Please find enclosed the Agenda and supporting documents for the **CLOCA Board of Director**’s meeting on **Tuesday, February 12, 2019, 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>Tuesday, February 12/19</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>Monday, February 18/19</td>
<td>All Day</td>
<td>Family Day Conservation Areas are Free</td>
<td>CLOCA Conservation Areas</td>
</tr>
<tr>
<td>March 8 to 10/19</td>
<td>9:30 a.m. to 12 Noon or 12:00 Noon to 2:30 p.m.</td>
<td>Annual Maple Syrup Festival (Tickets to be purchased in advance)</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, March 19/19</td>
<td>5:00 p.m.</td>
<td>CLOCA Board of Director’s Meeting</td>
<td>Clarington Council Chambers 40 Temperance St., Bowmanville</td>
</tr>
<tr>
<td>Friday, April 5/19</td>
<td>7:00 p.m. to 9:00 p.m.</td>
<td>Sugarbush Lantern Walk (Tickets to be purchased in advance)</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, April 16/19</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>Saturday, April 27/19</td>
<td>9:00 a.m. to 12:00 p.m.</td>
<td>Earth Day Tree Planting</td>
<td>Heber Down CA 5700 Cochrane St., Whitby</td>
</tr>
<tr>
<td>Friday, May 10/19</td>
<td>7:00 p.m. to 9:00 p.m.</td>
<td>Twilight in the Sugarbush Garlic Mustard Management &amp; Pesto Making Workshop</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, May 14/19</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>Wednesday, June 12/19</td>
<td>7:00 p.m. to 9:00 p.m.</td>
<td>Twilight with the Chickadees Split Rail Fence Construction &amp; Buckthorn Removal</td>
<td>Lynde Shores CA 1225 Victoria St., Whitby</td>
</tr>
<tr>
<td>Tuesday, June 18/19</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>Friday, June 21/19</td>
<td>8:00 p.m. to 10:00 p.m.</td>
<td>Firefly Night Hike</td>
<td>Purple Woods CA 38 Coates Road East, Oshawa</td>
</tr>
<tr>
<td>Tuesday, July 16/19</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>Tuesday, September 18/19</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>Tuesday, October 15/19</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>Tuesday, November 19/19</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>Tuesday, December 17/19</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>

*prior Tuesday meeting due to Monday being a statutory holiday
* location change for meeting

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**LATEST NEWS**

Check Out our Website! [www.cloca.com](http://www.cloca.com)

Discover your local Conservation Area.

Register as a Conservation Volunteer Programs & Services

Mobile access to online information with CLOCA’s new mobile website and Free Conservation Areas App

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“Healthy Watersheds for Today and Tomorrow”
CENTRAL LAKE ONTARIO CONSERVATION AUTHORITY
AGENDA
AUTHORITY MEETING
Tuesday, February 12, 2019 - 5:00 P.M.
MEETING LOCATION: 100 WHITING AVENUE, OSHAWA
AUTHORITY’S ADMINISTRATIVE OFFICE, BOARDROOM

CIRCULATION LIST
Authority: Bob Chapman, Chair
Members: Ron Hooper, Vice Chair
Dave Barton
Janice Jones
Chris Leahy
Sterling Lee
Tito-Dante Marimpietri
Ian McDougall
Don Mitchell
Rhonda Mulcahy
John Neal
Brian Nicholson
David Pickles
Corinna Traill
Steve Yamada

Authority Staff: C. Darling, Chief Administrative Officer
B. Boardman, Administrative Assistant/Recording Secretary
H. Brooks, Director, Watershed Planning & Natural Heritage
R. Catulli, Director, Corporate Services
G. Geissberger, Marketing & Communications Coordinator
D. Hope, Land Management & Operations Supervisor
C. Jones, Director, Planning & Regulations
P. Lowe, Director, Community Engagement
P. Sisson, Director, Engineering & Field Operations
R. Wilmot, GIS Systems Supervisor

