



# CVC's Flood Forecasting and Warning Program

Presenters:

Quentin Hanchard, Chief Administrative Officer

and

Girish Sankar, Technical Director,  
Engineering Services

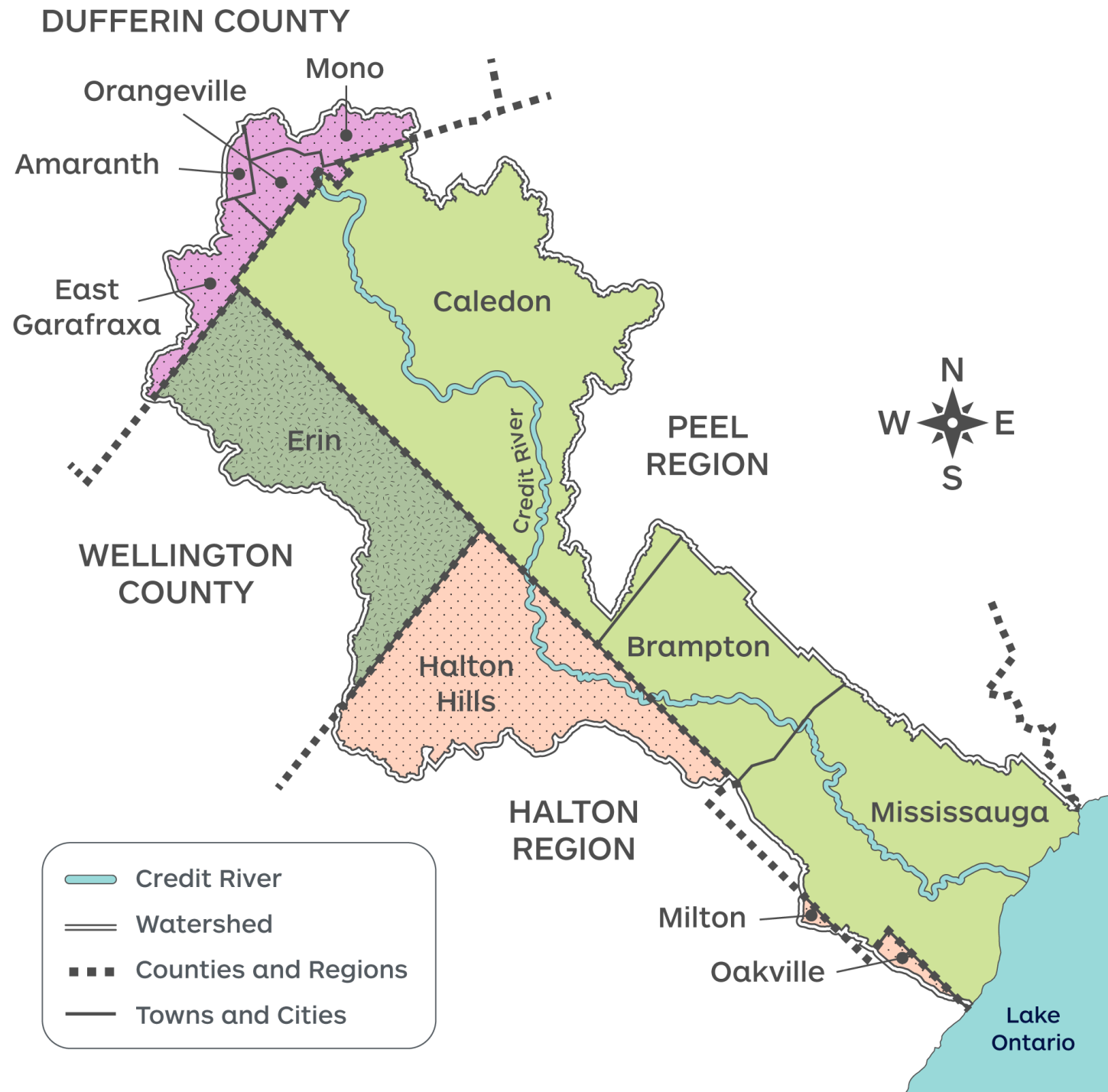
Date: March 3, 2025



**Credit Valley  
Conservation**  
inspired by nature

1. Credit River Watershed
2. Roles and Responsibilities – Flooding
3. CVC's Hydrometric network
4. Snow and Ice monitoring
5. Flood messaging

