



Grand River Conservation Authority

Agenda - General Meeting

PUBLIC

Friday, August 25, 2017

9:30 a.m.

Auditorium

Grand River Conservation Authority

400 Clyde Road, Box 729

Cambridge, ON N1R 5W6

Pages

1. Call to Order

2. Roll Call and Certification of Quorum – 13 Members constitute a quorum (1/2 of Members appointed by participating Municipalities)

3. Chair's Remarks

4. Review of Agenda

THAT the agenda for the General Membership Meeting of August 25, 2017, be approved as circulated.

5. Declarations of Pecuniary Interest

6. Minutes of the Previous Meetings

THAT the minutes of the General Membership Meeting of July 28, 2017, be approved as circulated.

7. Business Arising from Previous Minutes

8. Hearing of Delegations

a. Mr. Al Newsome

b. Ms. Mary-Tim Hare

9. Presentations

10. Correspondence

THAT Correspondence from Sylvia Jones, MPP regarding Bill 141 be received as information.

- a. Sylvia Jones, MPP - Bill 141 Sewage Bypass Reporting Act, 2017 13

11. 1st and 2nd Reading of By-Laws

12. Reports:

- a. GM-08-17-94 - Chief Administrative Officer's Report 15

THAT Report GM-08-17-94 - Chief Administration Officer's Report be received as information.

- b. GM-08-17-85 - Cash and Investment Status - July 20

THAT Report GM-08-17-85 – Cash and Investments Status as of July 31, 2017 be received as information.

- c. GM-08-17-88 - Financial Summary for period ending July 31, 2017 22

THAT the Financial Summary for the period ending July 31, 2017 be approved.

- d. GM-08-17-95 - Rotary Club of Guelph Centennial Agreement 27

THAT the Chief Administrative Officer be authorized to enter into an agreement with the Rotary Club of Guelph for their Centennial Project to undertake a series of projects at the Guelph Lake Conservation Area and the new Guelph Lake Nature Centre.

- e. GM-08-17-89 - Woolwich Dam Gate Painting and Seal Replacement Tender DR17.006 29

THAT the Grand River Conservation Authority accept the tender and enter into an agreement with Jacques Daoust Coatings Mgt. Inc. (JDCMI) for the Woolwich Dam Gate Painting for a price of \$728,313.25 (including HST) and complete a purchase order for Phase 1 work in the amount of \$334,988.50 (including HST),

AND THAT GRCA retain AECOM to provide Contract Administration and Inspection Services for both phases of the work at a price of \$123,452.50 (including HST) and complete a purchase order for Phase 1 contract administration and supervision in the amount of \$61,726.25 (including HST),

AND THAT a purchase orders for Phase 2 work be completed on approval of GRCA 2018 budget including this project.

- f. GM-08-17-93 - Centre Wellington Tier 3 Water Budget Study Update 32
- THAT the budget for the consultant, Matrix Solutions Inc., to complete the Centre Wellington Scoped Tier 3 Water Budget Study be increased from an initial cost of \$149,956 to \$282,862 plus taxes for the 2017-2018 fiscal year.
- g. GM-08-17-91 - Acquisition of SCADA Control Process Software 39
- THAT Grand River Conservation Authority acquire:
1. Emerson Open Enterprise SCADA software from Lakeside Process Controls Ltd. (Lakeside) at a total cost of \$23,374 plus applicable sales taxes;
 2. Emerson software support and software assurance at \$6,626/ year plus applicable taxes;
 3. Emerson project support – a 160 hour (20-day) bank of implementation and project support hours from Emerson valid for 2-years at \$24,000 plus applicable taxes; and
 4. Implementation and project management provided by Lakeside Process Controls on a time & materials basis at an estimated cost of \$39,000 plus applicable sales taxes.
- h. GM-08-17-92 - Board Letter of Support for National Damage Mitigation Program Application 42
- THAT a letter of support be issued for inclusion in the funding application to the National Disaster Mitigation Program (NDMP) to update floodplain mapping in the Grand River Watershed.
- AND THAT matching funds totaling \$380,300 be drawn from land sale reserves.
- i. GM-08-17-90 - Residential Program Wind-Down - Proposed Demolition 44
- THAT the Grand River Conservation Authority demolish the house, known as the **Currie Residence**, located on the northeast half of Lot 11, Concession 7 in the Township of Guelph-Eramosa, County of Wellington, known municipally as 5330 Eramosa-Erin Townline;
- AND THAT the Grand River Conservation Authority demolish the house, known as the **Bauman Residence**, located on Part of Lot 64, German Company Tract in the Township of Woolwich, Region of Waterloo, known municipally as 6809 Middlebrook Road.
- j. GM-08-17-84 - Conservation Services Update 50
- THAT Report GM-08-17-84 - Conservation Services Update be received as information

THAT Report GM-08-17-87 – Current Watershed Conditions as of August 16, 2017 be received as information.

13. Committee of the Whole

14. General Business

15. 3rd Reading of By-Laws

16. Other Business

17. Closed Meeting

THAT the General Membership enter a closed meeting to discuss a confidential matter.

- a. Update on Landlord and Tenant Board Applications - Verbal
- b. Property Disposition
- c. Property Disposition
- d. GRCA Staffing Update - Verbal

18. Next Meetings

19. Adjourn

THAT the General Membership Meeting be adjourned.

20. Grand River Source Protection Authority Meeting (REQUIRED)

Regrets only to:

Office of the Chief Administrative Officer, Phone: 519-621-2763 ext. 2200



Sylvia Jones, MPP
Dufferin-Caledon

Room 443, Legislative Building
Toronto, Ontario M7A1A8
Tel: 416-325-1898
Fax: 416-325-1936
E-Mail: sylvia.jonesla@pc.ola.org

July, 2017

Ms Lisa Stocco
Grand River Conservation Authority
400 Clyde Road, Box 729
Cambridge, ON
N1R 5W6


Dear Ms Stocco,

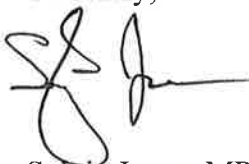
I wanted to let you know about my private member's bill introduced on May 31st, *Bill 141: the Sewage Bypass Reporting Act, 2017*. Bill 141 requires the Ministry of Environment to notify the public of instances of sewage bypasses.

Sewage bypasses occurs when the flow exceeds the capacity of a wastewater treatment plant, causing untreated or partially treated sewage to be released into Ontario streams, rivers and lakes. Currently, municipalities are obliged to report instances of sewage bypasses to the Regional Offices of the Ministry of Environment and Climate Change (MOECC) as soon as they occur; however that information is not readily available to the public.

Bill 141 proposes an extra step to the current system, which will allow local residents to know when untreated or partially treated sewage is released into their local waterways.

Please find enclosed further details about Bill 141. If you agree with the intent behind Bill 141, I encourage you to write a letter of support to the Minister of Environment and urge him to adopt this important legislation. In addition, I have enclosed my letter to the Minister of Environment. I would appreciate also receiving a copy of your letter to the Minister.

Sincerely,



Sylvia Jones, MPP
Dufferin-Caledon
Deputy Leader of the PC Caucus





Sylvia Jones, MPP
Dufferin-Caledon

Room 443, Legislative Building
Toronto, Ontario M7A1A8
Tel: 416-325-1898
Fax: 416-325-1936
E-Mail: sylvia.jonesla@pc.ola.org

July 21st, 2017

Hon. Glen Murray
Ministry of the Environment and Climate Change
11th Floor, Ferguson Block
77 Wellesley Street West
Toronto, Ontario M7A 2T5

Dear Minister Murray:

As you are no doubt aware, millions of litres of untreated or partially treated sewage is bypassed from sewage treatment plants every year into our local waterways. Unfortunately, the state of some of the province's sewer infrastructure means that untreated or partially treated sewage is regularly bypassed. Despite municipalities reporting to your ministry instances of sewage bypasses, the Ministry of Environment and Climate Change (MOECC) does not make that information readily available to the public.

That is why I introduced my private member's bill on May 31st; Bill 141 – the Sewage Bypass Reporting Act, 2017. If adopted Bill 141 would require the MOE to publish sewage bypasses to the public as soon as possible, but no longer than 24 hours after the bypass was reported. If adopted, Bill 141 would ensure that residents are aware of instances of sewage bypasses and can make safe and educated decisions about how they use their local waterways. The bill will also increase government transparency and allow individuals to see the need and benefits of investments in our water and sewer infrastructure.

Will you commit to implementing the provisions of Bill 141?

Sincerely,

A handwritten signature in black ink, appearing to be "Sylvia Jones".

Sylvia Jones, MPP
Dufferin-Caledon

Grand River Conservation Authority

Report number: GM-08-17-94
Date: August 25, 2017
To: Members of the Grand River Conservation Authority
Subject: Chief Administration Officer's Report

Recommendation:

THAT Report GM-08-17-94 - Chief Administration Officer's Report be received as information.

Report:

This report provides a brief overview of current activities. It covers programs and activities that are not included in monthly reports.

1. Association of Municipalities of Ontario (AMO) 2017: On August 14 and 15 I joined the Chair, Vice-Chair, several Board members and the General Manager of Conservation Ontario to make presentations to Ministers during the AMO Conference in Ottawa. Meetings were held with Minister Kathyryn McGarry (Natural Resources and Forestry), Minister Chris Ballard (Environment and Climate Change), and Minister Jeff Leal (Agriculture, Food and Rural Affairs). We stressed the importance of continuing collaboration between the Province, Municipalities and Conservation Authorities. We confirmed our support for modernizing the *Conservation Authorities Act*, explained our support for the current Conservation Authority governance model, expressed our concern with the Province appointing board members, and outlined our requests to each of the Ministries. A copy of the information brief prepared for the Ministers is attached to this report.
2. Conservation Areas update: Park revenue as of August 6 is \$5.93 million, which is \$331,576 below the same period for 2016. The majority of this reduction is a result of reduced revenue from tubing at Elora Gorge because of high water levels. It is noted that 2016 was a record year for Park revenue and the parks are still on target to exceed budget revenues of \$7.3 million. Aside from tubing in Elora, attendance at the parks has been very high across the system. Long line-ups at Park gates and traffic congestion on roads near park entrances have caused local concerns. Park staff are working on ways to manage the high demand at the parks, while maintaining a positive experience for visitors.

Prepared by:

Joe Farwell, P.Eng.
Chief Administrative Officer

An Enduring Partnership: 70 years of working together

AMO CONFERENCE - AUGUST 2017



The Grand River lies at the heart of one of the richest, fastest growing regions in Ontario. From the earliest days of settlement, the vitality of the watershed — an area larger than Prince Edward Island — has been linked to the river and the natural environment.

Much has been done in the past 100 years to protect and improve the natural environment. Many of those improvements came about through the implementation of water management plans developed through partnerships involving the Grand River Conservation Authority, municipalities and the Province of Ontario.

The natural environment in the Grand River watershed faces challenges brought on by high population growth, agriculture intensification and climate change.

The issues

Population growth

The Grand River watershed has a population of about 1 million which is expected to reach 1.5 million by 2051. The cities of Kitchener, Waterloo, Cambridge, Guelph and Brantford are among the fastest growing in the province.

Most Ontario cities get their water from the Great Lakes system; Grand River watershed cities get their water from the river and hundreds of municipal wells. That same river also receives the treated effluent from 30 sewage treatment

plants. More people means more demand on these water sources for drinking water, stormwater management and sewage treatment.

Climate change

Warmer air and water temperatures, bigger rainstorms, longer periods of drought — the possible consequences of climate change could pose new challenges in managing floods, improving water quality and securing water supplies for municipalities, farmers, industry and the natural environment.

Agriculture intensification

The Grand River watershed is one of the richest agricultural regions in Canada. About 70 per cent of the land is used for agricultural production. Ensuring that farmers use best management practices is critical to minimizing the impact of farming on rivers, streams and groundwater. Controlling the loss of nutrients and soil from farms will sustain the health of agriculture and water quality in the watershed and Lake Erie.

A call for continued collaboration

In the Grand River watershed we value the health of our communities, our natural environment and our economic vitality. By continuing to work together, we can ensure these values endure for future generations.

An Enduring Partnership: 70 years of working together

The Grand River Watershed



Conestogo Dam

Decades of working together to make a difference

The Province, Municipalities and Conservation Authorities have a long history of working together to achieve safe, healthy and prosperous communities.

Together we have built:

- Networks to monitor climate and forecast weather;
- River conditions monitoring for flood forecasting;
- Large dams to reduce flood risk;
- Floodplain mapping and regulations for development in hazard areas;
- A strong relationship with the farm community to implement stewardship practices to reduce nutrients in watercourses.

We continue to:

- Plant trees and restore landscapes;
- Protect wetland functions;
- Connect people to the natural environment through outdoor recreation and nature centres;
- Develop plans to protect drinking water sources;
- Work to protect people during flood emergencies.



The GRCA, in partnership with other agencies, groups and landowners, has developed programs and policies to promote reforestation and to protect remaining forests.

A water management plan of voluntary action and innovation

Completed in the Fall of 2013, the Plan recommends practical and cost-effective voluntary actions to the partners, such as:

Strategies to conserve water

The Plan includes practical and innovative ways communities can use water more efficiently to ensure that their long-term water needs will be met.

Better ways to manage stormwater

Stormwater runoff contributes to flooding and can hurt water quality. The Plan builds on existing stormwater management techniques to identify the best practices that can be adopted throughout the watershed.

Priorities for managing rural runoff and erosion

Farmers have many methods available to help reduce their impact on the environment. The Plan identifies ways to direct farm investment — the best tools and best locations — to have the maximum impact on water quality.