SUPPORTING DOCUMENTS

AGENDA ITEM:
1. DECLARATIONS of interest by members on any matters herein contained
2. ADOPTION OF MINUTES of January 15, 2019 pg. 1
3. DELEGATIONS
   Sarah Delicate, Chair – Port Darlington Community Association (PDCA) Shoreline Restoration Committee
   Re: Sarah will share the issues, concerns and experiences regarding the shoreline starvation, through the voice of the generational shoreline residents and stewards
4. CORRESPONDENCE - None
5. PRESENTATION - None
6. DEVELOPMENT REVIEW & REGULATION
   (1) Staff Presentation – Overview of CLOCA's Development Review & Regulations Responsibilities
   (2) Staff Report #5626-19 pg. 9
      Re: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses - January 1 to January 31, 2019
   (3) Staff Report #5628-19 pg. 11

Cont’d
7.  DIRECTOR, COMMUNITY ENGAGEMENT
   (1)  Staff Report #5622-19  
        Re:  Community Needs & Opportunities for Environmental Education  
        pg. 14
   (2)  Staff Report #5623-19  
        Re:  2019 Education Program Delivery Assessment  
        pg. 39
   (3)  Staff Report #5624-19  
        Re:  New Professional Development Day Camp Program  
        pg. 82

8.  DIRECTOR, ENGINEERING & FIELD OPERATIONS
    (1)  Staff Presentation – Overview of CLOCA's Engineering & Field Operations Responsibilities

9.  DIRECTOR, CORPORATE SERVICES
    (1)  Staff Report #5627-19  
         Re:  Solar Application at CLOCA Office  
         pg. 83

10.  CONFIDENTIAL MATTERS
     (1)  Staff Report #5625-19  
         Re:  Property Matter  
         pg. 86

11.  NEW AND UNFINISHED BUSINESS
     (1)  Status of Unfinished Business  
         pg. 92

12.  ADJOURNMENT
AGENDA

SUPPORTING DOCUMENTS

MEETING OF: Authority
DATE: Tuesday, February 12, 2019
TIME: 5:00 p.m.
LOCATION: 100 Whiting Avenue, Oshawa
The Chair called the meeting to order at 5:05 p.m.

DECLARATIONS of interest by members on any matters herein contained – NONE

ADOPTION OF MINUTES of November 20, 2018 (Agenda pg. 1)
Councillor Neal noted the following three corrections to the November 20/18 Minutes:
- Page 4 of minutes, Auth.Res. #82/18, recorded vote on Amendment should read Joe Neal ‘Nay’ and John Neal ‘Yea’.
- Page 5 of minutes, Auth.Res. #82/18, recorded vote on Staff Report #5612-18 should read Joe Neal ‘Nay’ and John Neal ‘Yea’.
- Page 6 of minutes, Auth.Res. #87/18, recorded vote on Staff Report #5611-18 should read Joe Neal ‘Nay’ and John Neal ‘Yea’.

Res. #1 Move by T-D. Marimpietri
Seconded by B. Chapman

THAT the Authority minutes of November 20, 2018, as corrected, be adopted as circulated
CARRIED
CHAIR’S REMARKS – D. Mitchell thanked the Board and congratulated Staff on all of CLOCA’s 2018 accomplishments (attached as H-1). He referred to the Year in Review 2018 (Agenda pg. 27), showcasing programs, services and projects delivered by CLOCA in 2018.

PRESENTATIONS - Special Presentation to Outgoing Member, Joe Drumm (Agenda pg. 8). C. Darling and D. Mitchell thanked Joe Drumm for his dedication and support to CLOCA and presented him with a copy of the trail signage of the “Joe Drumm Trail” at Heber Down Conservation Authority.

(1) Naming of CLOCA Trail in Heber Down Conservation Authority

Res. #2 Moved by:  D. Mitchell
Seconded by:  B. Chapman

WHEREAS Joe Drumm has served as a political representative for the Town Whitby for 41 years;
AND WHEREAS Joe Drumm has been an appointee to Central Lake Ontario Conservation Authority (CLOCA) representing the Town of Whitby for 41 years (1977-2018);
AND WHEREAS Joe Drumm has been the longest serving Conservation Authority Board Member in the province;
AND WHEREAS Joe Drumm dedicated four years as Chair of CLOCA from 1983-1986;
AND WHERAS Joe Drumm has continuously supported CLOCA and particularly CLOCA’s Conservation Areas as a critical community asset;
THEREFORE, LET IT BE RESOLVED THAT the trail located at Heber Down Conservation Area, connecting the Cochrane St. parking lot to the Devils Den Nature trail be given the name of "Joe Drumm Trail";
AND FURTHER THAT Joe Drumm be thanked for his years of service to CLOCA.
CARRIED

ELECTION OF OFFICERS
The 2018 elected officers vacated their positions and Chris Darling, Chief Administrative Officer, officiated the 2019 election of Chair.

