

# Grand River Conservation Authority

**Report number:** GM-12-23-104

**Date:** December 15, 2023

**To:** Members of the Grand River Conservation Authority

**Subject:** Grand River Watershed Flood Warning System

---

## **Recommendation:**

THAT Report Number GM-12-23-104 – Grand River Watershed Flood Warning System be received as information.

## **Summary:**

A pre-winter Flood Coordinators meeting was held on December 05, 2023. The program included a review of the flood message fan-out system test and a discussion on the role of the GRCA, Police and municipal Flood Coordinators. Presentations related to the GRCA Flood Warning System and Flood Management Program Updates, GRCA Flood Control Infrastructure and Roles and Responsibilities for Flood Communications were provided. Trudy Kidd from Environment and Climate Change Canada provided a presentation on Climate Change and Extreme Weather: What We have seen and what's to come. The meeting wrapped up with the current watershed conditions outlook heading into the Winter of 2024. The outlook at the time of the flood coordinators meeting was to expect a warmer than normal temperatures in winter closer to average precipitation levels for winter of 2024.

Municipal Flood Coordinators, Municipal Police, Ontario Provincial Police, Environment Canada, Province of Ontario, neighboring Conservation Authority staff and GRCA staff attended the meeting. The Grand River Flood Warning booklet has been updated in November 2023 and will be mailed out to all municipalities, police services and other agencies that participate in the Grand River flood warning system. One reason for initiating a pre-winter meeting is to ensure all contact information is up to date heading into the winter season with the intention to be as prepared and organized as possible.

## **Report:**

Flooding poses a longstanding concern for residents of the Grand River watershed. While the primary occurrence of major river flooding typically transpires in March and April, the potential for serious flooding persists throughout the year. Projections indicate that climate change will likely amplify the frequency and intensity of flood events. To address this, the Grand River Conservation Authority has implemented a comprehensive flood control program involving the construction of reservoirs and dike systems. Despite the significant role played by these measures in flood management, they do not completely eliminate the risk of flooding.

The crucial responsibility for handling a flood emergency lies with the municipality and its emergency plan. The Grand River Conservation Authority assumes specific roles in a flood emergency, including monitoring watershed and weather conditions to forecast flooding, operating dams and reservoirs to mitigate flood effects, and issuing flood warning messages to municipal flood coordinators and emergency services.

In the event of a flood, timely warnings are paramount for both watershed residents and emergency response personnel to take appropriate measures and mitigate potential damages and threats to life. To address this need, the Grand River Conservation Authority has

established a "fan-out" flood warning system designed to deliver timely flood warnings and information to municipal officials and residents within the watershed.

The 2023 Fall Flood Coordinators meeting was held on December 05, 2023. This meeting was delivered in-person for the first time since February 2020, at the GRCA Administration Center Auditorium. The purpose of the pre-winter meeting is to ensure contact information is up-to-date heading into the winter and spring flood season. The meeting also provides participants a forecast of the anticipated flood risk based on watershed conditions. A copy of the meeting agenda is included at the end of this report.

Presentations relating to the program included a review of the flood fan-out system test, a discussion on the role of the GRCA, Police and municipal Flood Coordinators, details of the GRCA Flood Warning System, Flood Management Program Updates, GRCA Flood Control Infrastructure, Roles and Responsibilities for Flood Communications and Current Watershed Conditions and the winter 2024 flood outlook.

A guest speaker, Trudy Kidd from the Environment and Climate Change Canada, provided a presentation on climate change and extreme weather. Trudy reviewed the past trends on temperature and precipitation observations for central part of the Grand River Watershed and also provided projected changes in temperature (changes in very hot days, changes in ice days and changes in freeze-thaw cycles) and precipitation (changes in annual precipitation, changes in heavy precipitation days and changes in snow). Finally, an overview of the current observed El Nino phenomena and potential impacts on temperature and precipitation patterns were provided.

The current conditions and long-range forecast for winter 2024 pointed to a very wet summer and very dry fall with respect to total observed precipitation across the watershed. The significantly lower observed precipitation in fall offsets the higher than normal precipitation in summer months. Over all, reservoir levels are within their normal operating range for larger dams. Lake Erie levels are still much higher than normal, creating a high risk for Lake Erie shoreline flooding. Winter flooding is dependent upon snow fall depths and temperature fluctuations. Environment and Climate Change Canada forecasts warmer than normal winter with closer to normal precipitation levels.

