

Grand River Conservation Authority

Report number: GM-12-21-91

Date: December 17th 2021

To: Members of the Grand River Conservation Authority

Subject: Grand River Watershed Flood Warning System

Recommendation:

THAT Report Number GM-12-21-91 – Grand River Watershed Flood Warning System be received as information.

Summary:

A pre-winter Flood Coordinator's meeting was held on December 2nd 2021. 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. Presentations relating to the current flood message fan-out procedures, explanation of GRCA reservoirs and dikes, implementation plan for reach based flood zone mapping, emergency preparedness plans for GRCA dams and communication of flood messages to the public were delivered. A guest speaker, Jenifier Boyer from the State of Michigan delivered a presentation about a dambreak emergency flood in a County of Michigan and the importance of emergency preparedness plans to successfully manage that emergency and avoiding loss of lives. The meeting wrapped up with the current watershed conditions outlook heading into the winter of 2022. Current long range forecasts suggest very changeable weather, potentially indicating many mid-winter melts. Municipal Flood Coordinators, Municipal Police, Ontario Provincial Police, Environment Canada, Province of Ontario and GRCA staff attended the meeting. The Grand River Flood Warning booklet is being updated and will be mailed out in December 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 to be as prepared and organized as possible, particularly this year given the challenges faced with COVID-19.

Report:

Flooding has long been a major concern to residents of the Grand River valley. While most major river flooding occurs in March and April, serious flooding can still occur any month of 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; and
- c) Issuing flood warning messages.

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 normal 2021 Flood Coordinator’s meeting was held on February 17. This meeting was delivered as a virtual meeting using Microsoft Teams software. An in-person meeting was not possible as a result of the current COVID-19 situation. A second pre-winter Flood Coordinators meeting was delivered as a virtual meeting using Microsoft Teams software on Thursday December 2nd. The purpose of the pre-winter meeting is to ensure contact information is up to date heading into the winter season. In recent years, 2018 and 2020 significant floods occurred during the winter season, highlighting the importance of preparedness heading into the winter season. It’s an example of pragmatic adaption to climate change. There appears to be a trend to more frequent and severe mid-winter floods, this trend is most likely linked to climate change.

A pre-winter Flood Coordinator’s meeting was held on December 2nd 2021. 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.

Presentations relating to the current flood message fan-out procedures, explanation of GRCA reservoirs and dikes, implementation plan for reach based flood zone mapping, emergency preparedness plans for GRCA dams and communication of flood messages to the public were delivered. These presentations helped provide context an information to new personal not familiar with the flood warning system and provided an update to personal that have been previously involved.

An update was provided on new river reach based flood zone mapping being prepared along reaches of the large rivers. Preparation of river reach based flood zone mapping is strategic, once implemented this mapping will provide important base information to municipal emergency preparedness plans for floods and will help better inform residents and business in floodplains of potential impacts from a given flood event.

A presentation was delivered highlighting the importance of communications during floods. The municipal flood communications system in place in North Dumfries was highlighted as an effective example of flood communications. The Community Emergency Management Coordinators in Waterloo Region along with GRCA staff collaborated previously to develop a draft of a Joint Flood Communications Plan for Municipalities in Waterloo Region, just prior to the pandemic. The intent is to finalize this plan and share it with watershed municipalities to assist in standardizing flood communications across the watershed. The approach used in the Township of North Dumfries follows the approaches identified in the Joint Flood Communications Plan.

A guest speaker, Jenifier Boyer from the State of Michigan delivered a presentation about a dambreak emergency flood in a County of Michigan and the importance of emergency preparedness plans to successfully manage that emergency and avoid loss of lives. Emergency plans and exercises were completed in the County of Midland in the state of Michigan prior to two dam failures in May 2020. The emergency preparedness planning avoided loss of life during the dambreak emergency. It’s estimated 12 lives would have been lost in the absences of having good emergency preparedness plans in place. Jenifier’s presentation was a reminder of the importance of dam safety and emergency preparedness plans for dam emergencies.

A total of 138 people participated in the December 2nd virtual Flood Warning Emergency Planning meeting. Participants included members of the following organizations and agencies: Flood Coordinators and Police from watershed, municipalities, Ontario Provincial Police, Environment Canada, Province of Ontario and GRCA staff. The following table compares the attendances at the 2020 and 2021 meetings.