Res. #3 Move by T-D. Marimpietri
Seconded by B. Chapman

THAT in the event of a vote by ballot, Patricia Lowe and Perry Sisson be designated as scrutineers; and further that all election ballots be destroyed.
CARRIED

Authority Chair
C. Darling made three calls for nominations, noting no seconder was required and where more than one nominee was elected, election by secret ballot will be conducted.

Nominations:  R. Hooper nominated B. Chapman

Res. #4 Moved by T-D. Marimpietri
Seconded by C. Leahy

THAT nominations for the position of Authority Chair be closed.
CARRIED

B. Chapman “stands”.

B. Chapman was declared Authority Chair for 2019 and conducted the remainder of the meeting.

Cont’d
Authority Vice-Chair
B. Chapman made three calls for nominations.


Res. #5 Moved by T.D. Marimpietri
    Seconded by C. Leahy

    THAT nominations for the position of Authority Vice-Chair be closed.
    CARRIED

R. Hooper “stands”.

R. Hooper was declared Authority Vice-Chair for 2019.

Res. #6 Moved by R. Hooper
    Seconded by C. Leahy

    THAT the Agenda be amended to move Staff Report #5618-19 forward.
    CARRIED

DIRECTOR, CORPORATE SERVICES
(1) Staff Report #5618-19 (Agenda pg. 48)
    Re: BDO Canada Audit of Financial Statements for the Year Ended December 31, 2018

Nigel Allen of BDO Canada provided the Board with an overview of the Audit of Financial Statements for 2018 and new/revised auditor reporting standards for CLOCA & CLOCF and answered questions. Mr. Allen inquired if any Board Members had any knowledge regarding any law suits, damages or suspected fraud affecting the organization. None were identified.

Res. #7 Moved by S. Lee
    Seconded by T-D. Marimpietri

    THAT the letter from Nigel A.C. Allen, BDO Dunwoody Canada LLP be received;
    THAT the attached BDO publication, Navigating the Auditor Reporting Journey, be received for information; and,
    THAT Nigel A.C. Allen be advised that the Board of Directors is not aware of any matters related to increased risk, fraud or errors on behalf of management processes.
    CARRIED

SIGNING OFFICERS
Res. #8 Moved by B. Nicholson
    Seconded by C. Leahy

    THAT the Signing Officers of the Authority be any two of the following: The Chair, Vice-Chair, Chief Administrative Officer/Secretary-Treasurer, and Director of Corporate Services.
    CARRIED

Cont’d
SOLICITORS
Central Lake Ontario Conservation Authority utilizes the services of six (6) legal firms:
- Beard, Winter – flood plain regulation advice and litigation
- Borden Ladner Gervais – property tax and related matters
- Boychyn & Boychyn – real estate and property transactions
- Gardiner, Roberts – land related matters – planning and regulation matters
- Hicks, Morley – employment and labour related matters
- Littler Canada - legal matters for personnel/human resources

Res. #9 Moved by C. Leahy
Seconded by S. Lee

THAT the firms Beard, Winter, Toronto; Borden Ladner Gervais, Toronto; Boychyn & Boychyn, Oshawa; Gardiner, Roberts, Toronto; Hicks Morley, Toronto; and Littler Canada be appointed Solicitors for the Authority, as required.
CARRIED

BORROWING BY-LAW
Res. #10 Moved by T-D. Marimpietri
Seconded by D. Barton

THAT the Central Lake Ontario Conservation Authority’s signing officers are hereby authorized on behalf of the Central Lake Ontario Conservation Authority to borrow from time to time, from the banking institution under agreement with the Central Lake Ontario Conservation Authority, up to $1,000,000 to meet current expenditures until Provincial grants and/or Regional funding are received, with interest as may be determined by agreement between the bank and the Central Lake Ontario Conservation Authority.
CARRIED

CONSERVATION ONTARIO COUNCIL
Res. #11 Moved by T-D. Marimpietri
Seconded by S. Lee

THAT the Chair be appointed as the Authority’s representative on the Conservation Ontario Council. Alternative designates are the Vice-Chair and the Chief Administrative Officer.
CARRIED

