Please find enclosed the Agenda and supporting documents for the CLOCA Board of Director’s meeting on Tuesday, April 25, 2017, 5:00 p.m., at 100 Whiting Avenue, Authority’s Office Boardroom.

The list below outlines upcoming meetings and events for your information.

**UPCOMING MEETINGS & EVENTS**

<table>
<thead>
<tr>
<th>DATE</th>
<th>TIME</th>
<th>EVENT</th>
<th>LOCATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>April 25, 2017</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>April 25, 2017</td>
<td>Immediately following Board Meeting</td>
<td>CLOC Fund Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>May 13, 2017</td>
<td>10:00 a.m. to 12:00 noon</td>
<td>Wetland Family Day</td>
<td>Enniskillen Conservation Area</td>
</tr>
<tr>
<td>May 15 to May 19, 2017</td>
<td>9:30 a.m. to 2:30 p.m.</td>
<td>Garlic Mustard Management</td>
<td>Purple Woods Conservation Area</td>
</tr>
<tr>
<td>May 16, 2017</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>June 20, 2017</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
<tr>
<td>July 18, 2017</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>100 Whiting Avenue Authority’s Office Boardroom</td>
</tr>
</tbody>
</table>

*following Tuesday meeting due to Monday being a statutory holiday*
AGENDA ITEM:

1. DECLARATIONS of interest by members on any matters herein contained

2. ADOPTION OF MINUTES of March 21, 2017

3. CORRESPONDENCE
   (1) Conservation Ontario
       Re: Conservation Ontario Council Minutes – April 3, 2017

RECOMMENDATION:
THAT the above correspondence item be received for information.

4. PRESENTATIONS
   (1) BDO Canada Presentation
       Re: DRAFT 2016 Financial Statements for CLOCA & CLOC

       Nigel Allen & Heather Allison will provide the Board with an overview

   (2) Staff Report #5516-17
       Re: 2016-2017 YPDT-CMAC Annual Program Update

       Rick Gerber, Groundwater Specialist, CLOCA YPDT Program, will provide the Board with an overview of the program.

Cont’d
5. **DIRECTOR, DEVELOPMENT REVIEW & REGULATION**
   (1) Staff Report #5514-17
   Re: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses – March 1 to 31, 2017

6. **DIRECTOR, COMMUNITY ENGAGEMENT**
   None

7. **DIRECTOR, WATERSHED PLANNING & NATURAL HERITAGE**
   (1) Staff Report #5515-17

8. **DIRECTOR, ENGINEERING & FIELD OPERATIONS**
   (1) Staff Report #5517-17
   Re: CLOCA Watershed Flood-Risk Assessment Results
   *Verbal Presentation* (Report attached separately)

9. **DIRECTOR, CORPORATE SERVICES**
   (1) Staff Report #5518-17
   Re: DRAFT 2016 Audited Financial Statements, Central Lake Ontario Conservation Authority

10. **CHIEF ADMINISTRATIVE OFFICER**

11. **CONFIDENTIAL MATTERS**
    None

12. **MUNICIPAL AND OTHER BUSINESS**

13. **ADJOURNMENT**
AGENDA

SUPPORTING DOCUMENTS

MEETING OF: Authority

DATE: Tuesday, April 25, 2017
TIME: 5:00 P.M.
LOCATION: 100 WHITING AVENUE, OSHAWA
AUTHORITY’S ADMINISTRATIVE OFFICE, BOARDROOM
Conservation Ontario Council
Minutes from Meeting #1/17
Monday, April 3, 2017
Black Creek Pioneer Village

Voting Delegates Present:
Dick Hibma (Grey Sauble), Chair
Brian Horner, Ausable Bayfield
Alan Revill, Cataraqui Region
Geoff Rae, Cataraqui Region
Kim Smale, Catfish Creek
Chris Darling, Central Lake Ontario
Don Maclver, Credit Valley
Deb Martin-Downs, Credit Valley
Tim Pidduck, Crowe Valley
Richard Wyma, Essex Region
Forrest Rowden, Ganaraska Region
Linda Laliberte, Ganaraska Region
Joe Farwell, Grand River
Sonya Skinner, Grey Sauble
Gerry Smallengange, Halton
Lisa Burnside, Hamilton
Peter Raymond, Kawartha Region
Mark Majchrowski, Kawartha Region
Elizabeth VanHooren, Kettle Creek
Geoffrey Dawe, Lake Simcoe Region
Mike Walters, Lake Simcoe Region
Tammy Cook, Lakehead Region
Noel Haydt, Long Point Region
Cliff Evanitski, Long Point Region
Linda McKinlay, Lower Thames
Don Pearson, Lower Thames
Eric Sanford, Lower Trent
Jim Campbell, Maitland Valley

Mark Burnham, Mississippi
John Karau, Mississippi
Sandy Annunziata, Niagara Peninsula
James Kaspersetz, Niagara Peninsula
Bruce Timms, Niagara Peninsula
Lin Gibson, Nickel (Conservation Sudbury)
Carl Jorgensen (Conservation Sudbury)
Brian Tayler (North-Bay Mattawa)
Gail Ardiel, Nottawasaga Valley
Sherry Senis, Otonabee
Dan Marinigh, Otonabee
Janice Maynard, Quinte
Terry Murphy, Quinte
Richard Pilon, Raisin Region
Roger Houde, Raisin Region
Lyle Pederson, Rideau Valley
Sommer Casgrain-Robertson, Rideau Valley
Luke Charbonneau, Saugeen
Rhonda Bateman, Sault Ste Marie
Doug Thompson, South Nation
Francois St. Amour, South Nation
Angela Coleman, South Nation
Steve Arnold, St. Clair Region
Brian McDougall, St. Clair Region
Brian Denney, Toronto and Region
Murray Blackie, Upper Thames River
Ian Wilcox, Upper Thames River

Members Absent:
Mattagami Region

Presenting Guests:
Sandra George, Environment and Climate Change Canada
Dawn Walsh, Ministry of Environment and Climate Change

Guests:
Jennifer Keyes, Ministry of Natural Resources and Forestry
Phil Beard, Maitland Valley
Duncan Abbott, Mississippi
Peter Graham, Niagara Peninsula
Chris Hibberd, Nottawasaga Valley
1.  Welcome from the Chair

Chair Dick Hibma encouraged members to make introductions as follows:

Alan Revill (Cataraqui Region) Chair introduced Geoff Rae, General Manager.
Don Pearson (Lower Thames CA) introduced Chair Linda McKinlay.
Doug Thompson (South Nation) Past Chair introduced Chair Francois St. Amour and announced that Angela Coleman is now General Manager.
Peter Graham (Niagara Peninsula) Acting CAO introduced Chair Sandy Annunziata and Vice Chair James Kaspersetz.
Terry Murphy (Quinte) introduced chair Janice Maynard.
Peter Raymond (Kawartha) Vice Chair introduced Mark Majchrowski, General Manager.
Cliff Evantiski (Long Point) GM introduced Chair Noel Haydt.
Eric Sandford, Vice Chair Lower Trent Conservation was introduced.
Roger Houde (Raising Region) retiring GM introduced incoming GM Richard Pilon.
Phil Beard (Maitland) introduced Chair Jim Campbell.
Gerry Smallegange (Halton) Chair was introduced.

Roger Houde, Raisin Region was recognized for 30 years of service as he plans retirement in summer of 2017.

For those that were unable to attend the Conservation Ontario Orientation Webinar on March 24th, a recording will be posted on the Council Members page for your viewing.

The chair highlighted Queen’s Park Day taking place April 3, 2017. As well, David Tyler (Archives of Ontario) has invited members to visit the Ontario150 exhibit following the Council meeting.

Chair Hibma outlined the function of the Consent Agenda and members were reminded that no discussion will take place on items in the Consent Agenda unless members identify ahead of time their desire to have an item pulled for discussion. This allows Council more time to discuss strategic items which they can actually have an effect upon.

2.  Great Lakes Presentation

Bonnie Fox (CO)’s presentation is attached to the minutes of the meeting.
3. Adoption of the Agenda
   #01/17  Moved by: Forrest Rowden   Seconded by: Doug Thompson
   
   THAT the agenda be adopted as circulated.

   CARRIED

4. Declaration of Conflict of Interest
   
   There was none.

5. Approval of the Minutes of the Previous Meeting
   #02/17  Moved by: Mark Burnham   Seconded by: Luke Charbonneau
   
   THAT the minutes from the December 5, 2016 meeting be approved.

   CARRIED

6. Business Arising from the Minutes
   
   There was none.

   
   Mark Burnham (Mississippi) Conservation Ontario Vice Chair and Treasurer highlighted the report.
   
   #03/17  Moved by: Sandy Annunziata   Seconded by: Lin Gibson
   
   THAT the Final Report to the Conservation Ontario Budget & Audit Committee be received;

   THAT Conservation Ontario accept the Budget and Audit Committee’s recommendation that the Financial Statements of Conservation Ontario for the year ended December 31, 2016 be approved;

   AND THAT Conservation Ontario appoint BDO as its auditor for the 2017 audit.

   CARRIED

Members were provided with copies of the Annual Report. Kim Gavine (CO) presentation is attached to the minutes of the meeting and the Annual Report can be found on the Conservation Ontario website.

#04/17 Moved by: Sherry Senis Seconded by: Joe Farwell

THAT Conservation Ontario Council accept the 2016 Annual Report. CARRIED

9. Council Voting Delegates & Alternates

Members made some amendments to the list and it is attached to the minutes of the meeting.

#05/17 Moved by: Mark Burnham Seconded by: Chris Darling

THAT the Voting Delegates and Alternates List be accepted as amended. CARRIED

10. Election of Conservation Ontario Chair, 2 Vice Chairs and 3 Directors

The proceedings were handed over to Kim Gavine (CO). All the positions were declared vacant for 2017 and the election procedures were reviewed.

#06/17 Moved by: Forrest Rowden Seconded by: Tim Pidduck

THAT Rick Wilson and Jane Lewington be appointed as scrutineers in the event of a vote. CARRIED

Kim Gavine called for nominations for the position of Chair of CO for 2017.

Forrest Rowden (Ganaraska) nominated Dick Hibma (Grey Sauble).

Kim Gavine called a second and third time for nominations and hearing none called for a motion to close the nominations.

#07/17 Moved by: Doug Thompson Seconded by: Geoff Dawe

THAT the nominations for Chair of Conservation Ontario for 2017 be closed. CARRIED
Dick Hibma (Grey Sauble) accepted his nomination and was declared Chair of Conservation Ontario.

Kim Gavine called for nominations for Vice Chairs (2) of Conservation Ontario for 2017.

Linda McKinley (Lower Thames) nominated Lin Gibson (Conservation Sudbury).

Kim Gavine called a second time for nominations.

Joe Farwell (Mississippi Valley) nominated Don MacIver (Credit Valley).
Lin Gibson (Conservation Sudbury) nominated Mark Burnham (Mississippi).

Kim Gavine called third time for nominations and hearing none called for a motion to close the nominations.

#08/17 Moved by: Forrest Rowden Seconded by: Chris Darling

*THAT the nominations for Vice Chairs of Conservation Ontario for 2017 be closed.*

CARRIED

Each of the nominees spoke to their nomination. Ballots were cast and counted.

Lin Gibson and Don MacIver were elected Vice Chairs of Conservation Ontario.

Kim Gavine called for nominations for the Directors (staff positions) for 2017.

Joe Farwell (Grand River) nominated Cliff Evanitski (Long Point Region).

Kim Gavine called a second time for nominations.

Mark Burnham (Mississippi Valley) nominated Linda Laliberte (Ganaraska).

Kim Gavine called a third time for nominations and hearing none called for a motion to close the nominations.

#09/17 Moved by: Dick Hibma Seconded by: Alan Revill

*THAT the nominations for staff position Directors of Conservation Ontario for 2017 be closed.*

CARRIED

Cliff Evanitski and Linda Laliberte accepted their nominations and were declared Directors for 2017.
Kim Gavine called for nominations for the third Director for 2017, noting that this could be a staff or voting representative.

Lyle Pederson (Rideau Valley) nominated Doug Thompson (South Nation). Lin Gibson (Conservation Sudbury) nominated Mark Burnham (Mississippi).

Kim Gavine called a second and third time for nominations and hearing none called for a motion to close the nominations.

#10/17 Moved by: Luke Charbonneau Seconded by: Forrest Rowden

THAT the nominations for the Director of Conservation Ontario for 2017 be closed.  
CARRIED

Ballots were cast and counted. Doug Thompson was elected Director of Conservation Ontario.

#11/17 Moved by: Richard Wyma Seconded by: Sandy Annunziata

THAT the ballots be destroyed.  
CARRIED

Dick Hibma resumed chair of the meeting and thanked members for their support.

11. Standing Committee Representatives

As Linda Laliberte (Ganaraska) now sits on the Budget & Audit Committee as a director, a vacancy on the committee needed to be filled. Brian Horner (Ausable Bayfield) was nominated to fill that GM position on the Budget & Audit Committee.

#12/17 Moved by: Forrest Rowden Seconded by: Rhonda Bateman

THAT the Budget and Audit Standing Committee membership be ratified as amended.  
THAT the Group Insurance and Benefits Committee membership be ratified.  
CARRIED

12. Motion to move from Full Council to Committee of the Whole

#13/17 Moved by: Lin Gibson Seconded by: Tim Pidduck.

