



**Credit Valley
Conservation**
inspired by nature

Real-Time Hydrometric Monitoring to Enhance Flood Forecasting and Warning in the Credit River Watershed

2019 Latornell Conservation Symposium

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The Credit River Watershed

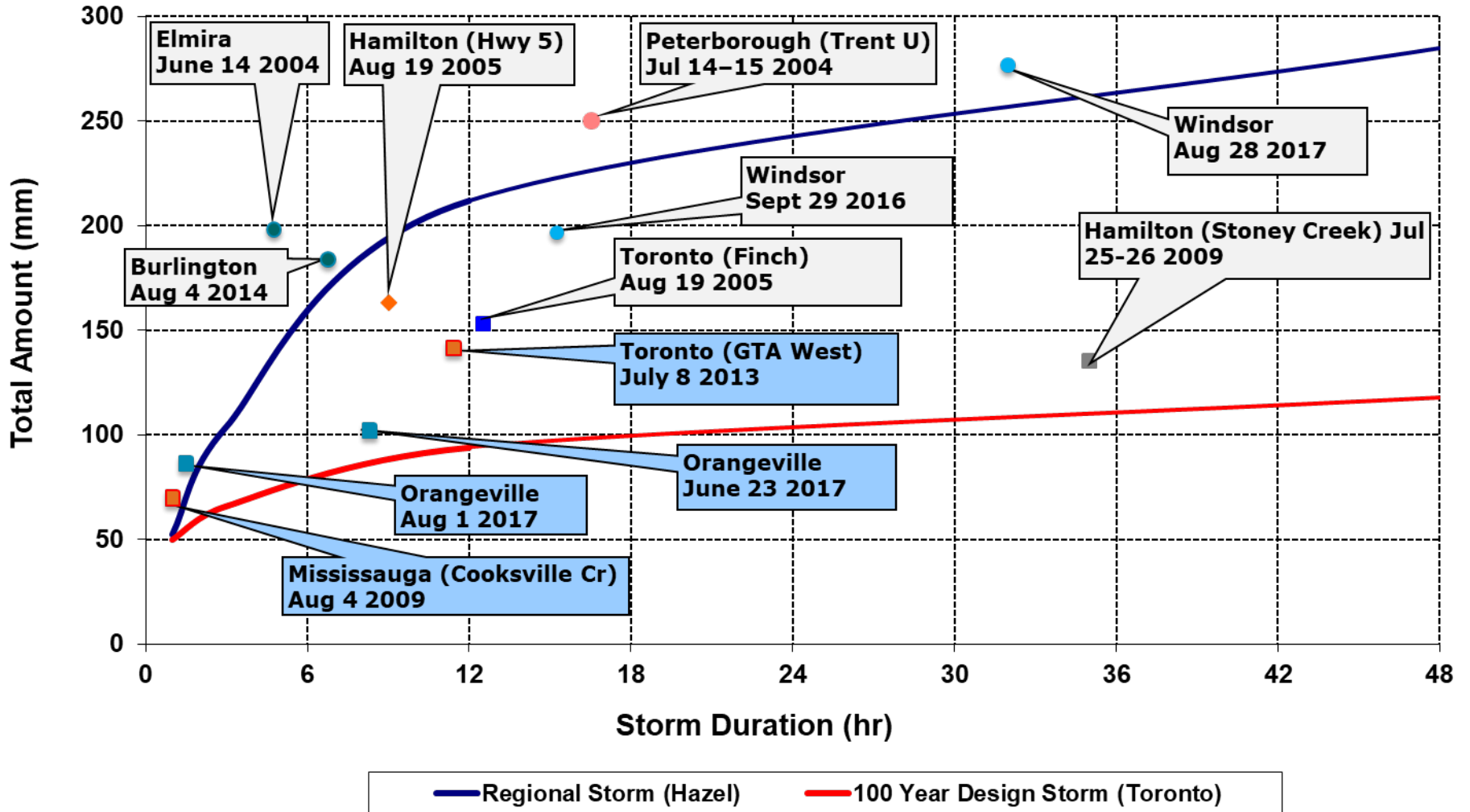


Weather Forecasts are Changing

- We are seeing an increase in flooding related to extreme rainfall events
- Climate change models predict these storms will increase in number and intensity in the coming years
- Predicting the exact timing, location and extent is challenging