# The Credit River Watershed





# Preventing and Reducing Flood Risks



Flood Forecasting and Warning



Planning and Permits



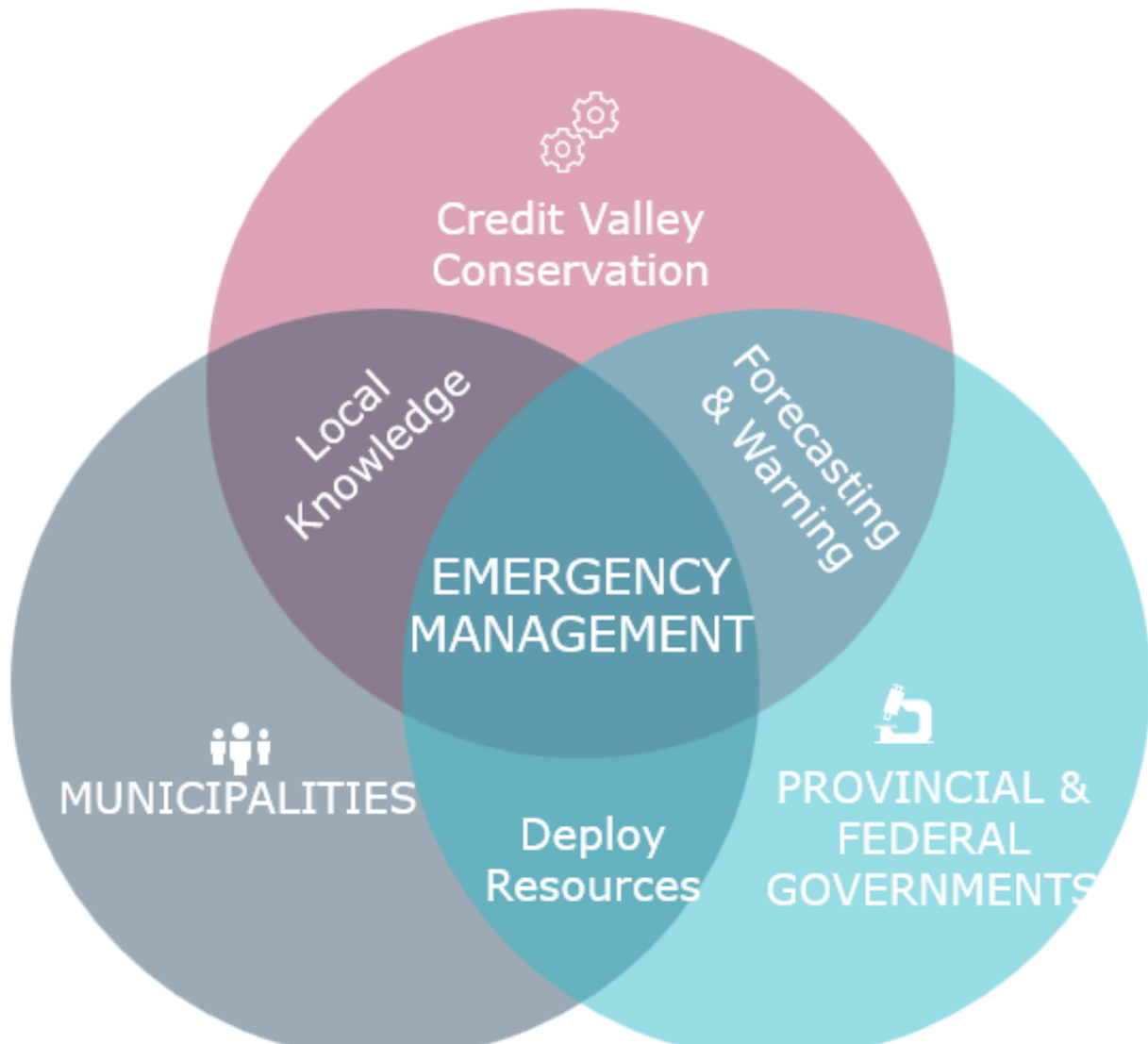
# Conservation Authorities

---

Experts in Flood  
Forecasting and Warning  
and Real-time Monitoring



# Flooding - Shared Responsibilities



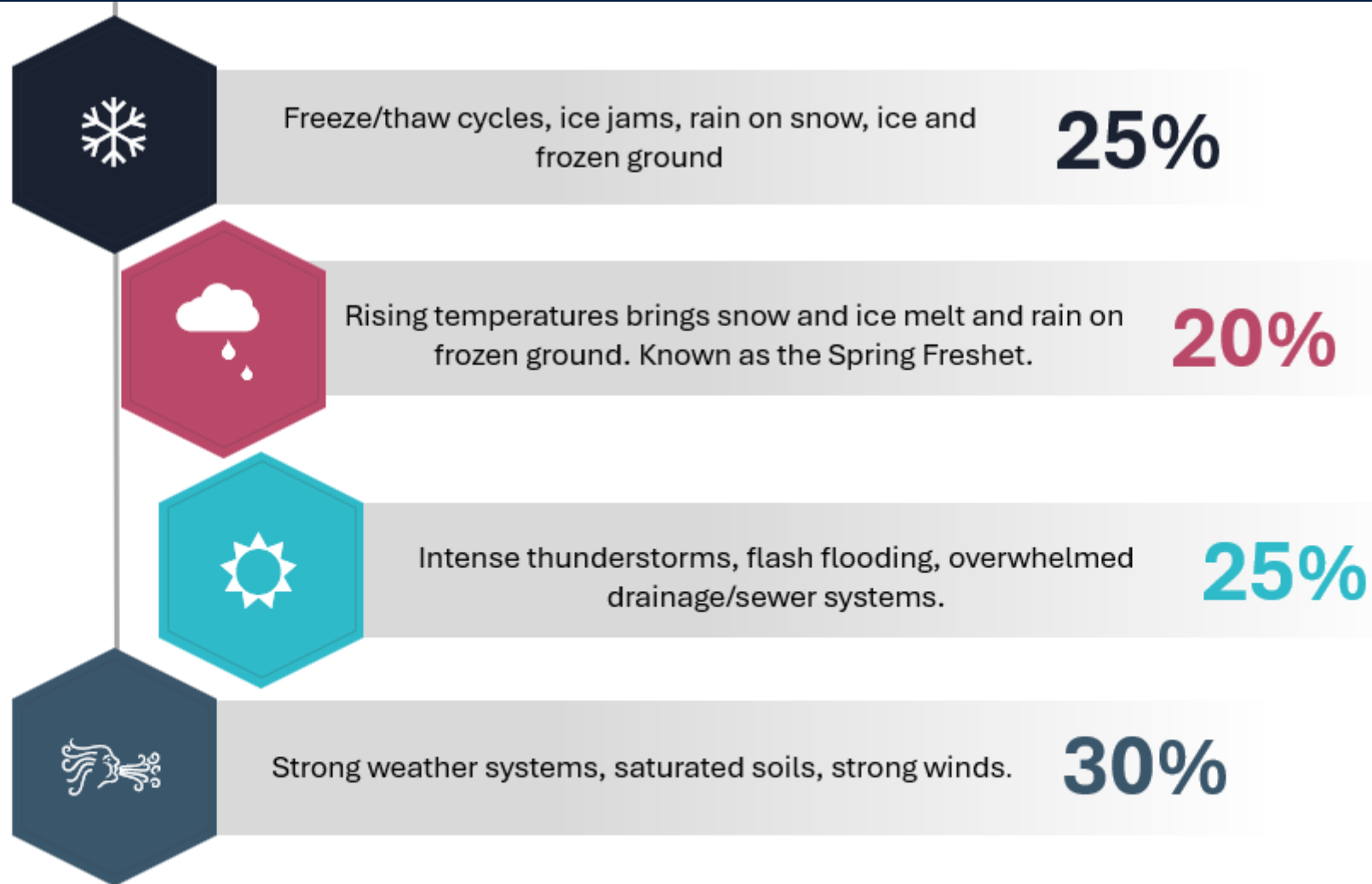
**PROVINCIAL & FEDERAL** staff monitor weather and water level forecasts, release warnings, and provide **emergency assistance and resources**.