Improved sewage treatment plant operations

The Plan examines sewage treatment plants as a source of nutrients in surface water. It shows how water quality can be improved through planned sewage plant upgrades and potential improvements in operating procedures.

Refined operating techniques for GRCA reservoirs

The GRCA operates seven reservoirs to reduce flood damages and to maintain river flows. Municipalities count on the water from the reservoirs to ensure safe operation of their sewage treatment and drinking water plants. The Plan includes information to help the GRCA manage the reservoirs in an era of climate change, and to support water quality and a healthy river ecosystem.



How can Ontario help?

By enacting legislation to modernize the Conservation Authorities Act

Ontario can help by enacting legislation to modernize the Conservation Authorities Act in order to clarify the role of Conservation Authorities, and by renewing the partnership between the Province and Conservation Authorities.

By investing in enhanced tools for flood forecasting and warning

Recent rainfall events caused extensive flooding, straining local resources. A changing climate is producing more frequent and intense rainstorms. These are often difficult to predict and provide sufficient warning. Ontario can help by investing in enhanced tools for flood forecasting and warning.

By supporting investments in flood control

The GRCA and the Province of Ontario have long been recognized as leaders in the effort to protect lives and reduce flood damages.

However, uncertainties about future weather patterns brought on by climate change make it vitally important that flood management tools be up-to-date and well maintained. That includes both flood control infrastructure — dikes and dams — as well as floodplain maps and stream gauge monitoring networks.

Infrastructure investments (WECI): The Ontario Ministry of Natural Resources and Forestry has been a welcome partner, helping to maintain infrastructure through the Water and Erosion Control Infrastructure Program (WECI). The ministry contributes \$5 million a year, which is matched by Conservation Authorities.

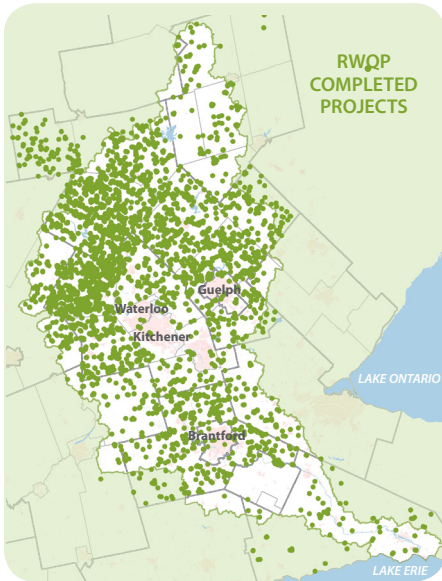
We would urge the province to consider increasing the annual WECI allocation in order to avoid an “infrastructure deficit” in this critical public safety area that is bound to become even more important in the future.

...continued...

An Enduring Partnership: 70 years of working together

By supporting an expansion of the Grand River Rural Water Quality Program

The Rural Water Quality Program (RWQP) is a partnership of the GRCA and Grand River municipalities. It provides grants to farmers to undertake projects that protect and improve water quality on their land. Municipalities provide grant money, which is matched by farmers. The GRCA administers the program on behalf of the municipalities. To date, the RWQP has helped



farmers carry out 5,700 projects with a total value of \$47 million, to protect water quality.

The Water Management Plan shows that much more work needs to be done to reduce the impact of agriculture on groundwater and surface water systems.

The RWQP can reduce nutrient loads in both the

Grand River watershed and Lake Erie, leading to water quality improvements in both.

We are asking the Ontario and federal governments to jointly match the municipal contribution so the program can be expanded to cover areas and practices that are currently not adequately covered.

By working with the Federal Government to extend the National Disaster Mitigation Program

Current floodplain mapping is a critical tool in managing a response to flooding. They identify where floods are expected, and are used to determine where development should be limited, in order to reduce threats to life and property.



June, 2017 - Parkhill Road Bridge, Cambridge

Recent investments by OMAFRA in LIDAR mapping, combined with GRCA and MNRF investments in floodplain modeling tools, are a good example of partners working to update mapping. Ontario can support the GRCA and other Conservation Authorities in updating floodplain maps, which are outdated and need to be replaced.

By continuing to support Source Water Protection planning

Provincial support is required to ensure source water protection plans are updated. By continuing to invest in wastewater treatment optimization through the MOECC Innovation Branch, we can continue to work together to improve water quality in the Grand River watershed.



Grand River Conservation Authority
400 Clyde Road, Cambridge, N1R 5W6
(519) 621-2761 • www.grandriver.ca

Contact: Joe Farwell, CAO Email: jfarwell@grandriver.ca

Grand River Conservation Authority

Report number: GM-08-17-85

Date: August 25, 2017

To: Members of the Grand River Conservation Authority

Subject: Cash and Investments Status as of July 31, 2017

Recommendation:

THAT Report GM-08-17-85 – Cash and Investments Status as of July 31, 2017 be received as information.

Summary:

The cash position including Notes Receivable of the Grand River Conservation Authority as at July 31, 2017 was \$30,310,984 with outstanding cheques written in the amount of \$97,279.

Report:

Attached.

Financial implications:

Interest rates, etc. are shown on the report.

Other department considerations:

Not applicable.

Prepared by:

Carol Anne Johnston
Senior Accountant

Approved by:

Keith Murch
Assistant CAO/Secretary-Treasurer

Sonja Radoja
Manager of Corporate Services

**Grand River Conservation Authority
Cash and Investments Status Report
July 31, 2017**

<u>Date Invested</u>	<u>Location</u>	<u>Type</u>	<u>Amount</u>	<u>Rate</u>	<u>Maturity</u>	<u>2017</u>
	C.I.B.C.	Current Account	5,124,752	2% Below Average Prime or .70%		
	Wood Gundy	Current Account	24,882	0.20%		
	C.I.B.C.	Property Account	10,203			
	C.I.B.C.	SPP Account	1,484,297	2% Below Average Prime or .70%		
	C.I.B.C.	U.S.	68			
	C.I.B.C.	PayPal Account	18,839			
	C.I.B.C.	Call Centre	24,431			
	Royal Bank	Conestogo	11,497			
	Royal Bank	Brant	15,075			
	Royal Bank	Luther	7,960			
			<u>6,722,004</u>			
September 9, 2009	CIBC Renaissance	Account	2,309,637	0.85%		8,732
October 1, 2014	CIBC Trust Savings	Account	2,784,109	0.85%		10,526
July 15, 2016	One Investment Savings	Account	4,038,188	1.15%		23,410
November 8, 2012	National Bank	Bond	1,940,000	2.69%	August 21, 2017	20,684
June 6, 2013	Royal Bank	Bond	1,000,000	2.26%	March 12, 2018	17,318
November 7, 2013	Bank of Montreal	Bond	1,746,000	2.24%	December 11, 2017	19,654
May 5, 2014	Royal Bank	Bond	987,000	2.26%	March 12, 2018	15,900
December 8, 2014	Laurentian Bank	Bond	1,578,000	2.81%	June 13, 2019	20,508
January 28, 2015	CIBC	Bond	726,046	1.80%	May 15, 2019	13,069
September 3, 2015	CIBC	Bond	2,000,000	2.15%	September 3, 2025	36,526
October 14, 2015	Laurentian Bank	Bond	1,996,000	2.50%	January 23, 2020	27,365
March 1, 2016	CIBC	Bond	1,300,000	1.70%	March 1, 2023	19,010
September 16, 2016	CIBC	Bond	1,184,000	1.30%	March 13, 2020	8,476
	Total G.R.C.A. Investments		<u>23,588,980</u>			<u>241,179</u>
	G.R.C.A. Funds		30,310,984			
	Outstanding Cheques		<u>97,279</u>			

Investment By Category and Institution

	<u>% of Total Portfolio</u>	<u>% of Total Portfolio</u>		
Government	0%	Gov't of Canada	0%	
		Province of Ontario	0%	
Banks	83%	C.I.B.C.	44%	
		Bank of Nova Scotia	0%	
		Bank of Montreal	7%	
		Royal Bank	8%	
		Toronto Dominion	0%	
		National	8%	
		Laurentian	15%	
Other	17%	One Investment Program	17%	

Grand River Conservation Authority

Report number: GM-08-17-88

Date: August 25, 2017

To: Members of the Grand River Conservation Authority

Subject: Financial Summary for the Period Ending July 31, 2017

Recommendation:

THAT the Financial Summary for the period ending July 31, 2017 be approved.

Summary:

The Financial Summary includes the 2017 *actual* income and expenditures. The budget approved at the February 24, 2017 General Meeting is included in the *Budget* column. The *Current Forecast* column will indicate an estimate of income and expenditures for the whole year. Any changes between the *Current Forecast* and the *Previous Forecast* will be discussed during the meeting. At this time a surplus of \$25,500 at year-end is anticipated.

Report:

The Financial Summary is attached.

A. Total Revenue decreased by \$15,000

- Municipal revenue increased by \$55,000.
 - Special Project funding increased by \$55,000 for a Natural Heritage Study funded by the County of Wellington.
- Federal government grants increased by \$60,000.
 - Special Project funding increased by \$15,000 for a Species at Risk Act (SARA) project funded through Environment and Climate Change Canada (ECCC) to help develop a Conservation Agreement under Section 11 of SARA.
 - Special Project funding increased by \$25,000 for a Riparian Buffer Plantings study undertaking in conjunction with the University of Guelph funded through the Agricultural Greenhouse Gases Program (AGGP)
 - Federal funding increased by \$20,000 for GIS project –Targeting Nutrient Management. This project was completed using existing staff resources.
- Self- Generated revenue decreased by \$130,000.
 - Burford Sales Revenue decreased by \$50,000 due to less tree planting activity.
 - Private Land Tree Planting decreased by \$100,000 due to less tree planting activity.
 - Foundation funding increased by \$20,000 for Apps' Mill Renovation project.
 -

B. Total Expenditures increased by \$412,000.

- Operating Expenses decreased by \$5,000.
 - Forestry Program expenses related to tree planting program decreased by \$150,000 due to less activity.
 - Property Rental expenses related to demolition of residential properties increased by \$45,000.
 - Hydro generation expenses related to repairs at Shand increased by \$20,000 and repairs at Conestogo (downstream dewatering and slide gate repairs) increased by \$80,000.
- Capital Expenses increased by \$302,000.
 - Conservation Area capital spending increased by \$302,000 (See summary sheet for listing of projects).
- Special Project Expenses increased by \$115,000.
 - Natural Heritage Study expenses for County of Wellington increased by \$55,000.
 - Species at Risk project expenses for ECCC increased by \$15,000.
 - Riparian Buffer Plantings Study for AGGP increased by \$25,000.
 - Apps' Mill renovation expenses increased by \$20,000.

C. NET Funding from Reserves increased by \$427,000.

- Transfer from the Conservation Area reserve increased by \$302,000 to fund additional capital projects as listed on the summary table.
- Transfer from the Land Sale Proceeds reserve increased by \$45,000 to fund residential property demolition expense.
- Transfer from the Computer reserve decreased by \$20,000 given funding for the GIS special project used to offset expenses.
- Transfer of Hydro Generating Revenue to the Land Sale Proceeds reserve decreased by \$100,000 in order the fund hydro repairs and maintenance expenses at Shand and Conestogo.

Financial implications:

The activity summarized will result in a \$25,500 surplus at December 31, 2017.

Other department considerations:

The management committee and appropriate supervisory staff receive monthly financial reports and advise the finance department of applicable forecast adjustments.

Prepared by:

Sonja Radoja
Manager Corporate Services

Approved by:

Keith Murch
Assistant CAO/Secretary-Treasurer

**GRAND RIVER CONSERVATION AUTHORITY
FINANCIAL SUMMARY - FORECAST**

General Membership August 25, 2017

FORECAST - JUNE 30, 2017- NET RESULT **\$0**

CHANGES - July 2017

Sch 1	Water Resources Planning and Environment	(\$55,000) Special Project Expenses increased (Natural Heritage Study-Wellington) \$55,000 Municipal Funding (County of Wellington) increased (\$15,000) Special Project Expenses increased (Species at Risk Act(SARA)) \$15,000 Federal Funding increased	\$0
Sch 6	Conservation Services	(\$25,000) Special Project Expenses increased (AGGPStudy-Riparian Buffer Plantings) \$25,000 Federal Funding increased	\$0
Sch 5	Forestry	\$100,000 Private Land Tree Planting Expenses decreased (\$100,000) Private Land Tree Planting Landowner Contributions Revenue decreased \$50,000 Burford Tree Expenses decreased (\$50,000) Burford Sales Revenue decreased	\$0
Sch 8	Nature Centres	(\$20,000) App's Mill Renovation Expenses (Canada150 project) increased \$20,000 Funding from Foundation	\$0
Sch 11	Property Rentals	(\$45,000) Demolition Expenses increased \$45,000 Funding from Land Sale Proceeds Reserve increased	\$0
Sch 12	Hydro Generation	(\$80,000) Conestogo Turbine Repair expenses increased (\$20,000) Shand Turbine Repair expenses increased \$100,000 Funding to Land Sale Proceeds Reserve decreased	\$0
Sch 13	Conservation Areas-Capital Projects	(\$75,000) Byng - Playground (\$152,000) Elora Gorge - Marston Pavilion (\$75,000) Guelph - Playground Equipment \$302,000 Funding from Conservation Area Reserve increased	\$0
Sch 16	Information Systems	\$20,000 Federal Funding increased for Special Project (GIS-Targeting Nutrient Management) (\$20,000) Funding to Computer Reserve increased	\$0

