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**TO:** GENERAL COMMITTEE

**SUBJECT:** WATER QUALITY TRADING TO REDUCE PHOSPHORUS LOADING TO THE LAKE SIMCOE WATERSHED

**PREPARED BY AND KEY CONTACT:** R. E. SCHEUNEMANN, P. Eng. *SP*  
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**SUBMITTED BY:** R. W. MCARTHUR, P. Eng. *R. W. McArthur*  
DIRECTOR OF ENGINEERING

**GENERAL MANAGER APPROVAL:** *for* R. J. FORWARD, MBA, M.Sc., P. Eng. *RJF*  
GENERAL MANAGER OF INFRASTRUCTURE, DEVELOPMENT & CULTURE

**CHIEF ADMINISTRATIVE OFFICER APPROVAL:** C. LADD *CL*  
CHIEF ADMINISTRATIVE OFFICER

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**RECOMMENDED MOTION**

1. That staff continue their participation in the development of the Water Quality Trading Program for the Lake Simcoe Watershed and that the City of Barrie's portion of the costs be funded from the Tax Rate Stabilization Reserve (Account # 13-04-0461) in the amount of \$70,000.

**PURPOSE & BACKGROUND**

2. Reducing the amount of phosphorus entering Lake Simcoe will improve the aquatic health of Lake Simcoe. One way to reduce phosphorus entering Lake Simcoe is to implement a Water Quality Trading Program. Under this proposed program a portion of phosphorus discharge reductions (potentially from agricultural areas for example) could be sold to offset potential increases in phosphorus associated with new development. The evaluation of the Water Quality Trading Program will look at the design/operation of such a program.
3. The Lake Simcoe Protection Plan (LSPP) took effect on June 2, 2009. The LSPP sets a lake dissolved oxygen target of 7 milligrams per litre and a total phosphorus loading goal of 44 Tonnes per year. The LSPP commits the Province, in collaboration with key partners, to develop a Phosphorus Reduction Strategy, which lays out the steps needed to reach the goals of the LSPP.
4. As part of the Provincial work associated with the development of the Phosphorus Reduction Strategy, the Ontario Ministry of the Environment (MOE) had previously posted information pertaining to this issue including a study titled 'Feasibility Study for Water Quality Trading in the Lake Simcoe Watershed'. Water quality trading is seen by some as a tool to reduce phosphorus loadings in a cost-effective and strategic manner by collectively engaging all interested participants. It has been argued that water quality trading provides an incentive for non-point source contributors to become more actively involved in implementing best management approaches to reduce phosphorus loadings. The feasibility study dated February 2010 is available on the MOE website.
5. On March 29, 2010, City Council adopted Motion 10-G-113 directing staff to submit comments related to the LSPP to MOE which included in the following comment:
  - i. The City concurs with the development of a water quality trading regulation and program for the Lake Simcoe watershed subject to the comments below.

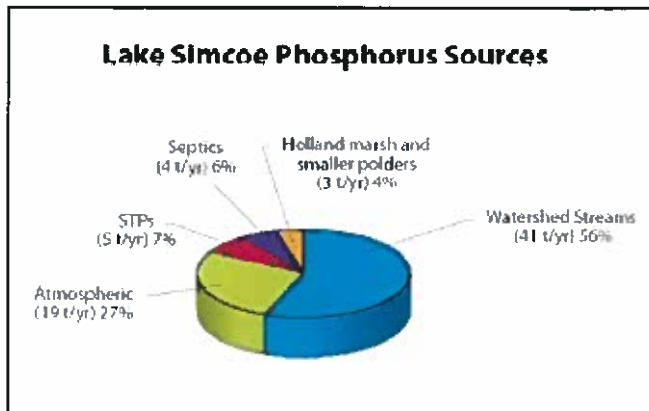
- ii. Consideration must be given to population and employment allocation when establishing the ultimate compliance load. Focus should be on reducing reactive phosphorus.
  - iii. It is unclear how phosphorus reductions would be verified to assess compliance with phosphorous targets. The ratio and resultant phosphorus credits need to be carefully reviewed and based on extensive scientific study. The City requests that further detail be provided on the costs provided in the Discussion Paper. Based on our experience with recent stormwater pond retrofits, the costs seem low.
  - iv. The administration of a phosphorus trading program needs to be as cost effective as possible. Consideration should be given for mechanisms to ensure phosphorus credits go toward the most cost effective solution.
6. The Phosphorus Reduction Strategy was released by the Province in June of 2010 and its purpose is to reduce phosphorus loadings and to achieve dissolved oxygen target levels as required to support a naturally reproducing and self-sustaining cold water fish community. The Phosphorus Reduction Strategy is intended to serve as a long-term framework to reach this goal. A copy of the Lake Simcoe Phosphorus Reduction Strategy is available in the Councillor's Lounge for information.