**Credit Valley Conservation Authority** **monitors** local conditions, weather forecasts, maintain equipment, and send flood bulletins to municipal, provincial and federal government staff.

**MUNICIPALITIES** provide acute road/drainage knowledge and **enact** emergency protocols to safeguard the public.

# Types of Flooding

## Types of Flooding



**RIVERINE:** rivers and streams overflow their banks into surrounding areas (floodplains)

**URBAN:** Street, basement, and flooding of other low-lying areas due to overflow of local drainage systems

**COASTAL:** inundation from wind-driven surge and higher water levels



# CVC's Hydrometric Network

---

Real-time gauging and flood watch/warning system

CVC operates an extensive monitoring network

- 32 stream flow gauges

- 17 rainfall gauges

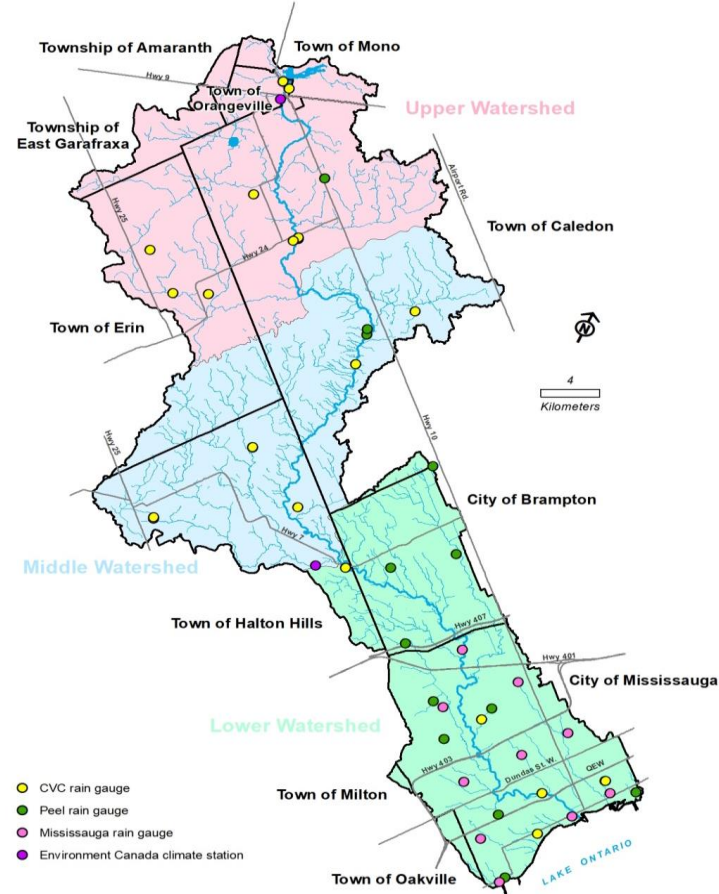
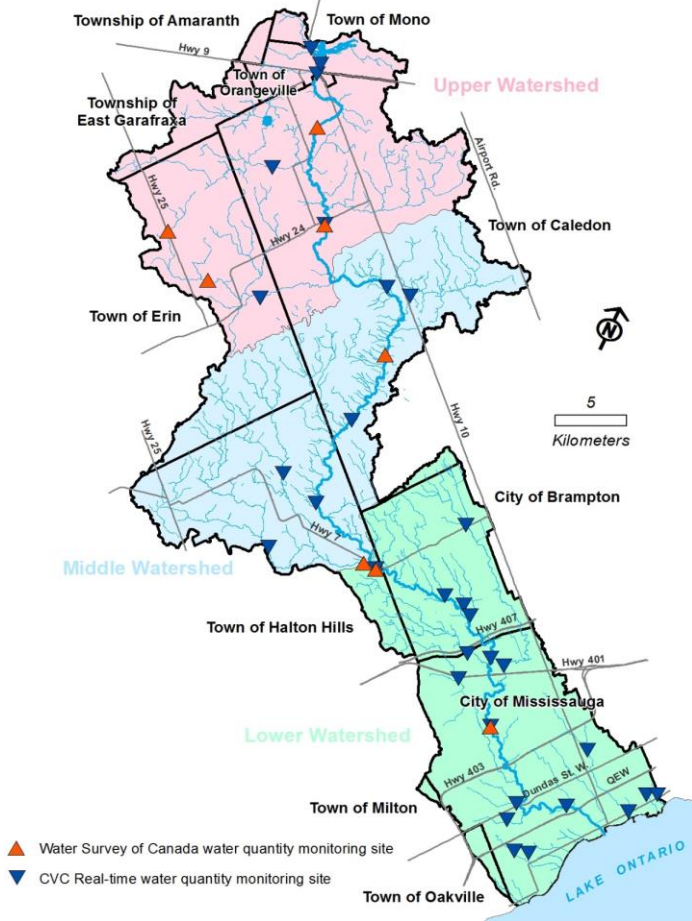
- 5 climate stations