FORECAST - JULY 31, 2017- NET RESULT **\$0**

**GRAND RIVER CONSERVATION AUTHORITY
STATEMENT OF OPERATIONS
FOR THE PERIOD ENDING July 31, 2017**

SCHEDULE		Actual 2016	Budget 2017	Actual YTD	Previous Forecast	Current Forecast	Forecast Change
REVENUE							
Municipal							
General Municipal Levy (Operating)	various	9,809,000	10,025,000	6,683,334	10,025,000	10,025,000	0
General Municipal Levy (Capital)	various	1,000,000	1,050,000	700,000	1,050,000	1,050,000	0
Special Municipal Levy	various	113,499	150,000	18,486	150,000	150,000	0
Other	various	977,680	800,000	1,561,862	800,000	855,000	55,000
		11,900,179	12,025,000	8,963,682	12,025,000	12,080,000	55,000
Government Grants							
MNRF Transfer Payments	various	871,073	871,073	0	871,073	871,073	0
Source Protection Program-Provincial	various	1,159,446	835,000	775,029	1,970,000	1,970,000	0
Other Provincial	various	955,572	1,147,500	678,319	1,172,500	1,172,500	0
Federal	various	187,159	289,500	287,009	289,500	349,500	60,000
		3,173,250	3,143,073	1,740,357	4,303,073	4,363,073	60,000
Self Generated							
User Fees and Sales							
<i>Enquiries and Permits</i>	4	511,202	428,500	332,172	428,500	428,500	0
<i>Plan Input and Review</i>	4	411,561	398,000	300,974	398,000	398,000	0
<i>Nursery and Woodlot Management</i>	5	502,611	515,000	397,748	515,000	465,000	(50,000)
<i>Consulting</i>	4	0	0	3,726	0	0	0
<i>Conservation Lands Income</i>	10	59,091	71,000	8,099	71,000	71,000	0
<i>Conservation Areas User Fees</i>	13	8,533,069	7,300,000	5,465,593	7,300,000	7,300,000	0
<i>Nature Centres and Camps</i>	8	876,797	876,500	391,235	876,500	876,500	0
<i>Merchandising and Sales</i>	8	3,647	0	1,036	0	0	0
Property Rentals	11	3,082,548	2,929,700	2,229,342	2,929,700	2,929,700	0
Hydro Generation	12	487,033	470,000	283,893	470,000	470,000	0
Land Sales	10	408,750	0	0	0	0	0
Grand River Conservation Foundation	various	676,104	559,500	299,843	559,500	579,500	20,000
Donations	various	126,728	244,000	290,283	244,000	244,000	0
Landowner Contributions	5	193,448	300,000	176,955	300,000	200,000	(100,000)
Investment Income	14	443,137	450,000	150,149	450,000	450,000	0
Miscellaneous Income	various	55,333	48,000	6,503	48,000	48,000	0
Total Self-Generated Revenue		16,371,059	14,590,200	10,337,551	14,590,200	14,460,200	(130,000)
TOTAL REVENUE		31,444,488	29,758,273	21,041,590	30,918,273	30,903,273	(15,000)

**GRAND RIVER CONSERVATION AUTHORITY
STATEMENT OF OPERATIONS
FOR THE PERIOD ENDING July 31, 2017**

SCHEDULE	Actual 2016	Budget 2017	Actual YTD	Previous Forecast	Current Forecast	Forecast Change	
EXPENSES							
OPERATING							
Water Resources Planning & Environment	1	1,908,913	2,181,300	1,215,790	2,171,300	2,171,300	0
Flood Forecasting and Warning	2	692,104	780,300	504,043	780,300	780,300	0
Water Control Structures	3	1,570,819	1,678,900	876,786	1,678,900	1,678,900	0
Resource Planning	4	1,796,981	1,922,900	1,060,129	1,922,900	1,922,900	0
Forestry & Conservation Land Property Taxes	5	1,305,453	1,489,700	938,772	1,489,700	1,339,700	(150,000)
Conservation Services	6	758,769	837,500	449,789	837,500	837,500	0
Communications & Foundation	7	598,583	676,900	346,739	676,900	676,900	0
Environmental Education	8	1,224,383	1,245,800	733,461	1,243,300	1,243,300	0
Corporate Services	9	2,882,470	3,244,705	1,807,014	3,246,705	3,246,705	0
Conservation Lands	10	1,980,934	1,926,200	1,091,784	1,907,200	1,907,200	0
Property Rentals	11	1,766,373	1,797,900	946,180	1,801,900	1,846,900	45,000
Hydro Production	12	211,224	65,000	131,053	65,000	165,000	100,000
Conservation Areas	13	6,671,933	6,550,000	3,672,892	6,550,000	6,550,000	0
Miscellaneous	14	45,814	70,000	86,404	70,000	70,000	0
Information Systems	16	1,071,038	1,105,000	682,587	1,105,000	1,105,000	0
Motor Pool	16	802,874	888,400	436,824	881,900	881,900	0
Less: Internal Charges (IS & MP)	16	(1,873,912)	(1,993,400)	(1,119,411)	(1,993,400)	(1,993,400)	0
Total OPERATING Expenses		23,414,753	24,467,105	13,860,836	24,435,105	24,430,105	(5,000)
CAPITAL							
Water Resources Planning & Environment	1	52,167	110,000	71,193	110,000	110,000	0
Flood Forecasting and Warning	2	119,443	190,000	83,607	190,000	190,000	0
Water Control Structures	3	1,044,865	1,500,000	335,134	1,500,000	1,500,000	0
Nature Centres	8	0	0	0	0	0	0
Conservation Areas	13	771,510	683,000	522,788	683,000	985,000	302,000
Corporate Services	9	0	0	0	0	0	0
Information Systems	16	178,349	250,000	121,512	250,000	250,000	0
Motor Pool	16	348,660	300,000	42,219	300,000	300,000	0
Less: Internal Charges (IS & MP)	16	(478,902)	(369,600)	(1,134,128)	(369,600)	(369,600)	0
Total Capital Expenses		2,036,092	2,663,400	42,325	2,663,400	2,965,400	302,000
SPECIAL							
Water Resources Planning & Environment	1	301,587	203,000	121,885	228,000	298,000	70,000
Flood Forecasting and Warning	2	170,975	200,000	83,292	200,000	200,000	0
Forestry	5	80,614	200,000	103,286	200,000	200,000	0
Conservation Services	6	1,154,929	983,000	651,529	983,000	1,008,000	25,000
Communications	7	0	0	0	0	0	0
Environmental Education	8	262,426	220,000	241,391	220,000	240,000	20,000
Conservation Land Purchases	10	67,239	0	68,975	0	0	0
Conservation Lands	10	396,830	587,000	128,857	587,000	587,000	0
Property Development	11	0	50,000	0	50,000	50,000	0
Hydro Generation	12	0	200,000	52,262	200,000	200,000	0
Miscellaneous	14	29,824	35,000	9,142	35,000	35,000	0
Source Protection Program	15	1,159,446	835,000	843,487	1,970,000	1,970,000	0
Total SPECIAL PROJECTS Expenses		3,623,870	3,513,000	2,304,106	4,673,000	4,788,000	115,000
Total Expenses		29,074,715	30,643,505	16,207,267	31,771,505	32,183,505	412,000
Gross Surplus		2,369,773	(885,232)	4,834,323	(853,232)	(1,280,232)	(427,000)
Prior Year Surplus Carryforward		429,618	315,832	315,832	315,832	315,832	0
Net Funding FROM/(TO) Reserves		(2,483,559)	569,400	0	562,900	989,900	427,000
NET SURPLUS		315,832	0	5,150,155	25,500	25,500	0

Grand River Conservation Authority

Report number: GM-08-17-95

Date: August 25, 2017

To: Members of the Grand River Conservation Authority

Subject: Rotary Club of Guelph Centennial Agreement

Recommendation:

THAT the Chief Administrative Officer be authorized to enter into an agreement with the Rotary Club of Guelph for their Centennial Project to undertake a series of projects at the Guelph Lake Conservation Area and the new Guelph Lake Nature Centre.

Summary:

Not applicable.

Report:

The Rotary Club of Guelph, a longtime GRCA and GRCF partner, will reach its 100th Anniversary in 2020. The Club has proposed that the GRCA and GRCF become its Centennial Project partners.

It is proposed that the GRCA undertake a series of projects to encourage attendance at Guelph Lake Conservation Area and the new Guelph Lake Nature Centre. The projects include development of two trails connecting into Guelph Lake Conservation Area, a contribution to the new nature centre project and the development of additional programs for students and park visitors. Individual projects will be undertaken as details are confirmed.

This new agreement will complement the existing 13-year Rotary Forest partnership, which will conclude in 2020. A formal announcement will be made at a later date.

Financial implications:

The Club will make a minimum donation of \$350,000 to the Grand River Conservation Foundation. Additional funds may also be received subject to further details of the agreement being finalized. GRCA will assume responsibility for maintenance and operating costs of the projects as they are developed.

Other department considerations:

Operations and Environmental Education staff have been involved in the development of the agreement.

Prepared by:

Sara Wilbur, CFRE
Executive Director, GRCF

Approved by:

Joe Farwell, P.Eng.
Chief Administration Officer

Grand River Conservation Authority

Report number: GM – 08-17-89
Date: August 25, 2017
To: Members of the Grand River Conservation Authority
Subject: Woolwich Dam Gate Painting and Seal Replacement Tender Recommendation DR17.006

Recommendation:

THAT the Grand River Conservation Authority accept the tender and enter into an agreement with Jacques Daoust Coatings Mgt. Inc. (JDCMI) for the Woolwich Dam Gate Painting for a price of \$728,313.25 (including HST) and complete a purchase order for Phase 1 work in the amount of \$334,988.50 (including HST),

AND THAT GRCA retain AECOM to provide Contract Administration and Inspection Services for both phases of the work at a price of \$123,452.50 (including HST) and complete a purchase order for Phase 1 contract administration and supervision in the amount of \$61,726.25 (including HST),

AND THAT a purchase orders for Phase 2 work be completed on approval of GRCA 2018 budget including this project.

Summary:

A construction tender for project Woolwich Dam Gate Painting and Seal Replacement Tender DR17.006 was publicly advertised to prequalify contractors. Five contractors submitted and met prequalification requirements. The GRCA invited and received tenders from the five (5) invitees on July 19th. All bids met tender requirements. The work is scheduled to be completed in two phases (October to February) in 2017/2018 and 2018/2019. Work is scheduled during the late fall and winter when reservoir levels are drawdown and gates can be accessed for maintenance.

Report:

Woolwich Dam was constructed in the early 1970's. Dam inspections have noted that the need to strip and recoat the gates on the dam due to deterioration of the existing original paint on the gates. Replacement of the gate seals and associated hardware is also included.

The project specifications were developed by AECOM of London who have extensive experience in this work including recent projects with the UTRCA in repainting of their dam structures.

The project was designed to be completed in two phases comprising of two of the four gates during October to February of 2017/2018 and 2018/2019. Phasing is done since the work can only be completed when reservoir levels are at their seasonal lows and splits the project into manageable pieces within the construction window.

The final 2m of storage above the gate sill will be drawn down about 1 month ahead of the normal rule curve schedule to allow for preparation for the work. The work will require scaffolding placement within the gate bays of the dam to complete the work. Work will proceed on one gate at a time. Two gates will be opened to route flows during the work period as part of normal and flood operations. Reservoir function for flood routing will be maintained during the work period.

The request for tender was divided into a public Request for Qualifications (Prequalifying) on Biddingo followed by invited tenders. The Request for Qualifications was viewed by 19 contractors resulting in 5 submissions. All submissions were reviewed and showed the necessary qualifications and background for the work. Tenders were invited from the five firms followed by a site meeting to view the site. Five tenders were received and all met submission requirements with tender results seen in Table 1.

Table 1 – Tender Results	
Contractor	Total Amount (including HST) Phases 1 and 2
JDCMI	\$ 728,313.25
Glavin Coating & Refinishing	\$ 739,716.08
Dayson Industrial Services Inc.	\$ 766,801.05
Facca Incorporated	\$ 1,185,370.00
Dupont Painting Contracting Ltd.	\$1,211,134.00

The tenders were reviewed by AECOM acting as project designers and tender consultants for GRCA. AECOM recommends award of the tender and execution of the contract based on the terms and conditions set forth in the tender documents to JDCMI of Cambridge Ontario.

Financial implications:

Funding for this project has been including in the Water Control Structures maintenance budget. Phase 1 of the project has been approved for funding under the provincial WECl program. Phase 2 will need to be submitted for grant application in 2018. Provisions are in place within the contract to decide on carrying out the work or deferring if the grant is not received. This will be determined in establishing the 2018 GRCA budget.

AECOM has provided a proposal to provide contract administration and Inspection services for both phases of the work at a price of \$123,452.50 (including HST). It is recommended to carry on with this consultant for the contract administration to ensure continuity with the design.

Budgeted amount for Phase 1 of this project in 2017 was \$350,000 (including non recoverable HST)Phase 1 costs for the construction work and contract administration are \$355,000 (including non recoverable HST) which compares well with the original forecast.

Other department considerations:

The work will require closure of public passage over the dam during the construction period. Notifications to the Elmira Lions Club and the Snowmobile Association will be made with regard to trail systems established over the dam.

Prepared by:

Gus Rungis, P. Eng.
Senior Engineer – Water Control Infrastructure

Approved by:

Dwight Boyd, P. Eng.
Director of Engineering

Grand River Conservation Authority

Report number: GM-08-17-93
Date: August 25, 2017
To: Members of the Grand River Conservation Authority
Subject: Centre Wellington Scoped Tier 3 Water Budget Study – Budget Update

Recommendation:

THAT the budget for the consultant, Matrix Solutions Inc., to complete the Centre Wellington Scoped Tier 3 Water Budget Study be increased from an initial cost of \$149,956 to \$282,862 plus taxes for the 2017-2018 fiscal year.

