

DOES ALL FLOODING COME FROM A RIVER?

Flooding is a shared responsibility between different agencies and individuals.

Riverine flooding occurs when rivers and streams overflow into surrounding areas. Conservation Authorities, like Toronto and Region Conservation Authority (TRCA), work to reduce riverine flood risks.

Urban flooding is street and basement flooding and flooding of other low-lying areas due to the overflow of local drainage systems. These infrastructure systems are municipal assets.

TRCA has mapped the area of risk for riverine flooding which is called the floodplain. Within the floodplain, there are some areas that were developed before land-use planning practices kept people away from the risks. These areas, where there are many buildings inside the floodplain, are called Flood Vulnerable Clusters, or FVCs. These FVCs include Special Policy Areas (SPAs), as well as historical flood damage centres.



FLOODING CAN HAPPEN AT ANY TIME OF YEAR



Summer

Thunderstorms – With a large amount of rain in a short period of time, intense, localized downpours from thunderstorms can produce flash flooding.

Fall

Seasonal weather systems – Large wet weather systems, such as tropical storms and hurricane remnants, can last several days. Prolonged and heavy precipitation on top of already saturated soils can cause rivers to rise.

Winter

Ice jams – When temperatures and/or water levels rise, river ice breaks into large chunks. These chunks can become jammed at bridges or other obstructions. Rivers can become backed up and can overflow their banks.

Spring

Spring freshet – Accumulation of snow during the winter season can lead to flooding during the early spring if conditions are right. When temperatures rise, snow melts and turns to runoff.

UNDERSTANDING FLOOD RISK IN BRAMPTON - SPRING CREEK



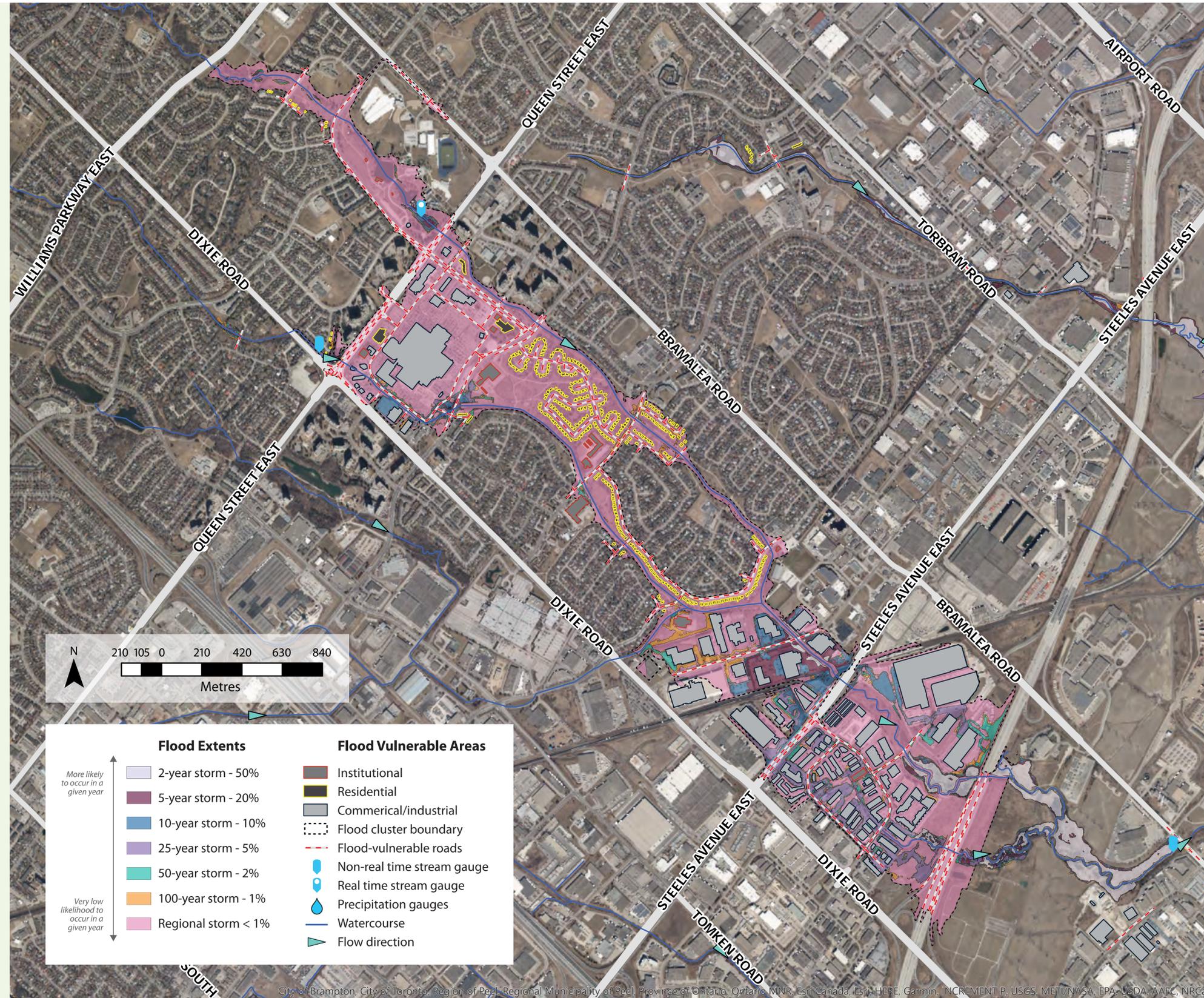
The Spring Creek area can become flooded because of the size of the river and high number of river crossings. Spring Creek and the Dixie Tributary can spill over to nearby areas, including the following:

