

# Grand River Conservation Authority

**Report number:** GM-03-23-30

**Date:** March 23, 2023

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

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

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## **Recommendation:**

THAT Report Number GM-03-23-30 – Grand River Watershed Flood Warning System be received as information.

## **Summary:**

A pre-spring Flood Coordinators meeting was held on February 22, 2023. The program included a review of the flood message fan-out system test, a discussion on the role of the GRCA, Police and municipal Flood Coordinators. Presentations relating to the GRCA Flood Warning System and Flood Management Program Updates, Flood Risk Consequence Assessment Tools, Roles, and Responsibilities for Flood Communications were provided. Frank Seglenieks from the National Hydrological Service, Environment and Climate Change Canada provided a presentation on the short and long term (climate change) projections for hydroclimate variables within the Grand River watershed. The meeting wrapped up with the current watershed conditions outlook heading into the spring of 2023. The outlook at the time of the flood coordinators meeting was for a moderate risk of flooding from riverine flooding, low risk for ice jam flooding and high risk for Lake Erie shoreline flooding heading into the spring of 2022.

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 was updated in December 2022 and mailed out to all municipalities, police services and other agencies that participate in the Grand River flood warning system. A second update of the Grand River Flood Warning booklet will be completed and mailed out later this spring. The booklet provides useful emergency contact information that can be leveraged when managing a range of emergencies beyond floods.

## **Report:**

Flooding has long been a major concern to residents of the Grand River watershed. While most major river flooding occurs in March and April, serious flooding can occur throughout the year. It is anticipated that the frequency and severity of flood events will increase as a result of climate change. The Grand River Conservation Authority has undertaken a major program of flood control through the construction of reservoirs and dike systems. While these reservoirs and flood protection works play a significant role in managing floods, they do not eliminate the possibility of flooding.

The primary responsibility for managing a flood emergency rests with the municipality, through its emergency plan. The Grand River Conservation Authority has the following roles during a flood emergency:

- a) Monitoring watershed and weather conditions to predict flooding.
- b) Operating dams and reservoirs to reduce the effects of flooding.
- c) Issuing flood warning messages to municipal flood coordinators/emergency services.

In the event of a flood, it is important that watershed residents and emergency response personnel be warned in sufficient time to take appropriate action to reduce flood damages and the threat of loss of life. The Grand River Conservation Authority has developed a “fan-out” flood warning system to provide timely flood warnings and information to municipal officials and watershed residents.

The 2023 spring Flood Coordinators meeting was held on February 22, 2023. This meeting was delivered as a hybrid meeting located at the GRCA Administration Center Auditorium and using Microsoft Teams. The purpose of the pre-spring meeting is to ensure contact information is up-to-date heading into the 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, Flood Risk Consequence Assessment Tools, Roles and Responsibilities for Flood Communications and Current Watershed Conditions and the spring 2023 flood outlook.

A guest speaker, Frank Seglenieks from the National Hydrological Service, Environment and Climate Change Canada, provided a presentation on the short and long term (climate change) projections for hydroclimate variables within the Grand River watershed. Frank reviewed short term predictions for temperature and precipitation in the Grand River Watershed and trends for Lake Erie levels. Frank provided background information on future climate projections for air temperature, precipitation (rain and snow), expectations for increased possibility of extremes in lake levels (both low and high) and discussed that actual changes in the hydroclimate variables and lake levels will depend on the actions of society in the next decades and how the atmosphere responds.

Literature identifies preparedness as an important aspect of continuous adaption and preparation for climate change.

The current conditions and flood outlook for the spring of 2023 pointed to a low risk for riverine flooding due to snowpack conditions heading into the spring of 2023. Following the meeting the Grand River watershed has gained more snowpack which has moderately increased the risk for flooding due to snow melt. The river systems were free of ice in late February, leading to a low risk of ice jam flooding through the watershed. Lake Erie levels are still much higher than normal, creating a high risk for Lake Erie shoreline flooding. Spring flooding is dependent upon how the spring melt unfolds, a gentle slow melt with little rain would be the ideal type of melt needed to avoid major flooding.

A total of 136 people participated in the February 22, 2023 Hybrid 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 Canada, Province of Ontario, other Conservation Authority staff, First Nations, academia and GRCA staff. The following table compares attendance at the 2021, 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 2021 2022 and 2023 Municipal Flood Coordinators Meetings**

<b>Agencies Represented</b>	<b>2023 Feb. Attendance</b>	<b>2022 Nov. Attendance</b>	<b>2022 Feb. Attendance</b>	<b>2021 Dec. Attendance</b>
Municipal Flood Coordinators	63	56	47	65
Municipal Police	3	4	3	2
Ontario Provincial Police	6	3	1	3
Provincial Ministries	3	10	4	6
Environment Canada	5	5	1	3
Other Conservation Authority staff	13	13	6	12
News Media	0	1	0	0
GRCA Staff	35	38	36	44
Other	8	5	2	3
<b>Total Persons in Attendance</b>	<b>136</b>	<b>135</b>	<b>100</b>	<b>138</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-spring test was run on February 15, 2023. All municipalities and First Nations received the message and confirmed receipt of the test message. All police services received the message.