Summary:

On August 26th, 2016, the GRCA board approved the recommendation to retain Matrix Solutions Inc. to complete the Centre Wellington Scoped Tier 3 Water Budget Study at a cost of \$149,956 (Report GM-08-16-102). As the project has progressed from August 2016, unforeseen additional work has arisen and additional project tasks have been requested by the Ministry of Environment and Climate Change (MOECC). The revised budget for the 2017-2018 fiscal year is now \$282,862, and an additional budget of \$148,285 is estimated for the 2018-2019 fiscal year. Funding for the study, as well as GRCA staff time and administrative costs to manage the project, are provided in whole by the MOECC through the approved 2017-2018 provincial source water protection grant funding agreement.

Report:

As part of the Source Protection Program funded by the Province of Ontario, the GRCA is administering the Centre Wellington Scoped Tier 3 Water Budget and Local Area Risk Assessment study on behalf of the Township of Centre Wellington. The study area incorporates the entire Township of Centre Wellington plus portions of surrounding townships, focusing on the municipal water supplies for the communities of Fergus and Elora. Following the Consultant Selection Procedures as defined in the GRCA's Human Resource Policies, Matrix Solutions Inc. was retained as the project consultant following GRCA board approval in August 2016 (refer to Report GM-08-16-102).

The initial project budget provided by Matrix Solutions was \$149,956. The original budget did not account for the level of interest in this project from the various engaged stakeholders and the public. Interest in this project grew as media coverage and public interest in the bottled water issue grew over the fall of last year. As a result, a Community Liaison Group (CLG) was established for this project. This group has raised several detailed questions, increasing the level of work for the project team and consultant; this is expected to continue throughout the project. The public and media interest and the need to respond to comments from the CLG has resulted in additional

work by the consultant beyond the scope of the original terms of reference and the original project proposal.

Additional time has also been allocated in the revised project budget for additional meetings with the provincial peer review team and the CLG, preparation for CLG meetings, and the time required to respond to questions following the CLG and peer review meetings.

The initial proposal and budget was based on revising the existing Centre Wellington groundwater flow model for use in the Tier 3 study. However based on discussions with geologists with the Ontario Geological Survey regarding recent geological interpretations in Centre Wellington, the project team decided that the development of a new groundwater flow model was a more technically defensible approach. The new model will be based on recent (yet to be published) geological interpretations by the Ontario Geological Survey and reflect the best available science for the area. Knowledge of updated geological information and the need to develop a new groundwater flow model was not anticipated in the original terms of reference or project proposal.

After discussions with Township staff, the province requested a change in project scope to include various model scenarios to identify potential water supply well locations using the calibrated groundwater flow model. Scenarios will be developed in close communication with Township staff and provide value to the Township in understanding future potential supplies and interactions between potential and existing water supply wells.

The increased budget of \$282,862 has been provided by the MOECC through the approved 2017-2018 provincial grant funding agreement. This represents funds provided for the 2017-2018 fiscal year only. Under the 2018-2019 fiscal year, additional tasks have been identified which include climate change scenarios, updated Wellhead Protection Areas, and additional meetings with the provincial peer review team and CLG. The estimated budget for the 2018-2019 fiscal year is \$148,285 and will be applied for as a part of the 2018-2019 provincial grant application to the MOECC.

Table 1 provides an outline of the tasks and subtasks that were additional to the original scope of the project. The original project budget is summarized in Table 1 along with the budget that has been provided by the MOECC through the approved 2017-2018 provincial grant funding agreement. The estimated 2018-2019 budget has been provided in the last column of Table 1. The 2018-2019 budget has not been approved by the Province and will be applied for as a part of the 2018-2019 provincial grant application.

Financial implications:

Funding for the Centre Wellington Scoped Tier Three Local Area Water Budget and Risk Assessment, as well as GRCA staff time and administrative costs to manage the project, has been provided by the MOECC through the approved 2017-2018 provincial grant funding agreement.

Other department considerations:

None.

Prepared by:

Sonja Strynatka, P.Geo.
Sr. Hydrogeologist

Approved by:

Martin Keller
Source Protection Program Manager

Approved by:

Dwight Boyd, P. Eng.
Director of Engineering

Table 1: Project Costs by Task

Task	Additional Subtasks Identified Beyond Original Scope	Original Project Budget	Revised Project Budget	Revised Project Budget by Fiscal Year	
				Provincially Approved 2017-2018 Fiscal Budget	Estimated 2018-2019 Fiscal Budget
Data Collection, Review, Data Gap Identification	<ul style="list-style-type: none"> • Review data from individual members of the CLG who are large permitted water takers • Obtain and analyze data from the MOECC's Water Taking and Reporting System • Assemble and review high quality borehole data from the Ontario Geological Survey 	\$5,701	\$15,000	\$15,000	\$0
Conceptual Model Development	<ul style="list-style-type: none"> • Increased detailed documentation and mapping • Plain language executive summary for the Physical Characterization Report 	\$19,362	\$39,500	\$39,500	\$0

Task	Additional Subtasks Identified Beyond Original Scope	Original Project Budget	Revised Project Budget	Revised Project Budget by Fiscal Year	
				Provincially Approved 2017-2018 Fiscal Budget	Estimated 2018-2019 Fiscal Budget
Numerical Modelling and Water Budget	<ul style="list-style-type: none"> • Develop a new Centre Wellington Tier 3 FEFLOW groundwater flow model • Develop model calibration targets • Model calibration: steady state • Model calibration: transient shut down/pumping tests • Uncertainty assessment to evaluate three alternative realizations of the model • Increased documentation 	\$34,576	\$98,000	\$98,000	\$0
Model Application	<ul style="list-style-type: none"> • With input from Centre Wellington staff, develop and test 10 model scenarios for new water supplies using the calibrated groundwater flow model 	\$0	\$29,000	\$29,000	\$0
Climate Change Scenarios	<ul style="list-style-type: none"> • Two groundwater flow model scenarios will be run to evaluate how water levels in the municipal wells change under three climate projections 	\$0	\$55,000	\$0	\$55,000

Task	Additional Subtasks Identified Beyond Original Scope	Original Project Budget	Revised Project Budget	Revised Project Budget by Fiscal Year	
				Provincially Approved 2017-2018 Fiscal Budget	Estimated 2018-2019 Fiscal Budget
Risk Assessment	<ul style="list-style-type: none"> Increased documentation and mapping Addition of a plain language executive summary to the Risk Assessment Report 	\$35,175	\$51,058	\$25,529	\$25,529
Wellhead Protection Areas	<ul style="list-style-type: none"> Develop water quality Wellhead Protection Areas using the Tier 3 model plus reporting 	\$0	\$20,000	\$0	\$20,000
Peer review meetings and response to comments	<ul style="list-style-type: none"> Number of peer review meetings was increased from 3 to 4 over the project lifespan Increased number of reviewers than originally anticipated 	\$25,142	\$33,768	\$22,512	\$11,256
Stakeholder Committee and Public Open House	<ul style="list-style-type: none"> Number of CLG meetings was increased by one additional meeting Increased time required to respond to detailed questions from CLG members Revised cost includes one public open house 	\$12,500	\$39,827	\$20,827	\$19,000
Project Management	<ul style="list-style-type: none"> The scope of work and schedule has expanded and therefore the level of project management has also expanded 	\$13,000	\$45,494	\$32,494	\$13,000
Geodatabase Support	<ul style="list-style-type: none"> No anticipated changes 	\$4,500	\$4,500	\$0	\$4,500

Task	Additional Subtasks Identified Beyond Original Scope	Original Project Budget	Revised Project Budget	Revised Project Budget by Fiscal Year	
				Provincially Approved 2017-2018 Fiscal Budget	Estimated 2018-2019 Fiscal Budget
Total Budget		\$149,956	\$431,147	\$282,862	\$148,285

Grand River Conservation Authority

Report number: GM-08-17-91
Date: August 25, 2017
To: Members of the Grand River Conservation Authority
Subject: Acquisition and Implementation of SCADA Control Process Software

Recommendation:

THAT Grand River Conservation Authority acquire:

- (A) Emerson Open Enterprise SCADA software from Lakeside Process Controls Ltd. (Lakeside) at a total cost of \$23,374 plus applicable sales taxes;
- (B) Emerson software support and software assurance at \$6,626/ year plus applicable taxes;
- (C) Emerson project support – a 160 hour (20-day) bank of implementation and project support hours from Emerson valid for 2-years at \$24,000 plus applicable taxes; and
- (D) Implementation and project management provided by Lakeside Process Controls on a time & materials basis at an estimated cost of \$39,000 plus applicable sales taxes.

Summary:

Grand River Conservation Authority operates seven major dams and dozens of critical stream gauge stations within the Grand River Watershed. GRCA utilizes Supervisory Control And Data Acquisition (SCADA) software to collect, transmit, and process water quantity and quality data, including level and flow data for the purposes of dam operations, flood forecasting, decision making and reporting.

The current SCADA System has been in place since 1997. Although the system has evolved over the years a number of additional requirements have been identified. In order to address these requirements staff recommend the purchase and implementation of Open Enterprise SCADA software.

Implementation is expected to start in September 2017 and be completed mid to late 2018.

Report:

Grand River Conservation Authority operates seven major dams and dozens of critical stream gauge stations within the Grand River Watershed. GRCA utilizes Supervisory Control And Data Acquisition (SCADA) software to collect, transmit, and process water quantity and quality data, including level and flow data for the purposes of dam operations, flood forecasting, decision making and reporting.

Historically a dedicated copper data circuit designed to deliver a continuous signal over long distances was the only practical option for transmitting data from the site to GRCA flood operations centre in Cambridge and to the major dams. Currently GRCA uses some 40 data circuits however a number of gauge stations also transmit using the GRCA's Virtual Private Network over the Internet. For monitoring sites that are deemed particularly critical satellite communications is also used. The implementation of additional and alternative methods of transmitting data from a site is driven by the need to add

redundancy in order to increase reliability and the need to adopt more current approaches to data communications.

Adoption of Internet transmission for data collection is an important element of an objective to simplify and modernize the data collection system.

The current SCADA System has been in place since 1997. The SCADA system consists of ten Bristol water quantity process controllers at the dams and head office; nine water quality Bristol process controllers at remote sites; and over sixty stream and precipitation gauge stations located throughout the watershed. The current SCADA system was architected based on a network of dedicated data circuits. Although the system has evolved over the years a number of additional requirements have been identified. These include the need to;

- reduce the time to gather data in order to improve flood operations,
- increase the frequency of data collection, and
- increase redundancy to improve reliability.

The additional requirements also reflect increased expectations from the public

In addition there is a need to improve the user interface for flood operations staff. The data visualization screens were developed using Human Machine Interface (HMI) software to provide GRCA flood operations staff with a real-time view of the data in order to make operational decisions. The software used to develop and enhance the operator screens has reached the end of its product life and is in need of replacement.

In reviewing and assessing options for the required upgrades to the GRCA's SCADA system staff considered a number of criteria including;

- minimizing cost of implementation,
- minimizing disruption to flood operations,
- integration with existing data management tools including WISKI,
- minimizing the need for additional resources including staffing,
- leveraging current skill sets,
- utilizing current SCADA hardware, and
- support for other data collection hardware used by GRCA.

Using this criteria staff recommend purchase of Open Enterprise (OE) SCADA software. The software is developed by Emerson Electric (Emerson) who is the supplier of the GRCA's current Bristol SCADA hardware and software.

Open Enterprise software meets the criteria listed above. OE has native integration with GRCA SCADA hardware; works with other data collection hardware currently used by GRCA; includes integrated data visualization software; and supports the GRCA's Virtual Private Network implementation. In addition OE software provides an opportunity to review the ongoing need for the existing leased data circuits and eliminate associated fees.

OE SCADA software is distributed in Ontario by Lakeside Process Controls (Lakeside) of Mississauga. Lakeside is the only company authorized to sell OE in Ontario. GRCA has used the services of Lakeside in the past.

Implementation is expected to start in September 2017 and be completed mid to late 2018.

Financial implications:

The software acquisition cost of \$23,374 plus applicable sales taxes will be funded from the 2017 Information Systems Capital budget. This amount is for software licensing only. Software support and software assurance cost of \$6,626 will be funded from the 2017 Information Systems Operations budget.

Project implementation costs from Emerson are \$24,000 plus applicable sales taxes. The project implementation cost from Emerson is a fixed bank of project support hours that can be drawn against over the next two years. The payment is due at the time of Open Enterprise software purchase and will be funded from the Water Control Infrastructure Reserve.

Project implementation costs from Lakeside are based on time and materials billed at \$130 per hour and will be billed monthly and are estimated to total \$39,000 plus applicable sales taxes over the duration of the project. Monthly accrued costs will be drawn against the gauge station and instrumentation operational budget.

Other department considerations:

Acquisition and implementation of SCADA system software is a joint project of Engineering and Information Systems and Technology.

Prepared by:

Dwight Boyd, P.Eng.,
Director of Engineering

Approved by:

Joe Farwell, P.Eng.,
Chief Administrative Officer

Prepared by:

George Sousa, P.Eng.,
Manager, Information Systems and
Technology

Prepared by:

Mark McKinnon
IT Architect/Supervisor IT Operations

Grand River Conservation Authority

Report number: GM-08-17-92
Date: August 25, 2017
To: Members of Grand River Conservation Authority
Subject: Application to the National Damage Mitigation Program (NDMP) to Update Floodplain Mapping

Recommendation:

THAT a letter of support be issued for inclusion in the funding application to the National Disaster Mitigation Program (NDMP) to update floodplain mapping in the Grand River Watershed.