## **ANALYSIS**

7. The City of Barrie has tripled in size over the last 20 years yet phosphorus loads reported by MOE at station K39 in Kempenfelt Bay have shown a declining trend over the same time period. The City of Barrie's commitment to environmental stewardship through policies, practices, and investment in technology has contributed to this decline in phosphorus loads to Lake Simcoe. Major initiatives/projects include:
- State-of-the-art Wastewater Treatment Facility (WwTF) expansion to 76,000 m<sup>3</sup> per day to meet more stringent effluent criteria
  - \$19 million storm water retrofit program approved by Council
  - Stormwater Management Retrofits completed
  - D'Ambrosio pond completed (partnership with LSRCA)
  - Pond LV14 north of Caplan Drive and west of Bryne Drive (in partnership with the LSRCA and MOE)
  - Sanitary Inflow/Infiltration Reduction Program
  - Kidds Creek and Hotchkiss Creek naturalization at Kempenfelt Bay
  - Implementing the Topsoil Stripping By-law
  - Implementing the Site Alteration By-law
  - Implementing the Tree Preservation Plan
  - Implementing the Erosion & Sediment Control Plans
  - Implementing the Site Alteration Tool
8. Water quality trading uses economic instruments to help manage environmental impacts. In essence, it is a form of cap and trade for water pollution. In the Lake Simcoe watershed, sources of phosphorus from agricultural sources can often be reduced at a much lower cost than most sewage treatment plants can. The idea is to allow point sources, such as municipal sewage treatment plants, to offset or defer very expensive plant upgrades by paying for improvements to address other areas of phosphorus load to Lake Simcoe (i.e. agricultural sources). Water quality trading can provide an incentive for non-point source contributors (such as agricultural sources)

to reduce their phosphorus loadings. It can also reward farmers for the ecological services they provide. Critics argue that it can be costly to administer, that there may not be enough trading to make a difference, and that it is difficult to verify the results. The evaluation of the Water Quality Trading Program will review this concern.

9. A Water Quality Trading Program should be accountable, beneficial, defensible, economical, enforceable, equitable, flexible, and transparent. The participants in a Water Quality Trading Program would include the "buyers" and "sellers" of phosphorus reduction credits. Potential buyers would include municipal sewage treatment plants and new urban stormwater dischargers (i.e. developers or municipalities). Potential sellers would include stormwater retrofits in areas of existing development (i.e. municipalities), best management practices on agricultural lands (farmers), treatment of Holland Marsh polder and conversion of on-site sewage systems and reduction of airborne phosphorus loading. The overall result would be to lower the cost of implementing the overall Phosphorus Reduction Strategy. This is important as sewage treatment plants account for only 7% of the estimated phosphorus load to Lake Simcoe. In the case of the Barrie's WwTF, the cost to implement the suggested phosphorus reductions could be as much as \$100 million dollars.



10. There are a number of operational matters that would need to be considered in the development of a Water Quality Trading Program, including how best to:
  - Address variability between sources of phosphorus (e.g., trading ratios);
  - Collect, evaluate, and verify information related to both the generation of phosphorus reduction credits and the effectiveness of the Water Quality Trading Program as a whole;
  - Fund the administrative costs of starting, maintaining, and overseeing the program; and,
  - Continue to engage the public in developing, implementing, and evaluating the success of a Water Quality Trading Program in the Lake Simcoe watershed.
11. The LSRCA has received funding to undertake this evaluation of the Water Quality Trading Program. This evaluation will be used to decide if the Water Quality Trading Program will be included in the Lake Simcoe Phosphorus Reduction Strategy.
12. The details of the proposed work program to develop a Water Quality Trading Program for the Lake Simcoe Watershed are included in the Appendix "A" and major elements have been summarized below:
  - a) Creation of an eighteen member steering committee which includes one representative from the City of Barrie.