THAT the meeting now move from Full Council to Committee of the Whole.  
CARRIED
13. Consent Agenda

C.W.#01/17  Moved by:  Mark Burnham  Seconded by:  Lyle Pederson

THAT Council approve a consent agenda and endorse the recommendations accompanying Items 13a – 13o.

CARRIED

a. Conservation Ontario's Comments on “Consultation on the role of Ontario Municipal Board in Ontario’s Land Use Planning System” (EBR# 012-7196)

THAT the comments on the “Consultation on the role of Ontario Municipal Board in Ontario’s Land Use Planning System” (EBR# 012-7196) submitted to the Ministry of Municipal Affairs and Housing on December 19, 2016 be endorsed.

b. Conservation Ontario’s Comments on the “Proposed Technical Guidance for Bottled Water Permit Renewals” (EBR#012-9151) and “Regulation Establishing a New Water Bottling Charge” (EBR#012-9574)

THAT Council endorse the letter, dated January 31, 2017 on the “Proposed Technical Guidance for Bottled Water Permit Renewals” (EBR#012-9151) submitted to the Ministry of the Environment and Climate Change.

AND THAT Council endorse the letter, dated March 20, 2017 on the “Regulation Establishing a New Water Bottling Charge” (EBR#012-9574) submitted to the Ministry of the Environment and Climate Change.

c. Conservation Ontario’s Comments on the “Ontario Cap and Trade Program: Offsets Credits Regulatory Proposal” (EBR# 012-9078)

THAT the comments on the “Ontario Cap and Trade Program: Offsets Credits Regulatory Proposal” (EBR# 012-9078) submitted to the Ministry of the Environment and Climate Change on December 22, 2016 be endorsed.

d. Conservation Ontario’s Comments on “Naturally Resilient: MNRF’s Natural Resource Climate Adaptation Strategy (2017-2021)” (EBR# 012-9499)

THAT the comments on “Naturally Resilient: MNRF’s Natural Resource Climate Adaptation Strategy (2017-2021)” submitted to the Ministry of Natural Resources and Forestry on March 13, 2017 be endorsed.

THAT the letter sent to the Ministry of the Environment and Climate Change and the Ministry of Natural Resources and Forestry on March 20th, 2017 on the “Request for Bids for the Development of Draft Guidance for Watershed Planning” RFB No.: OSS_00500736 be endorsed.

f. Great Lakes Water Quality Agreement Executive Committee and Annex Sub-Committees Updates

THAT Conservation Ontario Council receives this report.

g. CO Case for Reinvestment in Ontario’s Flood Management Programs, Services and Structures

THAT Conservation Ontario Council receives this report.

h. Ministry of Environment and Climate Change (MOECC) Low Impact Development Guidelines for Ontario


i. CO Section 28 Regulations Committee Representative

THAT Tammy Cook (Lakehead Region) be endorsed as a member of the CO Section 28 Regulations Committee.

j. Carolinian Canada Coalition (CCC) Representation

THAT Conservation Ontario Council endorses Mari Veliz as Conservation Ontario representative on Carolinian Canada Coalition Board;

AND THAT Conservation Ontario thank Caroline Biribauer for her contribution to the CCC Board.

k. Conservation Ontario Training and Professional Development Strategy Advisory Committee Representatives

THAT A. Kett (Credit Valley Conservation (CVC)), D. Martin-Downs (CVC), D. Landry (Otonabee Region CA), B. Tayler (North Bay Mattawa CA), J. Lewington (CO), and B. Fox
(CO, Advisory Committee Chair) be endorsed as members of the Advisory Committee for a Conservation Ontario Training/Professional Development Strategy.

I. Board of Directors Meeting Minutes to be received: November 14, 2016 and December 5, 2016

THAT Conservation Ontario Council receives these minutes.

m. Program Updates

i. Source Water Protection

THAT Conservation Ontario Council receive this report as information.

ii. Marketing and Communications

THAT Conservation Ontario Council receives this report.

iii. Business and Partnership Development

THAT Conservation Ontario Council receives this report.

iv. Information Management (IM) Program Update

THAT Conservation Ontario Council receives this report.

n. Project Tracking

o. Correspondence

- Minister of Natural Resources and Forestry to CO re: Letter re CA Act Review
- Federal Minister of Finance to CO re: Pre-Budget Consultation

14. Presentations to Council

Jo-Anne Rzadki (CO) introduced Sandra George, Nutrient Program Coordinator (Environment and Climate Change Canada), whose presentation *Lake Erie Action Plan to Reduce Phosphorus Loads* to Lake Erie is attached to the minutes of the meeting.

Bonnie Fox introduced Dawn Walsh, COA/Great Lakes Project Manager (Ministry of Environment and Climate Change) whose presentation *Ontario’s COA and Great Lakes Strategy Work Plan* is attached to the minutes of the meeting.
15. Discussion Items

a. 2017 Special Projects Budget

On Friday, March 31, CO signed the Drinking Water Source Protection Agreement with the MOECC. The final amount of the agreement was not known at the time the staff report was written, and the total amount of the 2017 Special Projects budget subsequently changed from $1,477,831 to $1,493,680.

C.W.#02/17 Moved by: Mark Burnham Seconded by: Lin Gibson

THAT the draft 2017 Special Projects Budget in the amount of $1,493,680 be approved as presented and as recommended by the Budget and Audit Committee.

CARRIED

b. General Manager’s Report

C.W.#03/17 Moved by: Forrest Rowden Seconded by: Gail Ardiel

THAT Conservation Ontario Council receives this report.

CARRIED


ii. Initiation of the 2017 Committee Review

C.W.#04/17 Moved by: Mark Burnham Seconded by: Lin Gibson

THAT Conservation Ontario Council receives this report.

CARRIED

d. Update on the Excess Soil/Large-Scale Fill and Proposed Amendments to Bill 68

C.W.#05/17 Moved by: Mark Burnham Seconded by: Chris Darling

THAT Conservation Ontario staff pursue support for the draft “Conservation Ontario Proposed Amendment to Subsection 142(8) of the Municipal Act”

CARRIED

16. Regional Presentation – Lake Erie CAs

Richard Wyma’s (Essex Region) presentation is attached to the minutes of the meeting.
Deb Martin Downs (CVC) will work with her neighboring CAs to present either on the Greater Golden Horseshoe or Greater Toronto Area CAs for the June meeting.

17. Motion to Move from Committee of the Whole to Full Council

#14/17 Moved by: Luke Charbonneau Seconded by: Brian Tayler

*THAT the meeting now move from Full Council to Committee of the Whole.*  
CARRIED

18. Council Business

- Council Adoption of Recommendations

#13/17 Moved by: Lyle Pederson Seconded by: Mark Burnham

*THAT Conservation Ontario Council adopt Committee of the Whole (C.W.) Recommendations: C.W. #01/17 to C.W. #05/17.*  
CARRIED

19. New Business

Deb Martin-Downs (CVC) brought an update regarding Latornell 2017 encouraging members to consider people for the upcoming Leadership Awards nominations. As well, auction items are always needed for the annual auction that raises funds for the Grant Program. The 2017 theme is *Succession – The Nature of Change.*

The Biennial Tour is scheduled for October 1-3, 2017. Credit Valley Conservation and Conservation Halton will co-host the event *Growing Today – Protecting Tomorrow.*

Terry Murphy (Quinte) brought clarification to a recent event in the Quinte watershed where a boil water advisory had been put into effect after a partially submerged barge spilled fuel into the Picton Bay on March 24 while docked at Picton Terminals. Janice Maynard (Quinte Chair) spoke further to the situation highlighting that this is why the Source Protection Programs work: systems were monitored and an emergency plan was enacted thanks to Quinte Conservation and the Source Protection Plan.

20. Adjourn

#14/17 Moved by: Gail Ardeil

*THAT the meeting be adjourned.*
Attached is the 2016-2017 YPDT-CAMC Annual Program Update. The York Peel Durham Toronto-Conservation Authority Moraine Coalition (YPDT-CAMC) Groundwater Program was initiated in 2001 and is a coalition of 13 agencies working together to better understand and manage water resources. The Oak Ridges Moraine focused program stretches from the Credit and Nottawasaga Watersheds in the west to the Trent River in the east and reaches from the shores of Lake Ontario northwards to beyond Lake Simcoe and the Kawartha Lakes. The program provides a multi-agency, collaborative approach to collecting, analyzing and disseminating water resource knowledge as a basis for effective stewardship of water resources. Agencies and consultants look to the program to provide the regional geological and hydrogeological context for their ongoing technical studies and management initiatives.

**RECOMMENDATION:**

*THAT Staff Report #5516-17 be received for information.*
2016 PROGRAM OVERVIEW & 2017 WORK PLAN

TO: YPDT Executive Steering Team

FROM: Steve Holysh & Rick Gerber

DATE: March 7, 2017

RE: 2016 Overview/2017 Work Plan – Oak Ridges Moraine Groundwater Program (ORMGP; aka YPDT-CAMC)

Background

The YPDT-CAMC (Oak Ridges Moraine) Groundwater program was initiated in 2001, driven by the encroachment of development onto the Oak Ridges Moraine and the recognition of an absence of high quality environmental data and analyses, particularly with respect to groundwater. Since inception, the program has provided partner agencies with an actively managed water-related database and the regional geological and groundwater context for on-going day-to-day water resource management activities (e.g. development review, PTTW review, watershed management, source water protection, etc.). The framework for the program is succinctly summarized in the adjacent figure, taken from the Council of Canadian Academies 2009 report “The Sustainable Management of Groundwater in Canada.”

Mandate

The mandate of the YPDT-CAMC Groundwater Management Program partnership is to provide a multi-agency, collaborative approach to collecting, analyzing and disseminating water resource data as a basis for effective stewardship of water resources. The YPDT-CAMC Groundwater Management Program builds, maintains and provides to partnered agencies the regional geological and hydrogeological context for ongoing groundwater studies and management initiatives within the partnership area.
As such the program will:

- Build and maintain a master database of water related information that is accessible to all partner agencies;
- Build and maintain a digital geological construction of the subsurface layers that is accessible to all partner agencies;
- Build and maintain a numerical groundwater flow model(s) that can be used to address any number of issues that arise at any of the partner agencies;
- Coordinate and lead investigations that will acquire new field data that will strategically infill key data gaps;
- Provide technical support to Source Water Protection Teams to ensure that interpretations used in source water are consistent with the regional understanding;
- Provide technical support to planning authorities to ensure that Official Plan policies are developed in a manner which makes them consistent with up to date groundwater science as derived from the project; and
- Provide technical support to all partnered agencies for addressing other Provincial legislation.

Further information regarding the program can be found at www.oakridgeswater.ca.

Program area - Note that for data management purposes the program area comprises the entirety of three SWP Regions: 1) Credit/Toronto/Central Lake Ontario (CTC); 2) Southern Georgian Bay - Lake Simcoe (SGBLS); and 3) Trent Conservation Coalition (TCC). Focus of work is largely directed to the GTA municipalities (York, Peel, Durham, and Toronto) and their associated Conservation Authorities (CAs).
Review – 2016 (Highlights)

Highlight – 1. Database
- Database moved from SQL 2012 to SQL 2014 and then to SQL 2016 at the end of the year;
- New servers purchased and configured to accommodate new database accessibility through Citrix system;
- Added in 2016 - 28,000 boreholes; 700 reports; 2.5 million temporal data records;
- Website enhanced for ready access to program data and information;

Highlight – 2. Analysis & Modelling
- Water budget model run across jurisdiction and maps made available on website;
- Water table and potentiometric surface maps regenerated and made available on website;
- Review and analyses of Yonge St. Aquifer geology and hydrogeology in support of technical paper;
- Obtain/inventory/archive and review additional partner agency numerical groundwater flow models;
- Complete technical work of “ensemble” modelling study for Ducks Unlimited to investigate economic benefit of CVC wetlands.

Highlight – 3. Other
- Further enhancements to pass-worded section of website (www.oakridgeswater.ca); access provided to Provincial and Federal technical staff for peer review;
- Continued monitoring of 20 field sites to assist with infilling of data gaps;
- Communications – continued technical collaboration with various agencies including MOECC; GSC; Hydro One; Town of Clarington; Univ. of Waterloo; Guelph Univ.; Univ. of Western Ont.; York Univ.;
- Communications – authored or co-authored three conference presentations; significant interest generated at City of Toronto’s “Lunch and Learn”.

Highlight – 4. Budget
- Program delivered on budget;
- No increase for 2017;

<table>
<thead>
<tr>
<th>Program Component</th>
<th>2016 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Costs (Wages + Benefits)</td>
<td>$635,000</td>
</tr>
<tr>
<td>Office + Disbursements</td>
<td>$40,500</td>
</tr>
<tr>
<td>Computer + Software</td>
<td>$76,800</td>
</tr>
<tr>
<td>Consultant/Services</td>
<td>$44,200</td>
</tr>
<tr>
<td>Administration</td>
<td>$12,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$809,000</strong></td>
</tr>
</tbody>
</table>
Review – 2016 (Detailed Summary)

The following provides a more detailed overview of activities undertaken through the Oak Ridges Moraine Groundwater Program through 2016.