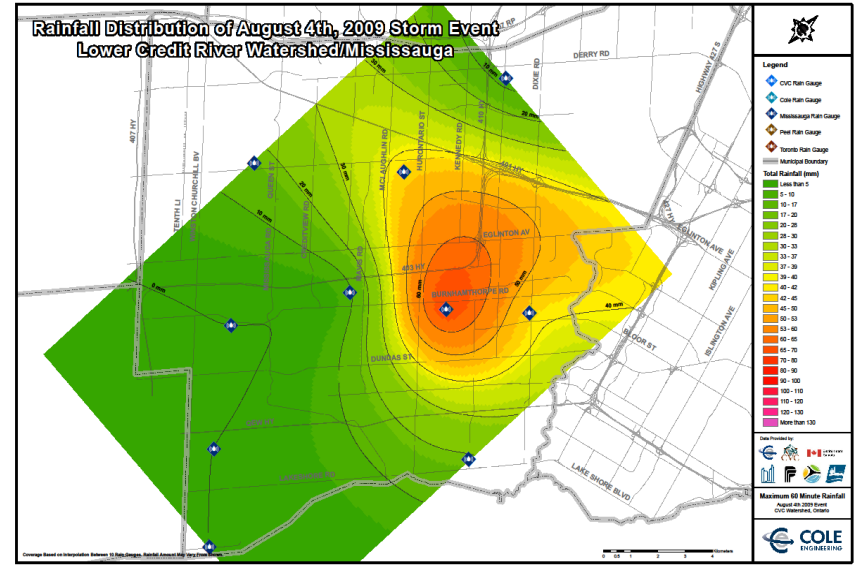
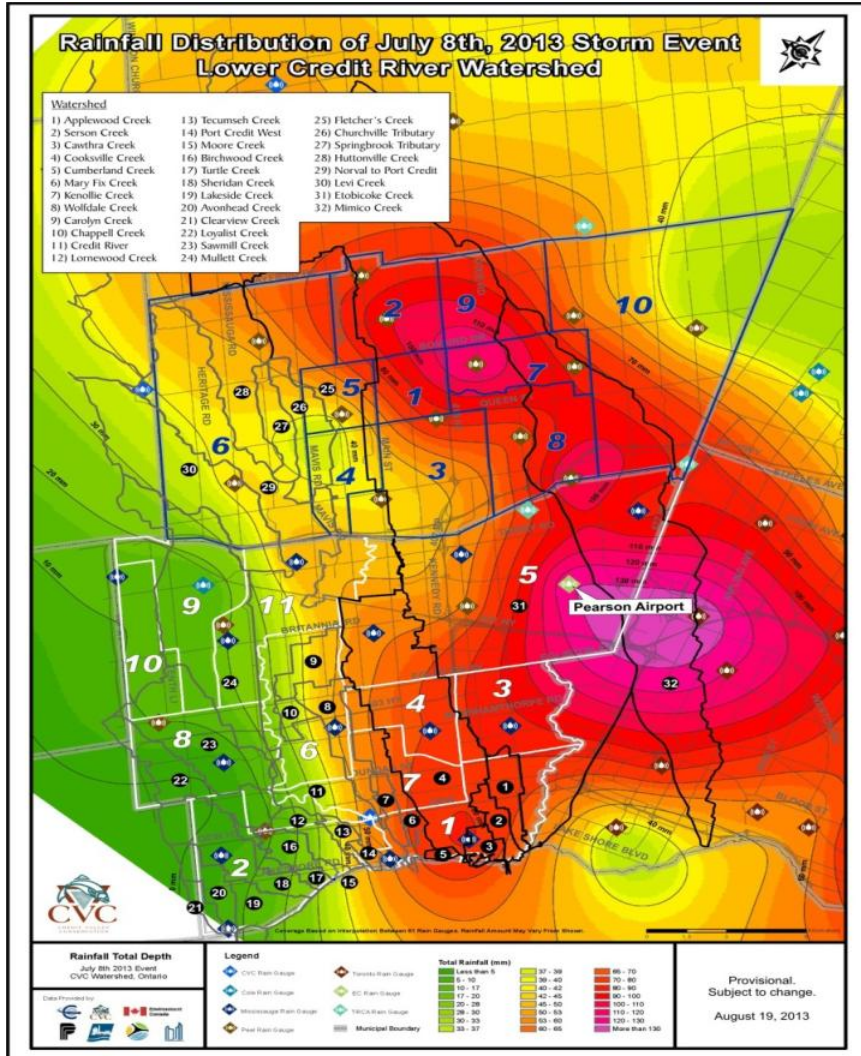


Comparison of Total Amount and Duration of Observed Extreme Events with Regional Storm and 100 year Design Storm