- **Bramalea City Centre** is subject to flooding during more extreme events as a result of the current culverts, which are inadequate, on both Spring Creek and the Dixie Tributary. On the Dixie Tributary, the tunnel under Clark Boulevard can become blocked which can cause flooding in this area. Flows spill into **Peel Centre Drive** and water pools in parking lots. From Spring Creek, flows spill onto **Central Park Drive** as well as east of Clark Boulevard in the residential areas along **Crawley Drive**.
- **Birchbank Public School** floods during more extreme events when flows exceed culvert capacity, particularly under the Birchbank PS entrance road.
- Flooding could occur upstream of **Central Park Drive (Spring Creek)** during more extreme events, due to limited capacity at the Central Park Drive culvert and upstream of the Hilldale Crescent culvert.
- Flooding occurs more frequently at **Chinguacousy Park** when the channel and ponds fill with water and overflow. Flooding is exacerbated by backwater from the Queen Street culvert.
- During more extreme events, flows from Spring Creek could spill into **Appleby Drive** when waters rise above the Balmoral Drive culverts. The **Avondale Boulevard** residential area could experience flooding when the Avondale Boulevard culvert can no longer hold or pass water.
- The **Avondale area**, which has industrial and commercial properties, has a high risk of flooding because waters can rise above the culverts at Orenda Road and the CN rail tracks, and spill into the industrial areas to the south and east.

AVONDALE FLOOD RISK MAP

River flooding occurs when a body of water exceeds its capacity. A river can only carry so much water within its banks and it will fill up until it overflows, typically due to heavy rainfall. Flooding can cause property damage and pose a threat to safety, but the degree of risk varies depending on the location within the floodplain.

- The greatest risk is to areas directly adjacent to the river. Because the watersheds are small, short, and full of hard landscape, rainfall will make water levels rise very quickly. Most watercourses in the GTA rise so quickly that sand-bagging is typically not an effective protection measure.
- Properties near the outskirts of the flood plain boundary are less likely to see riverine flooding than the lower lying ones close to the river.
- Many crossings and culverts don't have the capacity to pass flows from a flooded river – water can back-up and pool behind these structures.
- Engineers use statistical models of different rainfall amounts and durations, and simulate what flooding from those storms would look like through computer models.