AND THAT matching funds totaling \$380,300 be drawn from land sale reserves.

Report:

A report describing the five year forecast for the floodplain mapping program 2017-2022 was presented to the board in report GM-06-17-69. That report explained the overall program and intent to apply to the National Damage Mitigation Program (NDMP) to access matching funding to assist with the cost of updating floodplain mapping.

An application to the federal government NDMP program is being prepared for the September 15th, 2017 submission deadline. A letter confirming Grand River Conservation Authority support and matching funds for NDMP application is required to accompany the September submission.

The September submission will be for a two year project (Phase 1) spanning from April 2018 to March 31st, 2020. This project will include: the acquisition of between-the-banks LIDAR for the main Grand River from Lake Erie to Dundalk, the Conestogo River downstream of Conestogo Dam, and the Speed River downstream of Guelph Dam, and updates to the hydrologic modeling and floodplain mapping in the Upper Grand River from Dundalk to the 10th Line Belwood.

A future NDMP application submission, addressing Phase 2 of the five year project forecast, is anticipated in September 2019.

Financial Implications:

It is proposed to draw \$380,300 from the land sale reserve to match the NDMP program funding over the Phase 1 project period. The land sale reserve permits funding floodplain mapping studies.

Project funding will include provision for a Water Resource Engineering position to manage the project. The remaining project expenses will be applied towards the costs of retaining external consultants for field survey and third-party peer review services.

Other department considerations:

Staff from the Engineering and Information Systems Divisions will be involved in this project.

Prepared by:

Scott Robertson, P.Eng.
Senior Water Resources Engineer

Approved by:

Dwight Boyd, P.Eng.
Director of Engineering

Joe Farwell, P.Eng.
Chief Administrative Officer

Grand River Conservation Authority

Report number: GM-08-17-90

Date: August 25, 2017

To: Members of the Grand River Conservation Authority

Subject: Residential Program Wind-down - Demolitions

Recommendation:

THAT the Grand River Conservation Authority demolish the house, known as the **Currie Residence**, located on the northeast half of Lot 11, Concession 7 in the Township of Guelph-Eramosa, County of Wellington, known municipally as 5330 Eramosa-Erin Townline;

AND THAT the Grand River Conservation Authority demolish the house, known as the **Bauman Residence**, located on Part of Lot 64, German Company Tract in the Township of Woolwich, Region of Waterloo, known municipally as 6809 Middlebrook Road.

Summary:

The Grand River Conservation Authority (GRCA) owns a number of houses which were acquired as part of various land acquisition projects. Houses that were not immediately demolished for the project were rented as part of a residential tenancy program. A review of the residential program concluded that rural rental properties represent a poor business model. A four-stage framework for winding down the program was proposed and approved by the General Membership (Resolution No. 2016-118) on July 22, 2016.

To date, all of the Stage 1 houses have been vacated and addressed. Three (3) Stage 2 houses remain occupied, with the termination of tenancies underway, and four (4) of the twelve (12) Stage 3 houses have been vacated. Eleven (11) Stage 4 houses remain occupied.

Options for future use of the houses include using the house for GRCA's own use (alternative business use), disposing of the parcel, severing and disposing of the house or, if neither alternative business use nor disposition are feasible, demolition of the house.

Currie is a Stage 2 house. Due to the condition and location of the Currie house, staff are recommending demolition. Bauman is a Stage 3 house. Due to the condition and location of the Bauman house, staff are recommending demolition. Both the Township of Guelph/Eramosa and the Township of Woolwich have confirmed that the houses proposed for demolition are not designated as heritage structures.

Report:

Houses owned by the GRCA were acquired as part of various land acquisition projects, most often for flood control. The houses that were not immediately demolished for construction of the projects were held for future assessment and rented to tenants.

In 2013, staff began a comprehensive review of the GRCA's residential tenancy program. The review concluded that rural rental properties represent a poor business

model; the program as a whole is projected to operate at a net loss to the GRCA. A framework for winding down the program was proposed to the General Membership on July 22, 2016. The framework consisted of four stages; Stage 1 houses representing the most imminent house closures and Stage 4 houses representing properties that can be held for a period of time and re-evaluated once properties from the first three stages have been removed from the inventory. The General Membership approved the recommendation to wind-down the residential program and the proposed four-stage approach (Resolution No. 2016-118).

To date, all of the Stage 1 houses have been vacated and addressed. Three (3) Stage 2 houses remain occupied, with the termination of tenancies underway, and four (4) of the twelve (12) Stage 3 houses have been vacated. Eleven (11) Stage 4 houses remain and are currently occupied.

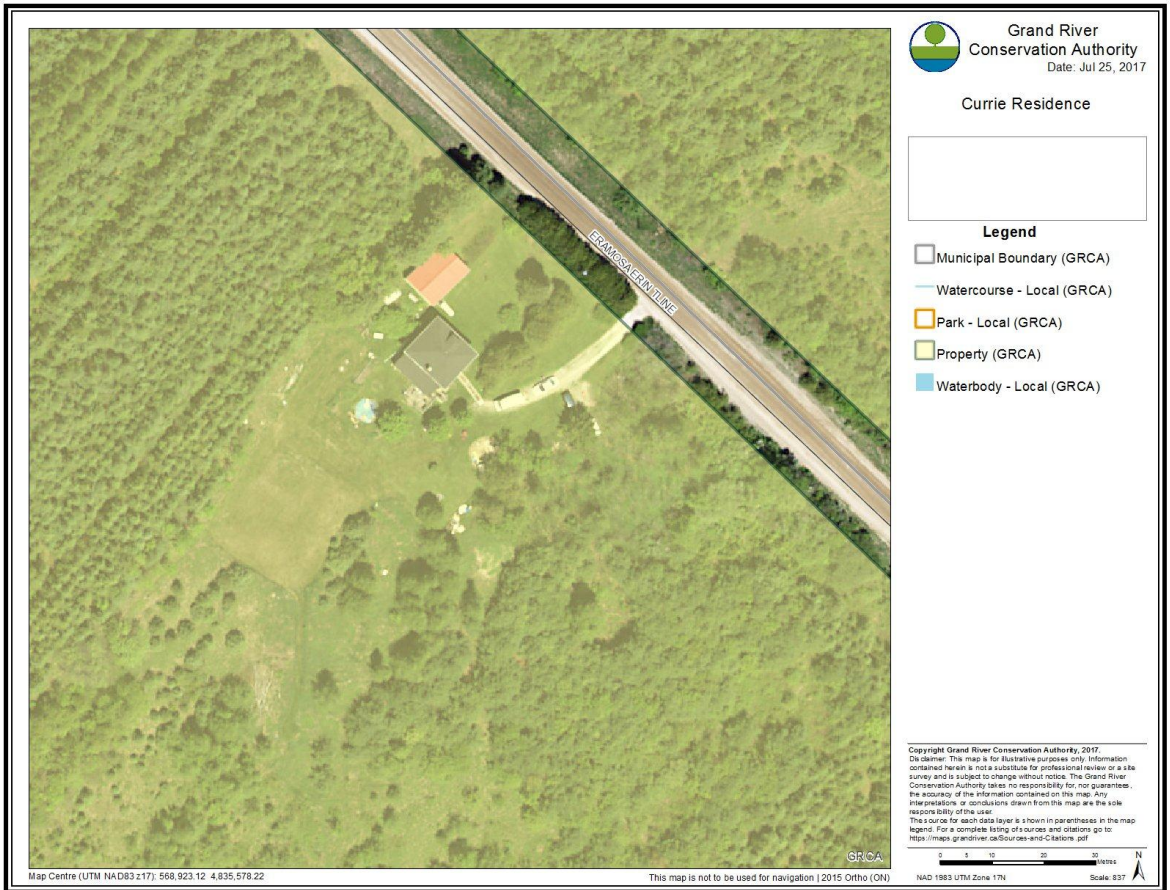
When contemplating future use of the houses, the options include using the house for GRCA's own use (alternative business use), disposing of the house by either severing and selling the house or selling the parcel as a whole, or demolishing the structure. A residence could be used in the conservation area if the park anticipates they have a use for the structure for their business operations. Houses that are in good condition and qualify for disposition based on local and provincial planning policies and the Ministry of Natural Resources (and Forestry) Guidelines for Disposition of Conservation Authority Property will be proposed for severance/disposition. Houses that are in poor condition, cannot be used by the conservation areas, and are not candidates for severance/disposal are proposed for demolition.

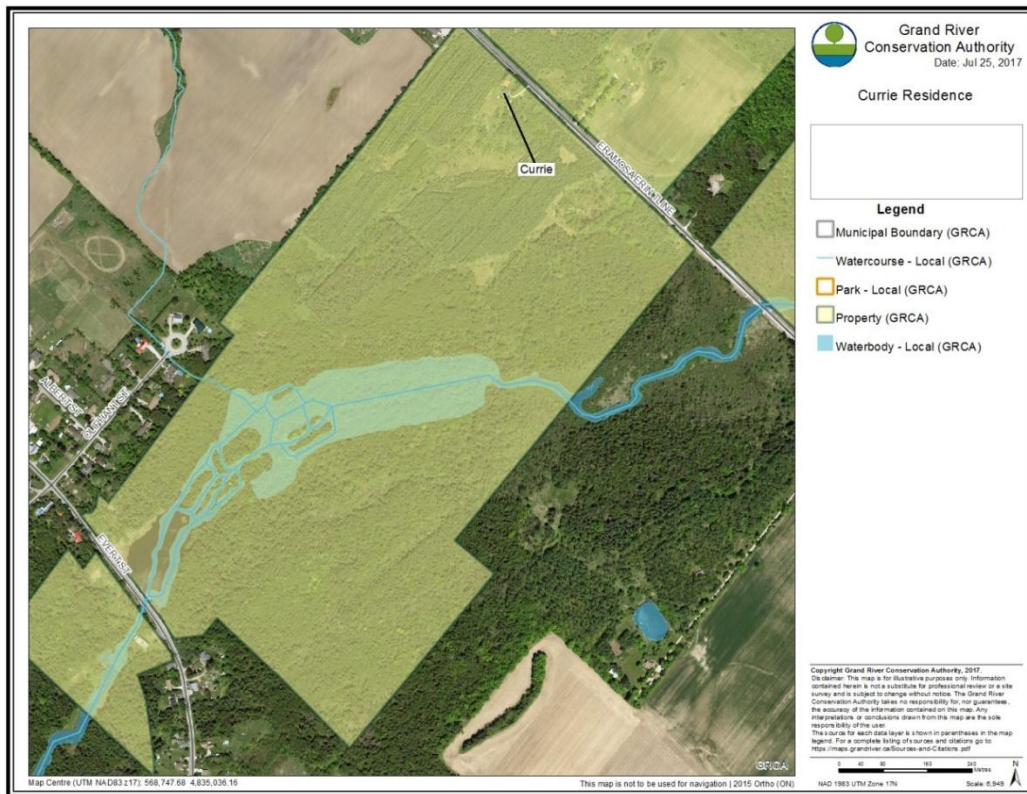
Currie Residence

The Currie house was acquired by the GRCA in 1966 as a recreation acquisition. The residence is located in the Township of Guelph/Eramosa and is located on Eramosa-Erin Townline. Details regarding the Stage 2 rental units were presented to the Board as information on September 26, 2016 (Resolution # 2016-155).

Currie was identified as a Stage 2 house in the evaluation of the residential program wind-down. This house operated at an annual average loss of \$3,700 between 2008 and 2014. During the site visits and through the subsequent program evaluation, it was identified that the Currie house required upgrades that would exceed what would be practical to undertake given the historical and projected financial performance for the house.

The parcel on which this house is located is 166 acres, with over 106 acres consisting of wetland and approximately 160 acres of woodlot. The property contains the Eramosa River Blue Springs Creek Provincially Significant Wetland Complex and over 50% of this parcel is made up of the Eramosa River Valley Provincially Significant Life Science Area. The property where the house is situated is designated as Prime Agricultural in the County's Official Plan. Due to its natural heritage attributes, planning designations, and current surrounding use, it was determined that obtaining a severance for this parcel would be unlikely. Because the residence is not near any conservation areas or parks, keeping the house in the GRCA's inventory is not recommended. It is recommended that the Currie residence be demolished. The Township of Guelph/Eramosa has confirmed that the house does not have any heritage attributes.