- b) Gather historical and current data about loadings.
- c) Update details about phosphorus treatment technologies and best management practices.
- d) Update knowledge about supporting legislation, regulations, policies, and guidelines.
- e) Identify the range of trading participants (municipal point and non-point sources, agricultural, industry, private sector, etc).
- f) Engage a phosphorus Credit Buyer to pilot test Water Quality Trading technical elements, policies and protocols, and ground-truth decision-making.
- g) Determine phosphorus baselines.
- h) Define phosphorus credit estimation methods.
- i) Define Water Quality Trading ratios.
- j) Provide an opportunity for watershed residents to participate through a transparent public consultation process. A public consultation strategy will be implemented by a retained professional consultant/facilitator.
- k) Completion by December 2013.

### **ENVIRONMENTAL MATTERS**

13. The following environmental matter has been considered in the development of the recommendation:
- a) The health of Lake Simcoe is very important to the City of Barrie's economic and social well being. It is also a partial source of the City's drinking water. By working together with government, industry, and the public, a state of balance within both the Watershed and Lake Simcoe can be restored.

### **ALTERNATIVES**

14. The following Alternative is available for consideration by General Committee:

#### **Alternative #1**

General Committee could choose not to fund its relative portion to develop a Water Quality Trading Program for the Lake Simcoe Watershed.

This alternative is not recommended as it is important that the City of Barrie be at the table in the development of a potential Water Quality Trading Program. The development of the Water Quality Trading Program would still continue however, the City would not be able to ensure their interests are addressed, where possible. As the City is identified for significant growth over the next 20 years, there will be many aspects related to phosphorus that will need to be addressed in the future involving significant amounts of money.

**FINANCIAL**

15. The total cost of the work associated with an evaluation of the Water Quality Trading Program is \$1.2 million over two years. The proposed cost breakdown is as follows:

2012

\$175,000 LSRCA  
\$125,000 York Region  
\$300,000 MOE SWI funding  
\$600,000 total year one

2013

\$175,000 LSRCA  
\$ 55,000 York Region  
\$300,000 MOE SWI funding  
\$530,000 total year two

Barrie's portion of the costs are proposed to be \$70,000

Total Project Cost = \$1.2 million

16. It is proposed that the City of Barrie portion of the cost associated with the Water Quality Trading Program for the Lake Simcoe Watershed be funded from the Tax Rate Stabilization Reserve (Account # 13-04-0461) in the amount of \$70,000.

**LINKAGE TO COUNCIL STRATEGIC PRIORITIES**

17. The recommendations, included in this staff report, support the following goals identified in the 2010-2014 City Council Strategic Plan:

☒ Manage Growth and Protect the Environment

18. The City of Barrie's financial contribution to the Water Quality Trading Program for the Lake Simcoe Watershed allows the City to have input into policies and legislation that affect growth management for the City of Barrie and the surrounding area. With vision and leadership, there can be continued sustainable growth while maintaining a clean and healthy environment.
19. The City of Barrie's continued involvement in the Water Quality Trading Program for the Lake Simcoe Watershed would demonstrate an environmental commitment by the City of Barrie to making a positive change within the Lake Simcoe Watershed.

## APPENDIX "A"

### Water Quality Trading Program for the Lake Simcoe Watershed

#### PROJECT DESCRIPTION AND TIMELINES

##### A.1 DEFINITIONS

**"Baseline"** means the treatment level a Discharger is obligated to provide prior to buying or generating Credits. For non-Point Sources, Baselines are the pollutant load from diffuse sources at a particular point in time. For Point Sources, Baselines are the numeric level of pollutant load from direct Dischargers at a particular point in time. Direct Dischargers are usually regulated and the Baselines typically are the threshold levels that Buyers first have to meet before they can use Credits or suppliers must meet before generating a Credit. For example, a Certificate of Approval provides an allowable pollution limit for industrial and municipal Point Source Dischargers.

**"BMP(s)"** means best management practices.

**"Buyer"** means a Discharger with regulated Baselines for whom pollution reduction is expensive, such as sewage treatment plants with regulated Baselines and high abatement costs. For these sources, it is less costly to buy pollution Credits from other sources and use these Credits to help achieve their Baseline loads. Non-Dischargers, such as watershed groups, may buy and retire Credits from the market to further reduce pollution, if the program allows this practice.