1. DATABASE

2016 was a year of considerable change and progress with respect to the program’s database with a considerable upgrade of the database from a SQL 2012 structure (version 20120615) to SQL 2014 and then quickly into SQL 2016 (version 20160831) to allow the program to take advantage of recent changes in SQL (i.e. the incorporation of the “R” statistical computing and graphics package into SQL 2016). As in previous years, the discussion of database issues has been broken into four categories: Additions; Corrections; Accessibility and Software/Hardware Management.

1a Additions

Key 2016 additions to the database included:

- An updated WWIS database was obtained in spring 2016 from the MOE and about 28,000 new well records were brought into the database – the MOE database was up-to-date as of September 2015;
- Approximately 700 new documents were brought into the library;
- Water chemistry from the MOE’s 1997 report “The Hydrogeology of Southern Ontario”;
- The 2016 chemistry, water levels and pumping records from various municipal wells owned/operated by the Regional Municipalities;
- Long term York Region water level data that had not yet been imported into the master database owing to database divergence (note that a data merge tool is being completed and is expected in 2017 which will allow for water levels and chemistry data to be more regularly imported);
- Peel Region and Durham Region municipal monitoring data continued to be regularly appended to the database;
- Miscellaneous well and associated data from several consulting reports were brought into the database;
- In total approximately 2.5 million temporal records (chemistry, water levels, etc.) were added.

1b Corrections

- In a similar manner to what has been undertaken in the past, the import of an update of WWIS records necessitated the running of several quality assurance procedures needed to check and correct information coming into the database (e.g. check the screen top is above screen bottom, similarly check that geology layers have tops above bottoms, check water levels are not below bottom of the well, compared invalid MOE coordinates against listed townships and maps on well record forms (i.e. checking of coordinates etc.);
- Key wells that are monitored by others, mostly golf course operators, were flagged in the database by providing existing WWIS records with a proper well name that is in use by the well owners. This was done as part of an initiative to enable any temporal data associated with the wells to be imported and used into the future;
- In order to better manage changes to either the elevation or the UTM coordinates of any wells (or other locations) in the database new tables were added to help with change tracking. Under new database management policy, changes to these key attributes will only be allowed if the old values are stored within these new tables and if proper documentation for the elevation or UTM coordinates have been provided (e.g. new survey, incorrect original data entry, etc.);

1c Accessibility
Considerable efforts were expended through the first half of 2016 in constructing a new system that would allow for partner agencies wishing to load data into the database, direct connection to the program’s master database via an internet browser. With the discontinuation of database replication in the fall of 2015, the database became temporarily inaccessible to some partners for data uploading. Advantages to the new connection methodology were numerous and included:

- Expanding access for staff to the database from any computer (e.g. other office computers, home office, etc.);
- Reducing the need for IT resources at each independent agency. Prior to this upgrade, partner agency IT staff had to establish internet pathways in order to maintain linkages between servers at the partner agency side and at the ORMGP side. This is now all handled on the ORMGP side;
- Less overhead and efficiencies gained in terms of managing the replication process that was formerly in place.

The new system is reliant on a Citrix Xendesktop platform that has been established on a server at Central Lake Ontario Conservation Authority offices to take advantage of the recently installed high speed fibre optic internet connection. Testing of the system took place in the latter part of 2016 with all partner agencies receiving an agency password and details on how to log onto the Citrix server. As of early 2017 it is available for partner use to access the database.

The program’s comprehensive database management manual has been updated to reflect new structure (e.g. tables, relationships, views, etc.) as well as to reflect any MOE WWIS import methodology changes.

In addition to this direct connection to the database, the program’s website has also been enhanced through 2016 to provide technical staff with ready access to a variety of program data and information. This is discussed in more detail below.

1d Software/Hardware Management

In order to keep the database up-to-date and readily accessible to the partner agencies there is continual maintenance and review of the program’s software and hardware capabilities. As in 2015, throughout 2016 these activities continued to be more involved than in previous years, owing to the establishment of the Citrix server and associated virtual computers that needed to be established at CLOCA. In 2016, the following tasks have been undertaken with respect to the program’s software and hardware management:

- Implemented a new versioning and tracking system that is now carried within the database;
- Database switched from a 2012 version of SQL to SQL Server 2014 on YCDATABASE (and then in early 2017) to a 2016 version;
- As a temporary substitution for the removal of replication, direct database access via “Remote Desktop”, was temporarily offered to all agencies to facilitate ongoing monitoring programs; Peel Region, TRCA, and NVCA took advantage of this accessibility option;
- New servers were purchased and configured (e.g. re-implemented VMWare Vsphere and VEEAM backup system server; re-implemented GIS server; implemented Ubuntu system instead of installed Red Hat system; include change to RAID 10 for protection against data loss) to replace dated equipment and to ensure that the Citrix environment would be stable and efficient for partner agencies logging in to the system;
- In order to speed up the retrieval of data from maps on the partner side of the program website, which directly access the database, several dedicated “Website” tables (prefixed with a “W_” (e.g. W_DOCUMENT)) were created within the database; these tables synthesize much of the temporal data within the database (e.g. min, max, avg. values) and are scripted/coded to refresh every weekend so that they are always providing up-to-date information to the website;
• Work was undertaken to evaluate options (e.g. SQLite) for distributing local cuts or copies of database for partner agencies;

• The method by which each well screen is assigned to a geological unit was reconfigured to be more efficient and flexible. This involved the creation of two new Reference tables (R_Form_Assign_Code and R_Form_Model_Code) which now allow for the user to select the Numerical/Geological Model (e.g. York Tier 3 Model, Core Model, etc.) to be used for tying a screen to a geological unit. As in the past, there is still a defaulted geological unit (our best interpretation) linked to each screen. All screens (including those tied to newly imported wells) had their geological unit re-linked and updated as part of this process.

• The water level data from York Region was incorporated back into the master database resulting in the addition of several million temporal records. Work remains ongoing to realign the divergent York Region database with the Master Database and to make the import of new data more streamlined.

• The processing of library reports through the optical character resolution (OCR) process and into a directory structure and then onto the Sharepoint environment on the website was restructured to make it more streamlined;

• The migration to the new version of the database (mentioned above) required considerable efforts to ensure that the database schema (tables, fields, relationships, etc.) remained compatible with the Sitefx software (which has also been upgraded during 2016) so that this program could still be used to connect to the database.

2. ANALYSIS & MODELLING

The following initiatives either carried through from 2015 or were initiated in 2016.

Model Review
Models provided to the program under the Model Custodianship program continued to be reviewed upon delivery. For example, models across the CTC jurisdiction were reviewed and a technical memo was provided to CTC documenting the work. Also, the SGBLS SWP group requested some assistance in terms of upgrading a few models to non-proprietary versions and this was completed in early 2016. As part of the ongoing model review, it should also be noted that we continue to have communication with software developers to discuss, at a high technical level, modelling code and to provide input regarding bugs in the code that need to be fixed as well as suggesting improvements to existing codes. Over the course of 2016, discussions were held with the developers of GSFLOW, HydroGeoSphere, and GWVistas.

Model Management Report
Through early 2016 the Model Management Guidance report was being completed and made available for review by a peer review committee. Two peer review committee meetings were held in January and May and the report was completed over the summer months and forwarded to a technical editor for review in the early fall. The report will be finalized in early 2017.

Yonge Street Aquifer
In partnership with staff from the Geological Survey of Canada and York Region, a detailed analysis of the geology and hydrogeology of the Yonge Street Aquifer is underway with the final product targeted as a technical paper to be submitted to the Canadian Journal of Earth Sciences.

Ducks Unlimited
Mason continued to work on a modelling project with Ducks Unlimited that is ultimately focused on determining the economic value of wetlands in mitigating flooding. Through an innovative “ensemble” modelling approach that made use of the University of Toronto’s SciNet computing centre, 1000s of model runs were captured within the study to address the inherent uncertainty in understanding the Credit River
watershed’s flow system. The model report is being finalized in early 2017 and the project is being transferred to Intact Insurance to run the follow-up economic analysis.

**Water Budgeting**
Partner agency technical staff are commonly charged with reviewing hydrogeological reports that have been prepared in support of development applications. These reports frequently present water budgets that may not always be rigorous in their approach. To better support these types of reviews a regional scale continuous hydrologic model was run across the entire program area jurisdiction to provide average water budget parameter estimates (precipitation, runoff, evapotranspiration and recharge). These estimates can guide reviews and ensure that the numbers presented are reasonable.

**Water Quality Overview**
To obtain an overview of the groundwater quality across the study area, Mezmure Haile-Meskale, a recently retired MOECC staff member, was retained. A water quality dataset was extracted from the database and Mezmure is working to provide a synthesis of the information both spatially across the study area and also with depth to characterize spatial, vertical and temporal trends in the groundwater quality across the study area. Key information that will be imported back into the database would be interpretations (e.g. saturation indices, water type, etc.) on the some 6,000 water quality analyses currently held in the database.

**Water Table and Potentiometric Surface Mapping**
These two surfaces were re-mapped in 2016 to support a new map that was uploaded on the website. The water table was generated using shallow wells (less than 20m) coupled with the Strahler Class 4 and larger streams and was compared with modelling results from the YT3 model. The comparison was favourable. The potentiometric surface map was generated using wells greater than 40 m deep.

**Miscellaneous technical support**

**CLOCA** – In their ongoing review of development applications staff were looking to make effective use of the PRMS modelling results that were provided under SWP. Assistance was provided in terms of guiding staff as to what model result layers were most applicable. Techniques for making effective use of the Viewlog model results in one location and applying them to other areas undergoing development were also recommended.

**TRCA** –
- TRCA, CVC and HRCA are all interested in more rigorous assessment of their wetlands. We have provided TRCA staff with wetland locations and monitoring results that they can capture into their ongoing wetland analysis work;
- finalized work with TRCA staff to develop a drought index by statistically combining soil moisture data with precipitation data;
- provided technical support to TRCA staff as they proceeded a process to evaluate various modelling platforms for evaluating wetlands;
- assisted in evaluating discharge in the Seaton area, Brampton Esker water levels, and in evaluating drawdown in the north Leslie area as development applications were being reviewed;
- preparing an existing geology and hydrogeology conditions report for the Carruthers Creek watershed in support of the TRCAs Carruthers Watershed Plan;
- assisted with logistics (core management, database support, etc.) for the re-drilling of a new well (with five different screens at varying depths) on Taunton Rd. (near Brock Rd) in Pickering after a long term IWA monitoring well was inadvertently destroyed by a developer.

**York** – worked with York Region consultant to ensure YT3 modelling files were in format (GW Vistas) that consultant was familiar with; ii) subsequent conversion of YT3 files to Surfer for use by consultant; iii) review of RFP and generation of cross-sections for incorporation into RFP for consultant to run model to generate new WHPA; provided accessibility to modelling software via remote desktop connections.
CVC – i) provided particle tracking support for development review in Hillsburgh and Erin; ii) provided Halton Tier 3 model to MTE Consultants for use in the Limehouse Quarry study; iii) Viewlog and database support.

Peel – provided WHPA files from West Model for new wells in Caledon East and Inglewood in preparation for the Matrix Solutions Inc. modelling update; ii) provided some technical support for the West Trunk sewer project where problems with advancing the tunneling.

Durham – Provided support for ongoing investigation into the drought and dry wells in Clarington; provided technical, logistical and financial assistance in the drilling of the new Port Perry well.

LSRCA – assisted with technical discussions regarding the integration of modelling of E-flow and LID studies.

Toronto – Met with staff and City consultant to discuss problem area near Don Mills Road, south of Hwy. 401 (Graydon Hall) and initiated project to further investigate the condo development in the area.

3. OTHER PROGRAM INITIATIVES

Over the course of 2016 a number of other initiatives also formed part of the overall work program.

Website – In partnership with staff from Central Lake Ontario Conservation Authority (CLOCA), work continued on enhancing the program’s website, and in particular on the pass-worded section that is only available to technical staff at the partner agencies. New maps have been created to better allow technical staff to make use of the vast data and information sets assembled through the project. With recent talks at the Federal and Provincial level regarding the need to construct an accessible groundwater database for Ontario, it was decided that passwords to the website should be provided to key Provincial and Federal technical staff so that they could see how far the program has proceeded.

Report Library – In 2016, staff met with Rural Development Consultants (RDC), a small consulting firm whom maintain a file system of all reports they have prepared since the early days of the company in the late 1970s. RDC have agreed to make available their reports to the program and, through a pilot project, the reports are now being scanned, added to the database, and being made available through the website. Also in 2016 a summer student was retained to further assist in getting other miscellaneous reports into the database resulting in the addition of some 600 new reports to the database.

Field Work – Staff continue to monitor a suite of approximately 20 wells to help in charactering specific hydrogeological settings that have been identified across the study area.

Ontario Climate Advisory Committee – as part of the task of considering the future use and updating of the available groundwater flow models across the program study area, staff continued to attend and contribute to this working group that advocates for best management practices in terms of collecting, managing and distributing climate information in Ontario. The program’s modelling expert has become a member of OCAC and presented his Ducks Unlimited Wetland modelling project to the group in fall 2016.