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.

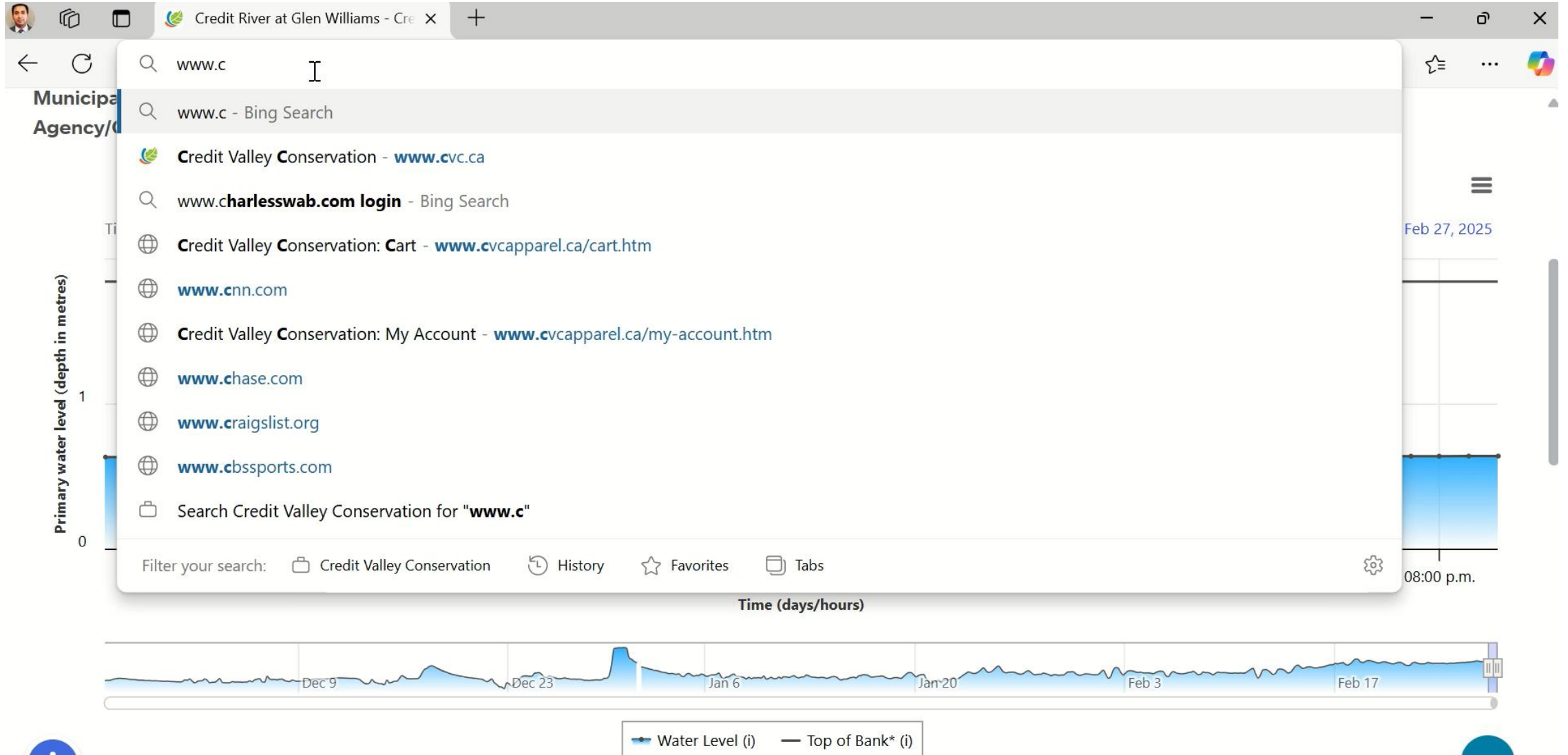




# Streamflow stations and Rain gauges



# CVC's Real-Time monitoring

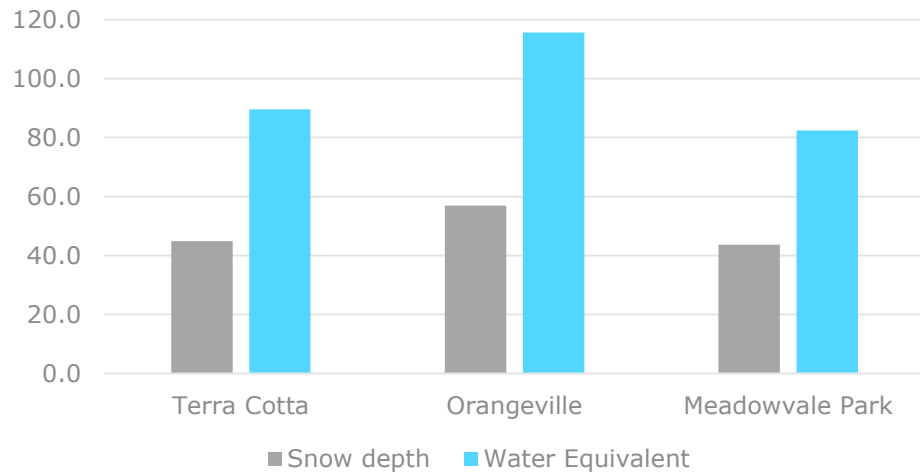




# Snow and Ice Surveys



Snow depth (cm)- Feb 28, 2025



Eldorado Park, City of Brampton  