ENFORCEMENT OFFICERS
(i) Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation #42/06

Res. #12 Moved by C. Leahy
Seconded by R. Hooper

THAT L. Benham, L. Bulford, J. Burgess, E. Cameron, J. Hetherington, C. Jones, M. Guindon, S. Penney and P. Sisson be appointed Enforcement Officers under the Development, Interference with Wetlands and Alteration to Shorelines and Watercourses Regulation #42/06.
CARRIED

Cont’d
ENFORCEMENT OFFICERS
(ii) Conservation Areas Regulation #101/90

Res. #13 Moved by C. Leahy
Seconded by D. Barton

THAT T. Backus, B. De Waal, H. Hirschfeld, D. Hope, J. Maas and A. Cooper be appointed Enforcement Officers under the Conservation Areas Regulation #101/92.
CARRIED

CORRESPONDENCE
(1) Regional Municipality of Durham (Agenda pg. 9)
Re: Appointments to the Central Lake Ontario Conservation Authority

Res. #14 Moved by B. Nicholson
Seconded by R. Hooper

THAT the above correspondence be received for information.
CARRIED

DEVELOPMENT REVIEW & REGULATION
(1) Staff Report #5614-19 (Agenda pg. 11)
Re: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses - November 1 to December 31, 2018

Res. #15 Moved by C. Leahy
Seconded by T-D. Marimpietri

THAT Staff Report #5614-19 be received for information.
CARRIED

DEVELOPMENT REVIEW & REGULATION (continued)
(2) Staff Report #5616-19 (Agenda pg. 13)
Re: CLOCA Comments on Proposed Amendments to the Planning Act (Bill 66)

Res. #16 Moved by C. Leahy
Seconded by D. Mitchell

THAT the CLOCA Board of Directors calls for Schedule 10 of Bill 66 to be amended to protect public health and safety and the integrity of the land use planning system;
THAT the Commentary in Staff Report 5616-19 and the proposed amendments in Attachment No. 2 be endorsed and submitted to the Province of Ontario and Conservation Ontario as CLOCA’s comments regarding Schedule 10 of Bill 66; and,
THAT Staff Report 5616-19 be circulated to Watershed Municipalities and adjacent Conservation Authorities for their information.
CARRIED

Cont’d
DIRECTOR, COMMUNITY ENGAGEMENT
(1) Staff Report #5621-19 (Agenda pg.27)
Re: 2018 Year in Review

Res. #17 Moved by C. Leahy
Seconded by I. McDougall

THAT Staff Report #5621-19 received for information; and,
THAT comments and recommendations be received from the Board of Directors by 4:30 p.m.
Friday, January 18, 2019. At that time, staff will make the necessary edits and prepare for
printing, distribution and posting on the website.
CARRIED

DIRECTOR, WATERSHED PLANNING & NATURAL HERITAGE
(1) Staff Report #5620-19 (Agenda pg. 28)
Re: Preserving and Protecting our Environment for Future Generations: A Made-in-Ontario
Environment Plan – CLOCA Comments

Res. #18 Moved by B. Nicholson
Seconded by S. Lee

THAT Staff Report #5620-10 be received;
THAT CLOCA’s detailed comments on the Plan’s Actions be endorsed and sent to Conservation
Ontario for consideration in the submission of consolidated comments to the Province; and,
THAT Staff Report #5620-19 be distributed to Durham Region and the local municipalities.
CARRIED

DIRECTOR, ENGINEERING AND FIELD OPERATIONS
(1) Staff Report #5619-19 (Agenda pg. 38)
Re: Westside Marsh Overflow Channel Monitoring and Maintenance Plan

Res. #19 Moved by I. McDougall
Seconded by D. Barton

THAT Staff Report #5619-19 be received for information; and,
THAT the Westside Marsh Emergency Overflow Channel Monitoring and Maintenance Plan
be approved.
CARRIED

CHIEF ADMINISTRATIVE OFFICER
(1) Staff Report #5613-19 (Agenda pg. 72)
Re: Common Membership – Different Boards

Res. #20 Moved by T-D. Marimpietri
Seconded by R. Hooper

THAT the Chair, Vice Chair and members of the Central Lake Ontario Conservation Authority
for 2019 be the Chair, Vice Chair and members of the Central Lake Ontario Conservation Fund
for 2019 and the Chair, Vice Chair and members of the Central Lake Ontario Source Protection
Authority for 2019.
CARRIED