Isotope Project – in collaboration with the University of Waterloo and York Region, staff continue to collaborate on a project to collect samples across the program study area for isotopic analyses. Results will be used to assist in groundwater flow system delineation with a view to providing independent field checks on numerical groundwater flow models.

Communications

• Presented a poster entitled “Multi-agency Co-Operation in Managing Ontario's Groundwater Resources” at the 2016 Blue Cities Conference in May 2016 in collaboration with staff from the Geological Survey of Canada.

• Presented a paper entitled “A Path Forward for Source Water Protection Numerical Models” at the 69th National Conference of the Canadian Water Resources Association.


• Invited in May to present the program and website overview at the City of Toronto’s “Lunch and Learn” seminar series which attracted the largest crowd of city staff in recent memory. As a result some 15 Toronto staff asked for and were provided with passwords to the program website.

• Invited to provide a Keynote talk at Seneca College’s one day symposium “The Water Conundrum – Excess and Scarcity”.

• Invited to present an overview of the Ducks Unlimited Wetland Modelling project on three occasions; i) to CLOCA staff at a “Lunch and Learn”; ii) to CVC staff at a “Lunch and Learn”; and iii) to technical water management staff from the Ministry of Natural Resources and Forestry in Peterborough.

• Met with Peel Region to provide initial training to new staff on YPDT software tools and data access via the website.

• Interactive day with Grade 4 students discussing water and geology (Pleasantville Public School, Richmond Hill);

• Annual lecture on “Water Resources Management” to undergraduate and graduate students at the University of Toronto Scarborough;

• Field trip and presentation on Geology/Hydrogeology to Parks Canada staff regarding possible expansion of the Rouge Park; and

• Presentation regarding management of collaborative efforts at the Western Lake Ontario Workshop aimed at developing western Lake Ontario consortiums.

Liaison with External Agencies

In 2016 staff met and corresponded with various external agencies on behalf of the partners.

• CAMC – staff continued to report quarterly to the CAOs of the Conservation Authorities having jurisdiction on the Oak Ridges Moraine.

• Ministry of the Environment and Climate Change – staff were invited to participate at the MOECC’s Water Quantity Technical Framework Workshop to provide input into future directions for this component of SWP; met with policy planning staff from MOECC to provide technical input and follow up assistance with their initiative to grow the Greenbelt; continue to try and secure agreement with Central Region staff to allow for importing of additional MOECC datasets into the database; retained services of Ross Hodgins, recently retired MOECC staff, to assist in liaising with Central Region and to enhance current database by flagging specific key locations that might have datasets tied to them (e.g. golf course wells).

• Western University – met with Dr. Rob Schincariol to discuss possible collaborative research initiatives.

• University of Waterloo – met with Dr. Martin Ross to discuss their approach to mapping geohazards for the National Security branch of Public Safety Canada across a broad part of Ontario and in particular the potential susceptibility of differing material types to earthquakes. Provided geological surfaces for use in the project and also discussed possible future collaboration.

• University of Toronto – Staff continue to be linked with the U of T, in particular at the Scarborough campus where Mike offers GIS related courses to 3rd year and graduate level students.

• York University – provided a borehole dataset for the York University campus to a technical academic team that is investigating the possibility of establishing a geothermal energy system on the campus. Associated technical support and interpretation of the information was also provided.

• McMaster University – continuing to provide assistance to PhD candidates with respect to modelling groundwater/surface water interactions.
- **Geological Survey of Canada** – set up an agreement to geologically log core from Taunton Rd. and Port Perry BHs – also provides for additional work if agreed to by both parties; working jointly with GSC staff on a paper (Canadian Journal of Earth Sciences) describing the geology and hydrogeology of the Yonge Street aquifer; provided background data and reports for areas in Simcoe County to support a research project.

- **Town of Richmond Hill** – continued to provide technical expertise and peer review regarding development proposals in sensitive area of artesian pressures on the flank of the Oak Ridges Moraine.

- **Hydro One** – continued with providing technical oversight and facilitation between different parties with respect to groundwater issues (including establishing a long term monitoring program) surrounding the construction of a transformer station on the Oak Ridges Moraine in the Town of Clarington.

### 4. BUDGET SUMMARY

The four senior partners (City of Toronto, Regional Municipalities of York, Peel and Durham) each contributed $175,000 in 2016 (Total of $700,000). In addition, work undertaken for SWP resulted in additional funds to the program of $230,000. The program’s expenses for the 2016 are summarized in Table 1.

<table>
<thead>
<tr>
<th>Program Component</th>
<th>2016 Budget</th>
</tr>
</thead>
<tbody>
<tr>
<td>Staff Costs (Wages + Benefits)</td>
<td>$635,000</td>
</tr>
<tr>
<td>Office Costs + Disbursements</td>
<td>$40,500</td>
</tr>
<tr>
<td>Computer + Software</td>
<td>$76,800</td>
</tr>
<tr>
<td>Consultant/Services</td>
<td>$44,200</td>
</tr>
<tr>
<td>Administration</td>
<td>$12,500</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$809,000</strong></td>
</tr>
</tbody>
</table>

The program was completed within an acceptable budget in 2016. With the additional funds obtained through SWP, there is some flexibility in the program budget, and therefore no budget increase has been requested for 2017.
2017 WORK PLAN – ONGOING/UPCOMING TASKS

1. DATABASE RELATED

Task 1.1 - Training in the Use of New Database Access (Citrix System)
With the implementation of the new platform to allow partners access to the program’s master database, there is a need to train technical staff from the various partner agencies regarding database access. Training is proposed to be delivered in a variety of ways over 2017 including via the web (e.g. GoToMeeting), face to face group training and face to face agency specific training.

- **Benefits:** Staff will be able to continue to upload data into the database thus ensuring its continued relevance to groundwater studies across the study area.
- **Estimated Timeline:** Ongoing through 2017.

Task 1.2 - Assessment of the New System
Over the course of 2017 staff will monitor external partner agency interaction with the database through the Citrix system and make any necessary adjustments as the year progresses.

- **Benefits:** This task is necessary to ensure continued easy access to the program database by technical staff. This will also allow for staff to utilize software that they do not have in-house.
- **Estimated Timeline:** Ongoing through 2017.

Task 1.3 – Release of Updated Database Manual
As changes have taken place in the database there have been amendments made to the program’s extensive database manual. The manual will be re-released to partner agency staff in 2017.

- **Benefits:** Ensures continued partner access of the database.
- **Estimated Timeline:** Summer 2017.

Task 1.4 – Broaden Database Accessibility
With the support of the Executive Steering Committee (to be requested in March 2017), the program will seek ways of broadening access to the program’s store of data and information. It is proposed that a stakeholder meeting with the consulting community be set up in the spring to determine the best path forward on this initiative.

- **Benefits:** With an expanded number of hydrogeologists examining the database and the various maps, models and other products prepared under the program, it is more likely that errors and omissions will be discovered and reported, leading to overall improvements in the deliverables to the groundwater community for important water-related decision making.
- **Estimated Timeline:** Spring 2017.

Task 1.5 - Improved migration of consultant data into the database
With the broadening of access to the program’s database and website, the importing of newly collected consultant data (including all data from borehole geology information to water levels and water quality data) could be more efficient. Improvements can be made by offering standard data formatting templates (in either Microsoft Excel or Access formats) on the website. Contract documents from any of the thirteen partner agencies can be drafted to explicitly require the use of YPDT-CAMC templates from the website as a requirement of winning any particular groundwater related project.
• **Benefits**: With the movement to the digital collection of logger files via hand held devices, it would be beneficial to all agencies if consultants could readily transfer collected information directly into a standard template that would facilitate the importing of data into the database.

• **Estimated Timeline**: Fall 2017.

**Task 1.5 - Continued improvement and expansion to the database**

The database is now 61 gigabytes in size and continues to grow as new information is appended. 2017 will see York Region water quality data migrated into the Program database as well as an update to the PGMN data. Work will continue, along with York Region and Earthfx staff, to try and make such updates from York Region seamless. Work will continue to encourage staff from Central Region MOECC Office to make use of the program’s data (via the website) and to contribute additional data into the program.

• **Benefits**: Improved data quality and additional data input to the database will enhance any studies/work that would be undertaken in support of development or construction activities.

• **Estimated Timeline**: Ongoing through 2017.

**2. ANALYSIS & NUMERICAL MODEL RELATED**

**Task 2.1 – Numerical Model Guidance Manual**

Comments and suggestions received from the technical editor will be incorporated into the Model Management Guidance document and the report will be finalized.

• **Benefits**: The document will provide partner agencies with a practical guidance manual that can be used when commissioning future numerical modelling studies. From preparing legal contract documents to seeking technical guidance on what type of model to request from a consultant the document will seek to be the “go-to” reference guide for numerical modelling studies.

• **Estimated Timeline**: Completion – Spring 2017.

**Task 2.2 - Model Harmonization**

With some 60 numerical models having been generated across the geographical study area of the program, there remains a need to move towards a single “authoritative” path forward. This would start with a focus on the geological layering and move forward to other attributes of the many models (e.g. hydraulic conductivity, porosity, etc.). As an initial key building block for numerical groundwater modeling, the geological/hydrostratigraphic layers need to be refined to incorporate any beneficial changes/insights obtained within the various modelling studies.

• **Benefits**: This task will initially see the consolidation of many phases of geological interpretation into a common “authoritative” set of surfaces that will extend across the entirety of the Oak Ridges Moraine drainage area. For each agency, this will continue to prove to be a significant benefit in that they can confidently provide a set of information and interpretive layers to any ongoing capital works project that involves subsurface excavation or tunneling. When provided to consultants, the set of layers allows for all parties (including staff and consultants working in adjacent agencies) to speak with a common language when referring to the subsurface stratigraphy.

• **Estimated Timeline**: Ongoing through 2017

**Task 2.3 - Mapping of Known Groundwater Problem Areas**

A wealth of information exists within the program information and analysis system to better inform projects regarding subsurface conditions prior to commencement. This task will build on a presentation at a Canadian Geotechnical Society symposium regarding groundwater issues related to excavations to prepare regional mapping of various hydraulic settings that contain conditions pertinent to any subsurface works such as
groundwater under pressure (i.e. flowing conditions) and other high-capacity confined aquifer settings. The hydraulic head and water table surface maps for the various hydrostratigraphic units will be updated to incorporate all observed data.

- **Benefits:** By having an understanding of subsurface conditions prior to project commencement partner agency staff can provide preliminary knowledge regarding overall project cost and necessary efforts. The regional maps will provide a screening tool prior to the detailed work necessary for project design.
- **Estimated Timeline:** December, 2017.

**Task 2.4 – Investigation into Online Model Executables**
There has been an interest in ensuring that the numerical models developed over recent years are made available for more widespread use than is currently the case. One possible solution is to develop an on-line executable (e.g. input pumping rate, location, and aquifer – model run would return drawdown at a municipal well) that would allow for non-modelers to gain insights from models for various water management decision-making and quickly assess potential impacts to their water supply.

- **Benefits:** This tool, if developed, would allow for technical staff from partner agencies to gain insights from already constructed models thus extending the benefit of the models into the future.
- **Estimated Timeline:** Ongoing

**Task 2.5 – Yonge Street Aquifer Characterization**
In co-operation with staff from the Geological Survey of Canada and York Region, the geology and hydrogeology of the Yonge Street Aquifer is being assessed. Given the preponderance of data that has been collected over the years, it is surprising that this feature remains poorly described and understood. It is proposed that a paper that better characterizes the Yonge Street Aquifer geologically, as well as hydrogeologically, be submitted to a special upcoming issue of the Canadian Journal of Earth Sciences (Surficial Geology of Southern Ontario and Applications to Groundwater).

- **Benefits:** It is hoped that the Yonge Street Aquifer and the insights from the paper will equally apply to other similar channelized deep flow system (e.g. Thorncliffe Formation) related features found both to the east and west in the Regions of Peel, York and Durham and beneath the City of Toronto (e.g., Uxbridge, Grasshopper Road, etc.).
- **Timeline:** Summer 2017

**3. OTHER INITIATIVES**

A key initiative in our application, communication and outreach activities will focus on enhancing the program’s website to deliver information in an easily accessible manner. Over 2017 the goal for the website is to improve access to the temporal data and to generate additional mapping products that would be of benefit to partner agency staff. Staff will also be exploring the statistical options that SQL 2016 presents in terms of its linkage with the “R” statistical software package (additional charts, graphs, etc.). The website will also be used to enhance the technical content currently available by providing additional technical insight pieces that succinctly summarize different hydrogeological analyses that have made effective use of the vast store of data in the database. The goal of the program’s website information search and analysis tools is to reduce the need for extensive knowledge regarding how to use various individual software packages (e.g. Sitefx, GIS, SQL Management Studio, etc). If approval is provided to broaden accessibility to the program’s website, then in partnership with the consulting community, we will be seeking input as to other paths that can be opened up with respect to ready access to data and information.