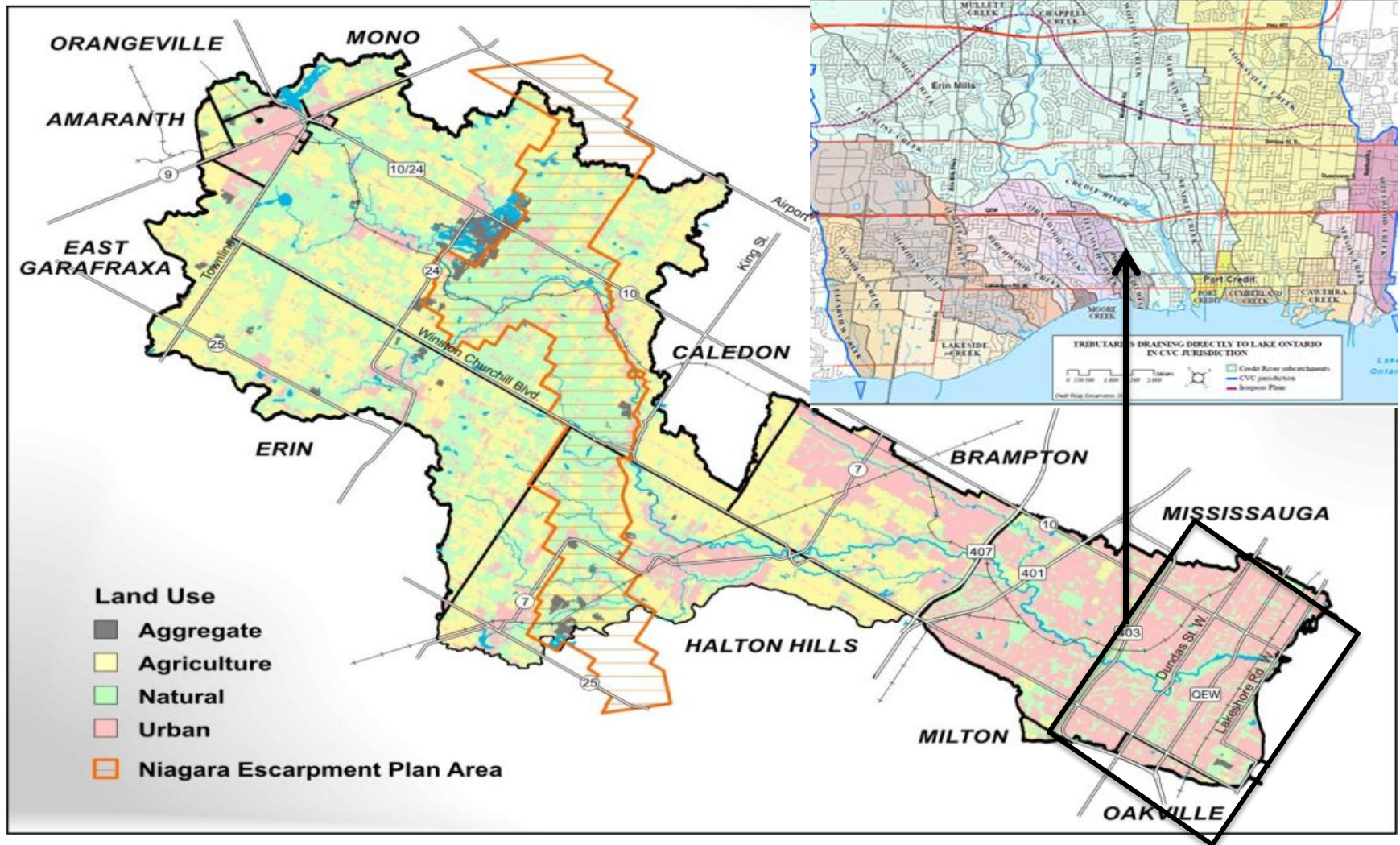


July 8th, 2013

August 4th, 2009



Flooding in the Credit River Watershed

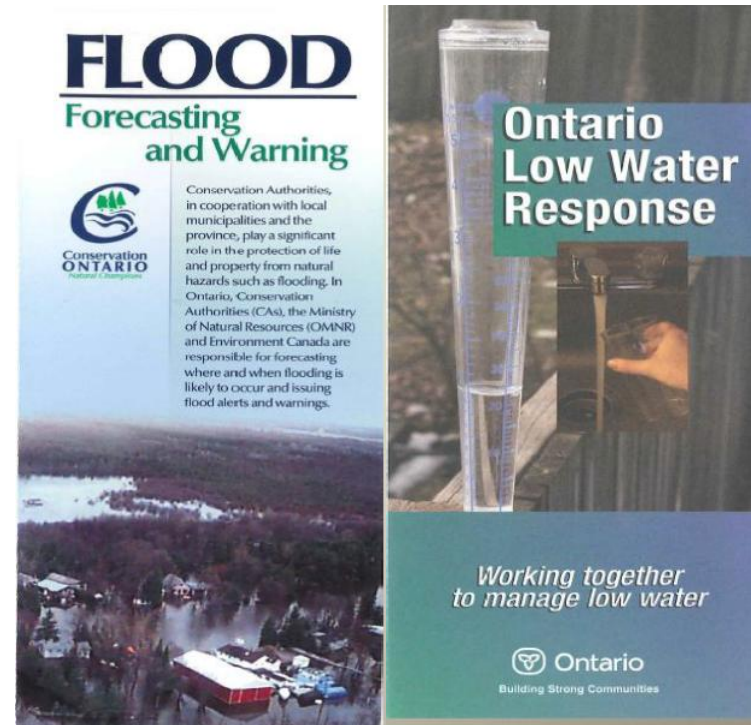


Pre-2013 Hydrometric Network

- Reliance on external data and hardware to support our flood forecasting and warning program
 - Water Survey of Canada primarily
 - Municipalities, MNRF, neighboring CA's, Environment Canada
- Locations did not match flood damage centers
 - Required data in key urban locations
- Lag time

Why was CVC interested in enhancing the hydrometric network?

- Core mandate to monitor high (flood) and low (drought) flow conditions in the watershed.
 - Flood forecasting and warning program
 - Low water response program
- Calibration and validation of hydrology & hydraulic models
 - Updating floodplain maps
 - Watershed/subwatershed studies
- Trend analysis to identify changes within the watershed