Cont’d
(2) Staff Report #5615-19 (Agenda pg. 73)
Re: Status Report of Implementation of CLOCA Strategic Plan 2016-2020

Res. #21 Moved by T-D. Marimpietri
Seconded by R. Hooper

THAT Staff Report #5615-19 be received for information.
CARRIED

(3) Staff Report #5617-19 (Agenda pg. 92)
Re: Port Darlington Shoreline Management Status Update and Proposed Next Steps

Res. #22 Moved by T-D. Marimpietri
Seconded by R. Hooper

THAT the timelines outlined in Staff Report #5617-19 for the completion of the Port Darlington Shoreline Management Plan be approved.
CARRIED

CONFIDENTIAL MATTERS - NONE

MUNICIPAL AND OTHER BUSINESS
B. Nicholson noted that the residents of a community on Park Road South pass on their appreciation for the efforts and support by CLOCA in dealing with the development.

ADJOURNMENT

Res. #23 Moved by J. Neal
Seconded by T-D. Marimpietri

THAT the meeting adjourn.
CARRIED

The meeting adjourned at 5:44 p.m.
2018 Central Lake Ontario Conservation
Highlights and Accomplishments

- Celebrated 60 years of watershed management hosting 4 signature events for guests to experience snowshoes, fireflies, wetland creatures and our sugarbush.
- Designed, developed, populated and launched our new CLOCA website using in house staff resources.
- Initiated public consultation on two projects, the CLOCA Watershed Plan Update and the Conservation Lands Master Plan through Public Information Sessions and collected feedback through 600 online surveys.
- Developed and presented draft reports at 2 public information centres in collaboration with our consultants as part of the Port Darlington Shoreline Hazards Study.
- Launched our first web based story board for the Integrated Watershed Monitoring Program.
- We completed the Pringle Creek Flood Plain Mapping project as part of the Town of Whitby Pringle Creek Master Drainage Plan
- Initiated the Conservation Areas Library Program to ensure economic barriers to accessing our Conservation Areas is available to everyone in our watershed communities. There were a total of 206 passes used from June to December.
- With Ontario BioBlitz, we hosted a series of events across our jurisdiction collecting data for 672 species and engaging more than 500 people.
- Received an award from Urban and Regional Information Systems Association for an enhanced website developed for the York Peel Durham Toronto Conservation Authority Moraine Coalition.
- Once again, we increased forest cover by planting more than 24,000 native trees to contribute to 10 hectares of mixed deciduous coniferous forests in 100 years.
- Launched the new Open Data Portal as an online hosted service of data collected, prepared, published and maintained by CLOCA staff.
- Completed the Storoschuk Restoration Plan to restore site topography, reconnect the valley wall, restore vegetation, habitat and slope stability.
- With our partners, we hosted 21 corporate programs and events, provided 35 community and corporate presentations, attended 10 community events, delivered 5 curriculum based education programs to 12,921 students, produced 9 corporate communication products, engaged 1635 volunteers and hosted 2,000 youth in the summer at the Enniskillen Education Centre in partnership with the YMCA GTA.
- Continued to work with our municipal partners to ensure development is safe from natural hazards and natural features and functions are protected.
- Approved a new Corporate Administrative and Meeting Procedural By-law.
DATE: February 12, 2019  
FILE: RPRG3974  
S.R.: 5626-19  
TO: Chair and Members, CLOCA Board of Directors  
FROM: Chris Jones, Director, Planning & Regulation  
SUBJECT: Permits Issued for Development, Interference with Wetlands and Alteration to Shorelines and Watercourses – January 1 to January 31, 2019