**Task 3.1 – Ongoing WebSite Improvement**
As the website is used by staff from various agencies we will be seeking input and ideas for improving upon the maps and tools currently available on the website. Improvements are anticipated in terms of providing long term trends for pumping rates and for groundwater quality from various sites. Staff also intend to interlink some of the features available within the maps currently available, for example in any of the current maps when the user selects a well the MOECC WWIS record should be available for perusal, rather than having to go back to the WWIS map

- **Benefits**: all actions directed to the website will be focused on providing smarter and easier ways to explore the data within the database, thereby reducing the time needed to acquire data for decision making.
- **Estimated Timeline**: Ongoing

**Task 3.2 – Website Database Access**
In order to make more effective use of the program’s database, we will explore ways to directly access the database, and in particular the “Views” since they succinctly synthesize much of the information within the database. It is proposed that access be provided through a searchable mapping interface as well as through forms that are linked to the database.

- **Benefits**: having on-line access to the database will allow practitioners from partner agencies to show and search for information while at meetings away from the office. This capability will allow outside agencies (e.g. consultants, environmental groups, provincial agencies, etc.) to gain an understanding as to the comprehensive nature and magnitude of the database and foster an appreciation as to how it can change work patterns at many agencies across the study area.
- **Estimated Timeline**: Fall 2017

**Task 3.3 GIS Platform**
Staff are currently working on establishing a GIS platform (using a freely available and powerful program (Quantum GIS or QGIS) that will host a variety of groundwater related information (e.g. geological and model layers, etc.). This will enable other more common GIS applications to work with the vast amount of information currently available in the program. Staff having typical GIS skills will be able to much more easily access data via this platform.

- **Benefits**: wider access to information via tool sets that are readily used by many staff
- **Estimated Timeline**: Winter 2017
Attached are Development, Interference with Wetlands and Alterations to Shorelines and Watercourses applications, pursuant to Ontario Regulation 42/06, as approved by staff and presented for the members’ information.

**RECOMMENDATION:**

*That Staff Report #5514-17 be received for information.*
<table>
<thead>
<tr>
<th>Row</th>
<th>Municipality</th>
<th>Owner / Applicant</th>
<th>Street / Lot / Con</th>
<th>Permit No.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>620 GEORGE REYNOLDS DRIVE / LOT 27 / CON 03</td>
<td>C17-021-GB</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION/ INSTALLATION OF AN INGROUND POOL, LANDSCAPING AND COVERED PORCH.</td>
</tr>
<tr>
<td>2</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>119 CEDAR CREST BEACH ROAD / LOT 12 / CON BFC</td>
<td>C17-023-GBRH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A GARAGE, FOUNDATION REPAIRS, AND INTERIOR RENOVATIONS.</td>
</tr>
<tr>
<td>3</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>2952 TRULLS ROAD / LOT 31 / CON 02</td>
<td>C17-025-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INSTALLATION OF AN INGROUND FIBERGLASS POOL AND ASSOCIATED LANDSCAPING.</td>
</tr>
<tr>
<td>4</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>46 NIXON ROAD / LOT 35 / CON 06</td>
<td>C17-038-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE DEMOLITION OF AN EXISTING DWELLING AND THE CONSTRUCTION OF A NEW DWELLING ON THE SAME FOOTPRINT.</td>
</tr>
<tr>
<td>5</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>1710 BLOOR STREET / LOT 29 / CON 02</td>
<td>C17-042-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A WORK SHOP/GARAGE.</td>
</tr>
<tr>
<td>6</td>
<td>CLARINGTON DARLINGTON</td>
<td>MUNICIPALITY OF CLARINGTON/GHD</td>
<td>GAILBRAITH COURT PEDESTRIAN BRIDGE OVER SOPER CREEK</td>
<td>C17-044-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REPLACEMENT OF DETERIORATED BRIDGE DECK AND SUPERSTRUCTURE.</td>
</tr>
<tr>
<td>7</td>
<td>CLARINGTON DARLINGTON</td>
<td>MUNICIPALITY OF CLARINGTON/GHD</td>
<td>WEST SIDE PARK PEDESTRIAN BRIDGE OVER WEST SIDE CREEK</td>
<td>C17-045-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REPLACEMENT OF DETERIORATED BRIDGE DECK AND SUPERSTRUCTURE.</td>
</tr>
<tr>
<td>8</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>3761 TOOLEY ROAD / LOT 32 / CON 03</td>
<td>C17-047-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A 12 X 14 FT ADDITION.</td>
</tr>
<tr>
<td>9</td>
<td>CLARINGTON DARLINGTON</td>
<td>PROPERTY OWNER</td>
<td>165 VARCOE ROAD / LOT 34 / CON 03</td>
<td>O17-032-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF AN INGROUND POOL AND ASSOCIATED LANDSCAPING.</td>
</tr>
<tr>
<td>10</td>
<td>OSHAWA</td>
<td>GENERAL MOTORS OF CANADA COMPANY</td>
<td>PHILLIP MURRAY AVENUE AND STEVENSON ROAD / LOT 14 / CON BFC</td>
<td>O17-026-W</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REMOVAL OF ASH TREES TO IMPROVE SAFETY.</td>
</tr>
<tr>
<td>11</td>
<td>OSHAWA</td>
<td>GENERAL MOTORS OF CANADA COMPANY</td>
<td>COLONEL SAM DRIVE, MARSHLAND TRAIL / LOT 03 / CON BFC</td>
<td>O17-027-W</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH REMOVAL OF ASH TREES/DANGER TREES TO IMPROVE SAFETY.</td>
</tr>
<tr>
<td>12</td>
<td>OSHAWA</td>
<td>THE REGIONAL MUNICIPALITY OF DURHAM</td>
<td>200 JOHN STREET WEST / LOT 12 / CON 01</td>
<td>O17-028-RFH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INTERIOR RENOVATIONS TO AN EXISTING BUILDING.</td>
</tr>
<tr>
<td>13</td>
<td>OSHAWA</td>
<td>THE CITY OF OSHAWA/HARD-CONSTRUCTION</td>
<td>1472 GRANDVIEW STREET NORTH / LOT 03 / CON 04</td>
<td>O17-031-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CLEANING SILT/SAND OUT OF EXISTING STORM POND AND SEDIMENT.</td>
</tr>
<tr>
<td>14</td>
<td>OSHAWA</td>
<td>1085628 ONTARIO LIMITED</td>
<td>4055 SIMCOE STREET NORTH / LOT 12 / CON 08</td>
<td>O17-034-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE TEAR DOWN AND RECONSTRUCTION OF HOUSE, NEW SEPTIC AND GRAVEL DRIVEWAY.</td>
</tr>
<tr>
<td>15</td>
<td>OSHAWA</td>
<td>ENBRIDGE GAS DISTRIBUTOR INC.</td>
<td>215 MONCK STREET / LOT 11 / CON 01</td>
<td>O17-036-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH PIPELINE BEING INSTALLED ON THE WEST SIDE OF MONCK STREET, OSHAWA.</td>
</tr>
<tr>
<td>16</td>
<td>OSHAWA</td>
<td>CITY OF OSHAWA</td>
<td>OSHAWA HARBOUR LANDS / LOT 06 / CON BFC</td>
<td>O17-040-GFH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH PIPELINE CROSSING ABOVE A CULVERT ON THE NORTH SIDE OF BRITANNIA AVENUE, EAST OF WINDFIELD FARM DRIVE, OSHAWA.</td>
</tr>
<tr>
<td>17</td>
<td>OSHAWA</td>
<td>ENBRIDGE GAS DISTRIBUTION INC.</td>
<td>BRITANNIA AVENUE / LOT 14 / CON 05</td>
<td>O17-046-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH WIDENING AND REMOVAL OF THE YACHT BUILDING AND CLEAN UP OF THE SURROUNDING OLD MARINA ITEMS AND TRAILER.</td>
</tr>
<tr>
<td>18</td>
<td>OSHAWA</td>
<td>DEMMER CONSTRUCTION</td>
<td>4318 SIMCOE STREET NORTH / LOT 13 / CON 08</td>
<td>O17-048-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE WIDENING OF AN EXISTING AGRICULTURAL DRIVEWAY.</td>
</tr>
<tr>
<td>19</td>
<td>SCUGOG</td>
<td>TOWNSHIP OF SCUGOG</td>
<td>LOT 11 / CON 01</td>
<td>S17-045-GBA</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH WIDENING OF VICTORIA STREET TO A FOUR LANE CROSS-SECTION WITH A MULTI-USE PATH, NEW BRIDGE CONSTRUCTION AND CULVERT CROSSINGS.</td>
</tr>
<tr>
<td>20</td>
<td>WHITBY</td>
<td>THE CORPORATION OF THE TOWN OF WHITBY/CANDEVCON LTD.</td>
<td>850 M N/W OF ROSSLAND ROAD/ CORONATION ROAD / LOT 33 / CON 03</td>
<td>W17-000</td>
<td>INTERFERENCE WITH A WETLAND RELATING TO PROPOSED TREE CLEARING IN PREPARATION FOR CONSTRUCTION OF A NEW MUNICIPAL ROAD AND INSTALLATION OF MUNICIPAL SERVICES.</td>
</tr>
<tr>
<td>21</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>1120 MYRTLE ROAD WEST / LOT 31 / CON 09</td>
<td>W17-019-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A SINGLE FAMILY DWELLING, ATTACHED GARAGE, SEPTIC, AND WELL.</td>
</tr>
<tr>
<td>22</td>
<td>WHITBY</td>
<td>THE REGIONAL MUNICIPALITY OF DURHAM</td>
<td>LOT 32 / CON 01</td>
<td>W17-020-GBF</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A 12 X 14 FT ADDITION.</td>
</tr>
<tr>
<td>Row #</td>
<td>Municipality</td>
<td>Owner / Applicant</td>
<td>Street / Lot / Con</td>
<td>Permit No.</td>
<td>Description</td>
</tr>
<tr>
<td>-------</td>
<td>--------------</td>
<td>-------------------</td>
<td>--------------------</td>
<td>------------</td>
<td>----------------------------------------------------------------------------</td>
</tr>
<tr>
<td>23</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>1270 BRAWLEY ROAD WEST / LOT 32 / CON 08</td>
<td>W17-022-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF SINGLE FAMILY DWELLING, SEPTIC SYSTEM, LANDSCAPING AND ASSOCIATED GRADING.</td>
</tr>
<tr>
<td>24</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>27 HIGHFIELD DRIVE / LOT 26 / CON 08</td>
<td>W17-024-BH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF A POOL CABANA.</td>
</tr>
<tr>
<td>25</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>306 BEECH STREET EAST / LOT 26 / CON 02</td>
<td>W17-029-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH ADDITION TO SINGLE FAMILY DWELLING.</td>
</tr>
<tr>
<td>26</td>
<td>WHITBY</td>
<td>METROLINX/STANTEC CONSULTING LTD.</td>
<td>LOT 22 / CON BFC</td>
<td>W17-030-GFW</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH SITE SERVICING OF THE EAST RAIL MAINTENANCE FACILITY</td>
</tr>
<tr>
<td>27</td>
<td>WHITBY</td>
<td>PROPERTY OWNER</td>
<td>20 CAMBER COURT / LOT 24 / CON 06</td>
<td>W17-033-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF AN INGROUND SWIMMING POOL AND ASSOCIATED LANDSCAPING.</td>
</tr>
<tr>
<td>28</td>
<td>WHITBY</td>
<td>THE REGIONAL MUNICIPALITY OF DURHAM</td>
<td>LOT 32 / CON 01</td>
<td>W17-037-FGA</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH MINOR REALIGNMENT OF LYNDE CREEK TRIBUTARY AND ISOLATION OF EAST AND WEST CULVERTS FOR FUTURE CULVERT REPLACEMENT.</td>
</tr>
<tr>
<td>29</td>
<td>WHITBY</td>
<td>ACC POOLS</td>
<td>105 WYCOMBE STREET / LOT 19 / CON 06</td>
<td>W17-049-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION/INSTALLATION OF A 14 X 27 FT INGROUND POOL AND ASSOCIATED LANDSCAPING.</td>
</tr>
<tr>
<td>30</td>
<td>WHITBY</td>
<td>BROCKFIELD</td>
<td>1900 BROCK STREET SOUTH / LOT 27 / CON BFC</td>
<td>W17-053-GH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH SITE GRADING.</td>
</tr>
</tbody>
</table>
REPORT

CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY

DATE: April 25, 2017
FILE: NWPD1
S.R.: 5515-17

TO: Chair and Members, CLOCA Board of Directors
FROM: Heather Brooks, Director, Watershed Planning & Natural Heritage


Last September, the Authority approved the following resolution regarding a request to Durham Region for funding to undertake the 5-year review of CLOCA’s watershed plans

“THAT Report #5476-16 be received for information;
THAT CLOCA initiate the five-year update of CLOCA’s Watershed Plans;
THAT CLOCA advise Durham Region and the municipalities that the Authority is initiating the five-year update of CLOCA’s Watershed Plans; and,
THAT CLOCA seek the necessary financial support from Durham Region to support completion of the five-year update to the four CLOCA Watershed Plans.”
CARRIED

During budget deliberations, the Region of Durham deferred funding for updating watershed plans to 2018 citing the need for additional time to fiscally plan for watershed plan updates on a comprehensive and region-wide basis. As such, work on updating CLOCA’s watershed plans has been postponed.