City of Brampton, City of Toronto, Region of Peel, Regional Municipality of Peel, Province of Ontario, Ontario MNR, Esri, Canada, Esri, HERE, Garmin, INCREMENT P, USGS, METI/NASA, EPA, USDA, AAFC, NRC

BRAMPTON FLOOD PREPAREDNESS

Flood Risk

Flooding is possible during all seasons of the year, but especially during the spring and summer months. Major rainstorms can cause rivers, streams, and creeks to overflow without warning, leading to flooding in nearby areas. Heavy rainstorms can also cause sewers to back up, leading to flooding in areas around your home. Melting snow is another cause of flooding, where large amounts of water can accumulate in unwanted areas.

Important Additional Information

Types of Flooding

- Ice melt
- Riverine flooding
- Urban flooding
- Storm sewer overflow/backup

Secondary Hazards

- Power outage
- Significant storm damage
- Food contamination
- Health hazards including poor indoor air quality and mould

Know Who to Call

- 911
- 311
- Insurance company

It's always important to be prepared for a flood: Take Action!

BEFORE A FLOOD

Know the risks

- Assess the likelihood of flooding in your area

Know the language: watch vs. warning

- *Flood Watch*
Flooding is possible in your area.
- *Flood Warning*
Flooding is already occurring or will occur soon in your area.

Be prepared

- Build an emergency kit
- Prepare a home escape plan
- Keep a list of important contact information
- Make sure your insurance policy covers flooding

DURING A FLOOD

- Stay away from rivers and creeks that are flooded. Ensure children and pets are kept away from potential hazards.
- Monitor local news—radio, TV, social media, Brampton.ca—for weather updates and evacuation notices
- Call the City of Brampton at **311** or email **311@brampton.ca** to report any abnormal accumulation of water
- Beware of potential hazards in the home such as electrical outlets in a basement or room that may have come in contact with flood water
- Activate your family emergency plan – decide whether it's safer to shelter-in-place or evacuate your home
- Take your emergency kit if you have to evacuate. Make sure everyone is out of the house, including your pets
- Check to see if your neighbours require any assistance

AFTER A FLOOD

- Contact your insurance company as soon as possible. Report any damages caused by the flooding
- Call in professionals such as a damage restoration company to have the area cleaned properly
- Document all damages
- Where possible, take measures to dry your home quickly by ventilating the area with outdoor air, fans or dehumidifiers to prevent mould growth
- Do not walk or drive through flood waters
- Keep children and pets away from flooded areas
- Check **peelregion.ca/waste** for updates concerning flood waste disposal

Contact us for more information or emergency preparedness presentations:
Brampton Emergency Management Office | Twitter @CityBrampton | www.brampton.ca/prepared

In collaboration with:



WHO SHOULD I CONTACT DURING A FLOOD IN BRAMPTON?



- If you are in danger or there is a threat to life and safety call **911** immediately.
- If you see any potential damage to your property, call your **insurance representative** as soon as possible.
- Contact Alectra to have your power shut off to prevent shock or electrocution if water has risen above outlets, near the electrical panel, etc. For hydro-related questions, contact **Alectra Customer Service** at **1-877-963-6900 (Press 2)**.
- To report localized flooding and sewer back-up on municipal roads, blocked catch basins or municipal infrastructure, contact the **City of Brampton** by dialing **311** or **905-874-2500** or emailing **311@brampton.ca**.
- To report river flooding, leave a voicemail on the **TRCA floodline** at **416-661-6514**. A flood duty officer will return your call.

TRCA FLOOD RISK MANAGEMENT

A principal mandate of TRCA is to reduce the risk to life and damage to property caused by flooding. We do this by providing local agencies and the public with notice, information and advice so that they can respond during severe rainfall events that have the potential for flooding, and during flood related emergencies.

PREVENTION & MITIGATION

PREPAREDNESS

RECOVERY

RESPONSE



PREVENTION & MITIGATION

Limiting exposure to risk:

- Implementing TRCA's regulations and policies

Reducing risk:

- Operating a flood forecasting and warning program
- Maintaining flood control infrastructure
- Creating a flood protection strategy for vulnerable areas
- Implementing remedial works projects

Understanding the risks:

- Climate, geology, watershed response, and potential for climate change

Documenting the risks:

- Floodplain mapping, identification of flood vulnerable areas

PREPAREDNESS

- TRCA's flood contingency plan
- Emergency plans
- Emergency operations centre
- Training
- Public education

Site-Specific Flood Response Plan

A Site Specific Flood Response Plan (SSFRP) is a tool to assist **municipalities** in responding to a flood emergency in a given flood-vulnerable neighbourhood. It is meant to complement existing emergency plans, such as a municipal emergency plan or a risk-specific plan for flooding.