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 #5626-19 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</td>
<td>DARLINGTON PROPERTY OWNER</td>
<td>6443 REGIONAL ROAD 57/LOT 16/CON 06</td>
<td>C19-002-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE RECONSTRUCTION OF A SINGLE FAMILY DWELLING DESTROYED BY FIRE ON THE ORIGINAL FOOTPRINT</td>
</tr>
<tr>
<td>2</td>
<td>CLARINGTON</td>
<td>DARLINGTON</td>
<td>225-5338 ONTARIO LTD 39-41 COTTON STREET LOT 08/CON 02</td>
<td>C19-003-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH CONSTRUCTION OF TWO SINGLE FAMILY DWELLINGS AND ASSOCIATED LOT GRADING</td>
</tr>
<tr>
<td>3</td>
<td>OSHAWA</td>
<td>ENERDGE GAS DISTRIBUTION INC 3 S OF GIBB ST, WEST OF MONTRAVE AVE. LOT 13/CON 01</td>
<td>9/CON 01</td>
<td>C18-252-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH PROPOSED PIPELINE INSTALL</td>
</tr>
<tr>
<td>4</td>
<td>OSHAWA</td>
<td>PROPERTY OWNER</td>
<td>880 FLORELL DRIVE LOT 04/CON 01</td>
<td>C19-005-RH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE RENOVATION OF THE FINISHED BASEMENT OF A SINGLE FAMILY DWELLING</td>
</tr>
<tr>
<td>5</td>
<td>OSHAWA</td>
<td>PROPERTY OWNER</td>
<td>81 WAVELY STREET SOUTH LOT 15/CON 01</td>
<td>C19-006-RH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A BASEMENT APARTMENT IN AN EXISTING SINGLE FAMILY DWELLING</td>
</tr>
<tr>
<td>6</td>
<td>WHITBY</td>
<td>LACT OCCUPH DEVELOPMENT INC.</td>
<td>725 TAUTON ROAD WEST LOT 33/CON 03</td>
<td>W16-167-GB</td>
<td>DEVELOPMENT ACTIVITIES RELATING TO THE CONSTRUCTION OF A STORMWATER MANAGEMENT POND AND FINAL GRADING WITHIN A PLAN OF SUBDIVISION</td>
</tr>
<tr>
<td>7</td>
<td>WHITBY</td>
<td>BLOCK-ANDRIN (WHITBY) DEV LTD/CanDevCon</td>
<td>1601 DUFFERIN STREET LOT 2B/CON 07</td>
<td>W18-227-G</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE REMOVAL OF CONTAMINATED TOPSOIL TO BE STRIPPED AND EXPORTED OFF-SITE TO GFL'S SOIL REMEDIATION AND CONSTRUCTION FACILITY</td>
</tr>
<tr>
<td>8</td>
<td>WHITBY</td>
<td>KINTO ROSSLAND INC.</td>
<td>1542 ROSSLAND ROAD EAST LOT 21/CON 03</td>
<td>W18-248-GFA</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH THE CONSTRUCTION OF A STORMWATER MANAGEMENT FACILITY AND OUTLET, INCLUDING ALTERATION TO A WATERCOURSE</td>
</tr>
<tr>
<td>9</td>
<td>WHITBY</td>
<td>BETE POOLS LIMITED</td>
<td>33 CAMBER COURT LOT 24/CON 05</td>
<td>W19-003-GBH</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH INSTALLATION OF AN IN-GROUND POOL AND ASSOCIATED LANDSCAPING</td>
</tr>
<tr>
<td>10</td>
<td>WHITBY</td>
<td>1441502 ONTARIO LIMITED</td>
<td>33 CAMBER COURT LOT 22/CON 01</td>
<td>W19-004-GF</td>
<td>DEVELOPMENT ACTIVITIES ASSOCIATED WITH GRAZING OF VACANT LAND</td>
</tr>
</tbody>
</table>
MEMO TO: Chair and Members, CLOCA Board of Directors
FROM: Chris Jones, Director, Planning and Regulation

The purpose of this report is to introduce recently proposed Amendment No. 1 to the Growth Plan for the Greater Golden Horseshoe (2017) (Growth Plan) and to seek Board of Directors’ endorsement of draft comments on the amendment in relation to CLOCA’s policy and regulatory interests and to make related recommendations.

Background
On January 15, 2019 the Ministry of Municipal Affairs and Housing released a proposed amendment to the Growth Plan for public comment. The Ministry states that the amendment is proposed to address “policies seen as potential barriers to the development of housing, job creation and business attraction.”

The amendment contains new and revised policies within the framework of the existing Growth Plan across the following six general categories:

1. Employment Planning,
2. Settlement Area Boundary Expansions,
3. Rural Settlements,
4. Natural Heritage and Agricultural Systems,
5. Intensification and Density Targets, and
6. Major Transit Station Areas.

