



## **City of Kawartha Lakes Proposed Special Benefiting Project**

### **Lake Management Plans – Implementation 2017**

This proposal is respectfully submitted and intended to be responsive to the City of Kawartha Lakes Council's concerns for budget containment and a collaborative approach into the future for the implementation of the recommendations from the Kawartha Lakes Management Plans. We believe this proposal meets Council's objective of cost reduction, preserves program continuity, enables external grants and donations to be realized, enables our uniquely skilled core staff expertise to be retained to carry on the program and other important environmental work on behalf of the City, and allows adequate time for the City and Kawartha Conservation to come together in 2017 to discuss the future scope, model of delivery, and cost of the program into the future.

Projects are designed to implement several site specific activities outlined in the approved lake management plans, continue monitoring to tell us how we are doing, and address critical data gaps necessary to further determine priority stewardship opportunities to improve water quality in our lakes and streams.

This proposal does not include Communications and Outreach activities such as the Blue Canoe, Youth Education programs, and Strategic Planning initiatives.

#### **Stewardship**

Informed management of shoreline, urban and rural private properties is a necessity if we are to achieve long term lake health and watershed sustainability. These projects will demonstrate good landscape practices on highly visible properties around the lakes, and provide landowners and property managers with the technical support required for this to become normal practice.

#### **Site specific water quality improvement projects**

A municipal allocation is requested to provide staff support as well as a certain level of actual project funding to enable the leverage of special project funds from a variety of potential funding partners, such as Fisheries and Oceans Canada, Ministry of Natural Resources and Forestry, Species at Risk, Ontario Ministry of Agriculture, Food and Rural Affairs; Ministry of Environment and Climate Change, as well as community volunteers.

## 1. Enabling best management practices on agricultural lands

Science based lake management plans leveraged \$290,000 from the Ontario Ministries of Agriculture, Food and Rural Affairs and Environment and Climate Change over two years, ending in March, 2017. Over \$200,000 has been allocated to CKL farmers to support environmental improvement projects on their properties, with farm business owners contributing a minimum of 25% of the total project cost. These funds in turn support local businesses through the purchase of supplies and services. Nearing the successful completion of this original program, we have made application to secure a re-investment of provincial funding for ongoing support of similar agricultural stewardship projects.

Supporting Grants – OMAFRA:	
Grant fund remaining 2015-2017	\$ 25,300
Grant application tentative 2017-2018	100,000
Individual landowner contributions	50,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 35,300</b>

**Overall value of project \$210,600**

## 2. Agricultural water quality and habitat restoration project

Water quality sampling results in support of the Sturgeon Lake Management Plan, identified McLaren's Creek to be one of three Sturgeon Lake subwatersheds that contribute a relatively high level of phosphorus input from agricultural sources.

Following up on a contact initiated by a farm business, a fencing and creek restoration project has been designed, including – permanent fencing, alternate watering system and the volunteer / student planting of over 500 native trees and shrubs.

Supporting Grant – MNRF, tentative	\$12,350
Landowner	1,850
In kind – Fleming College volunteers	3,200
<b>City of Kawartha Lakes support requested</b>	<b>\$ 5,850</b>

**Overall value of project \$23,250**

## 3. Beach improvement project, Fenelon Falls

The beach at Garnet Graham Beach Park is frequently posted due to high E.coli in the water, which is mostly likely due to bird feces, particularly seagulls and geese attracted by the concrete piers no longer in use. The intent is to help maintain a safe and accessible park and beach area within a natural shoreline setting. With the grant from the DFO and with support from local community groups and CKL parks staff, we will minimize the risk of injury and illness for swimmers by removing the piers; and stabilize the shoreline and enhance habitat for fish and other aquatic organisms using natural techniques.

Grant confirmed – Fisheries & Oceans Canada	\$ 5,900
<b>City of Kawartha Lakes support requested</b>	<b>\$ 4,100</b>

**Overall value of project \$10,000**

#### 4. Shoreline improvements, 3-4 projects

The gradual conversion of hardened shorelines (e.g. creosote soaked timbers; concrete retaining walls) to a more natural shoreline is a recommendation within each lake plan. The intent of this project component is to provide incentive funding to a number of private shoreline owners across the watershed as demonstration projects and to develop expertise in the decommissioning of failing retaining walls and a conversion to a more natural shoreline. These projects will be undertaken as individual 'case studies' with the purpose of detailing aspects of project planning, permit requirements, timing, cost of various elements, with project reports made available in various means.

Grant, Fisheries & Oceans Canada, tentative	\$ 20,000
Lake Simcoe Region Conservation Authority	13,500
Individual landowner contributions	8,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 11,500</b>

**Overall value of project \$53,000**

#### 5. Promoting naturalized shorelines

Developing a culture of shoreline property management suitable for lake health and maintenance of water quality requires an attitudinal shift that evolves over time. In the past few years, we have worked with municipal staff to utilize CKL waterfront properties as demonstration areas; developed solid relationships with local associations and key community residents; and stimulated a range of 'innovators' within the shoreline community. This project involves planning and implementation support for naturalization of municipal properties; and provides level of technical support for community partners and individual landowners. In addition, we will organize and implement the second year of the 'native plant' distribution program.