Bauman Residence

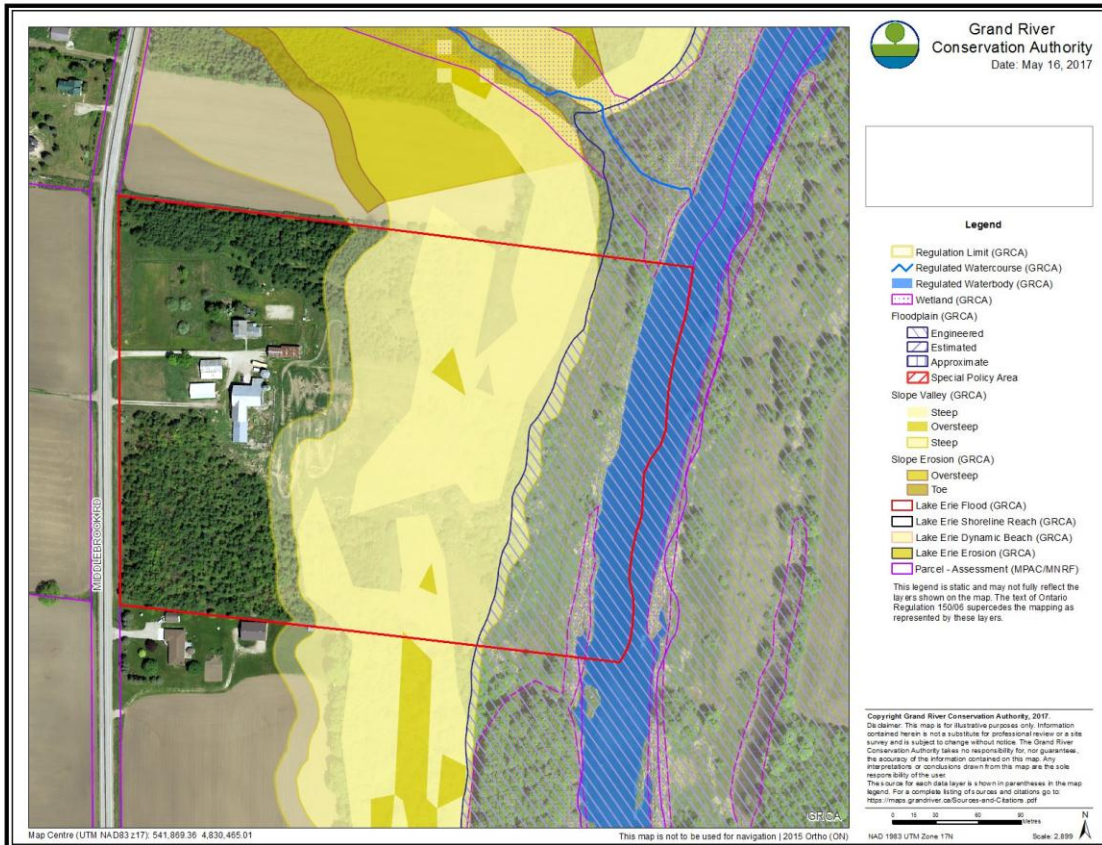
The Bauman house was acquired by the Grand River Conservation Authority in 1985 as part of the West Montrose Flood Control Project. The residence is located in Woolwich Township on Middlebrook Road.

Because there had been some recent expenses and improvements made to the house and there were no imminent expenses projected, Bauman was identified as a Stage 3 house in the wind-down so that these costs could be recuperated while the Stage 1 and 2 houses were addressed. The wind-down is now finishing Stage 2. The tenants for this residence have given notice that they will be vacating the property.

Because the residence is not near any conservation areas or parks that would make use of the structure, keeping the house in the GRCA's inventory is not recommended.

The size of the parcel (23.5 acres), its proximity to the river with natural hazards/steep slopes and the projected flood lines for the proposed West Montrose reservoir make disposition of this property an unlikely option based on the Ministry of Natural Resources and Forestry's disposition policies.

The severance and disposition of an unregulated portion of the property is an undesirable outcome due to the operational implications it would create. If severed, it is anticipated that the size, layout and location of the parcel (river access) would create operational challenges such as persistent encroachment, trespassing and damage to the property. Not only is a severance undesirable from the GRCA's perspective, but consent approval would be a challenge and would be both costly and time consuming. GRCA staff do not recommend this course of action when it has considerable financial and liability implications for the GRCA and the house is in poor condition. The Township of Woolwich has confirmed that the house does not have any significant heritage attributes.



Financial implications:

This report recommends the demolition of two houses. Based on previous estimates, the anticipated cost to demolish each building would be approximately \$25,000 - \$40,000. These estimates assume a straightforward dismantling of the buildings and do not include decommissioning of wells and septic systems, removal of asbestos and hazardous materials, or removal of any outbuildings or other factors that may complicate the building's removal.

Because the Currie property was a recreational purchase, the demolition of the residence is not eligible for funding from the reserves. The expense would be funded from the property maintenance budget.

The demolition of the Bauman residence will be undertaken as an expenditure of the Flood Control project for which the house was acquired. The demolition will be funded from the land sale reserve.

Once demolished, the Municipal Property Assessment Corporation will reassess the properties, and the GRCA may see an annual reduction in municipal taxes for the properties. The demolition of these properties will also reduce potential safety hazards and operating expenses.

Forecast adjustments will be made to reflect the proposed changes.

Other department considerations:

The houses are located outside of the regulated area and are not near any parks.

The Finance Department has been consulted with respect to the proposed demolitions and their respective funding implications.

Prepared by:

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Approved by:

Keith Murch
Assistant CAO, Secretary-Treasurer

Grand River Conservation Authority

Report number: GM-08-17- 84

Date: August 17, 2017

To: Members of the Grand River Conservation Authority

Subject: Conservation Services Update

Recommendation:

THAT Report GM-08-17-84 - Conservation Services Update be received as information

Summary:

About three-quarters of the land in the Grand River watershed is agricultural, which gives farmers a significant role in protecting the natural environment. The many rural, non-farming landowners in the watershed also contribute to improving watershed health, one of GRCA's strategic plan objectives. The Conservation Services department works closely with rural landowners to encourage implementation of projects to protect water quality and enhance natural resources on their property. Conservation Services core program areas include;

- Agricultural programs, such as the Rural Water Quality Program
- Delivery of GRCA's Private Land Tree Planting Program
- Supporting Community partnerships
- Outreach and Education

Report:

The Conservation Services group works with private landowners to encourage implementation of projects to protect water quality and enhance natural resources on their property. This is achieved through delivery of the Grand River Rural Water Quality Program, the Private Land Tree Planting Program as well as through various outreach initiatives and community partnerships. These initiatives support GRCA's strategic plan objective to improve watershed health.

Grand River Rural Water Quality Program

The Rural Water Quality Program provides financial assistance and technical advice to rural landowners completing projects to improve and protect water quality on their property. Participation in the program is voluntary. Local Steering Committees designed the programs, provide guidance, and meet regularly to approve project applications based on environmental benefit. Each municipal program was developed to reflect local priorities and budgets. Where a municipal program crosses watershed boundaries, the program is delivered by local conservation authority staff.

The first Rural Water Quality Program in the watershed was initiated by the Region of Waterloo in 1998. GRCA currently delivers a Rural Water Quality Program on behalf of the Region of Waterloo, Wellington County, City of Brantford and County of Brant, and

Haldimand County. Continued support for the Rural Water Quality Program has been identified as an action item in GRCA's Water Management Plan. The RWQP is seen as a best value solution to reduce the amount of sediment and nutrients entering watercourses. The program improves river health and reduces the river's impact on Lake Erie.

In 2017 Wellington and Haldimand counties each renewed their commitment to the program for another 5 years. This follows Brant, Brantford and the Region of Waterloo which renewed their multi-year commitments in 2015. Combined municipal contributions of approximately \$800,000 each year are provided to GRCA to offset landowner project costs in these communities. The GRCA levy supports staff and administration costs.

Complimentary to the RWQP, the GRCA also delivers a Well Decommission cost share program on behalf of the City of Hamilton and a Living Snow Fence Program on behalf of Dufferin County. There is an initiative underway to seek additional funding from Dufferin County to support the RWQP program in 2018. An Oxford County program administered by the Upper Thames River Conservation Authority is delivered by GRCA staff within our watershed.

In addition to municipal funding, short-term provincial, federal, and private foundation funding has been sought to enhance the programs over the years. In 2017 this included support from the federal Habitat Stewardship Program for Aquatic Species at Risk and Forests Ontario. Program staff assist landowners with accessing additional external funding programs.

Cost share rates vary by project type and county program. The landowner's contribution is a combination of money, materials and/or labour. Depending on the program, eligible projects may include manure storage facilities, stream fencing, nutrient management planning, erosion control projects, establishment of cover crops, decommissioning or upgrading private water wells, tree planting and others.

To date, there has been over \$17 million in grant provided to more than 5700 projects across the watershed. Map 1 shows the distribution of projects. Through the program, landowners and funding partners have invested over \$47 million in projects to improve and protect water quality in the Grand River watershed.

Highlights include upgrades to 402 manure storage facilities, the completion of 434 nutrient management plans and the establishment of 146 kms of riparian buffer. More than 150 kms of wetland and watercourse shoreline has been fenced to exclude livestock. Assistance has also been provided to decommission 760 water wells and upgrade 553 others.

Private Land Reforestation and Naturalization

Conservation Services staff deliver GRCA's private land tree planting program. In the 60 history of the program more than 30 million private trees have been planted. The native trees are sourced from GRCA's nursery in Burford and supplemented from other sources. Each year Forestry Specialists create planting plans for approximately 120 rural landowners. On average 200,000 native trees and shrubs are planted on private land. Traditional projects include the establishment of riparian buffers, field windbreaks and the planting of marginal land retired from agricultural production. More recently living snow fence projects are being established, with more than 28kms planted since 2013.

Staff develop planting plans, assist with access to funding programs and facilitate planting through contracted tree planters.

The program has evolved to include technical assistance for naturalization projects such as the creation and enhancement of native meadow and wetland habitats.

Community Partnerships

Conservation Services staff partner with numerous community organizations and initiatives to promote actions to improve watershed health. This includes support for community led tree planting initiatives such as Trees for Mapleton, Trees of Woolwich, and the Brantford/Brant Earth Week Committee among others. Staff also work with many service clubs and community groups to host annual tree planting events as well as partnering with local agricultural organizations to offer tours and workshops.

With the support of municipal and community partners, Conservation Services leads annual Children's Water Festivals in Brant/Brantford and Haldimand County as well as providing support to the Waterloo Wellington Children's Groundwater Festival.

Outreach and Education

Through events such as workshops, speaking engagements, community events and tours, the Conservation Services team connects with landowners to promote awareness and adoption of projects to improve watershed health. Landowner profiles to showcase the positive agri-environmental actions of watershed farmers have been developed and shared through press releases, social media, and on GRCA's website as factsheets and videos. Over the past year, more than 2000 participants have attended events led or supported by Conservation Services, including;

- Soil Health workshops in Waterloo Region, Brant and Haldimand County
- GRCA's annual 'Managing Trees on Your Property' workshop (Cambridge)
- 'Trees & Bees' workshops to highlight the importance of pollinators, (Woolwich, Mapleton, Dunnville, Puslinch)
- Workshop and windbreak tour promoting the benefits of tree planting and the connection to water quality (Burford)
- Natural Pond Management workshop (South Dumfries)
- Living Snow Fence workshop (Amaranth), and
- 14 partner led agricultural events across the watershed featuring GRCA presentations or staffed displays.

In 2015 the Conservation Services outreach capabilities were extended with the addition of a Volunteer Program Coordinator. The position is funded by a four year grant from the Ontario Trillium Foundation. The volunteer program coordinator supports staff from across GRCA departments to identify, develop and offer opportunities for volunteers to get involved in the work of the GRCA.

Individual, community group and corporate volunteers are engaged in tree planting events, work days and special events support. These volunteer opportunities provide participants with an opportunity to connect with their watershed and get involved in their community. 2017 volunteer events to July 1st include:

- partnering with community organizations to deliver 17 tree planting events, planting more than 14,000 trees with over 1700 volunteers,

- engaging 242 volunteers through 26 workdays to remove invasive species, establish and maintain naturalization projects, and assist with property cleanups and maintenance.

Financial implications:

Not applicable

Other department considerations:

Not applicable

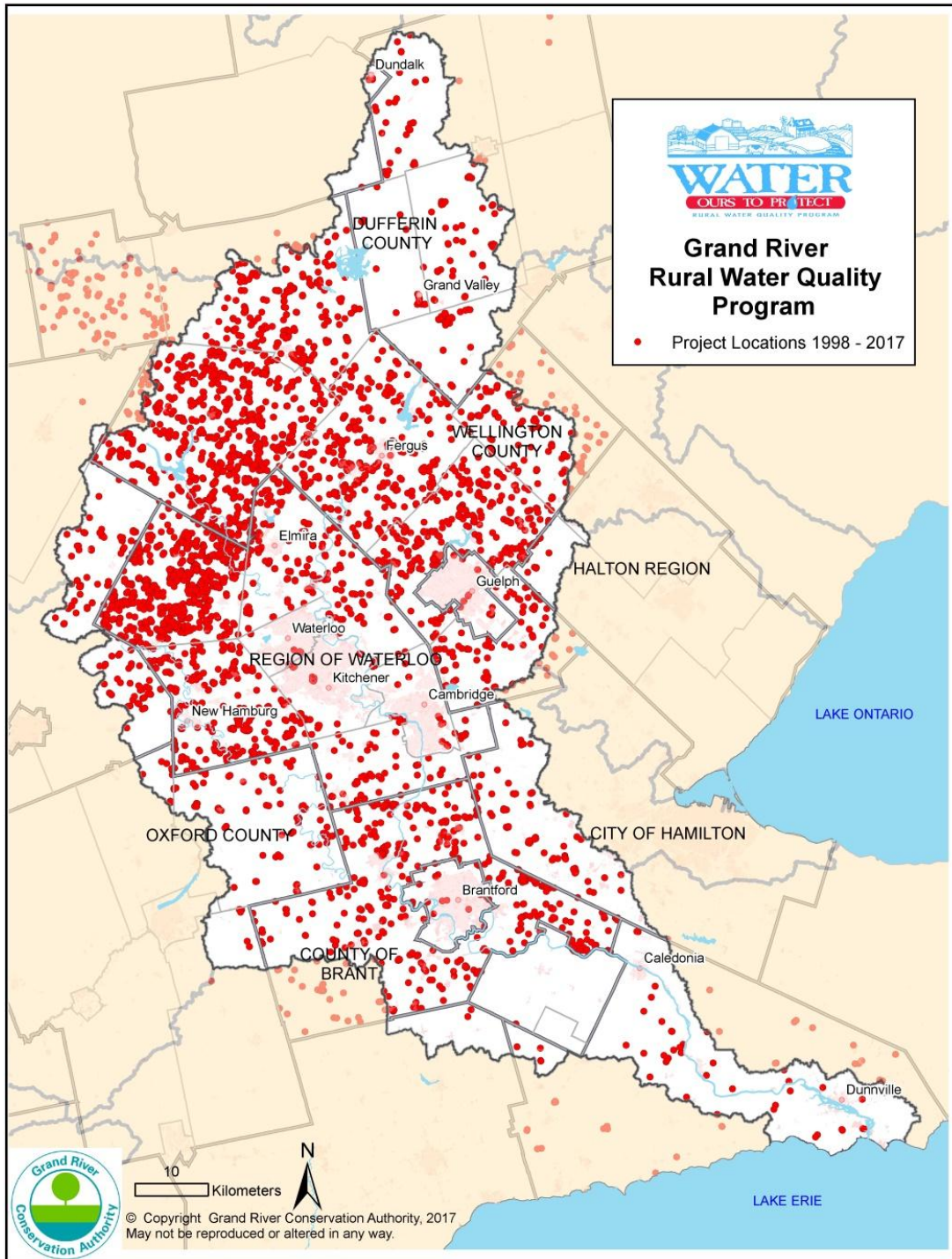
Prepared by:

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Manager, Environmental Education &
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Map 1: Grand River Rural Water Quality Program project locations 1998 – 2017



Grand River Conservation Authority

Report number: GM-08-17-87

Date: August 25, 2017

To: Members of the Grand River Conservation Authority

Subject: Current Watershed Conditions as of August 16, 2017

Recommendation:

THAT Report GM-08-17-87 – Current Watershed Conditions as of August 16, 2017 be received as information.