**"Credits"** mean units of pollution reduction, measured as pollutant mass over a given period of time (kg/year) to be traded in the **"WQT"** market. Credits are generated for every unit of pollution reduction beyond the Baseline level. Implementing BMPs at agricultural operations beyond the Baseline may generate Credits. Point Sources, such as industrial and municipal facilities, that implement new technologies to reduce pollution may generate Credits.

**"Discharger"** means a person, business, municipality, or other organizations that releases phosphorus into the Lake Simcoe watershed.

**"LSPP"** means the Lake Simcoe Protection Plan.

**"LSRCA"** means Lake Simcoe Region Conservation Authority.

**"Notice of Approval"** means a formal announcement that water quality trades can be made between credit sellers and buyers.

**"Point Source"** means a source of pollution that discharges through a discrete conveyance system (such as a pipe, channel or outlet) and is often regulated. Major Point Sources are sewage treatment plants and industrial facilities.

**"SWI"** means the Showcasing Water Innovation program. **"WOA"** means the *Water Opportunities Act*, 2010.

**"WQT"** means water quality trading which is a flexible watershed-based program that allows for a limited increase in pollutant discharge or a required reduction from an existing discharge to be offset by greater reductions made elsewhere in the same watershed assuming a trade provides economic, equivalent, additional, and accountable reductions in pollutant loading.



## **A.2 SHOWCASING WATER INNOVATION PROGRAM BACKGROUND**

In March 2010, the Premier of Ontario launched a new five-year Open Ontario Plan to strengthen Ontario's economy and create more jobs for Ontario's families. Included in the Open Ontario Plan is the WOA, which lays the foundation to make Ontario the North American leader in the development and sale of new technologies and services for water conservation and treatment by:

- Fostering innovative water, wastewater and stormwater technologies, services and practices in the private and public sectors;
- Creating opportunities for economic development and clean-technology jobs in Ontario; and
- Conserving and sustaining water resources for present and future generations.

SWI was created to complement the WOA and the Open Ontario Plan to encourage early adoption of innovative and cost effective approaches and technologies for advancing integrated sustainable water management. The objective of SWI is to fund projects in a representative set of Ontario's communities that:

- Showcase integrated and sustainable water technologies, services, practices or a combination of these;
- Produce results and knowledge that are applicable to other communities in Ontario;
- Demonstrate the positive impacts of collaboration through partnerships; and
- Provide opportunities for demonstrating the market potential and success of innovative technologies and practices in real community settings.

### **A.2.1 PROJECT BACKGROUND**

The Project (also known as "Water Quality Trading to Reduce Phosphorus Loadings to the Lake Simcoe Watershed") is within the Lake Simcoe watershed, located in south central Ontario. The Lake Simcoe watershed covers an area of over 3,303 square kilometres, covering an area north from the Oak Ridges Moraine through parts of York and Durham Regions, the City of Kawartha Lakes, and Simcoe County, crossing 23 municipal borders. Lake Simcoe, with a surface area of 722 square kilometres, covers about 20 percent of the total watershed area. Approximately 35 tributary rivers within five major systems flow into the Lake, which is a source of drinking water for eight municipalities and is connected to local industry.

The watershed, which is a mix of urban, rural, agricultural, and First Nations land, is home to more than 350,000 people and an important contributor to the provincial economy. In 2008, revenues from agricultural operations amounted to \$300 million and tourism generated \$200 million.

Phosphorus has long been identified as a problem for the health of Lake Simcoe. The main sources of phosphorus in the watershed are urban and agricultural fertilizers, detergents, waste from pets and livestock, septic systems, stormwater runoff, sewage treatment plant effluents, and airborne particles. Human activities are a major contributor. These activities combined with other stressors, such as the introduction of exotic species, climate change, and increased fishing pressure, continue to pose a challenge – the Lake no longer supports a self-sustaining coldwater fishery, excessive amounts of aquatic plant and algae growth are affecting beaches, marinas and private waterfronts, and the recreational industry is being threatened.

In recognition of the challenges facing Lake Simcoe, the Ontario Government passed the *Lake Simcoe Protection Act, 2008*, in December 2008; and in June 2009, the Ontario Government's Lake Simcoe Protection Plan came into effect. This Act and Plan build upon the substantial efforts of the Recipient and are intended to further protect and restore the ecological health of the Lake Simcoe watershed. The long term goal for Lake Simcoe is to lower Phosphorous loadings from 72 tonnes per year to approximately 44 tonnes per year.