In the Environment Registry posting, the Ministry states that the changes are intended to streamline growth management in order to achieve the following outcomes:

- More Streamlined Process (faster municipal implementation of the Plan);
- More Land for Housing (more flexibility for additional Greenfield Development);
- More Housing and Jobs Near Transit (increase the supply of housing and jobs near transit infrastructure);
- Greater Flexibility for Municipal Implementation (municipal implementation to better reflect local context).

Environmental Bill of Rights Consultation
The proposed amendment has been posted to the Environmental Registry for a comment period ending on February 28, 2019. Conservation Ontario is co-ordinating a response on behalf of all 36 conservation authorities in addition to the individual submissions made by individual conservation authorities.

Analysis: Continued Need for Timely Climate Change Action and Effective Local Growth Management for Environment and Watershed Protection

Cont’d
Following a detailed review of the proposed amendment, staff have determined that there are no concerns with the majority of the proposed amendment. For example, clarification is provided in the amendment between local natural heritage systems and the provincial-scale Natural Heritage System for the Growth Plan. However, staff have analysis and recommendations regarding the following three policy directions in relation to CLOCA’s interests in environmental and watershed protection within the Region of Durham and the CLOCA watershed:

1. **Need for Strong Climate Change Action: Low-Carbon Communities**

   The Growth Plan currently sets out, as a guiding principle, the need to integrate climate change into planning and managing growth in order to build local adaptation to the impacts of a rapidly changing climate. Language in the plan that called for “moving towards low-carbon communities, with the long-term goal of net-zero communities” has been removed and replaced with the general phrase “moving towards the goal of environmentally sustainable communities.”

   Net-zero communities are envisioned as communities where carbon dioxide emissions from the main sources of carbon pollution in a community: buildings, vehicles and industry are reduced over time to the point where net emissions are zero factoring in any offsets such as renewable energy production generated from the community. Actions needed to transition to a net-zero community would include: expanding and restoring natural heritage systems (i.e. more woodlands and wetlands) to provide carbon sinks, provincial changes to the Building Code with energy efficiency targets for new net-zero carbon emission small buildings; development of zero emission transportation options including electric vehicles and electrified rapid transit (i.e. GO Regional Express Rail) and compact development forms that facilitate the use of walking, cycling and transit.

   The current Growth Plan does not contain any direct policies for achieving net-zero communities beyond noting an aspirational long-term goal. Given the imperatives of our rapidly changing climate, it is recommended that the province use this opportunity to recommit to a timely strategy and Growth Plan policy to achieve net-zero community development within the planning horizon of the Growth Plan (by 2041) as part of growth planning for the Greater Golden Horseshoe and the government’s Environment Plan.

2. **Lowered Intensification Target and Greenfield Density Targets for Durham Should be Balanced With the Need for Continued Effective Local Growth Management for Environmental and Watershed Protection**

   In order to make efficient use of land, conserve agricultural lands and natural areas and to maximise existing public infrastructure, the Growth Plan provides for 50% of all residential development occurring annually within the Region of Durham to take place within areas already developed. Under the current Plan, this intensification target of 50% is set to rise to 60% beginning in 2031. The proposed changes would remove the planned 2031 increase and keep the existing annual intensification target at 50% for Durham Region.

   New development on land not currently urbanized is referred to as Greenfield Development. In the CLOCA watershed, Greenfield Development almost always takes place by converting prime agricultural lands. In order to prioritize re-use of lands in already urbanized areas, to slow down the rate of prime agricultural land loss, and to ensure that agricultural lands converted are developed efficiently, the Growth Plan establishes urban density targets for “Designated Greenfield Areas” and provides rules for when urban boundaries may be expanded—a process referred to as “Settlement Boundary Expansions.”

   Under the current Plan, a minimum density target of 80 residents and jobs combined per hectare of land is to be gradually achieved in new Greenfield Development by 2041, which would be an increase from the status quo density of 50 residents and jobs combined per hectare. The proposed amendment would reduce the density target for Greenfield Development for Durham Region by over one third by maintaining the status quo density of 50 residents and jobs combined per hectare.
The lowered intensification target and greenfield density targets are minimum targets that could be exceeded based on local planning decisions by the Region of Durham and local municipalities within the CLOCA watershed. Over the next few years, a significant amount of agricultural lands are planned for urbanization as a result of growth planning undertaken to implement the 2006 Growth Plan. This includes significant new Greenfield Development in Brooklin in Whitby, Kedron and Columbus in Oshawa and Courtice and Bowmanville in Clarington. In total, these lands are well over 2,000 gross hectares in new urbanization in the current Regional and local Official Plans within the CLOCA watershed.