Report:

Precipitation

Precipitation in the first 16 days of August was highly variable across the watershed. For example, the Shand climate station recorded only 30% of normal rainfall, while the Shades climate station recorded two and a half times the normal rainfall for the first half of the month. August rainfall events have been highly localised and fairly intense, including the rain that fell with the storm that produced a tornado on August 11th near Hawksville. During that event the Woolwich and Conestogo climate stations recorded about 50mm of rain, while other stations recorded less than 5mm.

July was also a variable month with many climate stations reporting about 60% of normal rainfall, while the Luther and Shades stations reported well above normal rainfall. Dry conditions have not been felt to the same degree as other years because of the very wet conditions early in the summer and the high frequency of rain events.

Monthly precipitation at the Shand and Shades climate stations from 2012 to 2017 is shown in Figure 1. Table 1 includes monthly and recent precipitation trends for watershed climate stations.

Table 1: Precipitation Averages at Watershed Climate Stations

Reservoir	Monthly Precipitation		Percentage of Long Term Average					
	16-Aug (mm)	Long Term Average (mm)	Current Half Month	Last Full Month	Last 3 Full Months	Last 6 Full Months	Last 12 Full Months	Last 15 Full Months
Shand	12.4	84.2	29%	59%	154%	143%	136%	117%
Conestogo	67.4	96.4	140%	55%	169%	150%	125%	113%
Guelph	40.5	81.2	100%	57%	152%	155%	139%	120%
Luther	19.6	100.1	39%	162%	226%	182%	138%	124%
Woolwich	56.5	85.2	133%	38%	133%	135%	124%	109%
Laurel	56.5	89.7	126%	65%	121%	124%	121%	110%
Shades	112.4	89.7	251%	106%	129%	138%	133%	120%
Brantford	32.6	78.0	84%	80%	107%	126%	111%	96%

Air Temperatures

Temperatures in August to date have been slightly below the long term average. The average air temperature in the first 16 days of August was approximately 19.7 degrees at the Shand Dam climate station, which is about 0.2 degrees cooler than normal for this time of year. Daytime high temperatures have been fairly consistent in the mid to high twenties, while overnight lows have been in the mid to low teens.

The average daily temperature in July was virtually equal to the long term average of 19.6 degrees. July and August temperatures have been very similar with slightly cooler overnight low temperatures in August compared to July. July was cooler this year than last year by about one degree.

Figure 2 presents recent mean monthly air temperature departures from normal recorded at Shand Dam.

Lake Erie Conditions

The level of Lake Erie continues to be well above the long term average, although the lake level has decreased from its height in June of 174.84m. The average lake level for the first half of August was 174.74m, which is approximately 0.5m above the long term average.

Forecast water levels for Lake Erie show that the lake level will continue to fall over the next few months following normal seasonal patterns, but water levels will remain above the long term average into next year.

Figure 3 presents current and forecast Lake Erie level from the Canadian Hydrographic Service.

Reservoir Conditions

Water levels in the Shand, Conestogo and Guelph reservoirs are at their normal operating level for this time of year, while the Luther reservoir is above its normal operating level and is being drawn down. Rainfall upstream of the reservoirs has been high over the past few months resulting in strong flows into the reservoirs.

The need for flow augmentation downstream of the large reservoirs has been low over the last few months. Augmentation has been more a function of managing water levels in the reservoirs rather than the need to meet downstream flow targets. In early August, augmentation accounted for approximately 50% of the flow through Kitchener and 20% of the flow through Brantford and below Guelph. River flows are above low flow targets through the middle Grand and Speed Rivers.

Reservoir levels for 2017 are shown in Figures 4 and 5 for Shand Dam, Conestogo Dam, Guelph Dam, and Luther Dam.

Long Range Outlook

Environment Canada's seasonal forecast is predicting near normal temperatures for the southern half and above normal temperatures for the northern half of the watershed over the next three months including August. Precipitation is forecast to be above normal for the August to September period for the watershed.

Flood Preparedness

Conditions are being monitored closely. Staff continue to hold weekly Senior Operator meetings as part of overall succession planning initiatives and flood emergency preparedness.

Staff continue to attend a number of Municipal Flood debriefing sessions regarding the June 2017 event. A meeting with the Region of Waterloo Community Emergency Management Co-ordinator was held on August 16th and a meeting with the City of Cambridge is scheduled for August 29th.

Staff attended a meeting on August 12th with Bingemans park operator and campers. A presentation was delivered explaining the June 23rd flood event.

The Provincial Flood Forecasting and Warning workshop is scheduled for September 20th and 21st in the Brampton area. This workshop will include an emergency management stream related to flood emergency response. Municipal staff will be invited to attend this workshop.

Lake Erie and Southern River Assessments

The Ministry of Natural Resources and Forestry (MNRF) Port Dover Fisheries unit is conducting fishery surveys in the southern Grand River from Port Maitland to Caledonia dam to track walleye in the southern river. This is being accomplished by electronic tracking tags and by anglers reporting catches of tagged fish. The MNRF also collects water samples in SGR three times each year as part of an Asian Carp monitoring program.

Environment Canada continues water sampling at the mouth of the Grand River as part of a phosphorus monitoring program. The Canadian Hydrographic Service plans to fly the Lake Erie shoreline along Haldimand County in the fall of 2017 to collect near shore bathometric measurements. Bathometric measurements will be collected using Light Detection and Ranging (LIDAR) technology. These efforts are part of the federal government Ocean Protection Program (OPP).

Financial implications:

Not applicable

Other department considerations:

Not applicable

Prepared by:

Stephanie Shifflett
Water Resources Engineer

Approved by:

Dwight Boyd
Director of Engineering

Figure 1: Precipitation at Shand Dam and Shades Mill Dam 2012 to present

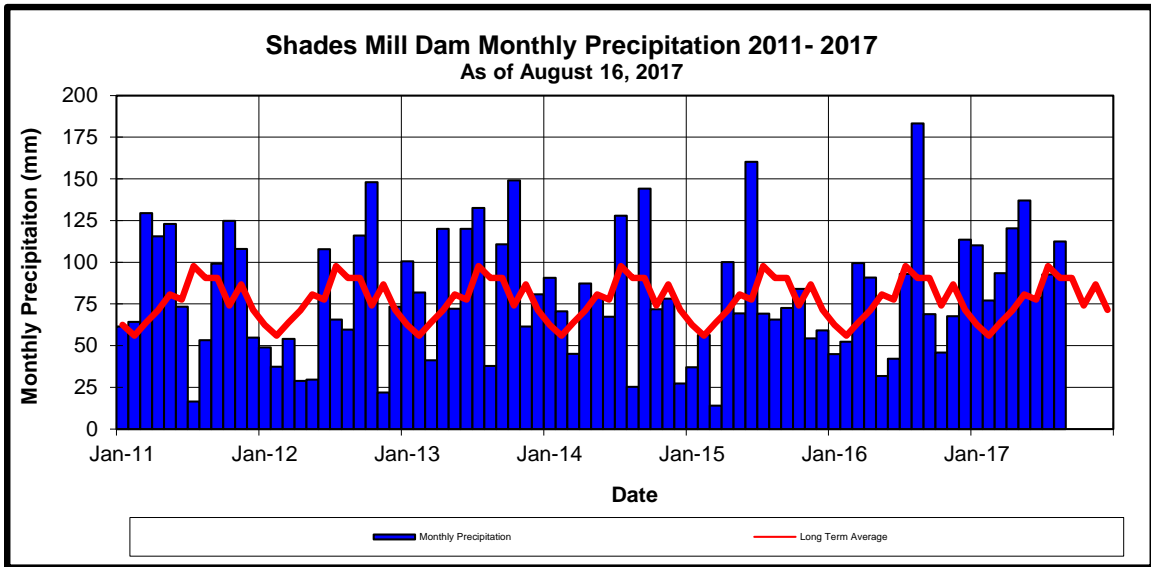
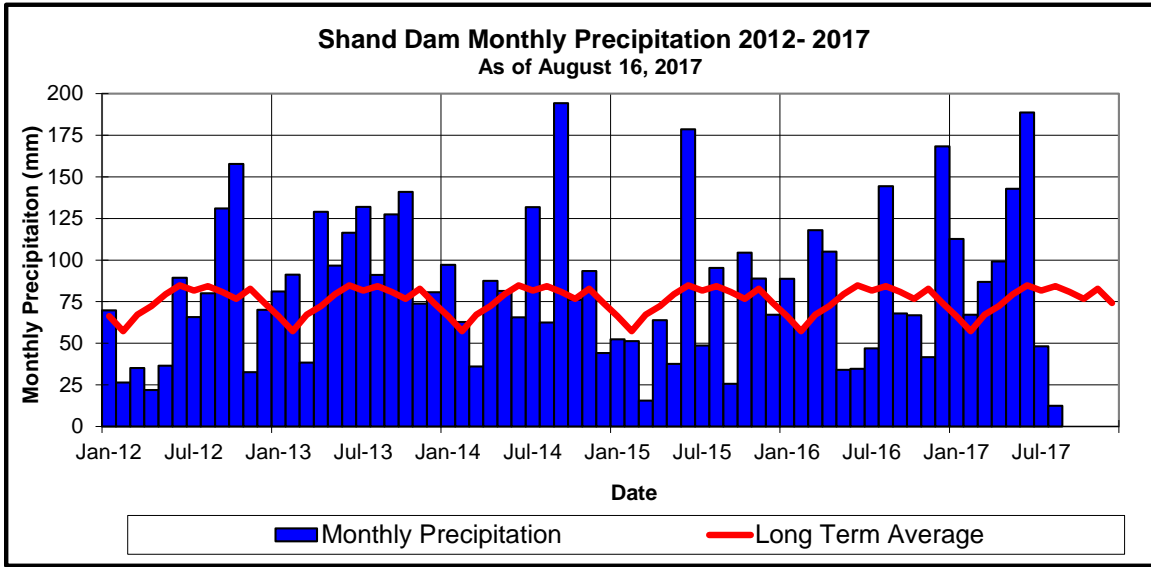