RESPONSE

- Provide flood forecasting and warning (issuing flood messages)
- Operate flood control infrastructure
- Communicate information and advise
- Data management

RECOVERY

- Flood event documentation and lessons learned
- Storm analysis

REAL-TIME FLOOD MONITORING IN YOUR NEIGHBOURHOOD

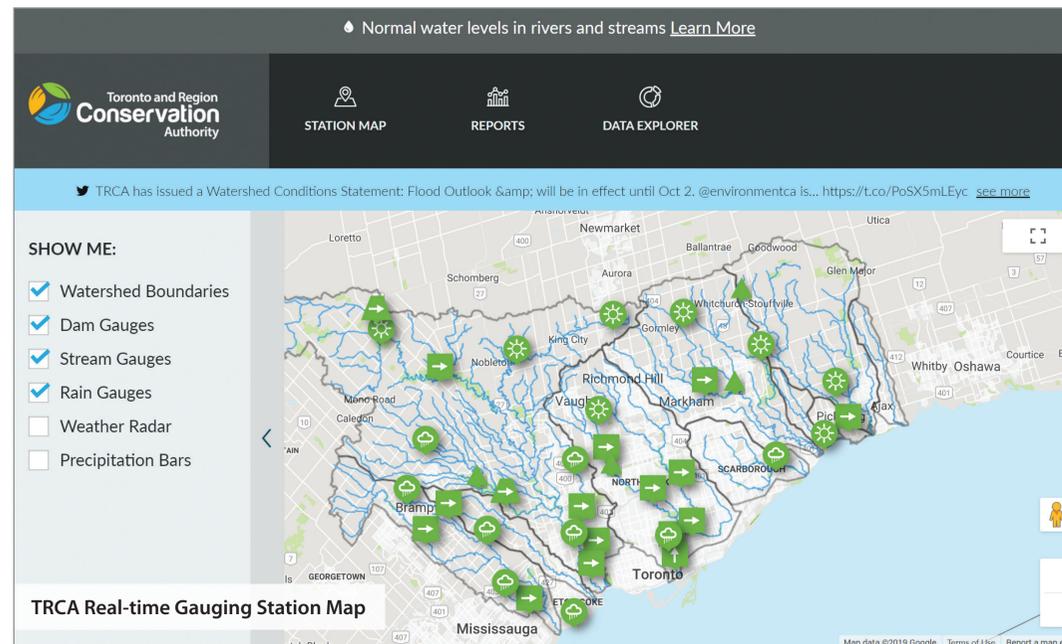
TRCA has a network of real-time river and rain gauges across the GTA to:

- Monitor the water levels in specific streams and behind dams
- Measure how much precipitation has fallen

The measurements are displayed on TRCA's flood monitoring website. While the website is primarily a tool for Flood Duty Officers to evaluate watershed conditions and assess the risk of flooding, the website is available to our municipal partners and the public:

trca.ca/floodmonitoring

The Station Map uses shapes, colours, and symbols to allow for a quick assessment of the conditions in the watersheds.



TRCA'S FLOOD MESSAGES

To support our municipal partners during storm events, Toronto and Region Conservation Authority (TRCA) runs a **Flood Forecasting and Warning Program** with staff on-call, 24/7. If flooding is possible or about to occur, TRCA issues flood messages to designated individuals within municipalities, local agencies, school boards, the media, and members of the public who self-subscribe.



Sign Up for Flood Messages

To receive flood messages, you can either:

- Subscribe to email notices at trca.ca/floodmessages
- Follow us on Twitter at [@TRCA_Flood](https://twitter.com/TRCA_Flood)

Flood messages are also posted on TRCA's website at trca.ca/floodforecasting

