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May 1, 2018

Ms. Rose Caterini  
City Clerk  
City of Hamilton  
71 Main Street West  
Hamilton, ON L8P 4Y5

Dear Ms. Rose Caterini:

**RE: Progress report on the Grand River Watershed Water Management Plan**

In 2014, many of our watershed municipalities, First Nations and Government partners endorsed the Grand River Watershed Water Management Plan. This Action Plan was the result of a five year collaboration to determine the best-value-solutions to continuously improve water management in the watershed. The Plan is a joint, voluntary Plan based on shared responsibility and cooperation. The goals of the Plan are to:

- Reduce flood damage potential;
- Ensure water supplies for communities, economies and ecosystems;
- Improve water quality and reduce the Grand's impact on Lake Erie; and
- Build resilience to deal with climate change.

Since 2014, the Grand River Conservation Authority (GRCA) has continued to support the collaboration among our partners, including many of the municipalities in the watershed, to report on the progress of implementing the 165 actions in the Plan.

I am pleased to provide to you with a copy of the 2017 Report on Actions, the progress report summarizing the highlights of some of the key actions in the plan. More information can be found on our website <https://www.grandriver.ca/en/our-watershed/Water-management-plan.aspx>

If you require additional information, please don't hesitate to contact Sandra Cooke at [scooke@grandriver.ca](mailto:scooke@grandriver.ca) or 519-621-2761x2224, who coordinates the Water Management Plan implementation

Sincerely,

A handwritten signature in black ink that reads "Joe Farwell".

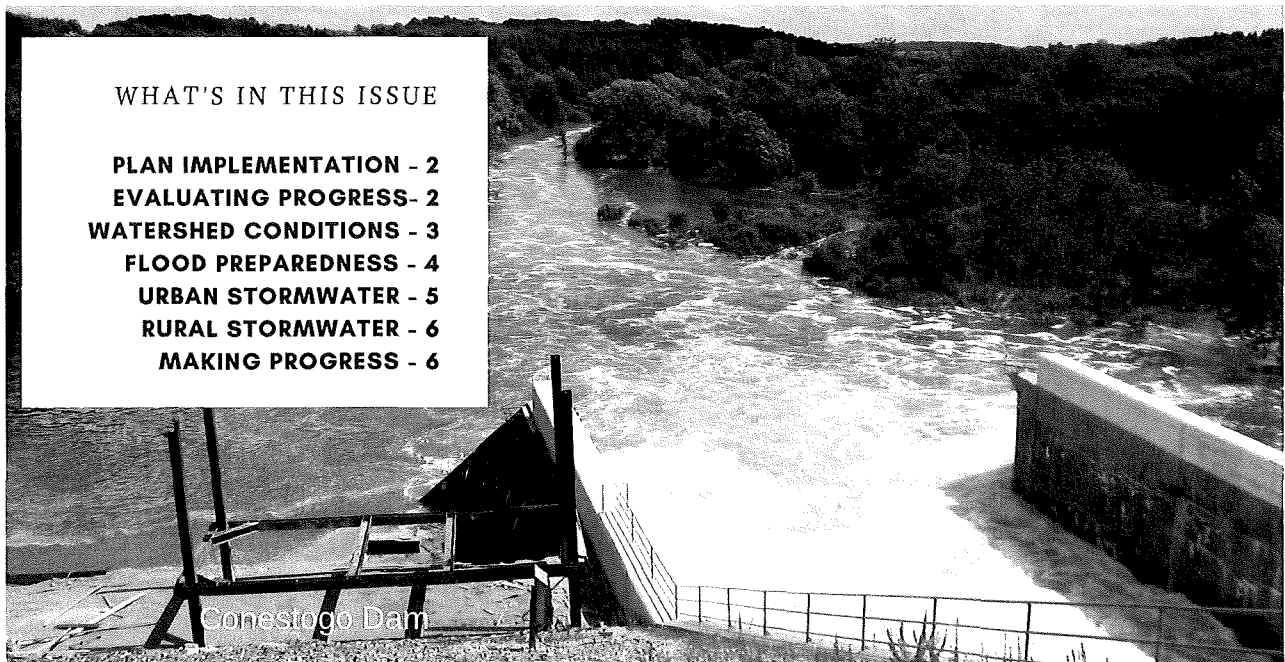
Joe Farwell, CAO

# 2017 REPORT ON ACTIONS

*Reporting on the progress of implementing the actions  
in the Grand River Water Management Plan*

## WHAT'S IN THIS ISSUE

**PLAN IMPLEMENTATION - 2**  
**EVALUATING PROGRESS- 2**  
**WATERSHED CONDITIONS - 3**  
**FLOOD PREPAREDNESS - 4**  
**URBAN STORMWATER - 5**  
**RURAL STORMWATER - 6**  
**MAKING PROGRESS - 6**