A total of 68 people participated in the December 05, 2023 in-person Flood Coordinators meeting. Participants included members of the following organizations and agencies: Municipal Flood Coordinators and Police from within the watershed, both municipal and Ontario Provincial Police, Environment and Climate Change Canada, Water Survey Canada, Province of Ontario, other Conservation Authority staff and GRCA staff. The following table compares the attendances at the 2022 and 2023 meetings. The last fully in-person flood coordinators meeting held in February 2020 is not included in table 1, which had a total attendance of 74.

**Table 1 Attendance 2022 and 2023 Municipal Flood Coordinators Meetings**

<b>Agencies Represented</b>	<b>2023 Dec. Attendance (In-Person)</b>	<b>2023 Feb. Attendance (Virtual)</b>	<b>2022 Nov. Attendance (Virtual)</b>	<b>2022 Feb. Attendance (Virtual)</b>
Municipal Flood Coordinators	29	63	56	47
Municipal Police	1	3	4	3
Ontario Provincial Police	2	6	3	1
Provincial Ministries	2	3	10	4
Federal Agencies	5	5	5	1
Other Conservation Authority staff	9	13	13	6
News Media	0	0	1	0
GRCA Staff	19	35	38	36
Other	1	8	5	2
<b>Total Persons in Attendance</b>	<b>68</b>	<b>136</b>	<b>135</b>	<b>100</b>

To ensure a strong communications link, the Flood Warning System is tested twice a year, once prior to spring and once in the late fall prior to winter. This year's pre-winter test was run on November 29, 2023. All municipalities and First Nations received the message and confirmed receipt of the test message. All police services received the message.

An updated Flood Warning System "Booklet" will be mailed out in December, based on latest updates. The mail out listed includes:

- a) Clerks of all municipalities in the Watershed including Regional and County Governments.
- b) Members of the Grand River Conservation Authority.
- c) Police Services listed as part of the flood message fan-out system.
- d) Daily and weekly newspapers in the watershed.
- e) Authority operating personnel.
- f) Provincial and Federal Agencies listed in the Flood Warning System Booklet.

**Financial Implications:**

Not Applicable.

**Other Department Considerations:**

Not Applicable.