Site # 501090021



Date: January 31, 2025  
Upstream Ice Cover: 70%  
Downstream Ice Cover: 70%  
Notes: Floating Slush

Streetsville (Vic Johnson Arena), City of Mississauga  
Site # 501090022

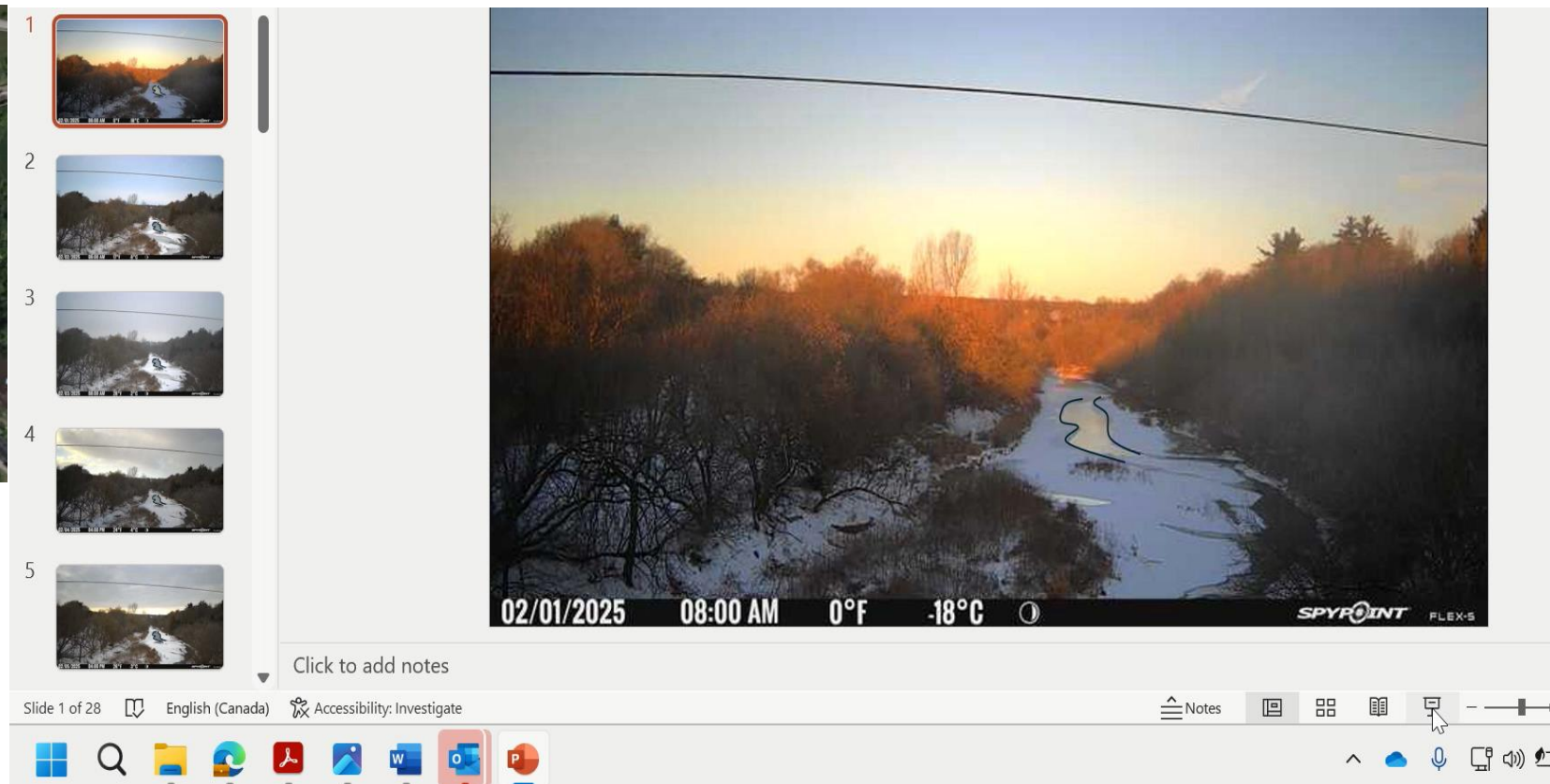
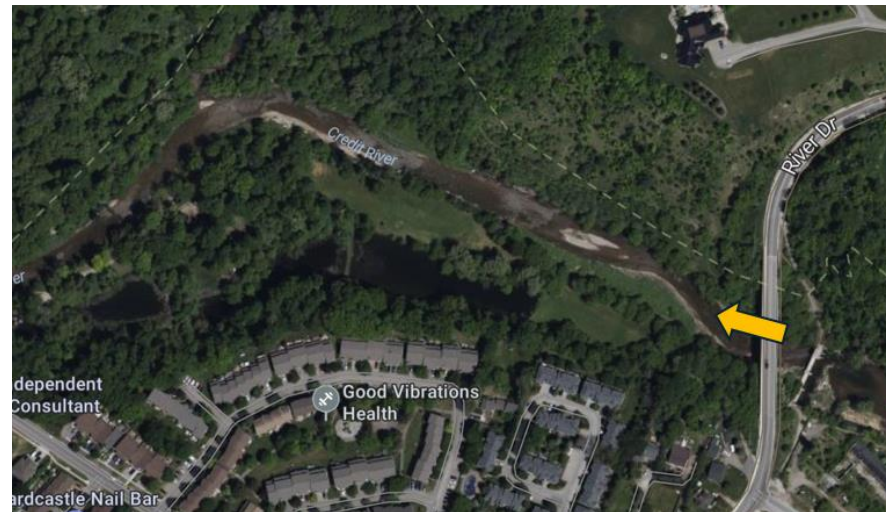