After the Province completes the coordinated Land-Use Planning Review and releases the four Provincial Plans, there may be a number of methodologies issued which could influence the preparation of watershed plans or components thereof. Upon said release, CLOCA staff will review and evaluate the workplan for the watershed plan update accordingly, ensuring consistency with Provincial policies and methodologies. CLOCA will report back to the Board if the watershed update workplan requires considerable revision.

Staff are working on completing a number of Watershed Action Plans. There are 24 Actions Plans to be completed by CLOCA. These Action Plans will provide a greater level of detail necessary to undertake monitoring, research, restoration and rehabilitation work and that will achieve specific watershed health objectives. To date, 8 Action Plans have been completed, 10 are in various stages of completion, leaving 6 yet to be started.

RECOMMENDATION:

THAT Staff Report #5515-17 be received for information; and,
THAT CLOCA advise the municipalities that start-up of the update to CLOCA’s Watershed Plans has been delayed until 2018.

HB/ms
TO: The Chairman and Members, CLOCA Board of Directors
FROM: R. Perry Sisson, Director Engineering and Field Operations
Britt Smith, Flood Risk Assessment Project Coordinator

SUBJECT: CLOCA Watershed Flood-Risk Assessment Results

The National Disaster Mitigation Program (NDMP) was established by the Government of Canada to address rising flood risks and costs, and build the foundation for informed mitigation investments that could reduce, or even negate, the effects of flood events in the future. As part of the NDMP, the Central Lake Ontario Conservation Authority (CLOCA) has conducted a watershed flood risk assessment for the CLOCA jurisdiction.

Assessment Summary:
This assessment identified 92 areas in which watercourses have the potential to overflow and pose flood-risk to surrounding public and property. These areas, referred to as Flood Damage Centers (FDCs), contain 1,353 buildings used for residential or business purposes. Each FDC was assessed by the following factors:

Vulnerability:
An FDC’s vulnerability was assessed by determining how susceptible structures/properties are to damage during a regulatory flood, and whether public safety may be at risk. Susceptibility was determined by comparing flood depth and depth-velocity values during regulatory conditions to guidelines established by the Ontario Ministry of Natural Resources and Forestry.

Likelihood:
Likelihood refers to the frequency in which an FDC will be affected by a flood event. FDC’s were assessed based on whether they will be affected by 10, 25, 50 or 100-year return period floods, or only during regional flood events.

Impacts:
- Social impacts were assessed by an FDC’s residential population size, average annual income, and access to an evacuation center.
- Economic impact was determined by assessing the value of a structure and the extent of damage expected during a regional flood event.
- Business impacts were determined by the population employed (on-site) by businesses within the FDC.
- Environmental impacts were determined by the potential for alterations to water quality resulting from transference of chemicals or compounds during a flood event.

Cont’d
Assessment Results:
This risk assessment identified 3 high-risk areas as the highest priority in future flood mitigation and management plans:

**FDC OSH_3: Oshawa Creek between King Street West & McMillan Drive**
This area is affected by the Canadian Pacific Railway embankment and an insufficient hydraulic capacity of the railway bridge during regional flood events. Flood depths may pose a high risk to public safety and result in severe structural damage to numerous buildings including residences, businesses and a school.

**FDC LYN_5: Lynde Creek between highway 401 and Anne Street**
The Canadian National Railway/GO railway embankment and Hwy 401 are all downstream of this flood damage center, and create elevated flood depths through the reach. Approximately 66% of structures located within the floodplain, primarily residential, risk flooding during a stage 3 (50 year) event or earlier. Half of the structures within this area may suffer structural damage.

A study commissioned by the Town of Whitby is currently reviewing possible options to reduce flood damage for this community.

**FDC GOO_1: Goodman Creek between Gibb Street and Park Road South**
FDC GOO_1 is an extension of the OSH_3 floodplain and is similarly affected by the insufficient hydraulic capacity of the railway bridge. The effects of regulatory flooding in this area will be widespread due to intensive development, but may be less severe than that expected in OSH_3 or LYN_5.

In addition to these high-risk areas, the results of this assessment have identified an additional 4 moderate-risk areas and 85 “lower-risk” areas which should be reviewed.

Consultation Process:
During the study, two meetings were held with our partner agencies. We have had input from local and regional municipal representatives, emergency services, and a neighbouring conservation authority. We also provided the draft methodology and final reports to our partners for review and comment.

A Public Information Center was also advertised in local newspapers and social media for anyone interested in reviewing or commenting on the project.

Recommendations and Next Steps:
1) Mitigation and management planning: The results of this risk assessment should be considered when developing future flood mitigation plans. Responsible parties should carefully review all options including re-evaluating planning and regulation practices, as well as introducing or improving physical and structural measures. The National Disaster Mitigation Program continues to offer funding toward flood assessment and mitigation projects, and CLOCA has applied for projects including a submission in partnership with the City of Oshawa to investigate the Oshawa and Goodman Creeks flood damage centers (FDC OSH3 and FDC GOO1).
2) Continued updating and monitoring: This assessment should be periodically updated as more recent data, including floodplain mapping, becomes available and floodplain improvement works are completed. Agencies are also encouraged to give careful consideration to all FDC’s within their jurisdiction and acknowledge that FDC’s which did not rank near the top of the priority list may still benefit from flood management efforts.

**RECOMMENDATION:**

**THAT** Staff Report #5517-17 be received for information;

**THAT** the Central Lake Ontario Conservation Authority Watershed Flood Risk Assessment report be endorsed by the Board of Directors;

**THAT** staff be directed to continue to investigate and seek funding for flood management and reduction projects; and,

**THAT** the CLOCA Watershed Flood Risk Assessment be copied to all member municipalities.

PS/BS/ms
Encl. – Attached Separately
Attached for your information and approval are the Authority’s 2016 Financial Statements, prepared by staff and audited by the Oshawa office of BDO Canada, the Auditor’s letter to the Board of Directors and the Management letter.


For the 2013 fiscal year, new public sector accounting standards were introduced which require that government and unrestricted transfers be recognized when received. In prior years the Authority deferred recognition of government and unrestricted transfers until the fiscal year when the related expenditures were incurred or services performed. Effective for 2014 onwards, all grants previously deferred, which do not have an explicit provision, have been recognized as revenue. As such, $563,545 had been recognized as income during 2014. This year, we have reduced working capital by $25,500 through account expenditures that was budgeted for during 2016 creating a timing difference due to the new accounting standards.

The Statement of Operations shows an Annual Surplus of $665,224 (2015 - $462,238) which accounts for all reserve transactions approved by the Board, encumbrances for Employee Future Benefits and Vacation Pay Liability and additions, disposals and amortization of tangible capital assets.

CLOCA ended the year with an operational surplus (exclusive of any Canadian public sector accounting standards established by the Public Sector Accounting Board for financial statement presentation purposes) of $407,250 (2015 - $323,690); additional entries totalling $85,725 representing employee future benefits reduced the operation surplus to $321,525. Included in the surplus is the donation recorded for the transfer of the Schillings property ($102k) and the corresponding federal grant from the Nature Conservancy of Canada ($31,500). CLOCA also received a federal grant from the National Disaster Mitigation Program in the amount of $18k which was approved after the 2016 budget was finalized. In 2016 we also experienced a significant increase in revenue from our Ont. Reg. 42/06 permits; permit fees were $96k above budget. Our large fill fee was $42k above budget due the phasing of large fill projects in 2016.

In the Auditor’s Report, the following matter has been identified:
1. The Authority exercises control over the Central Lake Ontario Conservation Fund and as such, the financial statements have been prepared on a non-consolidated basis, which constitutes a departure from Canadian public sector accounting standards.

**RECOMMENDATION:**

THAT the Auditor’s Letter to the Board be received; 
THAT the Audited Financial Statements for the year ended December 31, 2016 be approved as presented; and, 
THAT BDO Canada be appointed as Central Lake Ontario Conservation Authority’s Auditors for the year ending December 31, 2017.

RC/ms 
Attach.
Central Lake Ontario Conservation Authority
Non-Consolidated Financial Statements
For the year ended December 31, 2016

<table>
<thead>
<tr>
<th>Contents</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Independent Auditor’s Report</td>
<td>2</td>
</tr>
<tr>
<td>Non-Consolidated Financial Statements</td>
<td></td>
</tr>
<tr>
<td>Non-Consolidated Statement of Financial Position</td>
<td>4</td>
</tr>
<tr>
<td>Non-Consolidated Statement of Operations</td>
<td>5</td>
</tr>
<tr>
<td>Non-Consolidated Statement of Changes in Net Financial Assets</td>
<td>6</td>
</tr>
<tr>
<td>Non-Consolidated Statement of Cash Flows</td>
<td>7</td>
</tr>
<tr>
<td>Summary of Significant Accounting Policies</td>
<td>8</td>
</tr>
<tr>
<td>Notes to Non-Consolidated Financial Statements</td>
<td>11</td>
</tr>
</tbody>
</table>
Independent Auditor’s Report

To the Members of
Central Lake Ontario Conservation Authority

We have audited the accompanying non-consolidated financial statements of Central Lake Ontario Conservation Authority, which comprise the non-consolidated statement of financial position as at December 31, 2016, and the non-consolidated statements of operations, changes in net financial assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management’s Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these non-consolidated financial statements in accordance with Canadian public sector accounting standards, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditor’s Responsibility

Our responsibility is to express an opinion on these non-consolidated financial statements based on our audit. We conducted our audit in accordance with Canadian generally accepted auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the non-consolidated financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the non-consolidated financial statements. The procedures selected depend on the auditor’s judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditor considers internal control relevant to the entity’s preparation and fair presentation of the non-consolidated financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the entity’s internal control. An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the non-consolidated financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our qualified audit opinion.
Basis for Qualified Opinion

As explained in Note 7 to the non-consolidated financial statements, the Authority exercises control over Central Lake Ontario Conservation Fund. These financial statements have been prepared on a non-consolidated basis, which constitutes a departure from Canadian public sector accounting standards. This is a result of a decision taken by management in a prior year. This caused us to modify our audit opinion on the non-consolidated financial statements relating to the prior year. If these financial statements had been prepared on a consolidated basis, cash would have been increased by $32,679 (2015 - $72,824), temporary investments would have been increased by $1,934,532 (2015 - $1,977,854), accounts receivable - other would have been increased by $21 (2015 - decreased by $73,705), accounts payable would have increased by $3,000 (2015 - $Nil), deferred revenue would have been increased by $23,007 (2015 - $23,007), deferred contributions would have increased by $438,862 (2015 - $450,282) and accumulated surplus would have been increased by $1,502,363 (2015 - $1,503,684).

Qualified Opinion

In our opinion, except for the effects of the matters described in the Basis for Qualified Opinion paragraph, the non-consolidated financial statements present fairly, in all material respects, the non-consolidated financial position of Central Lake Ontario Conservation Authority as at December 31, 2016 and the non-consolidated results of its operations, changes in net assets and its cash flows for the year then ended in accordance with Canadian public sector accounting standards.

Chartered Professional Accountants, Licensed Public Accountants

Oshawa, Ontario
XXXXXX
Central Lake Ontario Conservation Authority  
(Established under the Conservation Authorities Act of Ontario)  
Non-Consolidated Statement of Financial Position

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Financial assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash</td>
<td>$152,887</td>
<td>$110,675</td>
</tr>
<tr>
<td>Temporary investments</td>
<td>3,636,247</td>
<td>2,600,000</td>
</tr>
<tr>
<td>Accounts receivable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government grants and</td>
<td>344,877</td>
<td>470,378</td>
</tr>
<tr>
<td>projects</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other</td>
<td>156,905</td>
<td>162,553</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>4,290,815</td>
<td>3,343,606</td>
</tr>
<tr>
<td><strong>Liabilities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts payable and</td>
<td>322,631</td>
<td>319,858</td>
</tr>
<tr>
<td>accrued liabilities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Deferred revenue</td>
<td>879,401</td>
<td>658,469</td>
</tr>
<tr>
<td>Employee future benefits payable</td>
<td>627,175</td>
<td>567,210</td>
</tr>
<tr>
<td>Vacation pay liability</td>
<td>70,539</td>
<td>73,199</td>
</tr>
<tr>
<td>Sick leave entitlements</td>
<td>346,006</td>
<td>320,246</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>2,245,752</td>
<td>1,938,982</td>
</tr>
<tr>
<td><strong>Net Financial Assets</strong></td>
<td>2,045,164</td>
<td>1,404,624</td>
</tr>
<tr>
<td><strong>Non-financial assets</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>46,144</td>
<td>51,056</td>
</tr>
<tr>
<td>Tangible capital assets</td>
<td>30,082,712</td>
<td>30,053,116</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>30,128,856</td>
<td>30,104,172</td>
</tr>
<tr>
<td><strong>Accumulated surplus</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Note 8</td>
<td>$32,174,020</td>
<td>$31,508,796</td>
</tr>
</tbody>
</table>

On behalf of the Board:

______________________________  
Director

______________________________  
Director

The accompanying summary of significant accounting policies and notes are an integral part of these financial statements.
### Central Lake Ontario Conservation Authority