WQT is a market-based approach to pollution control that treats pollutants as commodities. In a WQT system, a limit is put on the amount of a pollutant that can be discharged within a given time and defined area (such as a watershed). Dischargers within the watershed that reduce their pollutant loadings below the limit can sell surplus reductions (called Credits) to other Dischargers who need to make reductions to meet compliance requirements but face significantly higher costs to achieve those reductions. The Credits take on a monetary value, and it is the buying and selling of Credits among Dischargers that is the essence of WQT.

WQT is based on the fact that different sources in a watershed can have different costs to control the same pollutant. For example, a sewage treatment plant that needs to expand to accommodate new growth will likely incur much higher costs than an agricultural operation implementing conservation practices. In this case, if the agricultural operation significantly lowers its phosphorus loading, then the sewage treatment plant could buy the surplus reductions in order to meet its own discharge limits. In a WQT system, the emphasis is placed on reducing the overall amount of pollutant rather than focusing on specific discharges.

In 2009, the Province investigated the feasibility of WQT for the Lake Simcoe watershed, and concluded that WQT would be technically feasible and could play a meaningful role in helping to reduce phosphorus inputs to Lake Simcoe. The study recommended that the WQT program be administered by either a coalition of existing agencies and associations or by an existing watershed organization, so the Recipient has taken on the role of designing the WQT program for the Lake Simcoe watershed.

#### **A.2.2 APPROACH AND METHODOLOGY OVERVIEW**

The Recipient is a community-based environmental agency working to protect natural resources in the Lake Simcoe watershed in collaboration with:

City of Barrie  
City of Kawartha Lakes  
City of Orillia  
County of Simcoe  
Regional Municipality of Durham  
Regional Municipality of York  
Town of Aurora  
Town of Bradford West Gwillimbury  
Town of East Gwillimbury  
Town of Georgina  
Town of Innisfil  
Town of New Tecumseth  
Town of Newmarket  
Town of Whitchurch-Stouffville  
Township of Brock  
Township of King  
Township of Oro-Medonte  
Township of Ramara  
Township of Scugog  
Township of Uxbridge  
Ontario Ministry of Agriculture, Food and Rural Affairs  
Ontario Ministry of the Environment  
Ontario Ministry of Municipal Affairs and Housing  
Ontario Ministry of Natural Resources

In keeping with the collaborative framework in which the Recipient operates, the Project will be based on a participatory process, starting with formation of a Steering Committee involving key stakeholders such as the Recipient's partners including Provincial and Municipal governments, and also involving the building and development industry, the agricultural community, and non- governmental organizations (Table A.1)



**Table A.1: WQT Steering Committee**

<b>Organization</b>	<b>Number of Representatives</b>
Agricultural Industry	3 (includes Marsh farmers, uplands, sod)
Building Industry and Land Development Association	3 (1 from each of York and Simcoe Chapters, and 1 BILD staff person)
Recipient	1
Municipalities	6 (Regional Municipalities of York and Durham, Cities of Barrie and Orillia, Towns of Bradford and Innisfil)
Provincial Government	5 (1 from each of the Ministries of Agriculture, Food, and Rural Affairs, Municipal Affairs and Housing, Natural Resources, and 2 from the Ministry of the Environment [1 from Standards Development Branch and 1 from Lake Simcoe Project Branch])

The Project will also provide an opportunity for watershed residents to participate through a transparent public consultation process. Obtaining widespread endorsement of the WQT Project has been identified as a critical component to ensure its successful implementation. This can only be achieved through a participatory model.

A public consultation strategy will be implemented by a professional consultant/facilitator. Consultation will occur through various methods such as open houses and online forums. The consultant/facilitator will ensure that questions and concerns raised by members of the public are addressed throughout the process. Members of the Steering Committee will also be engaged in the public process to address specific questions associated with their respective interests.

The Recipient will take a proactive approach to risk management through a five-step process of identifying, assessing, analyzing, monitoring, and mitigating risks. The risks associated with this Project are programmatic, in the form of risks associated with (1) personnel availability, (2) scheduling and cost control, and (3) stakeholder acceptance for a WQT system in the Lake Simcoe Watershed.

#### **Program Risks:**

(1) Personnel Availability – The Recipient has identified a number of individuals to participate in the Project. It is possible that the individuals working on the Project may become unavailable at some point during the course of the Project, with the associated loss of specific skills. However, the Recipient has assigned multiple individuals to the Project which should manage any disruption occurring if an individual becomes unavailable.