Victoria County Stewardship Council funds	\$2,300
Land owner and in-kind contributions	3,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 17,300</b>

**Overall value of project \$22,600**

#### 6. Canal and Mitchell lakes – managing excessive aquatic vegetation

These two lakes are experiencing significant impacts from excessive aquatic vegetation, including blockage of watercraft to the navigation channel, impairment of recreational opportunities and lower property values. This program component will focus on delivery of workshops, landowner contact activities and information products directed specifically towards aquatic vegetation management actions, as below.

Two workshops specifically focussing on aquatic vegetation concerns including aquatic plant control methods, Parks Canada permitting instructions, and invasive species as well as a distribution campaign for the Kawartha Lakes Stewardship Association landowner guide to controlling aquatic vegetation.

Grant, Lakehead University	\$ 7,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 10,250</b>

**Overall value of project \$17,250**

## Managing urban and lake community stormwater and seasonal runoff

The BlueScape program promotes and demonstrates low impact development features, emphasizing runoff management and water conservation for urban landscapes. This includes a wide range of lot level activities (e.g. rain barrels, downspout disconnection, rain gardens), urban runoff landscaping, demonstration sites, landowner workshops, managing / replenishing urban forests and enhancing their resistance to climate change, outreach to school groups and urban residences.

Grant - EcoAction - confirmed	\$ 15,500
Grant - RBC Blue Water Foundation – confirmed	5,200
Grant - RBC Blue Water Foundation - tentative	17,500
Grant - TD, Friends of Environment - tentative	2,500
Grant – MOECC – tentative	3,500
<b>Total</b>	<b>\$ 44,200</b>
<b>City of Kawartha Lakes support requested</b>	<b>\$ 12,400</b>

**Overall value of project \$56,600**

## Identifying information gaps and stewardship / remediation priorities

Watershed planning has provided the most comprehensive, current water quality information to date for the Kawartha Lakes and their tributaries, while establishing situation benchmarks for each lake. This allows us to determine lake responses to cumulative development and stressors such as invasive species, climate change and emerging contaminants. At a minimal level, proposed activities will include:

- Working upstream on priority tributaries (i.e. those that do not meet provincial water quality objectives) to identify point source nutrient and sediment inputs
- Identifying near shore problem impacts to lake health and water quality
- Responding to Bobcaygeon residents' requests to identify E. coli sources that cause beach closures
- Climate change monitoring
- Priority activities as requested by the Community Advisory Panel and local citizen groups

Successful plan implementation requires the training, support, and ongoing involvement of committed volunteers. These individuals not only provide increased capacity at a much lower cost, while providing them with greater understanding of the various impacts on water quality and habitat and a means of communicating with and advocating enlightened land stewardship practices within their lake community.

### 1. Near shore sampling program

The primary data gap that exists in each of the completed Lake Management Plans is the lack of near shore water quality (chemical and biological). The nearshore area is a transition zone highly influenced from waters offshore and land and tributary drainage as well as being directly influenced by shoreline factors (urban and shoreline community development, septic systems, agriculture, specific shoreline alteration). The data collected in near shore areas can act as an early warning indicator for the lakes and identify "problem areas" or "hot spots" of degraded water quality and threats to human and animal health.

This program includes a comprehensive water chemistry and physical baseline survey to be completed on one to two lakes annually over the next five years. The information gathered will serve to identify specific stewardship priorities and actions. The training and support of 'Citizen Scientists' provides value added volunteer involvement.

Citizen Science	\$ 7,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 23,250</b>

**Overall value of project \$30,250**

## 2. Bobcaygeon Beach – identification of E coli sources

Bobcaygeon Beach is a significant public beach that experiences postings due to high *E. coli* concentrations. This project is intended to determine the point source for the *E. coli* via sampling a transect beginning upstream of the beach. Additional investigation into the water and wind currents will assist in identifying the dynamics of *E. coli* within this river/ channel/ beach ecosystem. Approximately 5 sites will be sampled. This sampling regime will be specifically focused on identifying sources rather than just its presence and complement the weekly Health Department's *E. coli* sampling from June to August. Project outcome is to identify specific problem areas to manage via a stewardship project to be determined.

<b>City of Kawartha Lakes support requested</b>	<b>\$ 9,500</b>
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## 3. Measuring and assessing impacts of climate change; preparation for seasonal droughts

We propose the establishment of a long term monitoring network to effectively evaluate key indicators of regional climate change impacts, while introducing rural landowners to information on climate change and water well impacts. This information will provide the basis for trend analysis and identification of adaptation and mitigation measures, e.g. effective protection of key ground water recharge features; informed land use policy development. Specific activities will include:

- Develop a shallow ground water monitoring network to evaluate the vulnerability of ground water recharge and response to changing precipitation patterns and landscape changes.
- Improve low water condition monitoring by including additional representative sites.
- Determine flow volume and temperature impacts to small headwater streams that result from climate change and increasing conversion of small natural areas into agricultural land use.
- Supporting two water well workshops for rural landowners.
- Supporting a one-day agricultural workshop – '*Managing your farm operation for drought resilience*'.