Date: January 31, 2025  
Upstream Ice Cover: 100%  
Downstream Ice Cover: 100%  
Notes:

# Real - time Ice Monitoring (2025)

Upstream of Paper mill Dam

Feb 01 - Feb 28 , 2025



The screenshot displays a real-time video monitoring interface. On the left, there is a vertical list of five video thumbnails, with the first one highlighted. The main window shows a wide-angle view of a river flowing through a wooded area. The ground is covered in snow, and the water appears to have some ice. The sky is a mix of blue and orange, suggesting a sunrise or sunset. At the bottom of the main window, a status bar displays the following information: '02/01/2025 08:00 AM 0°F -18°C'. The camera model 'SPYPOINT FLEX-5' is visible in the bottom right corner. Below the main window, there is a 'Click to add notes' button. At the very bottom of the interface, there is a navigation bar with icons for 'Notes', a grid view, a list view, and a zoom slider. The Windows taskbar is visible at the bottom of the screen, showing the Start button, search icon, and several application icons including File Explorer, Edge, Adobe Reader, and Microsoft Office applications.



Credit River Ice Jams 1938 to 2022: Annotated and Indexed

## DRAFT APPENDIX A

Historical Ice Jam Information  
Annotated and Indexed by  
Rain and Snowmelt (RSM) Values

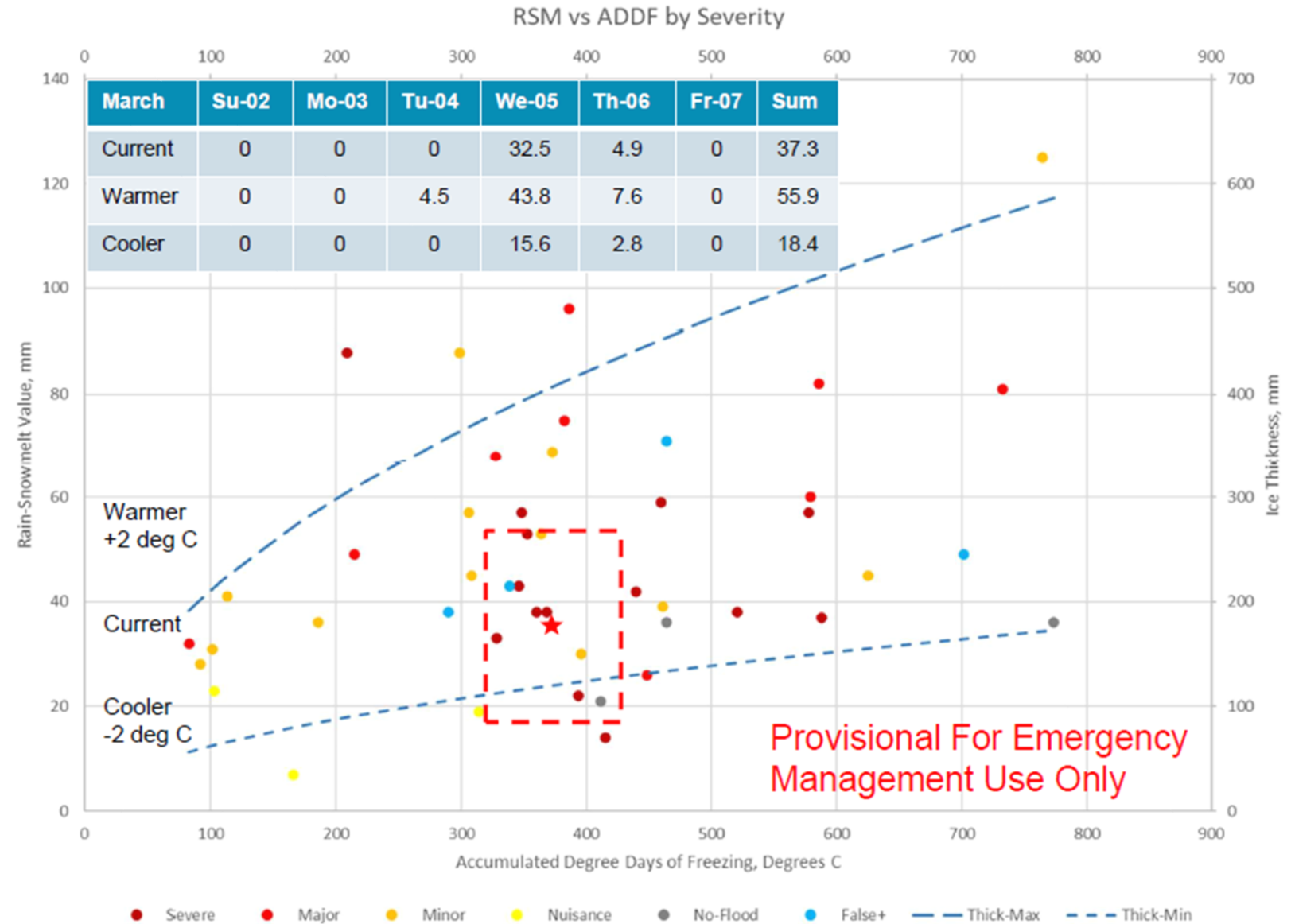
Rain and Snowmelt	Date MMM-DD-YYYY	Estimated: MMM-DD-YYYY	Deg Day Melt ± C	Ice Thickness ± mm	Deg Day Freezing ± C
88	Feb-26-1975		11	237	-209