Went to Region of Peel with a funding request



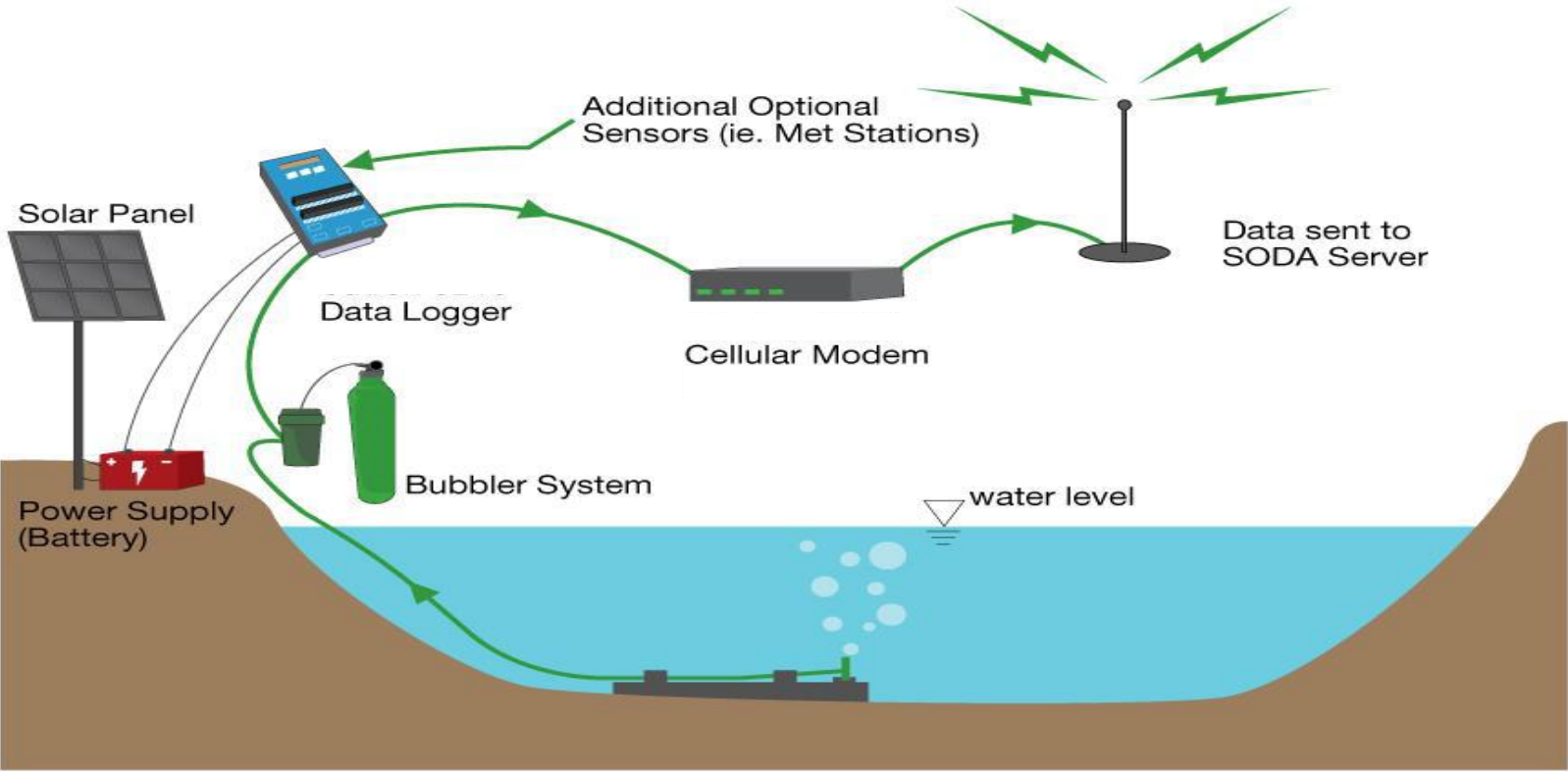
Basic Requirements

- ✓ Streamflow stations in key locations
- ✓ More rain gauge coverage
- ✓ Real-time capabilities
- ✓ Supporting Database system to handle all the data

Installations



Real-time Station Components



CVC's Hydrometric Network

- Region of Peel provided investment to enhance Real-time gauging and flood watch/warning system
- CVC operates an extensive monitoring network
 - 32 stream flow gauges
 - 17 rainfall gauges
 - 5 climate stations
- The monitoring network is an integral part of CVC's flood forecasting and warning system and will become a valuable tool to measure and report on watershed health.

