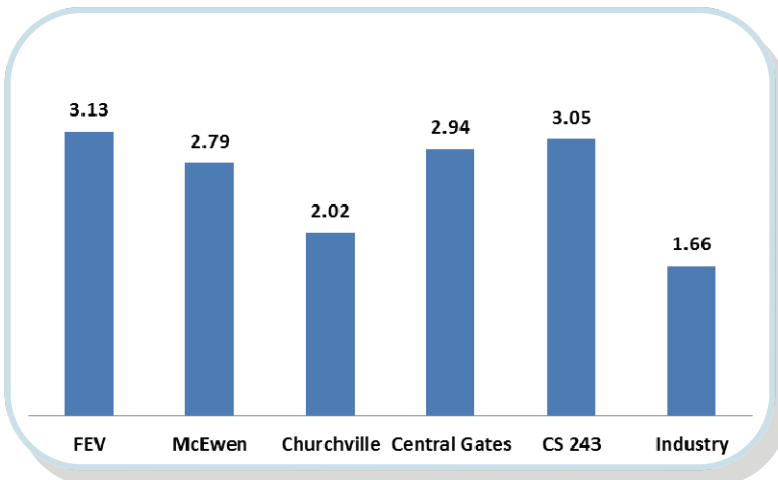
## MONROE COUNTY 2017 RAIN GAGE NETWORK SUMMARY REPORT

### ANNUAL RAINFALL COMPARISON

Comparing rainfall data over longer periods of time can provide useful insight into annual variability. 2016 was a very dry year with the lowest spring and summer rainfall over the last 5 years. The highest annual rainfall occurred in 2017 with 2013 being the second highest.



*5 Year Annual Rainfall Totals at Select Gages*



*“The October 9th storm highly impacted certain parts of the county with as much as 3 inches of rain in 12 hours.”*

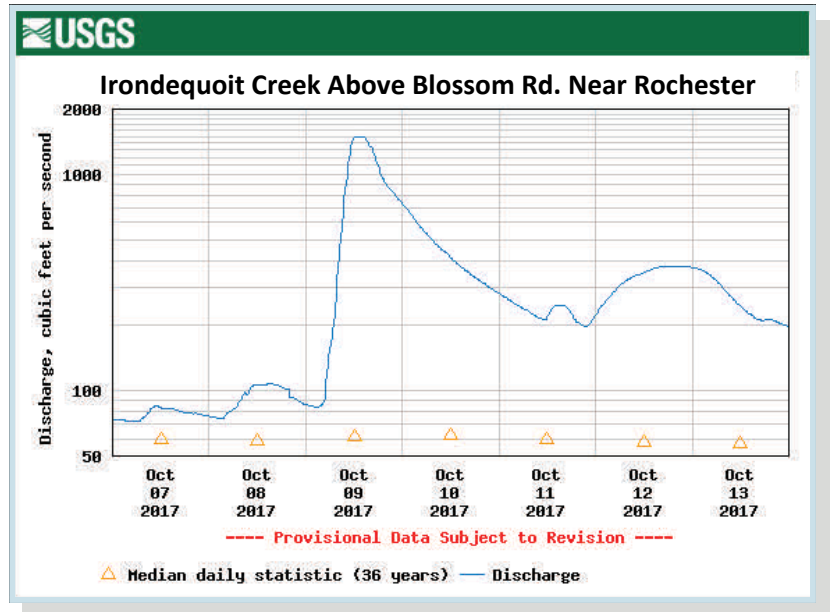
*Rainfall Totals at Select Gages, October 9, 2017*

**MONROE COUNTY 2017 RAIN GAGE NETWORK SUMMARY REPORT**

**STORM EVENTS**

In addition to a rain gage network the County operates seven stream flow monitoring stations as part of a cooperative agreement with the US Geological Survey (USGS). The hydrograph to the right, shows Irondequoit Creek stream flow during an intense storm event on October 9th, 2017. At its peak, the Creek was flowing at 1,500 cubic feet/second. There was flooding at various locations most notably in Monroe County’s Ellison Park, the location of the Irondequoit Creek stream gage.

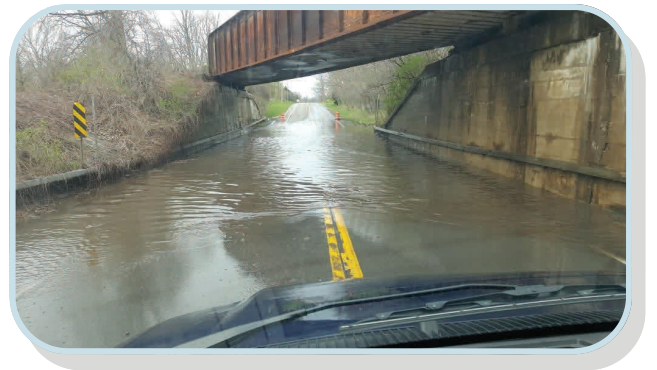
Intense storms are often localized. The October 9th storm highly impacted certain parts of the county with as much as 3 inches of rain in 12 hours.