Model generated 88mm RSM. Prior to event, the SWE was 124.5mm on Feb-14 then reduced to 33 on Feb-28 with 60.4mm of precipitation in-between. There was a minor melt event on Feb-18 of 5mm RSM.

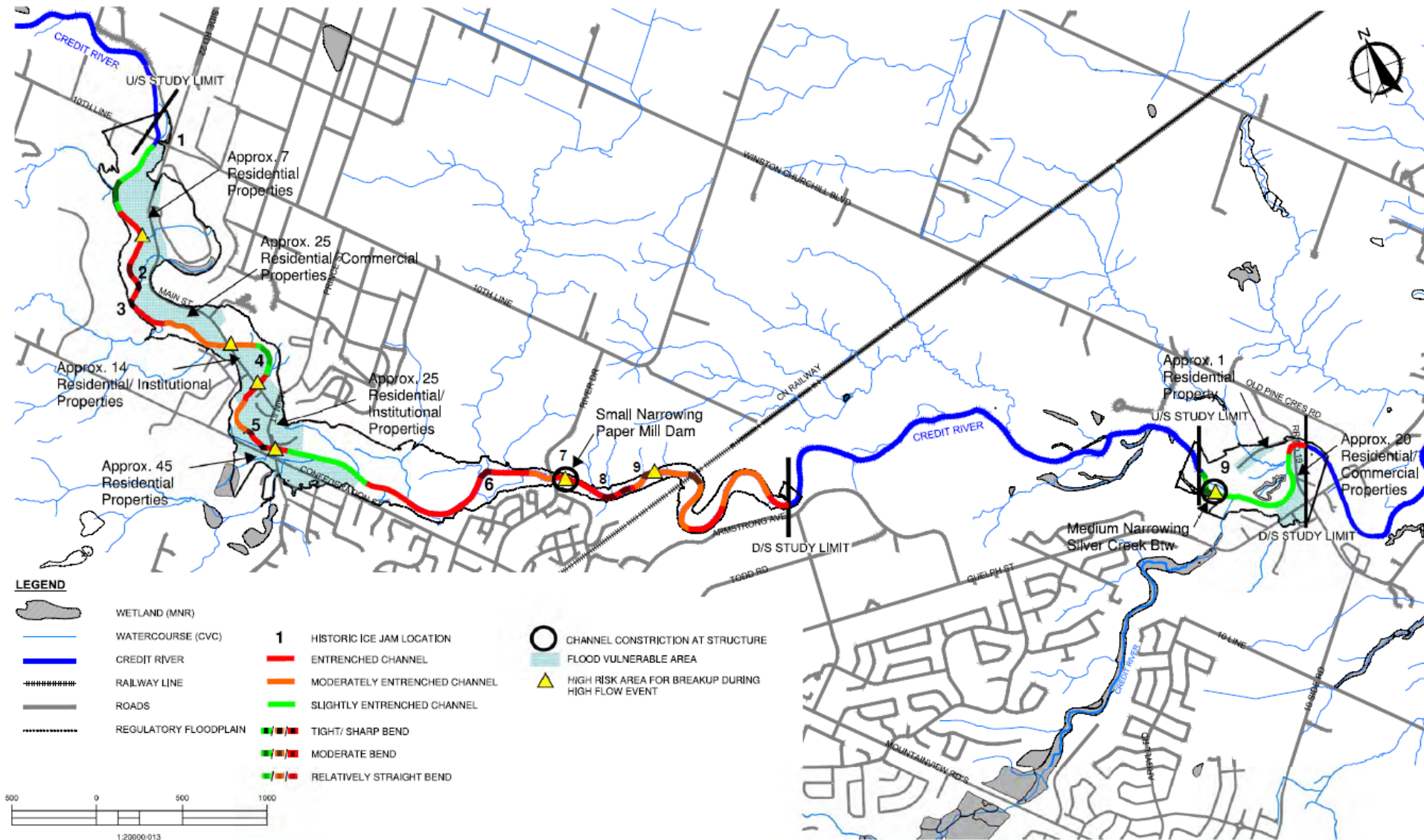
Brampton Daily Times

"Ice Jams on the Credit Flood Area Homes and Parks." The ice that jammed the Credit River, flooding 30 homes in Glen Williams, Eldorado Park in Huttonville and the Churchville and Meadowvale Park is now past Streetsville. In Eldorado Park, flood waters surged into the recreation pavilion damaging the floor with 3 inches of water.