Grant, Clean Tech internship, tentative	\$ 12,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 21,750</b>

**Overall value of project \$33,750**

## 4. Investigative sampling to determine site specific water quality improvement projects

Lake management plan for Sturgeon, Balsam, and Cameron and Pigeon lakes recommendations include the identification of problem areas associated with tributaries that consistently input high nutrient and sediment concentrations into these lakes. The intent of this activity is to undertake comprehensive water quality sampling and flow volume measurements in order to identify specific sites and causes of water quality degradation. This will allow us to plan for remediation restoration efforts.

**Priority tributaries for 2017 include:**

- Reforestation Creek, input to Pigeon Lake
- McLarens Creek , input to Sturgeon Lake
- Jennings Creek, urban stream - input to Scugog River, downstream from Lindsay

<b>City of Kawartha Lakes support requested</b>	<b>\$ 13,400</b>
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**Addressing knowledge gaps identified by Lake Management Planning (academic support)**

Lake studies by our staff over the last several years have resulted in significant lake, tributary and watershed data that has become of great importance to universities and colleges. In addition, professors are more aware of information gaps that can be researched to provide additional knowledge that will inform more effective management of clean water, aquatic plant control, fish and blue green algae blooms.

Of increasing importance, the **Science and Technical Committee**, formed to support and verify lake and watershed studies undertaken during the development of lake management plans, has been led and supported by Kawartha Conservation staff. This committee is the first attempt to organize the science community – those who study various aspects of the Kawartha Lakes – to meet regularly to determine lake research priorities and coordinate activities. This partnership with the academic community is an important source of information, science and solutions for the Kawartha Lakes.

Initiatives being implemented include:

- i. **Lakehead University**
  - ✓ Determine effect of aerators in aquatic plant control with a focus on Canal, Mitchell and Scugog lakes.
  - ✓ Investigating blue-green algal blooms in the inland lakes – Size, area and when it occurs
  - ✓ Comparing the health of the lakes within the City of Kawartha Lakes against other lakes within the Trent canal system. (How well are we doing? What can be done better)
- ii. **Trent University-** Agriculture and Drought: Impact on Ontario's creeks, rivers, lakes and wells including the impact within the Mariposa Brook watershed.
- iii. **University of Ontario Institute of Technology** – Looking at invasive species in aquatic plants and how they grow over the course of the year in combination with fish in Lake Scugog.
- iv. **Fleming College** – working with Credit for Product students and Professors to investigate hot spots identified during the lake plan development, e.g. creeks and river; urban tributaries.

In-kind value Masters students	\$ 20,000
In-kind value, Honours students	10,000
In-kind value Fleming students	5,000
<b>City of Kawartha Lakes support requested</b>	<b>\$ 4,800</b>

**Overall value of project \$39,800**

## Summary

Lake Management Plan: Management Strategy and Implementation Projects	Project Value	Grants and Other	Municipal Funding
<b>Stewardship</b>	<b>\$336,700</b>	<b>\$252,400</b>	<b>\$84,300</b>
<ul style="list-style-type: none"> <li>Best Management Practices on Agricultural Lands</li> <li>Agricultural Water Quality and Habitat Restoration</li> <li>Beach Improvement Project</li> <li>Shoreline Improvements</li> <li>Promoting Naturalized Shorelines</li> <li>Managing Excessive Aquatic Vegetation</li> </ul>		Canal & Mitchell; Balsam, Cameron LMP Sturgeon Lake LMP Balsam LMP Canal & Mitchell All LMPs Canal & Mitchell	
<b>Urban and Rural Infrastructure</b>	<b>\$56,600</b>	<b>\$44,200</b>	<b>\$12,400</b>
<ul style="list-style-type: none"> <li>BlueScope program – addressing urban and rural stormwater and seasonal runoff</li> </ul>		Focus on Sturgeon LMP; applicable to all LMPs	
<b>Research and Monitoring</b>	<b>\$126,700</b>	<b>\$54,000</b>	<b>\$72,700</b>
<ul style="list-style-type: none"> <li>Near Shore Sampling Program</li> <li>Identification of E. coli sources – Bobcaygeon Beach</li> <li>Measuring/Assessing impacts of climate change</li> <li>Investigative sampling - determine improvements</li> <li>Addressing knowledge gaps</li> </ul>		Sturgeon, Pigeon LMPs Sturgeon LMP Pigeon LMP; Sturgeon LMP Pigeon, Sturgeon LMPs All LMPs	
<b>Total</b>	<b>\$520,000</b>	<b>\$350,600</b>	<b>\$169,400</b>

Note: Implementation efforts proposed support Lake Management Plans which identify 5 strategic themes for implementation: Stewardship, Strategic Planning, Urban and Rural Infrastructure, Research and Monitoring, and Communications and Outreach. Progress on three of these strategic themes is proposed in this project submission.