*Irondequoit Creek Stream Hydrograph October 9,2017*

**FREQUENCY OF STORMS**

Statistical techniques, through a process called frequency analysis, are used to estimate the probability of the occurrence of a given precipitation event. The recurrence interval is based on the probability that the given event will be equaled or exceeded in any given year. This is where we come up with the term 100-year storm. A more accurate way to think about this to say such a storm has a 1% probability of occurring in a given year. Following that logic, a 10 year storm would have a 10% probability of being equaled or exceeded in any one year.



*Oatka Creek Flooding Spring 2017*

The North East Regional Climate Center provides extreme precipitation tables that can be used to determine recurrence intervals for storm events. The localized nature of weather systems has differing effects across the County. Having a network of rain gages allows municipal officials and emergency managers to determine the areas with the greatest impacts and helps to direct resources to that area.

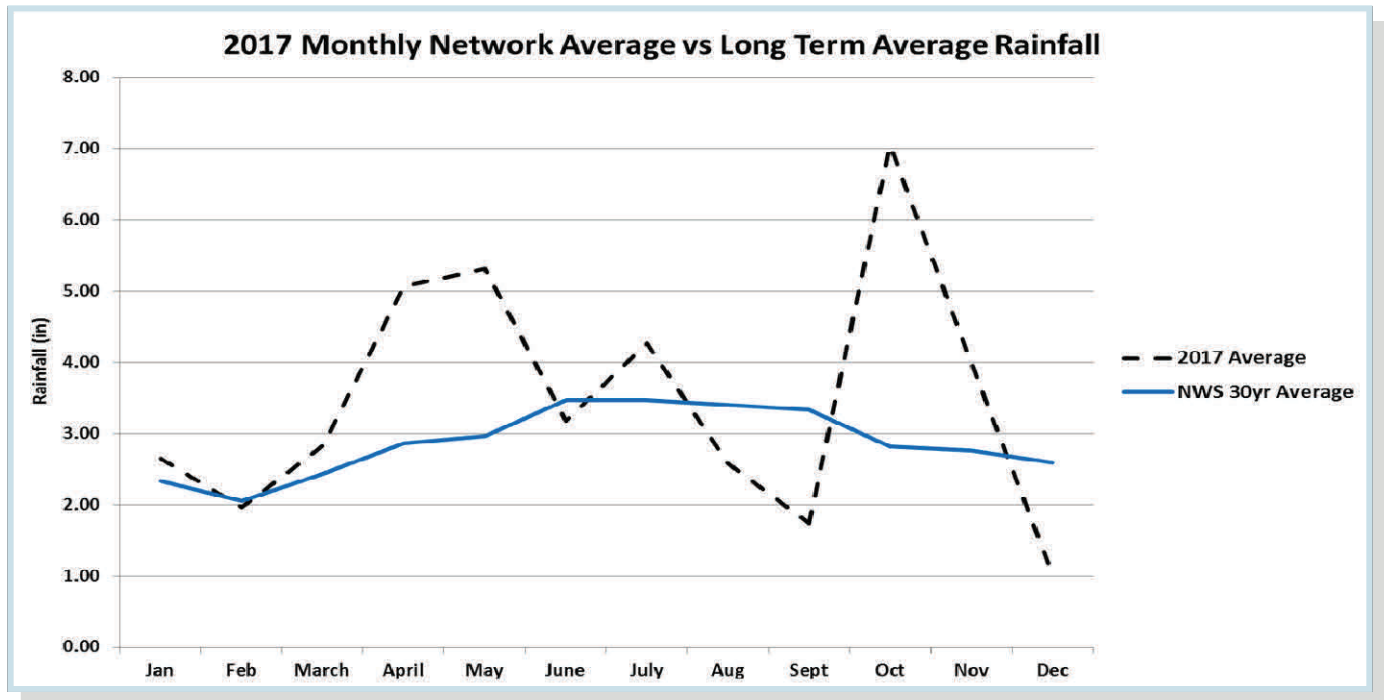
The rain gage network recorded notable rainfall events in 2017. Below is the return interval and probability of these storms:

October 9	25 year storm	4%
October 29-30	5 year storm	20%
March 31, May 25, Nov 5	1 year storm	100%

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**2017 ANNUAL RAINFALL COMPARISON**

Averaging the 2017 monthly rain gage network rainfall totals, allows for a comparison to the 30 year average from the National Weather Service gage at the Rochester Airport. 2017 had greater annual rainfall than the long term average and a wetter spring and fall.



*Honeoye Creek Flooding*

**FOR MORE INFORMATION CONTACT:**

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