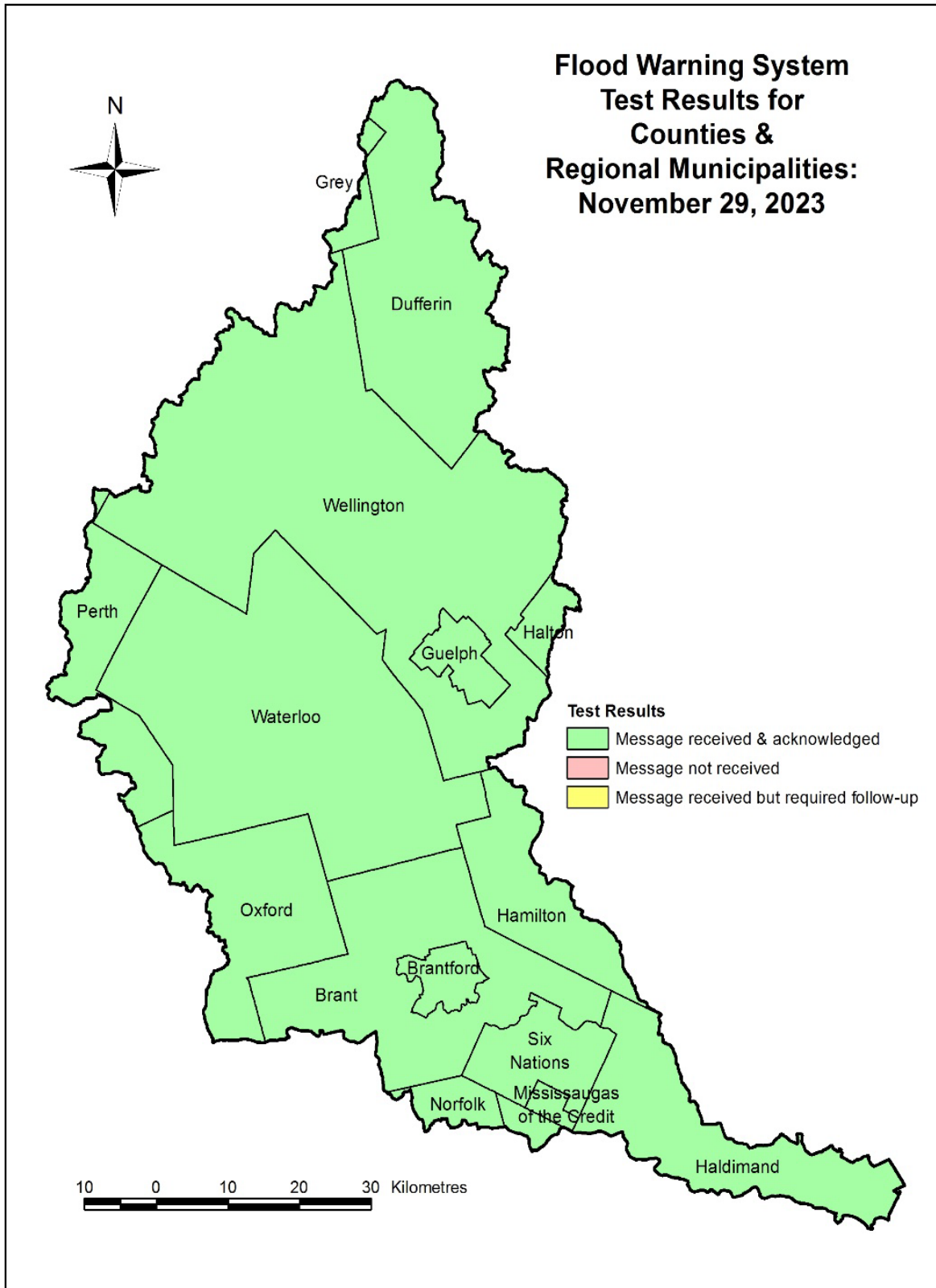
**Prepared by:**

Vahid Taleban, P.Eng.  
Manager of Flood Operations

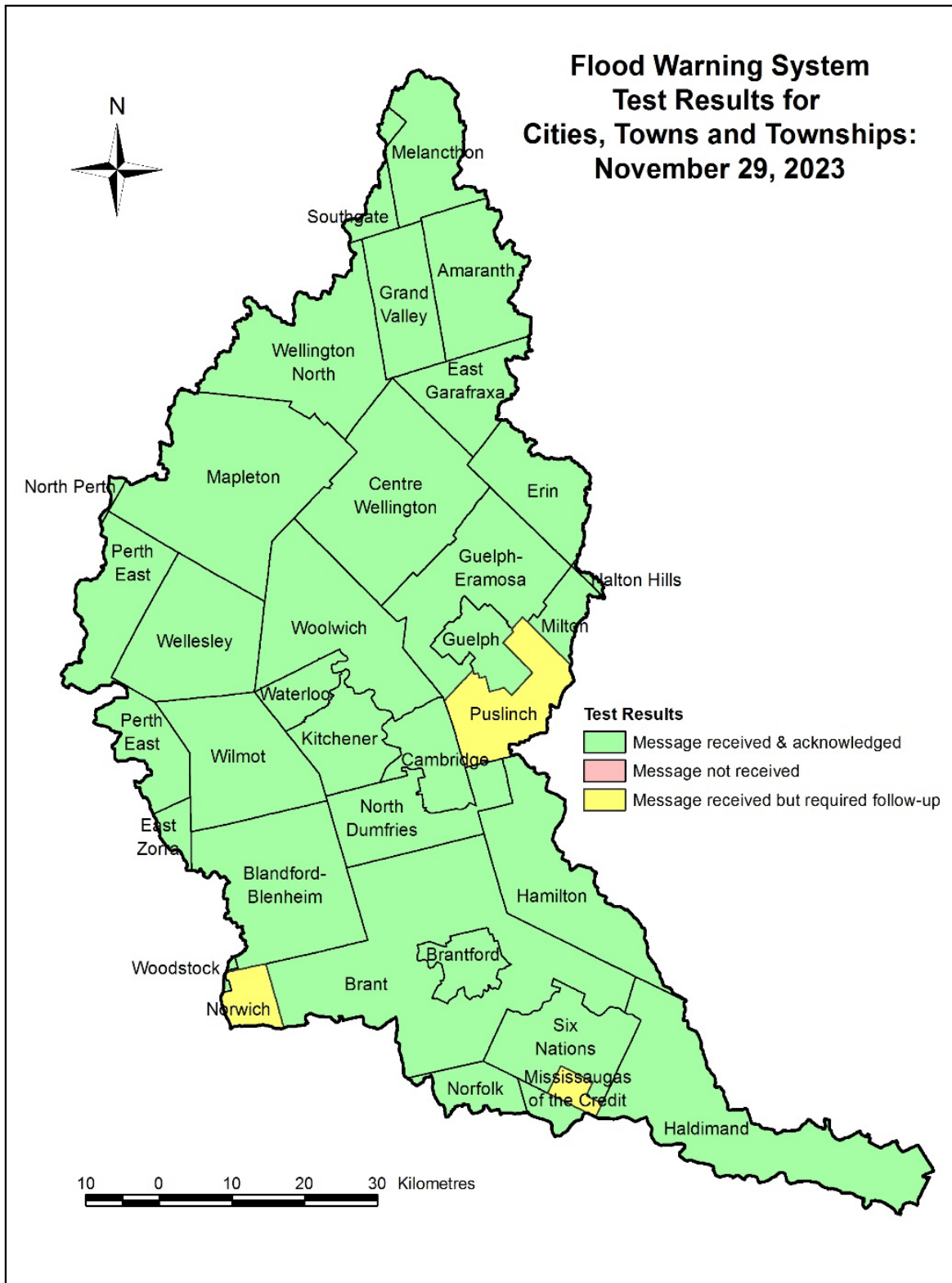
**Approved by:**

Samantha Lawson  
Chief Administrative Officer

**Figure 1 Map of Upper Tier Municipalities Receipt and Confirmation of Flood Test Message**



**Figure 2 Map of Lower Tier Municipalities Receipt and Confirmation of Flood Test Message**





**Grand River Conservation Authority  
Flood Warning Emergency Planning Meeting  
Tuesday, December 05, 2023, 1:30 p.m.  
AGENDA**

<b>1. Chris White</b> <i>Chair</i> Grand River Conservation Authority Board of Directors	<b>Opening Remarks</b>	1:30 – 1:35 p.m.
<b>2. Mark Anderson</b> <i>Water Quality Engineer</i> Grand River Conservation Authority	<b>GRCA Flood Warning System</b> <ul style="list-style-type: none"> <li>• Flooding in the Grand River Watershed</li> <li>• Role of the GRCA</li> <li>• Role of Municipality and Municipal Flood Coordinator</li> <li>• Role of police</li> <li>• GRCA's Flood Warning Guide</li> </ul>	1:35 – 1:45 p.m.
<b>3. Katelyn Lynch</b> <i>Manager of Water Infrastructure</i> Grand River Conservation Authority	<b>Flood Control Infrastructure</b> <ul style="list-style-type: none"> <li>• Role of reservoirs and dikes to reduce flooding</li> <li>• Emergency Preparedness Plans for Dams</li> </ul>	1:45 – 2:00 p.m.
<b>4. Trudy Kidd</b> <i>Warning Preparedness Meteorologist</i> Environment and Climate Change Canada	<b>Climate Change and Extreme Weather: What We've Seen and What's to Come</b>	2:00 – 2:30 p.m.
<b>5. Lisa Stocco</b> <i>Manager of Strategic Communications and Environmental Education</i> Grand River Conservation Authority	<b>Flood Communications – Roles and Responsibilities</b>	2:30 – 2:40 p.m.
<b>6. Vahid Taleban</b> <i>Manager of Flood Operations</i> Grand River Conservation Authority	<b>Long Range Weather Forecast – Winter 2024</b>	2:40 – 2:50 p.m.
<b>7. Samantha Lawson</b> <i>CAO</i> Grand River Conservation Authority	<b>Closing Remarks</b>	2:50 – 3:00 p.m.