Table 1 Attendance 2020 and 2021 Municipal Flood Coordinators Meetings

Agencies Represented	2021 Dec. Attendance	2021 Feb. Attendance	2020 Dec. Attendance	2020 Feb. Attendance
Municipal Flood Coordinators	65	61	59	36
Municipal Police	2	6	1	4
Ontario Provincial Police	3	1	1	0
Provincial Ministries	6	2	8	0
Water Survey – Environment Canada	3	0	2	2
Other Conservation Authority staff	12	10	5	4
News Media	0	0	0	0
GRCA Staff	44	38	35	28
Other	3	4	5	0
Total Persons in Attendance	138	122	116	74

To ensure a strong communications link, the Flood Warning System was tested twice this year. This year's test was run on February 9th 2021 and a second new test was run on November 29th 2021. All municipalities received the message and all but 3 confirmed receipt of the test message. All police services received the message. Follow-ups were made with those municipalities that did not confirm receipt of the test 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 Coordinator's meeting and will be issued in December to the following:

- 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; and
- g) Provincial and Federal Agencies listed in the Flood Warning System Booklet.

Financial Implications:

Not Applicable.

Other Department Considerations:

Not Applicable.

Prepared by:

Dwight Boyd, P. Eng.
Director of Engineering

Chelsea Fleming
Engineering Technical Assistant

Approved by:

Samantha Lawson
Chief Administrative Officer

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

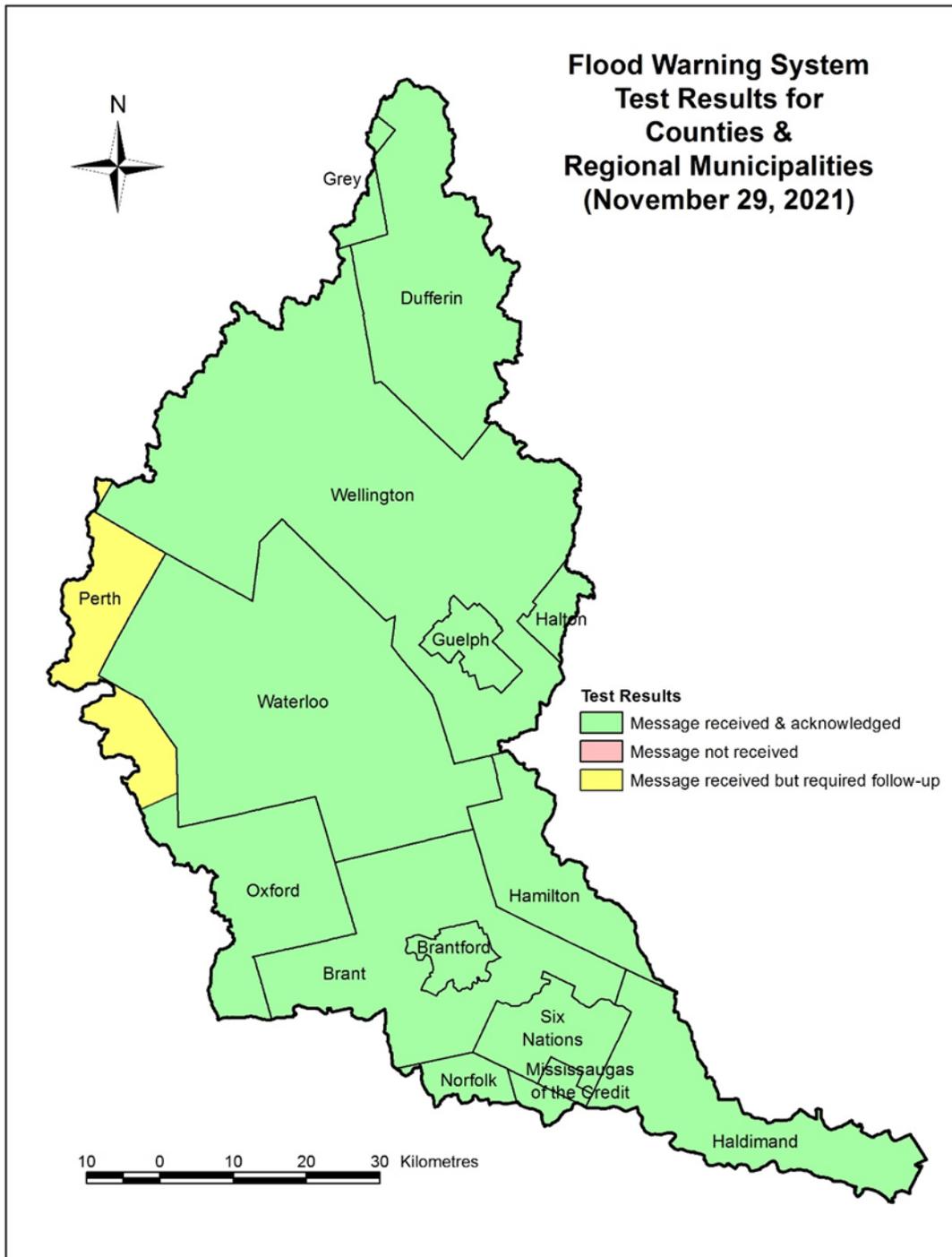


Figure 2 Map of Lower Tier Municipalities Receipt and Confirmat of Flood Test Message