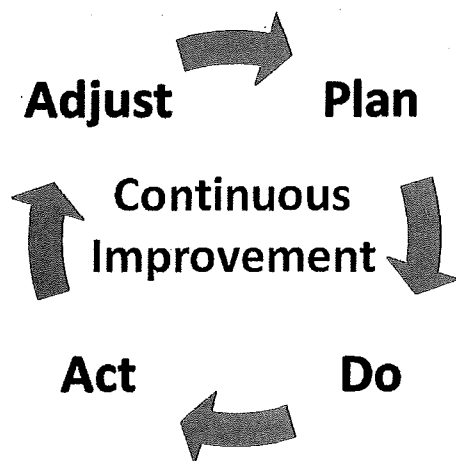
## Highlighting Actions to Reduce Flood Damage Potential

*Grand River Water Managers*

In 2014, 16 partner organizations endorsed the Grand River Water Management Plan. Since that time, annual reports are issued to summarize the overall progress of implementing the Plan.

Each year, different water management challenges emerge for Water Managers and they must adapt and realign priorities. In June, an event north west of Grand Valley dumped over 100 mm in less than 3 hours; in August, a localized event in north-east Brantford saw 35mm fall in 20 minutes putting significant stress on their stormwater system.

Extreme events like these are predicted to become more frequent in the future. Thus, flood preparedness becomes even more important now than ever before.



## STATS: GRCA PERMITS

GRCA has regulations for protecting land near rivers, streams, ponds, wetlands, steep slopes, floodplains and Lake Erie shoreline to reduce damages from flooding or erosion.

In 2017, GRCA reviewed **443** permits for construction in and around wetlands while they reviewed **256** floodplain permits.

## PLAN IMPLEMENTATION

Many of the Water Management Plan partners continue to meet quarterly. Competing priorities, staff retirements and promotions always challenge our ability to fully participate in activities that may go beyond our borders. Staff from our northern municipalities, including Southgate, Wellington North, Mapleton and the Town of Grand Valley have also joined the watershed conversation and see value in attending the quarterly meetings.

The Grand River Conservation Authority (GRCA) hosted four meetings in 2017 including a joint meeting with watershed policy planners in September. GRCA will continue to provide the opportunity for Water Managers to meet and discuss issues that go beyond municipal boundaries.

## EVALUATING PROGRESS

All water managers have competing priorities yet over the past four years, partners have implemented actions to work toward the four goals of the Grand River Water Management Plan:

- Reduce flood damage potential
- Ensure water supplies for communities, economies and ecosystems;
- Improve water quality and reduce the Grand's impact on Lake Erie; and
- Build resilience to deal with climate change.

Water managers will continue to meet quarterly in 2018. A review of all of the actions in the Plan will take place in early 2019 concurrently with a review of the state of the water resources in the Grand River watershed.

These reports will inform Water Managers whether its time to review and update the 2014 Plan or adjust actions and continue implementation.



## JUNE 23, 2017

### *An extreme rainfall event*

One-day rainfall total at Luther Dam is the highest daily total rainfall recorded since 1950. Two characteristics made this storm very uncommon:

- (1) **High Intensity Rainfall** - 126 mm of rain fell over a 3-4 hour period - this is a very large volume of rainfall in a short period of time.
- (2) **Large Area** - This storm covered a very large area (approximately one-third of the watershed).

## WATERSHED CONDITIONS

All of GRCA's climate stations recorded above the normal total annual precipitation in 2017. Except Woolwich and Brantford, all climate stations recorded over 1000 mm of precipitation. Normal annual precipitation varies across the watershed from 850 mm in the south to 950 mm in the north.

Average air temperature for the year was above the long term average. The year started out fairly warm with winter and early spring temperatures about 3 degrees above normal. The late spring and summer period were very close to the long term average while the fall was about 3.5 degrees above normal.

## FLOOD MESSAGING IN 2017

- 5 Watershed Conditions Statements
- 6 Flood Watches
- 13 Flood Warnings
- 1 High Lake Erie Warning



# FLOOD PREPAREDNESS

**GRCA** is improving forecasting and decision support tools and piloting a new flood forecasting approach for West Montrose using improved models to predict river flows five hours in advance. This will provide additional flood warning to residents of the area.

**GRCA** applied to the *National Damage and Mitigation Program Funding* to acquire bathymetric LiDAR for reaches of the Grand River. This will complement the topographic LiDAR acquired by **OMAFRA**.