Figure 2: Departures from Average Air Temperatures

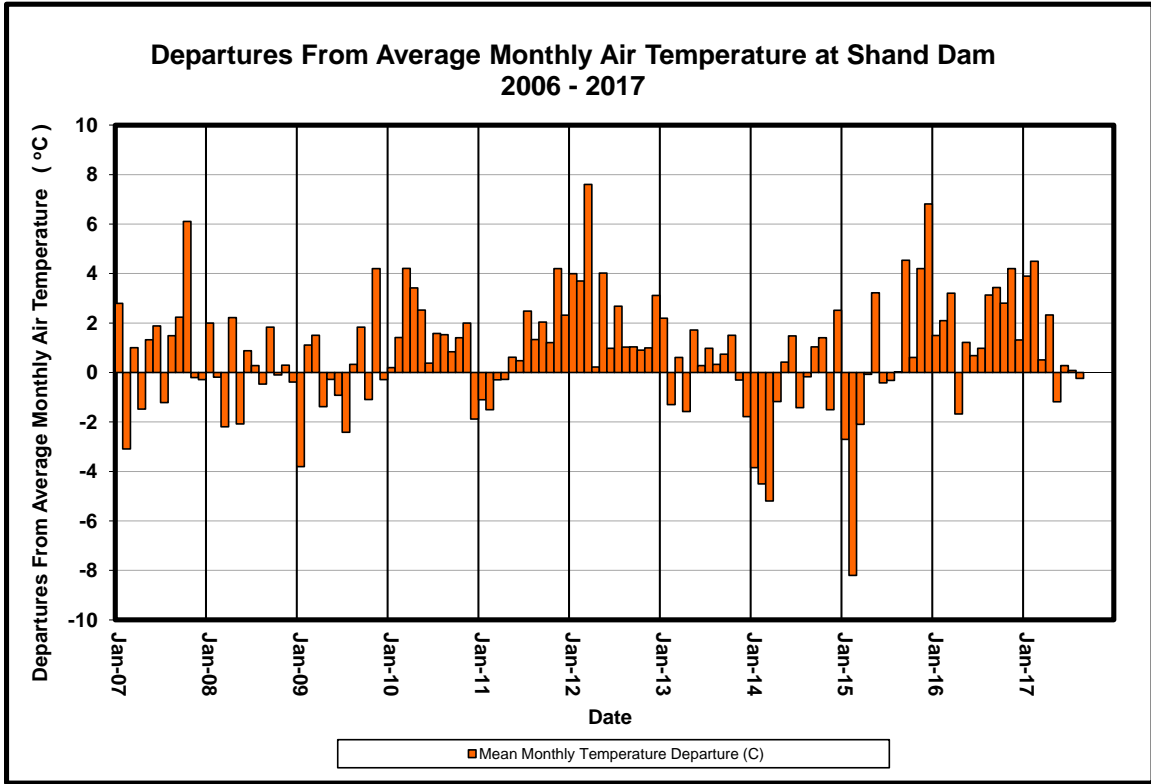


Figure 3: Forecasted Lake Erie Levels

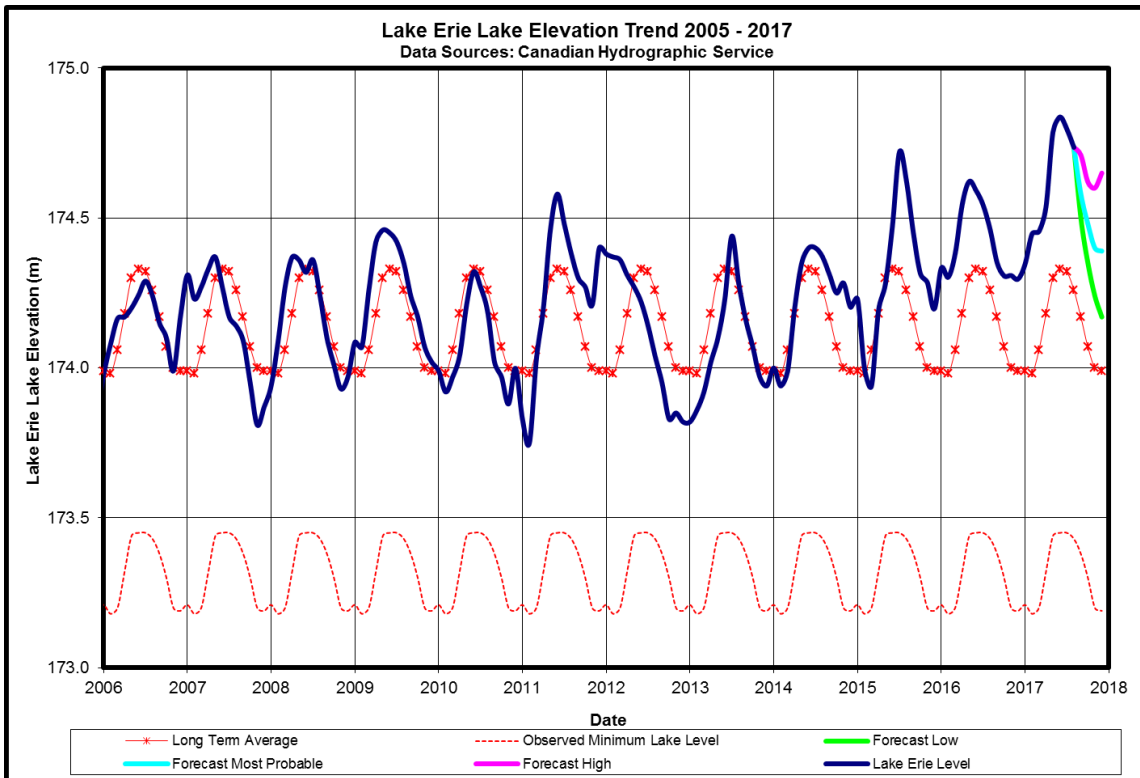


Figure 4: Shand and Conestogo Reservoir Elevation Plots

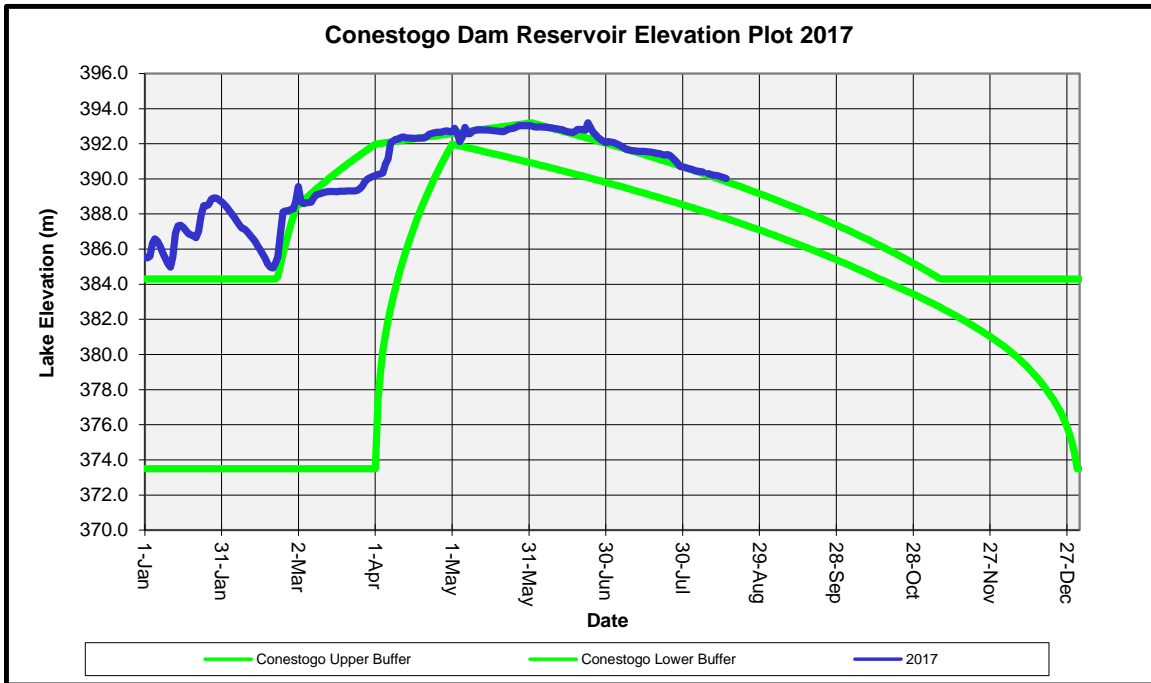
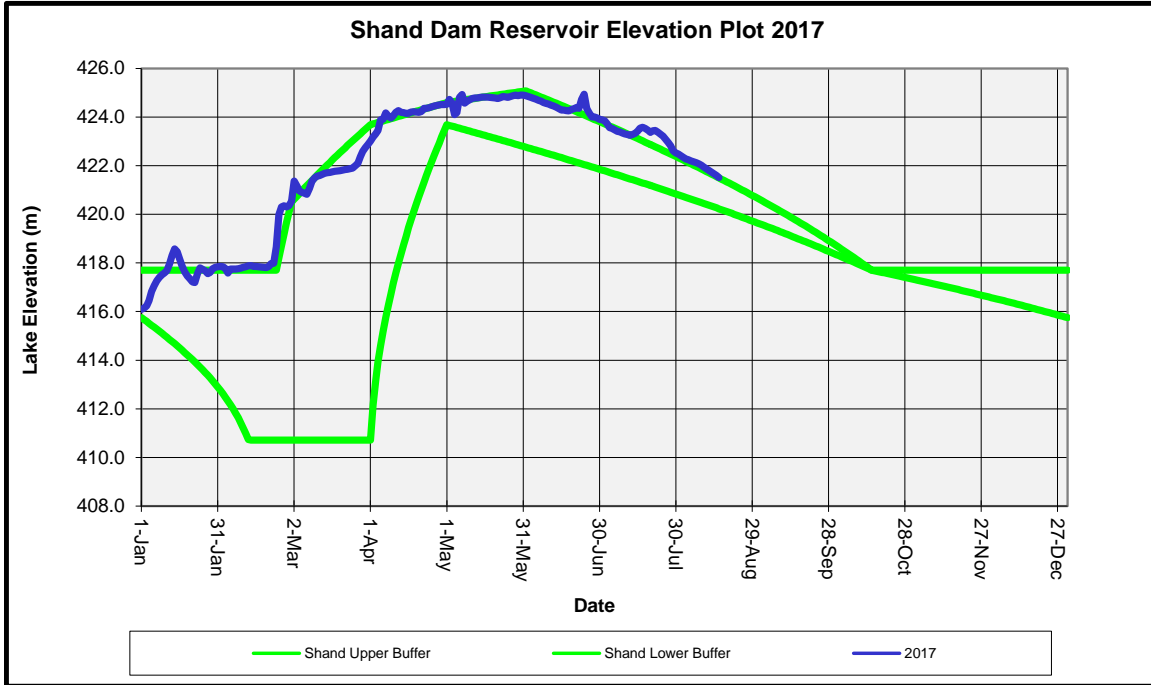
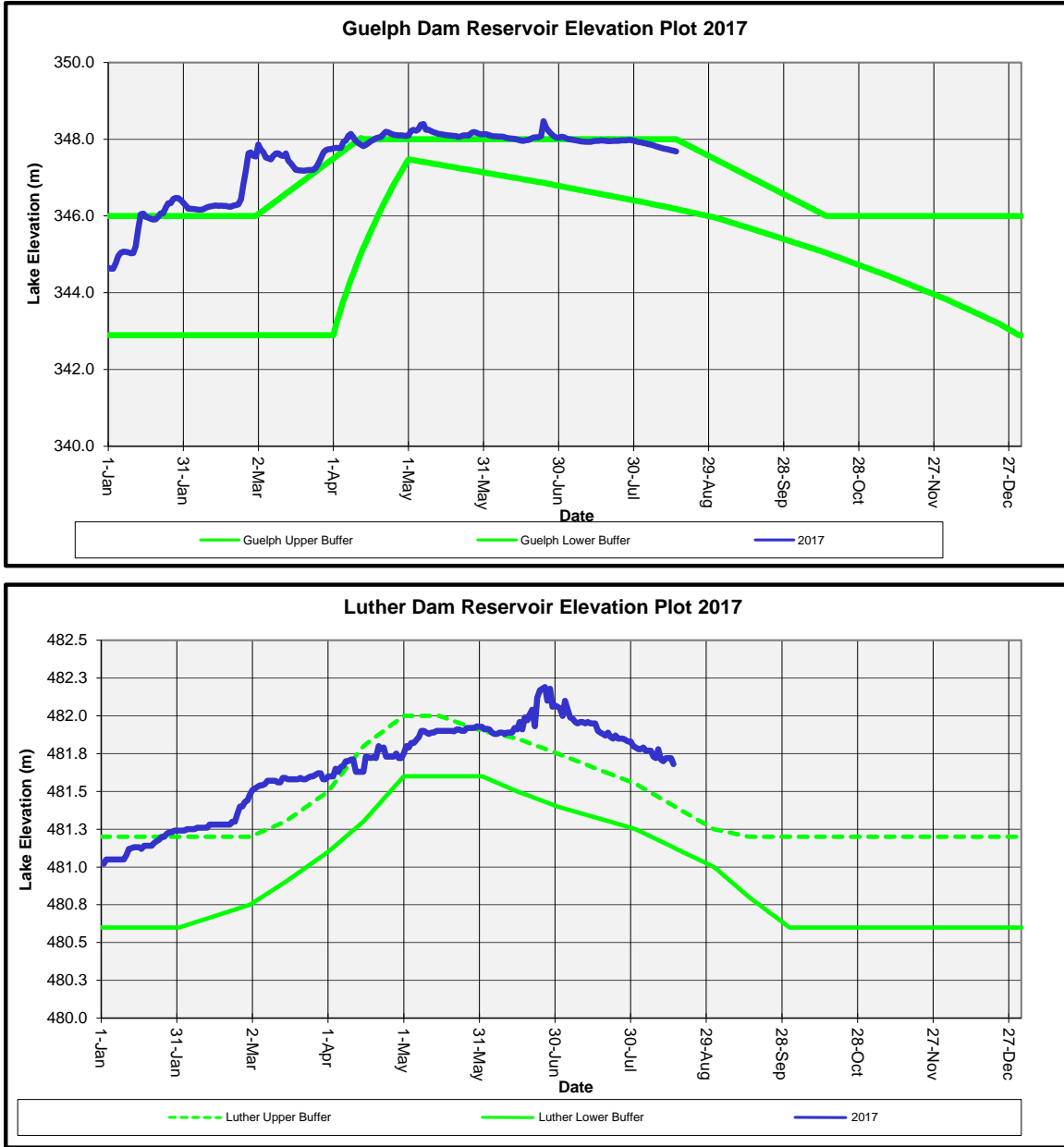


Figure 5: Guelph and Luther Reservoir Elevation Plots



Luther Dam Operating Curves

Luther Dam primarily provides a flow augmentation function to the upper Grand River and to Shand Dam. While it does provide some benefits from a flood control perspective, these benefits are limited due to the small drainage area regulated by Luther Dam.

The buffers between March 1st and September 30th define the operating range to meet downstream low flow targets. The lower buffer defines the lowest operating range for flow augmentation before reducing downstream flow augmentation targets. The earlier winter (January 1st to March 1st) and late fall (October 1st to December 31st) upper buffer curve is defined from ecologic considerations from the Luther Marsh Master Plan.