*(Established under the Conservation Authorities Act of Ontario)*

**Non-Consolidated Statement of Operations**

<table>
<thead>
<tr>
<th>For the year ended December 31</th>
<th>2016 Budget</th>
<th>2016 Actual</th>
<th>2015 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Revenue</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government grants</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Transfer payments</td>
<td>$125,000</td>
<td>$124,833</td>
<td>$124,833</td>
</tr>
<tr>
<td>Provincial other</td>
<td>11,714</td>
<td>11,953</td>
<td>32,061</td>
</tr>
<tr>
<td>Federal</td>
<td>74,975</td>
<td>152,343</td>
<td>117,518</td>
</tr>
<tr>
<td>Municipal levy</td>
<td>3,637,985</td>
<td>3,637,985</td>
<td>3,549,252</td>
</tr>
<tr>
<td>Special regional levy</td>
<td>50,000</td>
<td>52,340</td>
<td>50,000</td>
</tr>
<tr>
<td>Other grants</td>
<td>19,770</td>
<td>22,270</td>
<td>79,827</td>
</tr>
<tr>
<td>Authority generated</td>
<td>2,436,856</td>
<td>3,071,714</td>
<td>2,626,422</td>
</tr>
<tr>
<td>Gain on disposition of tangible capital assets</td>
<td>1,187</td>
<td>5,469</td>
<td></td>
</tr>
<tr>
<td><strong>Total Revenue</strong></td>
<td>6,356,300</td>
<td>7,075,313</td>
<td>6,585,382</td>
</tr>
<tr>
<td><strong>Expenses (Note 10)</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Corporate services</td>
<td>1,398,850</td>
<td>1,480,207</td>
<td>1,531,940</td>
</tr>
<tr>
<td>Watershed management and monitoring</td>
<td>1,752,985</td>
<td>1,893,785</td>
<td>1,842,187</td>
</tr>
<tr>
<td>Environmental plan review and regulations</td>
<td>1,136,350</td>
<td>1,107,912</td>
<td>1,025,073</td>
</tr>
<tr>
<td>Watershed stewardship services</td>
<td>278,050</td>
<td>289,705</td>
<td>320,695</td>
</tr>
<tr>
<td>C.A. land management</td>
<td>1,453,765</td>
<td>1,638,480</td>
<td>1,403,249</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td>6,020,000</td>
<td>6,410,089</td>
<td>6,123,144</td>
</tr>
<tr>
<td><strong>Annual surplus</strong></td>
<td>$336,300</td>
<td>$665,224</td>
<td>$462,238</td>
</tr>
<tr>
<td><strong>Accumulated surplus, beginning of year</strong></td>
<td>$31,508,796</td>
<td>$31,046,558</td>
<td></td>
</tr>
<tr>
<td><strong>Annual surplus</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Accumulated surplus, end of year</strong></td>
<td>$32,174,020</td>
<td>$31,508,796</td>
<td></td>
</tr>
</tbody>
</table>

The accompanying summary of significant accounting policies and notes are an integral part of these financial statements.

Draft - Subject to Change
Central Lake Ontario Conservation Authority  
(Established under the Conservation Authorities Act of Ontario)  
Non-Consolidated Statement of Changes in Net Financial Assets

<table>
<thead>
<tr>
<th>For the year ended December 31</th>
<th>2016 Budget (Note 6)</th>
<th>2016 Actual</th>
<th>2015 Actual</th>
</tr>
</thead>
<tbody>
<tr>
<td>Annual Surplus</td>
<td>$ 336,300</td>
<td>$ 665,224</td>
<td>$ 462,238</td>
</tr>
<tr>
<td>Acquisition of tangible capital assets</td>
<td>(336,300)</td>
<td>(335,675)</td>
<td>(884,155)</td>
</tr>
<tr>
<td>Amortization</td>
<td>-</td>
<td>291,325</td>
<td>370,598</td>
</tr>
<tr>
<td>Gain on disposition of tangible capital assets</td>
<td>-</td>
<td>(1,875)</td>
<td>(5,469)</td>
</tr>
<tr>
<td>Proceeds on disposal of tangible capital assets</td>
<td>-</td>
<td>16,829</td>
<td>23,758</td>
</tr>
<tr>
<td>Building under construction</td>
<td>-</td>
<td>-</td>
<td>368,570</td>
</tr>
<tr>
<td></td>
<td>(336,300)</td>
<td>(29,596)</td>
<td>(226,698)</td>
</tr>
<tr>
<td>Use of prepaid expenses</td>
<td>-</td>
<td>4,912</td>
<td>(22,544)</td>
</tr>
<tr>
<td>Change in net financial assets</td>
<td>-</td>
<td>640,540</td>
<td>212,996</td>
</tr>
<tr>
<td>Net financial assets, beginning of year</td>
<td>1,404,624</td>
<td>1,404,624</td>
<td>1,191,628</td>
</tr>
<tr>
<td>Net financial assets, end of year</td>
<td>$ 1,404,624</td>
<td>$ 2,045,164</td>
<td>$ 1,404,624</td>
</tr>
</tbody>
</table>

The accompanying summary of significant accounting policies and notes are an integral part of these financial statements.
Central Lake Ontario Conservation Authority  
(Established under the Conservation Authorities Act of Ontario)  
Non-Consolidated Statement of Cash Flows

For the year ended December 31

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cash provided by (used in)</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cash flows from operating activities</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Annual surplus</td>
<td>$665,224</td>
<td>$462,238</td>
</tr>
<tr>
<td>Amortization</td>
<td>291,325</td>
<td>270,598</td>
</tr>
<tr>
<td>Gain on disposition of tangible capital assets</td>
<td>(1,875)</td>
<td>(5,469)</td>
</tr>
<tr>
<td>Changes in non-cash operating balances</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Accounts receivable</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Government grants and projects</td>
<td>125,501</td>
<td>(62,281)</td>
</tr>
<tr>
<td>Other</td>
<td>6,648</td>
<td>(115,251)</td>
</tr>
<tr>
<td>Prepaid expenses</td>
<td>4,912</td>
<td>(22,544)</td>
</tr>
<tr>
<td>Accounts payable and accrued liabilities</td>
<td>2,773</td>
<td>36,954</td>
</tr>
<tr>
<td>Deferred revenue</td>
<td>220,932</td>
<td>594,376</td>
</tr>
<tr>
<td>Employee future benefits payable</td>
<td>59,965</td>
<td>50,339</td>
</tr>
<tr>
<td>Vacation pay liability</td>
<td>(2,660)</td>
<td>(4,772)</td>
</tr>
<tr>
<td>Sick leave entitlements</td>
<td>25,760</td>
<td>35,754</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$1,397,505</td>
<td>$1,239,942</td>
</tr>
</tbody>
</table>

**Capital transactions**

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Acquisition of tangible capital assets</td>
<td>(335,675)</td>
<td>(884,155)</td>
</tr>
<tr>
<td>Proceeds on disposition of tangible capital assets</td>
<td>16,629</td>
<td>23,758</td>
</tr>
<tr>
<td>Building in progress</td>
<td>-</td>
<td>368,570</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>(319,046)</td>
<td>(491,827)</td>
</tr>
</tbody>
</table>

Net change in cash and cash equivalents

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>1,078,459</td>
<td>748,115</td>
</tr>
</tbody>
</table>

Cash and cash equivalents, beginning of year

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>2,710,675</td>
<td>1,962,560</td>
</tr>
</tbody>
</table>

Cash and cash equivalents, end of year

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total</strong></td>
<td>$3,789,134</td>
<td>$2,710,675</td>
</tr>
</tbody>
</table>

**Represented by:**

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cash</td>
<td>$152,887</td>
<td>$110,675</td>
</tr>
<tr>
<td>Short-term deposits with maturities of three months or less (Note 1)</td>
<td>3,636,247</td>
<td>2,600,000</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>$3,789,134</td>
<td>$2,710,675</td>
</tr>
</tbody>
</table>

The accompanying summary of significant accounting policies and notes are an integral part of these financial statements.
Central Lake Ontario Conservation Authority
(Established under the Conservation Authorities Act of Ontario)
Summary of Significant Accounting Policies

December 31, 2016

Management Responsibility
The non-consolidated financial statements of the entity are the responsibility of management. They have been prepared in accordance with Canadian public sector accounting standards established by the Public Sector Accounting Board.

Nature of Business
The Central Lake Ontario Conservation Authority was established on July 17, 1958 by Order-in-Council No. 2389/58 in accordance with the Conservation Authorities Act of Ontario. The objects of the Authority as stated by the Conservation Authorities Act R.S.O. 1990 are "to establish and undertake, in the area over which it has jurisdiction, a program designed to further the conservation, restoration, development and management of natural resources other than gas, oil, coal and minerals".

Cash and Cash Equivalents
Cash and cash equivalents consist of cash on hand, bank balances and investments in commercial paper from chartered banks with maturities of three months or less.

Tangible Capital Assets
Tangible capital assets are recorded at cost less accumulated amortization. Cost includes all costs directly attributable to acquisition or construction of tangible capital assets.
Contributed tangible capital assets are recorded at fair value at the time of the donation, with a corresponding amount recorded as revenue. Amortization is recorded on a straight-line basis over the estimated life of the tangible capital asset as follows:

- Land improvements: 5 - 50 years
- Building and building improvements: 5 - 50 years
- Infrastructure: 8 - 50 years
- Machinery and equipment: 3 - 25 years
- Computer hardware and software: 3 - 10 years
- Vehicles: 5 - 15 years
- Furniture and fixtures: 10 years
## Central Lake Ontario Conservation Authority  
*(Established under the Conservation Authorities Act of Ontario)*  
**Summary of Significant Accounting Policies**

### December 31, 2016

**Reserves**
- Certain amounts, as approved by the Board of Directors, are set aside in reserves for future operating and capital purposes. Transfers to and/or from reserves are an adjustment to the respective reserve when approved.

**Revenue Recognition**
- Municipal revenues are recognized in the year they are levied to member municipalities. Other revenues are recognized when they are invoiced and collection is reasonably assured.

**Government Transfers**
- Government transfers are recognized as revenue in the financial statements when the transfer is authorized and any eligibility criteria are met, except to the extent that transfer stipulations give rise to an obligation that meets the definition of a liability. Transfers are recognized as deferred revenue when transfer stipulations give rise to a liability. Transfer revenue is recognized in the statement of operations as the stipulation liabilities are settled.

**Use of Estimates**
- The preparation of non-consolidated financial statements in accordance with Canadian public sector accounting standards requires management to make estimates and assumptions that affect the reported amounts of assets and liabilities, disclosures of contingent assets and liabilities at the date of the financial statements, and the reported amounts of revenues and expenditures during the year. The principal estimates used in the preparation of these non-consolidated financial statements are the estimated useful life of tangible capital assets and the estimates involved in employee future benefits and sick leave entitlements. Actual results could differ from management’s best estimates as additional information becomes available in the future.
Central Lake Ontario Conservation Authority
(Established under the Conservation Authorities Act of Ontario)
Summary of Significant Accounting Policies

December 31, 2016

Employee Future Benefits

The Authority provides defined retirement and other future benefits to specified employee groups. These benefits include pension, life insurance and health care benefits for retirees. The Authority has adopted the following policies with respect to accounting for these employee benefits:

(i) The costs of employee future benefit plans are actuarially determined using their professional estimate of salary escalation, insurance and health care cost trends, long-term inflation rates and discount rates.

For employee future benefits that vest or accumulate over the periods of service provided by employees, such as life insurance and health benefits for retirees, the cost is actuarially determined using the projected benefit method prorated on service. Under this method, the benefit costs are recognized over the expected average service life of the employee group.

(ii) The Authority is an employer member of the Ontario Municipal Employees Retirement System (OMERS), which is a multi-employer, defined benefit pension plan. The Board of Trustees, representing plan members and employers, is responsible for overseeing the management of the pension plan, including investment of the assets and administration of the benefits. The Authority has adopted defined contribution plan accounting principles for this Plan because insufficient information is available to apply defined benefit plan accounting principles. The Authority records as pension expense the current service cost, amortization of past service costs and interest costs related to the future employer contributions to the Plan for past employee service.
Central Lake Ontario Conservation Authority  
(Established under the Conservation Authorities Act of Ontario)  
Notes to Non-Consolidated Financial Statements

December 31, 2016

1. Temporary Investments

Temporary investments are comprised of Guaranteed Investment Certificates from chartered banks with effective interest rates ranging from 0.70% to 1.10% and which mature in January 2017.

2. Deferred Revenue

Effective for 2014 onwards, all grants previously deferred, which do not have an explicit stipulation, have been recognized as revenue. At the year end, the Authority had received but not earned revenue in the amount of $879,401.