**OMAFRA** reached out to their clients in 2017 to encourage them to be prepared for extreme events

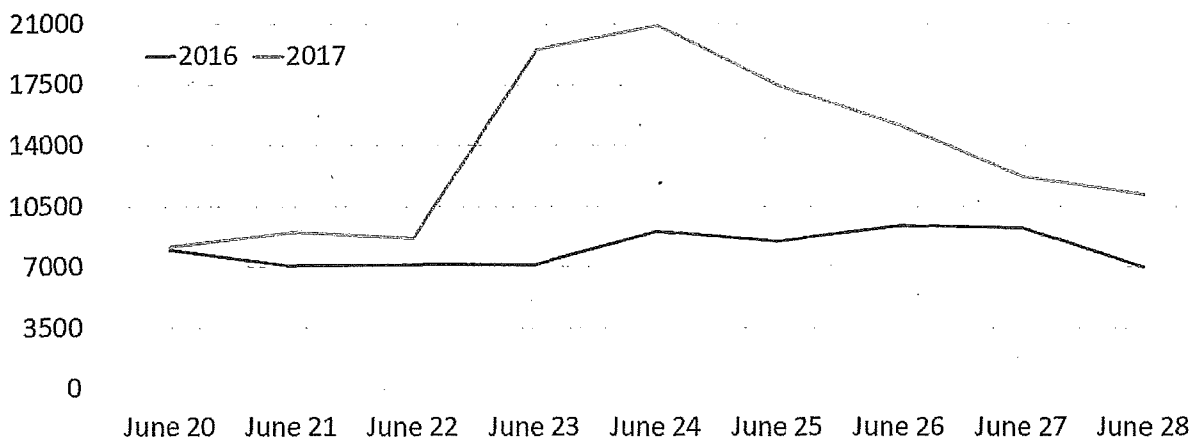
**GRCA** is updating hydrologic and hydraulic models to new or updated platforms (e.g. HEC-HMS and HEC-RAS, respectively) for the headwater areas of the watershed upstream of Shand Dam. This work will support updated floodline mapping.

**Brantford** created a flood prevention grant program for homeowners as a result of a significant rainfall event on August 11, 2017.

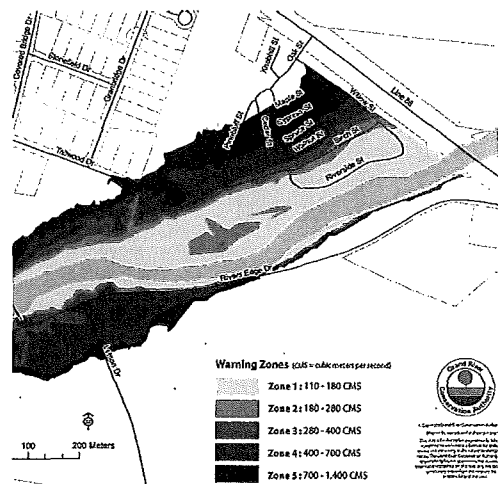
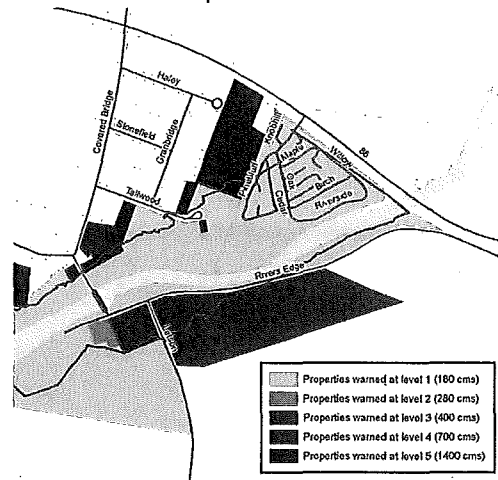
**GRCA** worked on 16 projects related to ensuring the maintenance of GRCA-owned dams

## GRCA'S WEB-USER SESSIONS PER DAY TRIPLED DURING EVENT

Communications in a flood event is critical; more people are using GRCA's web-based information. 50% of web traffic is on mobile devices

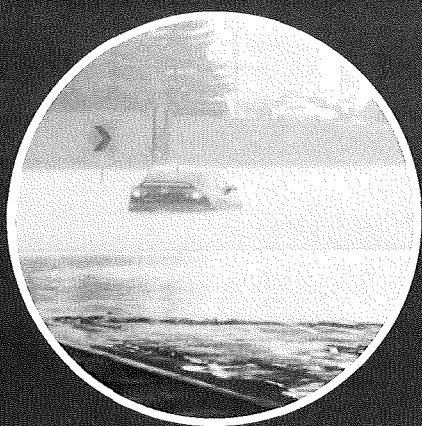


Flood risk map - West Montrose



Flood Inundation Map -  
West Montrose





## URBAN FLOODING

Urban flooding is caused when heavy, intense rain saturates an urban drainage system. The urban storm system becomes overwhelmed and water flows out into streets. This differs from Riverine Flooding where excessive rainfall over an extended period of time causes a river to exceed the capacity of its banks. It can also be caused by heavy snow melt and ice jams.