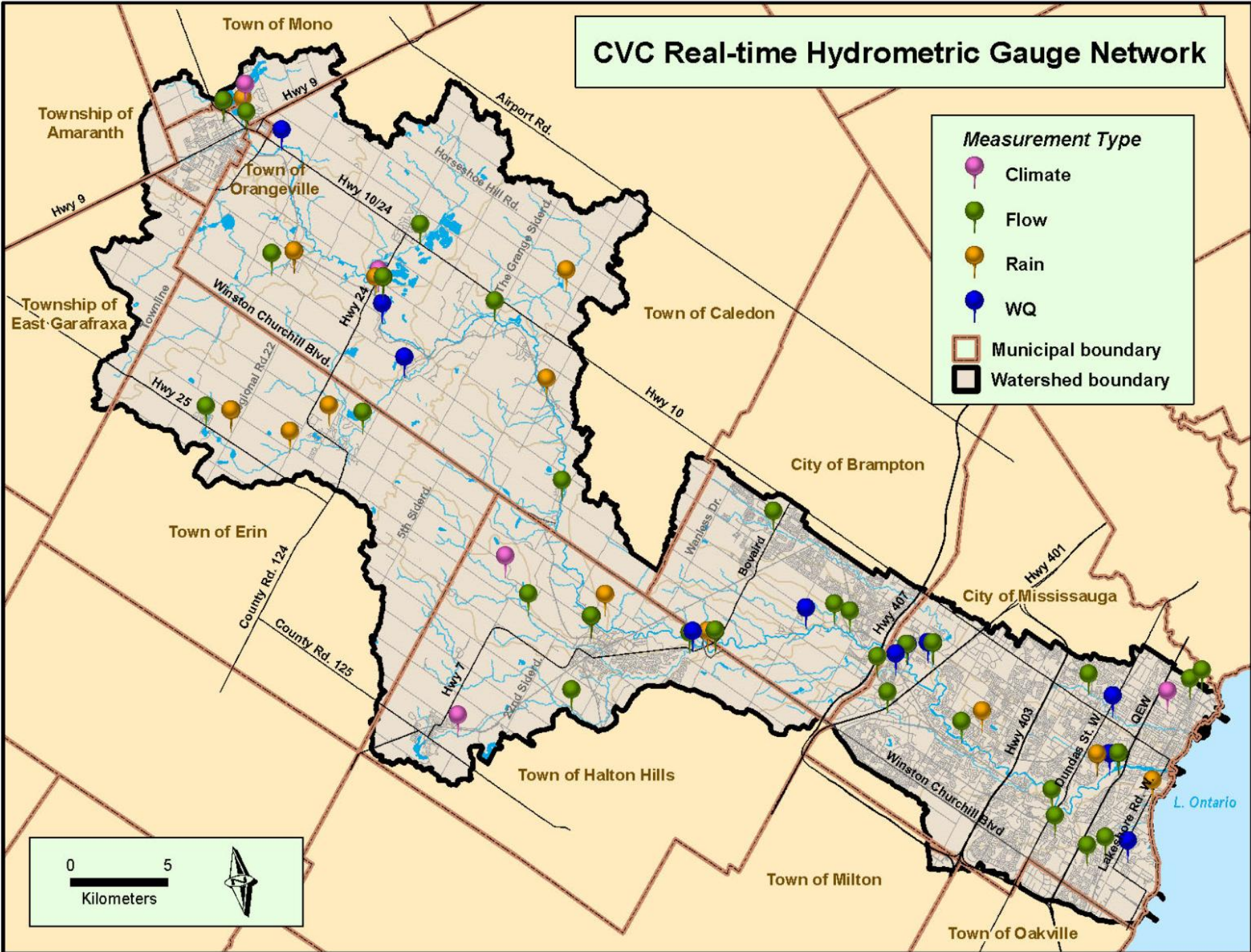


CVC Real-time Hydrometric Gauge Network

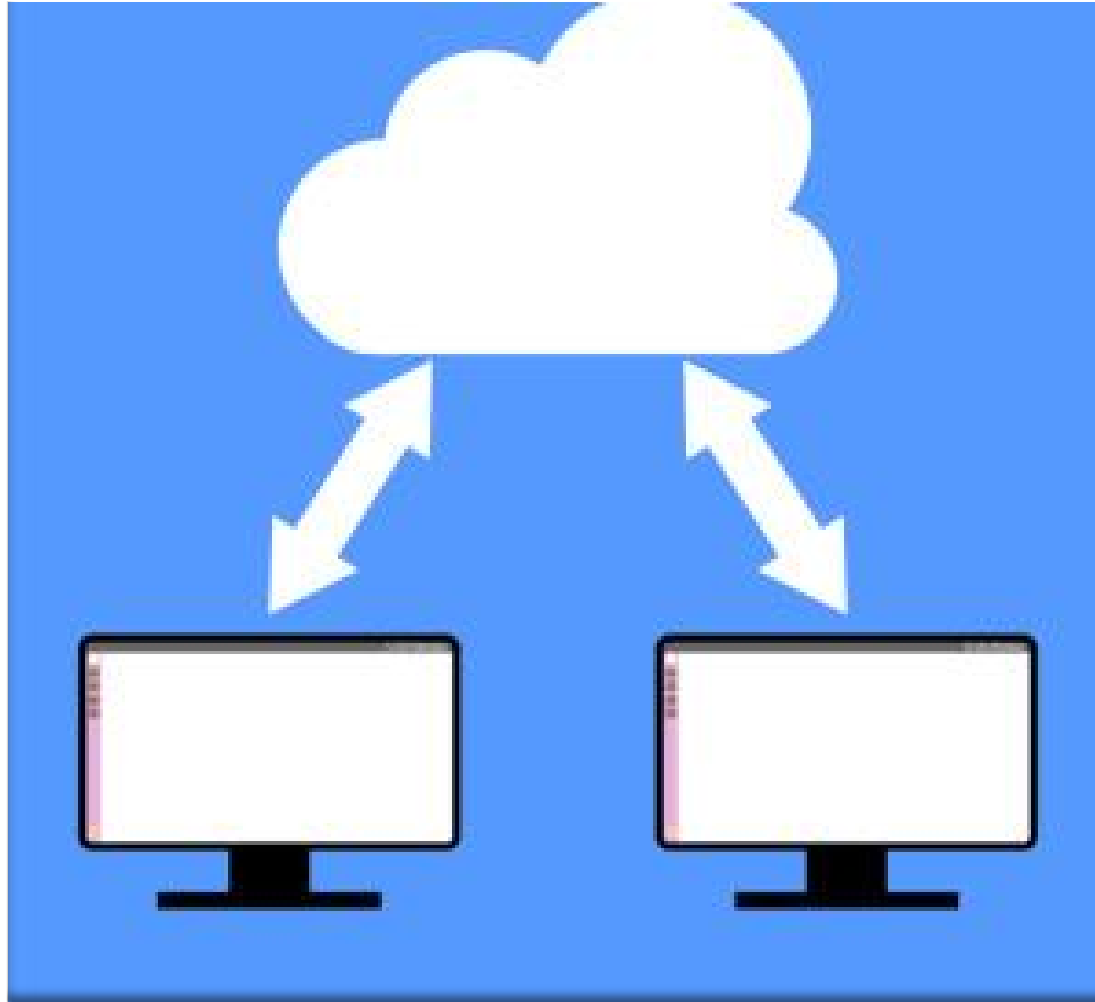
Measurement Type

- Climate (pink pin)
- Flow (green pin)
- Rain (orange pin)
- WQ (blue pin)