(2) Scheduling and Cost Control – This Project relies on contracted professional services with specialized WQT expertise. The main risk associated with contracted services is scheduling and cost control. To mitigate against slippage in the timetable and/or cost overruns, the Project will rely on a detailed Project plan and schedule, which will form the basis for managing the Project and monitoring progress on defined milestones. The Recipient has assigned one of its most senior managers, the General Manager for Watershed Management, as the Project Manager, who will be supported by a number of other experienced staff over the course of the Project.

(3) Stakeholder Buy-In – WQT works where there are Dischargers that would incur high costs to reduce pollution and Dischargers that can cost-effectively reduce their phosphorus discharges. The presence of both types of Dischargers in the Lake Simcoe watershed has been proved. However, this does not mean that all Dischargers have an interest in participating in WQT. The use of a participatory approach involving a Steering Committee and consultation demonstrates a commitment to engaging as many Dischargers and other interested parties in the Project as possible. The approach of proactive

stakeholder engagement will engender awareness and understanding about WQT and encourage buy-in.

### **A.3 PROJECT OBJECTIVE**

The purpose of this Project is to develop a WQT system that could provide a mechanism to lower the overall loading of phosphorus discharged into Lake Simcoe and its tributaries at a reduced cost.

While completion of this Project will yield a WQT system designed to address the requirements of the Lake Simcoe watershed, the process and scientific methods used to develop the WQT program will be transferable to any jurisdiction. Given the extent of elevated phosphorus levels in Ontario's water resources, and the need for technically effective and cost efficient strategies to reduce these levels, it is anticipated that the results obtained from this Project will be of interest to many other communities in Ontario and elsewhere.

### **A.4 PROJECT SCOPE AND TIMELINES**

The Recipient will undertake the following activities within the specified timelines:

Project Activity			Completion Date
<b>A.4.1</b>	<u>Establish a Project Charter</u> , including oversight, resource commitments among Project partners and collaborators, timing, and strategies to minimize risk. Develop web content that will announce the Project and provide a medium for Project updates.		
	A.4.1.1	Identify key stakeholders and contacts within the Project community and invite them to participate on a Steering Committee. Hire the Public Consultation Company.	March 30, 2012
	A.4.1.2	Establish a Project Steering Committee, and develop a terms of reference and rules for engagement	April 27, 2012
	A.4.1.3	Confirm resource commitments and working agreements among Project participants	May 25, 2012
	A.4.1.4	Obtain consensus in principle on Overall Project plan (timelines and budget) from the Project Steering Committee and adopt a risk minimization strategy	May 25, 2012
	A.4.1.5	Post web content announcing WQT to the Lake Simcoe Region Conservation Authority server, including electronic distribution mechanism(s)	June 1, 2012

Project Activity			Completion Date
<b>A.4.2</b>	<u>Assemble background information</u> that is currently available about phosphorus loadings within the Lake Simcoe watershed, including details about existing stewardship programs and phosphorus reduction technologies and strategies so that the Project effort can be coordinated with on-going strategies.		
	A.4.2.1	Gather historical and current data about loadings	March 30, 2012
	A.4.2.2	Update details about phosphorus treatment technologies and best management practices	June 29, 2012
	A.4.2.3	Update knowledge about supporting legislation, regulations, policies, and guidelines	June 29, 2012
	A.4.2.4	Identify coordination needs between WQT and existing stewardship programs	June 29 2012
<b>A.4.3</b>	<u>Define the scope</u> of WQT within the Lake Simcoe watershed, including eligibility boundaries, and establish metrics that can be used to measure success. Seek and engage a phosphorus Credit Buyer to pilot test WQT technical elements, policies, and protocols, and to ground-truth Project decisions. Hold consultations on the proposed scope and success measures, and publish these after incorporating consultation input.		
	A.4.3.1	Define the geographic scope of WQT within the Lake Simcoe watershed, including eligibility boundaries	July 27, 2012
	A.4.3.2	Synthesize currently available information about phosphorus in the Lake Simcoe watershed, including magnitude of sources, locations, relative contribution to overall loadings, persistence of phosphorus, attenuation factors	July 27, 2012
	A.4.3.3	Identify the range of trading participants (municipal point and non-point, agricultural, industry, private sector, non-Dischargers) and define the eligibility for each including anticipated level of participation	July 27, 2012
	A.4.3.4	Seek and engage a phosphorus Credit Buyer to pilot test WQT technical elements, policies, and protocols, and ground-truth decision-making	July 27, 2012