The Flood Warning System "Booklet" has been updated to reflect changes brought forth as a result of the Flood Warning Test and the Flood Coordinators meeting.

An updated Flood Warning System "Booklet" was mailed out in January, based on the mid-December update. The mail out listed included:

- 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) Radio and Television stations in the watershed.
- e) Daily and weekly newspapers in the watershed.
- f) Authority operating personnel.
- g) Provincial and Federal Agencies listed in the Flood Warning System Booklet.

### **Financial Implications:**

Not Applicable.

### **Other Department Considerations:**

Not Applicable.

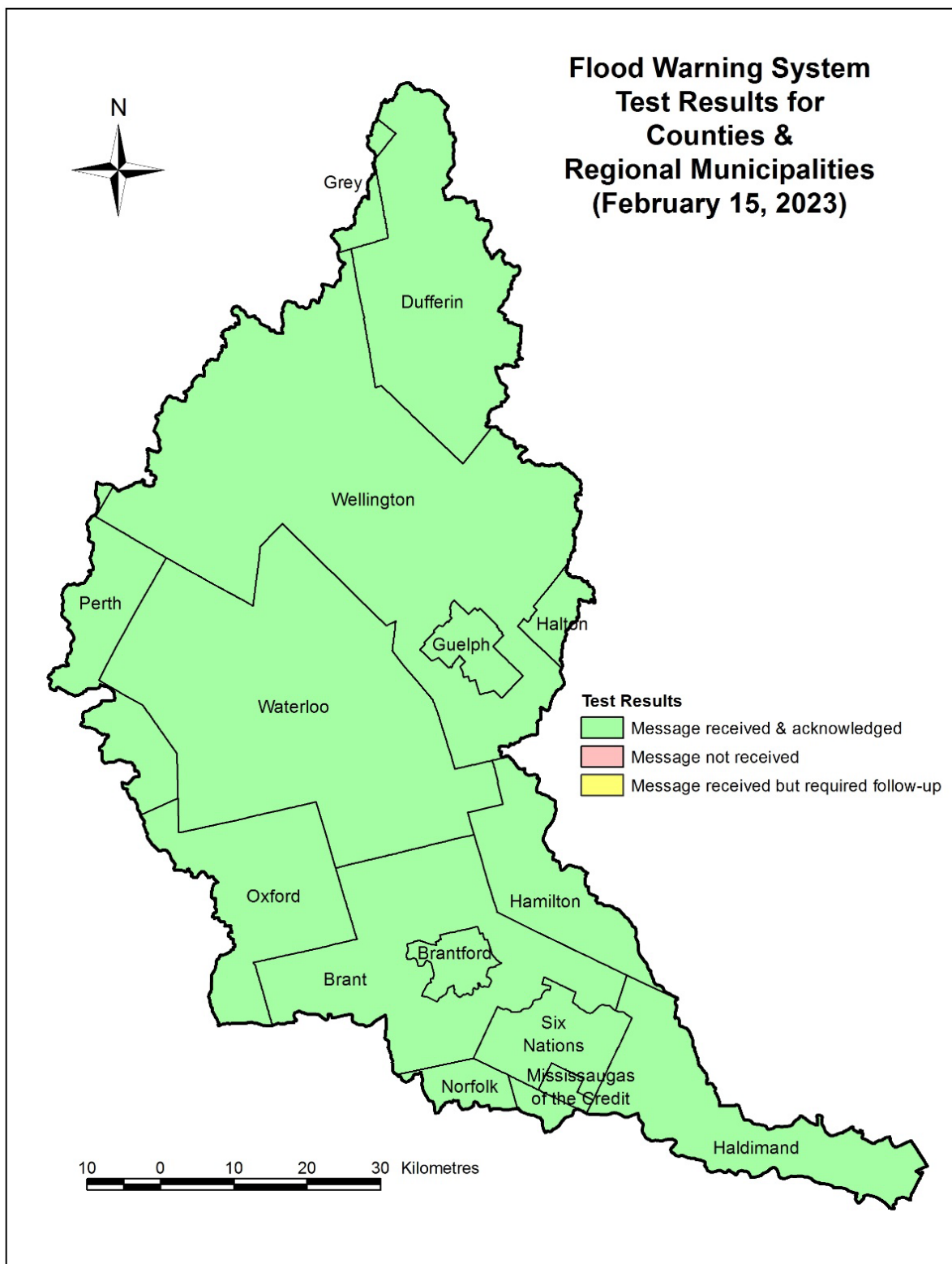
### **Prepared by:**

Vahid Taleban, P.Eng.  
Senior Engineer Flood Management

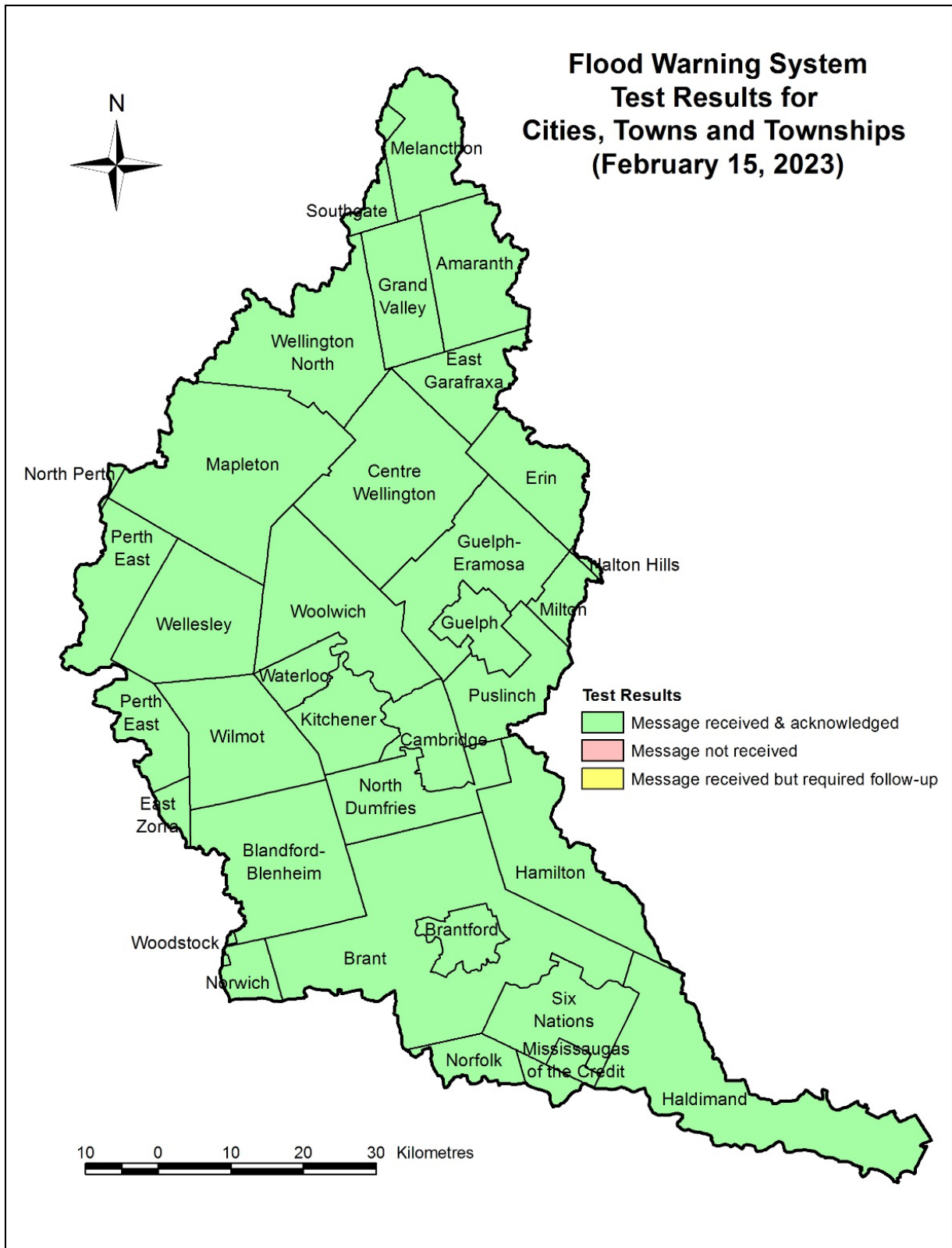
### **Approved by:**

Katelyn Lynch, P.Eng  
Manager of Water Infrastructure

**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**

WEDNESDAY, FEBRUARY 22, 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. Katelyn Lynch</b> <i>Manager of Water Infrastructure</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> <li>Flood Management Program Updates</li> </ul>	1:35 – 1:50 p.m.
<b>3. Vahid Taleban</b> <i>Senior Engineer-Flood Management</i> Grand River Conservation Authority	<b>Consequence Assessment Tools</b>	1:50 – 2:05 p.m.
<b>4. Frank Seglenieks</b> <i>Water Resources Engineer</i> Environment Canada	<b>Short and Long Term (Climate Change) Projections for Various Hydroclimate Variables of the Grand River Basin</b>	2:05 – 2:30 p.m.
<b>5. Cam Linwood</b> <i>Supervisor, Strategic Communications</i> Grand River Conservation Authority	<b>Flood Communications – Roles and Responsibilities</b>	2:30 – 2:40 p.m.
<b>6. Stephanie Shifflett</b> <i>Water Resources Engineer</i> Grand River Conservation Authority	<b>Current Watershed Conditions</b> <ul style="list-style-type: none"> <li>Watershed Conditions</li> <li>Snow Pack, River Ice Conditions</li> <li>Spring 2023 Outlook</li> <li>Risk of flooding</li> </ul>	2:40 – 2:55 p.m.
<b>7. Samantha Lawson</b> <i>CAO</i> Grand River Conservation Authority	<b>Closing Remarks</b>	2:55 – 3:00 p.m.