[https://www.archeion.ca/nine-glen-williams-homes-flooded-on-credit-river.rad?sf\\_culture=uk](https://www.archeion.ca/nine-glen-williams-homes-flooded-on-credit-river.rad?sf_culture=uk)



# Ice jam and flood risk study - 2015





## Ice Survey Observations

February 28<sup>th</sup>, 2025

CVC staff conducts field surveys on a regular basis throughout the winter season to monitor ice cover on the Credit River. The areal extent and thickness of ice coverage is an important factor when considering potential risks associated with ice break-up, ice jams and spring flooding. Observations are made along the main branch of the Credit River at locations with a history of recurrent ice damage exposure. Additional locations may be added as required.

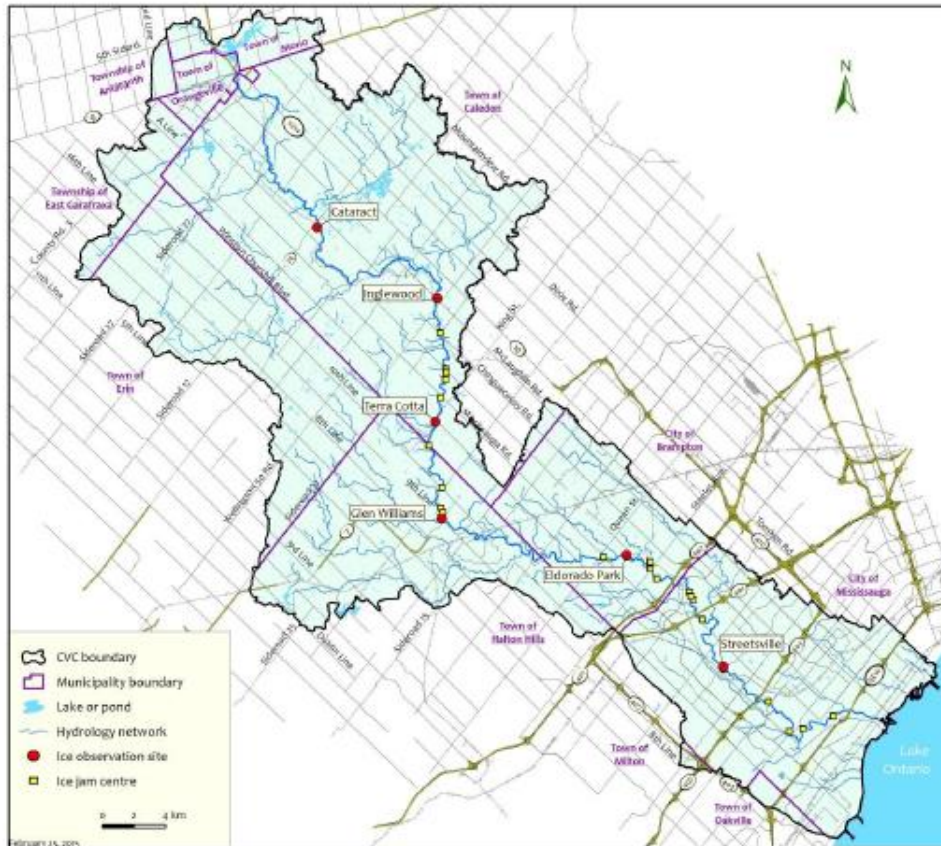


Figure 1: Historic ice damage centres and ice survey locations

## Snow Survey Information

February 28, 2025

The snow survey conducted on Fri-Feb-28-2025 showed the following amounts at these locations.

Watershed Location	Snowpack Water Content, mm
Upper	103.0
Middle	84.0
Lower	71.7

These values will change over the forecast period with additional precipitation, melt, sublimation or evaporation.

## Ice Break-Up and Flooding Potential

	Sat Mar 01	Sun Mar 02	Mon Mar 03	Tue Mar 04	Wed Mar 05	Thurs Mar 06	Fri Mar 07
Ice Break-Up	Norm	Norm	Norm	Low	High	Low	Low
Flooding	Norm	Norm	Norm	Low	Med	Med	Med

Forecasted weather conditions may change over this period. CVC will message on the flood conditions as appropriate.

Current long-range forecast, for the week following the above period, suggests that single digit temperatures will fluctuate above and below the freezing mark.

This message is intended for Municipal First Responders and Emergency Management Staff.

# Flood Messaging

---

## Flood Warning Messages

When flooding is possible or about to occur, we issue flood warning messages to municipal emergency management officials and the media about the potential threat to people and property. Municipal officials then take action to warn residents and provide emergency services as needed.

These messages can be found on [our homepage](#), [Facebook account](#) and [Twitter account](#).



### Normal Conditions

No flood conditions exist. Note that even during normal conditions, there is a risk to personal safety associated with flowing water.



### Water Safety

High flows, unsafe banks, melting ice or other factors could be dangerous for recreational users such as anglers, hikers, children, pets, and others. Flooding is not expected.



### Flood Outlook

Early notice of the potential for flooding based on weather forecasts calling for heavy rain, snow melt, high winds or other conditions. These factors may cause significant runoff, ice jams, flooding or erosion.



### Flood Watch and/or Lake Ontario Shoreline Flood Watch

Flooding is possible in specific watercourses or municipalities. Municipalities, emergency services and individual landowners in flood-prone areas should prepare for possible flooding.



### Flood Warning and/or Lake Ontario Shoreline Flood Warning

Flooding is imminent or already occurring in specific watercourses or municipalities. Municipalities and individuals should take action to deal with flood conditions, including possible road closures and evacuations.



# THANK YOU

---