Project Activity			Completion Date
	A.4.3.5	Draft and consult with provincial agencies, and the LSPP Coordinating and Science Committees on key WQT outcomes and agree on measurable goals that identify the desired results WQT is expected to achieve	July 27, 2012
	A.4.3.6	Prepare a draft discussion paper on WQT scope and measures of success and make available for internal review	July 27, 2012
	A.4.3.7	Hold consultations on scope and measures of success discussion paper	September 28, 2012
	A.4.3.8	Finalize the discussion paper on WQT scope and measures of success and make it publicly available	September 28, 2012
<b>A.4.4</b>	<u>Determine technical elements</u> of the WQT system, including Baseline phosphorus conditions based on currently available information, methods to estimate phosphorus Credits, and the value of Credits, for different sources. Hold consultations on the technical elements, and publish the elements after incorporating consultation input.		
	A.4.4.1	Determine and agree on initial phosphorus Baselines and periodically monitor / review; Baseline conditions will be reviewed at the end of each subsequent task	October 26, 2012
	A.4.4.2	Define phosphorus Credit estimation methods, define preliminary estimates of Credit value and periodically monitor / review; estimation methods will be reviewed at the end of each subsequent task	November 30, 2012
	A.4.4.3	Define WQT ratios to facilitate trading among eligible participants in the Lake Simcoe watershed and periodically monitor / review	November 30, 2012
	A.4.4.4	Prepare a draft series of technical memos in the form of discussion papers on phosphorus Baselines, Credit valuation, and trading ratios and make available for review; will be compiled into the final report	December 28, 2012
	A.4.4.5	Hold consultations on Baseline conditions, Credit valuation, and Trading Ratios; consultations will be defined in collaboration with Steering Committee	January 25, 2013



Project Activity			Completion Date
	A.4.4.6	Finalize the discussion paper on WQT trading elements and make it publicly available	March 1, 2013
<b>A.4.5</b>	Develop the trading system framework, based on analysis of options for the trading market structure, trading system governance and oversight, and administration and reporting. Conduct a mock trading workshop, using the pilot test phosphorus Credit Buyer, to evaluate options and determine the preferred form of each framework element. Individual discussion papers will be included in the final WQT report – each discussion paper deals with one element of the WQT system.		
	A.4.5.1	Describe options for operating a WQT system in the Lake Simcoe watershed, including the type of market structure, governance and oversight, and administration	January 25, 2013
	A.4.5.2	Agree on guiding principles and evaluation criteria for analysis of options	March 1, 2013
	A.4.5.3	Prepare a draft discussion paper on the options and guiding principles / evaluation criteria, and make	March 29, 2013
	A.4.5.4	Conduct a mock trading workshop using the trading pilot Buyer to examine and evaluate options and	March 29, 2013
	A.4.5.5	Finalize and release the discussion paper on the preferred trading system framework elements,	April 26, 2013
<b>A.4.6</b>	Document policies, procedures, and operational elements that would be needed for a functional WQT system. Engage partners and key stakeholders to review and confirm system components, hold consultations on operational elements, and publish results.		
	A.4.6.1	Identify what is needed in terms of detailed WQT procedures (Credit buy-sell agreements, Credit time spans), protocols (BMP verification), Notice of Approval to Trade templates, and tools (for data management and reporting), based on the agreed framework by Steering Committee and on maximizing existing resources among Project partners and key stakeholders	June 28, 2013
	A.4.6.2	Establish and document appropriate operational element details.	August 30, 2013
	A.4.6.3	Confirm administration operating resources.	August 30, 2013
	A.4.6.4	Stakeholder engagement and communications on WQT program	September 27, 2013