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Facility fees and deposits</td>
<td>$2,625</td>
<td>$14,865</td>
</tr>
<tr>
<td>Fill Sites</td>
<td>171,700</td>
<td>145,570</td>
</tr>
<tr>
<td>YPDT - CTC</td>
<td>125,132</td>
<td>125,132</td>
</tr>
<tr>
<td>YPDT - Future benefit liability</td>
<td>-</td>
<td>20,000</td>
</tr>
<tr>
<td>Plan review fees</td>
<td>545,518</td>
<td>296,744</td>
</tr>
<tr>
<td>Bowmanville Marsh</td>
<td>-</td>
<td>21,732</td>
</tr>
<tr>
<td>Other</td>
<td>34,426</td>
<td>34,426</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>$879,401</strong></td>
<td><strong>$658,469</strong></td>
</tr>
</tbody>
</table>

3. Employee Future Benefits Payable

At December 31, 2016, the Authority's accrued benefit liability relating to post retirement benefit plans is as follows:

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Accrued benefit liability, beginning of year</strong></td>
<td>$567,210</td>
<td>$516,871</td>
</tr>
<tr>
<td>Current service costs</td>
<td>48,010</td>
<td>44,526</td>
</tr>
<tr>
<td>Interest cost on obligation</td>
<td>20,208</td>
<td>18,419</td>
</tr>
<tr>
<td>Employer contribution</td>
<td>(4,235)</td>
<td>(6,575)</td>
</tr>
<tr>
<td>Amortized gains and losses</td>
<td>(4,018)</td>
<td>(6,031)</td>
</tr>
<tr>
<td><strong>Accrued benefit liability, end of year</strong></td>
<td><strong>$627,175</strong></td>
<td><strong>$567,210</strong></td>
</tr>
</tbody>
</table>
3. Employee Future Benefits Payable (continued)

(i) Ontario Municipal Employees Retirement System

OMERS provides pension services to more than 470,000 active and retired members and approximately 1,000 employers. Each year an independent actuary determines the funding status of OMERS Primary Pension Plan (the "Plan") by comparing the actuarial value of invested assets to the estimated present value of all pension benefits that members have earned to date. The most recent actuarial valuation of the Plan was conducted at December 31, 2016. The results of the valuation disclosed total actuarial liabilities of $87,554 million in respect of benefits accrued for service with actuarial assets at that date of $81,834 million indicating an actuarial deficit of $5,720 million. Because OMERS is a multi-employer plan, any pension plan surpluses or deficits are a joint responsibility of Ontario municipal organizations and their employees. As a result, the Authority does not recognize any share of the OMERS pension surplus or deficit. Contributions made by the Authority to OMERS for 2016 were $361,294 (2015 - $364,500).

(ii) Retirement Life Insurance and Health Care Benefits

The Authority continues to provide life insurance (reduced by 50% for early retirees), dental and health care benefits to certain employee groups after retirement for 5 years or age 65, whichever comes first. The Authority provides these benefits through an unfunded defined benefit plan. The benefit costs and liabilities related to this plan are based on actuarial valuation prepared by an independent firm. The date of the last actuarial valuation was as of December 31, 2015.

The accrued benefit obligations for employee future benefit plans as at December 31, 2016 are based on an extrapolated actuarial valuation for accounting purposes as at December 31, 2016. These actuarial valuations were based on assumptions about future events. The economic assumptions used in these valuations are the Authority's best estimates of expected rates of:

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Salary escalation (*)</td>
<td>3.50%</td>
<td>3.50%</td>
</tr>
<tr>
<td>Insurance and health care costs escalation</td>
<td>4.0-8.5%</td>
<td>4.0-8.5%</td>
</tr>
<tr>
<td>Discount on accrued benefit obligations</td>
<td>3.75%</td>
<td>3.75-4.0%</td>
</tr>
</tbody>
</table>

(*) Salary escalation is based on long-term projections for inflation, real wages and increases for merit. Actual salaries are paid according to a payroll grid. The overall grid rates increased by 1.25% (2015 - 1.25%) over the prior year.
Central Lake Ontario Conservation Authority  
(Established under the Conservation Authorities Act of Ontario)  
Notes to Non-Consolidated Financial Statements

December 31, 2016

4. Sick Leave Entitlements

The Authority provides permanent employees with sick leave credits of 1.5 days per month of service, which accumulates if unused, and is available for use in the event that the employee becomes ill. No benefits are payable on retirement or termination of employment. The sick leave entitlement estimates the use of accumulated sick leave prior to retirement.

At December 31, 2016, the Authority's accrued sick leave entitlement is as follows:

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sick leave entitlements, beginning of year</td>
<td>$520,246</td>
<td>$284,492</td>
</tr>
<tr>
<td>Current service costs</td>
<td>30,034</td>
<td>29,019</td>
</tr>
<tr>
<td>Interest cost on obligation</td>
<td>10,055</td>
<td>9,912</td>
</tr>
<tr>
<td>Benefits paid during the year</td>
<td>(10,928)</td>
<td>(1,993)</td>
</tr>
<tr>
<td>Amortized gains and losses</td>
<td>(3,401)</td>
<td>(1,184)</td>
</tr>
<tr>
<td><strong>Sick leave entitlements, end of year</strong></td>
<td><strong>$346,006</strong></td>
<td><strong>$320,246</strong></td>
</tr>
</tbody>
</table>

5. Accumulated Surplus

The Authority segregates its accumulated surplus in the following categories:

<table>
<thead>
<tr>
<th></th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Surplus - investment in tangible capital assets (a)</td>
<td>$30,082,712</td>
<td>$30,053,116</td>
</tr>
<tr>
<td>Reserve funds:</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Working capital (b)</td>
<td>1,992,367</td>
<td>1,512,660</td>
</tr>
<tr>
<td>Vehicles and equipment (c)</td>
<td>96,959</td>
<td>20,452</td>
</tr>
<tr>
<td>Land operations (d)</td>
<td>94,500</td>
<td>41,500</td>
</tr>
<tr>
<td>Land acquisition (e)</td>
<td>4,070</td>
<td>4,070</td>
</tr>
<tr>
<td>Forest management (f)</td>
<td>124,497</td>
<td>124,497</td>
</tr>
<tr>
<td>Rogers capital project (g)</td>
<td>111,311</td>
<td>72,747</td>
</tr>
<tr>
<td>Schillings land acquisition (h)</td>
<td>13,610</td>
<td>-</td>
</tr>
<tr>
<td><strong>Total reserves</strong></td>
<td><strong>2,437,314</strong></td>
<td><strong>1,775,926</strong></td>
</tr>
<tr>
<td>Amount to be funded in future periods (i)</td>
<td>(346,006)</td>
<td>(320,246)</td>
</tr>
<tr>
<td>Accumulated surplus</td>
<td><strong>$32,174,020</strong></td>
<td><strong>$31,508,796</strong></td>
</tr>
</tbody>
</table>
Central Lake Ontario Conservation Authority
(Established under the Conservation Authorities Act of Ontario)
Notes to Non-Consolidated Financial Statements

December 31, 2016

5. Accumulated Surplus (continued)

   a) Investment in Tangible Capital Assets

   The investment in tangible capital assets represents amounts already spent and invested in infrastructure and other non-financial assets.

   b) Reserve for Working Capital

   This reserve was established to provide operating funds. No provincial funds are included in this reserve.

   c) Reserve for Replacement of Vehicles and Equipment

   This reserve was established for the purchase and replacement of vehicles and equipment. No provincial funds are included in this reserve.

   d) Reserve for Land Operations

   This reserve was established from the surplus from construction contracts. The funds will be used towards future land operations. There are no provincial funds included in this reserve.

   e) Reserve for Land Acquisition

   This reserve was established from the sale of properties in the Municipality of Clarington. No provincial funds are included in this reserve.

   f) Forest Management Reserve

   The reserve was established from the net revenue from timber sales on Authority properties for future management costs relating to Authority forest properties.

   g) Reserve for Rogers Capital Project

   The reserve was established from the surplus from the Rogers project. The funds will be used towards future capital improvements to the Rogers project.

   h) Reserve for Schillings Land Acquisition

   A condition of the Nature Conservancy of Canada/OQO funding agreement requires CLOCA to establish an endowment fund for the property equivalent to 15% of the land value ($13,500). The endowment fund is to be invested in such a way as to produce an investment return in the capital which will be used for stewardship of the land.
5. Accumulated Surplus (continued)

i) Amounts to be Funded in Future Periods

The Authority provides permanent employees with sick leave credits of 1.5 days per month of service, which accumulates if unused, and is available for use in the event that the employee becomes ill. No benefits are payable on retirement or termination of employment. These benefits are not funded until such time as they are paid and as such are shown as a separate component of accumulated surplus.

6. Budget Figures

The 2016 budget amounts approved by the Board of Directors on May 17, 2016 were not prepared on a basis consistent with that used to report actual results under Public Sector Accounting Standards. The budget was prepared on a modified accrual basis while Public Sector Accounting Standards now require full accrual basis. The budget figures anticipated use of surpluses accumulated in previous years to reduce current year expenditures in excess of current revenues to $Nil. In addition, the budget expensed all tangible capital expenditures rather than including amortization expense. As a result, the budget figures presented in the statement of operations and changes in net financial assets represent the budget adopted by the Authority on May 17, 2016 adjusted for the acquisition of tangible capital assets of $336,300.

7. Reporting Entity

The Authority exercises control over the Central Lake Ontario Conservation Fund (the "Fund") by virtue of its common board members. The Fund was established to raise funds and obtain resources for the exclusive use of the Authority. The Fund is incorporated without share capital and is a registered charity under the Income Tax Act. Included in accounts receivable at December 31, 2016 is $1,526 (2015 - $74,132) owing from the Fund.

8. Segmented Reporting

The Public Sector Accounting Handbook Section PS 2700, Segment Disclosures, establishes standards on defining and disclosing segments in a government's financial statements. Government organizations that apply these standards are encouraged to provide the disclosures established by this section when their operations are diverse enough to warrant such disclosures. The Authority's operations are not diverse enough to warrant these disclosures.
### Central Lake Ontario Conservation Authority
(Established under the Conservation Authorities Act of Ontario)
Notes to Non-Consolidated Financial Statements

#### December 31, 2016

<table>
<thead>
<tr>
<th>Tangible Capital Assets</th>
<th>2016</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Land Improvements</td>
</tr>
<tr>
<td>Cost, beginning of year</td>
<td>$24,116,761</td>
</tr>
<tr>
<td>Additions</td>
<td>111,985</td>
</tr>
<tr>
<td>Disposals</td>
<td>(14,740)</td>
</tr>
<tr>
<td>Cost, end of year</td>
<td>24,214,006</td>
</tr>
<tr>
<td>Accumulated amortization, beginning of year</td>
<td>-</td>
</tr>
<tr>
<td>Amortization Disposals</td>
<td>-</td>
</tr>
<tr>
<td>Accumulated amortization, end of year</td>
<td>-</td>
</tr>
<tr>
<td>Net carrying amount, end of year</td>
<td>$24,214,006</td>
</tr>
</tbody>
</table>
9. **Tangible Capital Assets (continued)**

<table>
<thead>
<tr>
<th></th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Land</td>
</tr>
<tr>
<td>Cost, beginning of year</td>
<td>$24,102,884</td>
</tr>
<tr>
<td>Additions</td>
<td>13,877</td>
</tr>
<tr>
<td>Disposals</td>
<td>-</td>
</tr>
<tr>
<td>Cost, end of year</td>
<td>24,116,761</td>
</tr>
<tr>
<td>Accumulated amortization, beginning of year</td>
<td>-</td>
</tr>
<tr>
<td>Amortization Disposals</td>
<td>-</td>
</tr>
<tr>
<td>Accumulated amortization, end of year</td>
<td>-</td>
</tr>
<tr>
<td>Net carrying amount, end of year</td>
<td>$24,116,761</td>
</tr>
</tbody>
</table>
Central Lake Ontario Conservation Authority
(Established under the Conservation Authorities Act of Ontario)
Notes to Non-Consolidated Financial Statements

December 31, 2016

10. Expenses by Object

<table>
<thead>
<tr>
<th>Expenses by Object</th>
<th>2016</th>
<th>2015</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wages and benefits</td>
<td>$4,814,961</td>
<td>$4,689,849</td>
</tr>
<tr>
<td>Members’ expense</td>
<td>8,892</td>
<td>11,222</td>
</tr>
<tr>
<td>Professional fees and insurance</td>
<td>125,655</td>
<td>136,727</td>
</tr>
<tr>
<td>Corporate communications</td>
<td>6,359</td>
<td>5,813</td>
</tr>
<tr>
<td>Office equipment and supplies</td>
<td>64,519</td>
<td>66,009</td>
</tr>
<tr>
<td>Conservation area maintenance and planning</td>
<td>118,995</td>
<td>97,992</td>
</tr>
<tr>
<td>Head office utilities and office maintenance</td>
<td>123,268</td>
<td>137,395</td>
</tr>
<tr>
<td>Computer and geomatics</td>
<td>55,228</td>
<td>48,154</td>
</tr>
<tr>
<td>Amortization</td>
<td>291,326</td>
<td>270,598</td>
</tr>
<tr>
<td>Program related expenses</td>
<td>552,194</td>
<td>428,551</td>
</tr>
<tr>
<td>Vehicle and equipment</td>
<td>66,162</td>
<td>68,333</td>
</tr>
<tr>
<td>Property management</td>
<td>182,530</td>
<td>160,501</td>
</tr>
<tr>
<td><strong>Total Expenses</strong></td>
<td><strong>$6,410,089</strong></td>
<td><strong>$6,123,144</strong></td>
</tr>
</tbody>
</table>

11. Commitment

The Authority has commitments for payments to salaried employees for a total of $486,672 under contracts expiring December 2017.