## STORMWATER MANAGEMENT

Stormwater system assessments are important for mitigating urban flooding. Many actions by partners are underway or completed- **Cambridge** completed condition assessments of 20 facilities and cleaned out 3. **Kitchener** has implemented a 12.5 mm rainwater volume control target to incorporate low impact development techniques in projects. **Waterloo's** Master Plan is underway.

A case study on urban monitoring was completed in partnership with **MOECC**, **Kitchener**, and **GRCA**. It highlights several key lessons learned for developing a monitoring network that is able to detect changes.

Inflow and Infiltration (I&I) is a common municipal challenge. **Cambridge** is currently developing an I&I reduction program. Others, **Wellington North**, and **Grand Valley** recently assessed the scope of I&I challenges in their municipality.

Special Policy Areas allow for limited development in the flood fringe. **Waterloo** is currently reviewing their SPA.

**Haldimand** piloted a basement flooding mitigation program and focused on I&I through illegal connections to the sewer system.



Blair Creek, Kitchener



Grand River, Dunnville

## LAKE FLOODING

**GRCA** is working with **Haldimand County** and others on a project to update the Coastal Hazard Mapping along the Lake Erie shoreline in the county.

## RURAL STORMWATER

OMAFRA completed the second edition of the Drainage Engineers Design and Construction Guidelines.

The Rural Water Quality Program, sponsored by the **Region of Waterloo, Wellington County, Dufferin, Oxford, Brant, Brantford and Haldimand** provided \$1.1M in grant to support the completion of **377 projects** to benefit water quality in 2017. Erosion control, tree planting, wetland and naturalization projects along with practices like establishing winter cover crops all help to manage water on the landscape, improve water quality and flood resilience.

## MAKING PROGRESS ...

**Region of Waterloo** continues on-track with the upgrades at the Kitchener wastewater plant. It will be completed by 2019; the upgrades at the Waterloo wastewater plant will be completed by 2018.

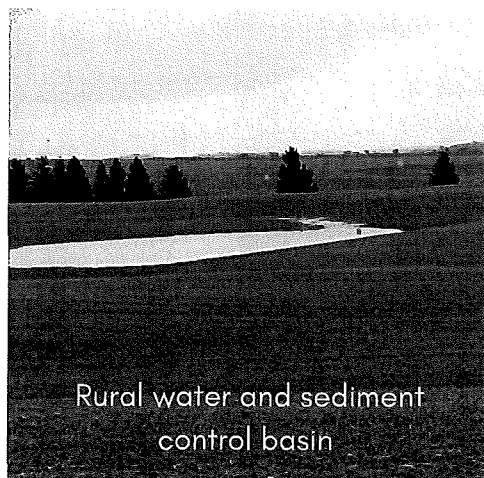
The Wastewater Optimization Program continues - **Guelph, Brantford and Region of Waterloo and Haldimand County** are pursuing voluntary total phosphorus targets through best practices in process control. Another annual performance report was issued.

**Region of Waterloo** achieved their demand management objective of 165 litres per person per day!

**Centre Wellington** continues with their Tier III water budget study through Source Protection Planning. This study will inform their long-term water supply strategy.

**Environment and Climate Change Canada** continue to support the Implementation of the Water Management Plan through their Grant and Contributions program.

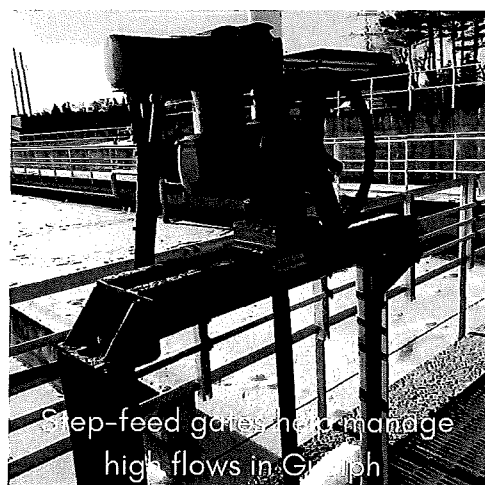
This progress report was prepared by the **Water Managers Working Group** - a committee of senior staff from partner organizations to report on the progress of implementing the actions in the Grand River Water Management Plan.



Rural water and sediment control basin



Best practices in wastewater process control



Step-feed gates help manage high flows in Guelph

For more information contact:  
**Sandra Cooke**, Chair Water Managers,  
Grand River Conservation Authority