Project Activity			Completion Date
	A.4.6.5	Prepare a draft discussion paper on ways and means to deliver the WQT system.	October 26, 2013
	A.4.6.6	Consultation with Project partners and key stakeholders, individually and together, on operational details. Staff will present\ meet with all stakeholders when requested.	November 30, 2013
	A.4.6.7	Finalize and release the discussion paper on Lake Simcoe WQT operational elements.	December 31, 2013
<b>A.4.7</b>	Prepare a draft WQT report on the Lake Simcoe WQT Project: document WQT policies and procedures developed through this Project, review the Project in the context of agreed measures of success, re-cap lessons learned, and explain the transferability of WQT for application to other Ontario watersheds. Finalize the WQT report after input from Project partners and key stakeholders and post on a public website in fulfillment of the terms of Showcasing Water Innovation funding.		
	A.4.7.1	Document the agreed WQT policies, protocols, and procedures, including data management and reporting systems.	December 31, 2013
	A.4.7.2	Review Project in context of measures of success throughout the Project.	December 31, 2013
	A.4.7.3	Re-cap lessons learned and explain how WQT could be developed and applied elsewhere in Ontario.	December 31, 2013
	A.4.7.4	Prepare a draft public report on the Lake Simcoe WQT system, including how well the Project met expected performance metrics and describing transferability issues and approaches.	December 31, 2013
	A.4.7.5	Consult with Project partners, key stakeholders, and the watershed community at large on the draft WQT report.	December 31, 2013
	A.4.7.6	Finalize and publish the final WQT report on the Lake Simcoe WQT Project on the Recipient's website.	December 31, 2013
	A.4.7.7	Prepare a case study in <u>English and French</u> and post on the Recipient's website.	December 31, 2013
<b>A.4.8</b>	Measurement Plan		
	A.4.8.1	Track and update Baseline schedule monthly to ensure timely delivery of Project milestones.	December 31, 2013 (on-going)

Project Activity			Completion Date
	A.4.8.2	Review Project costs and budget details monthly to manage the Project within the agreed total cost.	December 31, 2013 (on-going)
	A.4.8.3	Hold Project status meetings to discuss and update progress, review submitted memoranda and reports, and to provide direction and input to the professional services contractor. Quarterly meetings ( once every three months) meetings of the Steering Committee are planned to be held for a total of ten (10).Thirty (30) Project status meetings are planned to be held between the Recipient's Project Manager and the contractor, one for each month of the Project, comprising 20 teleconferences and 10 in-person meetings.	December 31, 2013 (on-going)
	A.4.8.4	Monitor hits on the WQT web page, requests for information, and level of participation of stakeholders in participation activities.	December 31, 2013 (on-going)
A.4.9	Public Stakeholder Analysis\Consultation involves undertaking an analysis of stakeholder \ public attitudes and perceptions of water quality trading and developing and implementing a stakeholder\public process to engage the watershed community.		
	A.4.9.1	Develop Terms of Reference for consultant selection to complete a public stakeholder analysis and develop and implement a public consultation process.	March 31, 2012
	A.4.9.2	Select and hire a consultant with guidance from the Steering Committee and approval from the Recipient's Board of Directors.	May 31, 2012

Project Activity			Completion Date
	A.4.9.3	Complete the stakeholder analysis and development of the public consultation process. Present the results to the Steering Committee.	September 30, 2012
	A.4.9.4	Initiate and complete the public process as directed by the Steering Committee. Document the public process and incorporate result into the study final report.	December 31, 2013

## **A.5 ACQUISITION OF SUPPLIES, EQUIPMENT OR SERVICES**

The Recipient will promote value for money by following the Recipient's Purchasing Policy (April 24, 2009) and Purchasing Procedures (August 10, 2009) when using Funds to acquire supplies, equipment or services.

The Recipient has provided a letter outlining the rationale behind sole sourcing the participating consultants listed below (Schedule "E").

## **A.6 PROJECT PARTICIPANTS**

The Project will be undertaken by the following participants:

Participant (Organization)	Role / Responsibility
Recipient	The Lake Simcoe Region Conservation Authority will be responsible of general Project administration and management. This includes contracting the consultants, administering the Steering Committee, assisting in development of and reviewing technical studies, attending all partner, stakeholder and public meetings, and progress/final reporting to the Province.
XCG Consultants Ltd.	Is responsible for: undertaking all technical works; developing the Phosphorus Trading Scenarios/process; attending and presenting at the Steering Committee, stakeholder and public meetings; develop and finalizing all discussion papers and the report.
Kieser & Associates, LLC	Is responsible for: undertaking all technical works; developing the Phosphorus Trading Scenarios/process; attending and presenting at the Steering Committee, stakeholder and public meetings; develop and finalizing all discussion papers and the report.
Consultant for public stakeholder analysis and consultations (to be determined)	Is responsible for developing and implementing a public consultation strategy in collaboration with the Steering Committee