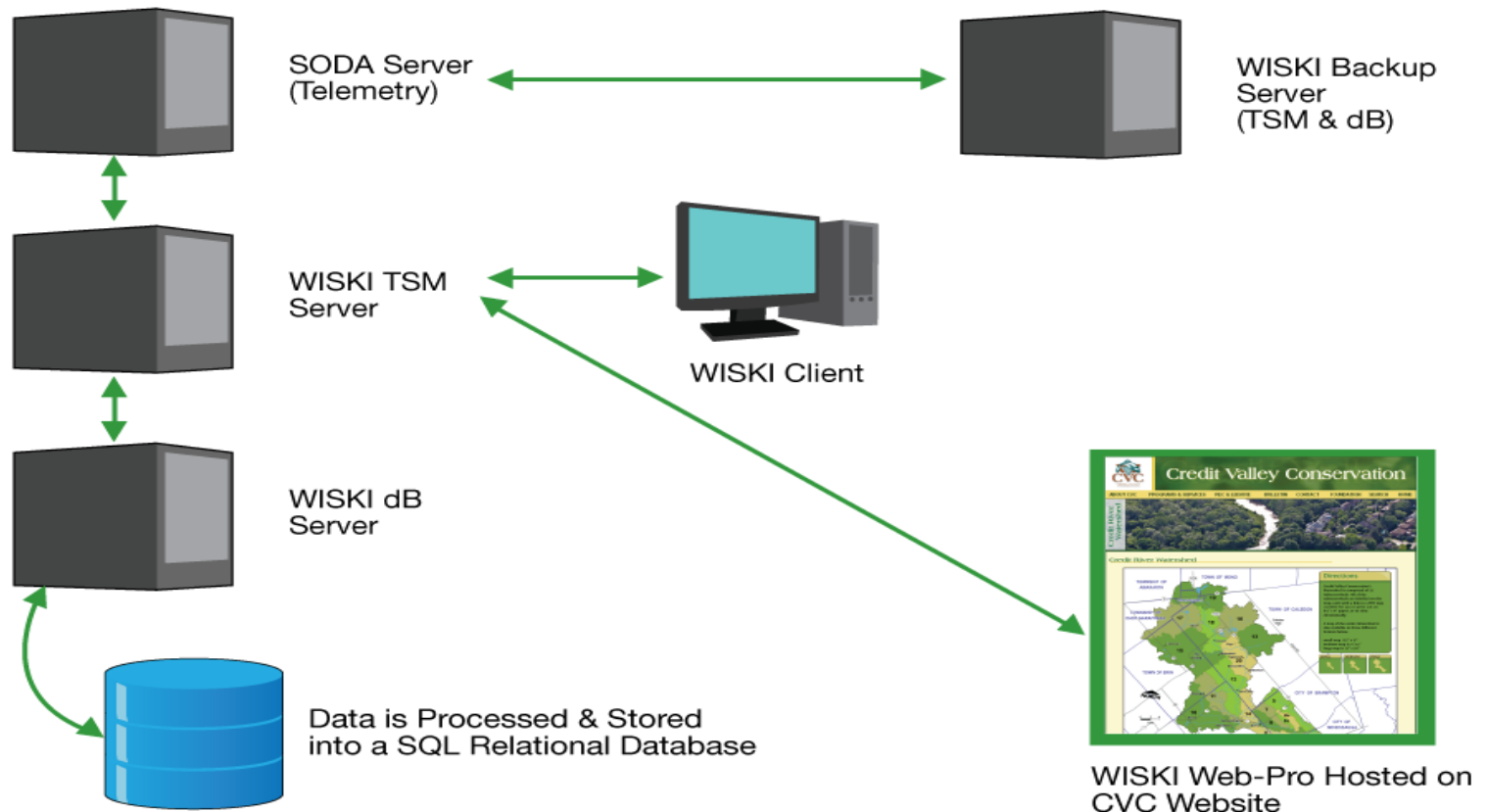
Municipal boundary (thin red line)
Watershed boundary (thick black line)



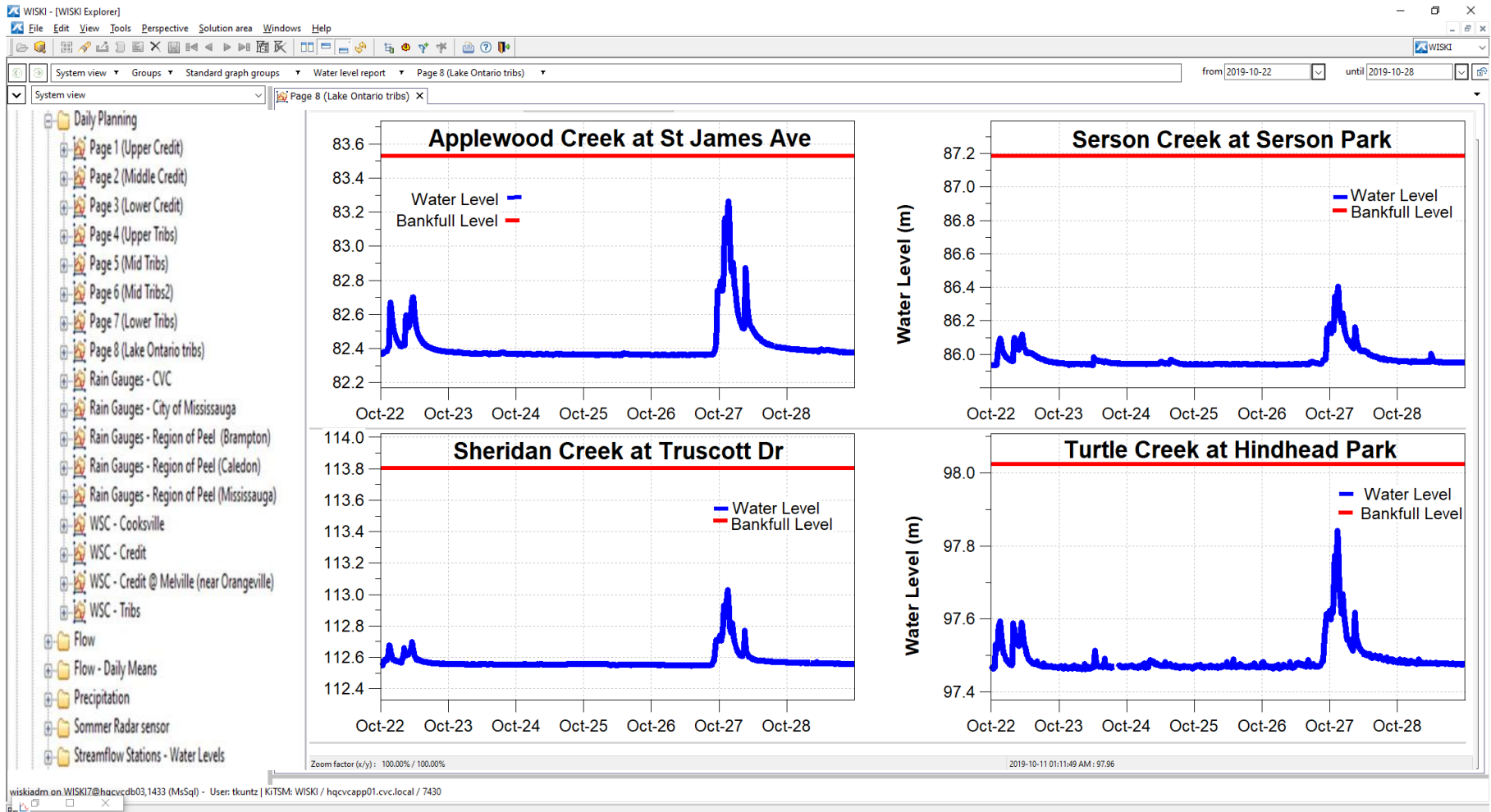
Data Sharing



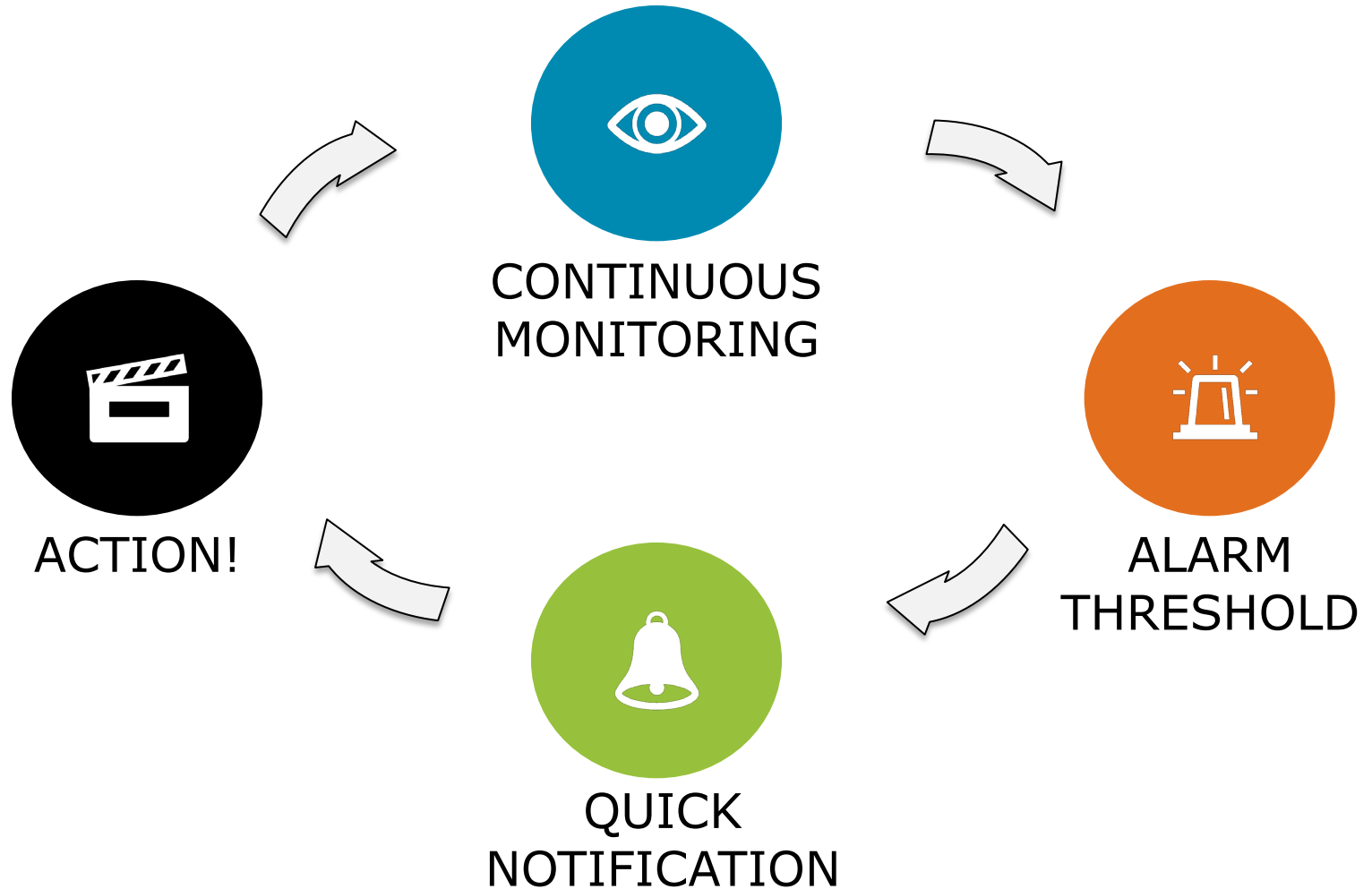
Data Management – WISKI



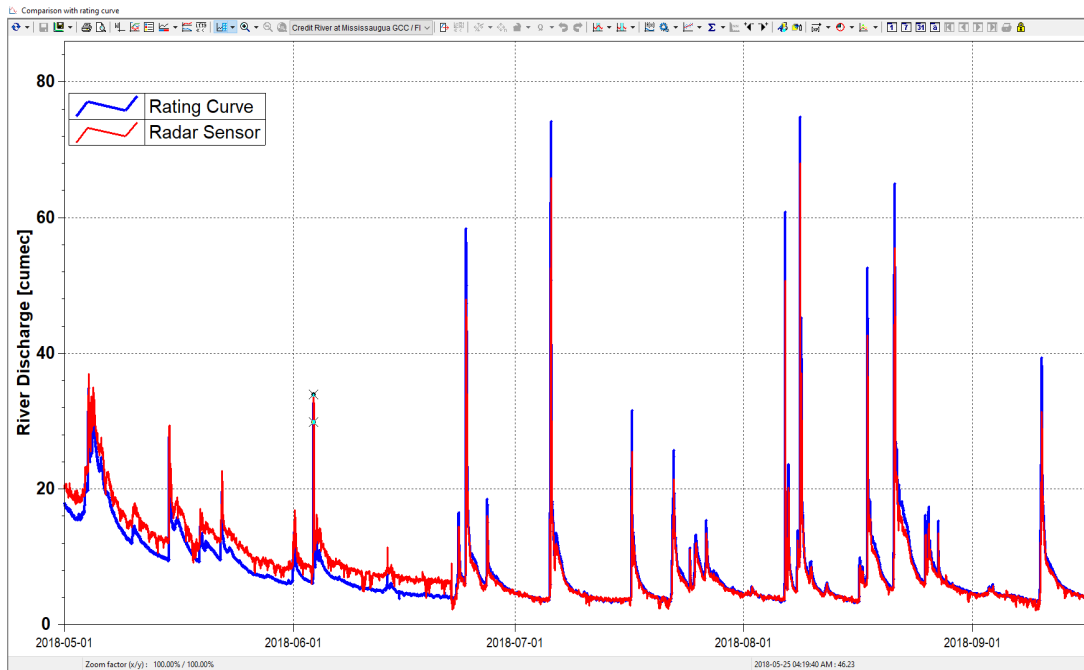
Accessible Data



Alarm Manager



Instantaneous discharge measurements





Friends of the Credit Conservation Awards

Landowner Profiles



The Wrights: Farms Working for Grassland Birds
More about this feature →

Become a Conservation Parks Member



CVC and TRCA offer a great variety of parks to explore. Help us conserve natural areas for everyone to enjoy.

More about this feature →

Girl Guides: Learn with Us!



Collect all three of CVC's seasonal badges

CVC offers fun, hands-on programs that meet a variety of environmental badge requirements.

More about this feature →

Our Parks conditions at a glance

Waterways in the Credit River watershed



Click here to view current watershed condition

Current Flood Status

Lake Ontario Shoreline



Click here to view Lake Ontario message

More about flood warning & ...

View water levels and precipitation in real-time →

Filter by Type Filter by Municipality Filter by Agency/Owner The shaded area represents the Credit River watershed.

59 Stations found

- Acton Wastewater Treatment Plant
Station 8100007, Halton Hills, Halton Region
- Alton at Emeline St
Station 8170015, Caledon, Region of Peel
- Applewood Creek at St James Ave
Station 8220001, Mississauga, Region of Peel
- Barbour Fields
Station 8150013, Erin
- Black Creek at 6th Line
Station 8100002, Halton Hills, Halton Region
- Caledon Waste Management Facility
Station 8180003, Caledon, Region of Peel
- Carolyn Creek at Creditview Rd
Station 8020002, Mississauga, Region of Peel
- Cawthra Park
Station 8220009, Mississauga, Region of Peel
- Churchville Tributary at Churchville Rd
Station 8080005, Brampton, Region of Peel

cvc.ca/watershed-science/watershed-monitoring/real-time-monitoring/

Project Partners



questions?

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