While the intensification target (re-use of land) and the greenfield density targets (efficient use of newly urbanized land) are proposed to be lowered for Durham Region, the planned population and employment targets to 2041 for Durham Region are continued: a planned population of 1,190,000 persons (up from the 2016 population of 673,000) and 430,000 jobs. Without careful, balanced planning, the pace of agricultural and environmental land conversion could accelerate further given the planned population and employment forecasts allocated to the region. In this context, continued effective local growth management for environmental and watershed protection is critical.

The Durham Region Municipal Comprehensive Review of the Regional Official Plan (Envision Durham) will be the process to determine how the Growth Plan is implemented. CLOCA staff understand that this process will be collaborative and will continue to include conservation authority input and analysis, especially watershed planning knowledge, into the process. It will be critical for the Envision Durham process to recognize the links between intensification rates, greenfield densities and our future environmental health in the context of the additional flexibility proposed in the proposed Growth Plan amendment.

3. “No Negative Impact” Environmental Test for Settlement Expansions Should be Retained

Currently the Growth Plan requires that feasibility of any future Settlement Area Boundary Expansions be tested against the following environmental standard:

“Watershed Planning or equivalent has demonstrated that the proposed expansion, including the associated servicing, would not negatively impact the water resource system, including the quality and quantity of water…”

The Growth Plan amendment proposes the following instead:

“The proposed expansion, including the associated water, wastewater and stormwater servicing, would be planned and demonstrated to avoid, or if avoidance is not possible, minimize and mitigate any potential negative impacts on watershed conditions and the water resource system, including the quality and quantity of water.”

Moving from an avoidance test to a mitigation approach lowers the environmental standards that future Settlement Area Boundary Expansions will need to meet. Given the significant scale of settlement expansions and the risk and degree of potential negative environmental impacts to terrestrial and aquatic ecosystems, including natural hazards and quality and quantity of water, there does not appear to be an environmental justification for the removal of the no negative impact test. It is recommended that the no negative impact test be retained in the Growth Plan for Settlement Area Boundary Expansions.

RECOMMENDATIONS:

THAT the Commentary in Staff Report 5628-19 be endorsed and submitted to the Province of Ontario and Conservation Ontario as CLOCA’s comments regarding Growth Plan (2017) Amendment No. 1; and,

THAT Staff Report 5628-19 be circulated to Watershed Members of Provincial Parliament, Municipalities and adjacent Conservation Authorities for their information.

CJ/bb
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MEMO TO: Chair and Members, CLOCA Board of Directors
FROM: Patricia Lowe, Director Community Engagement
SUBJECT: Community Needs & Opportunities for Environmental Education

Background
Central Lake Ontario Conservation (CLOCA’s) Strategic Plan includes a goal to Communicate, Educate and Inspire. Our focus is to share our watershed story, to inspire our community to be watershed champions and to take action for real change. The attached Community Needs & Opportunities for Environmental Education Report focuses on one of the Strategic Actions to support the two primary objectives of sharing our story. The Action is identified as:

“Assess community-based needs and identify opportunities for expanded conservation education and programming to meet the needs of an evolving, diverse and dynamic watershed community.”

CLOCA 2016

For the past 30 years, CLOCA has delivered formal and informal education programs to ensure our community is provided with an environmental literacy opportunity. We define formal education as having a framework that meets curriculum requirements within the Ministry of Education and targets grades 1 through 12. Informal education refers to the various hands-on workshops, online resources and publications, family and community events we deliver to present our knowledge on local environmental conditions and issues.

In an effort to better deliver our formal education programs, we follow provincial guidelines including “Acting Today, Shaping Tomorrow, A Policy Framework for Environmental Education in Ontario Schools, and Elementary and Secondary Curriculum guidelines. As well our education staff receive evaluations from participating teachers and we recently completed the Education Program Delivery Assessment, 2018.

While we maintain and update our programs, we recognize that changes to our watershed community in terms of diversity is an evolving and dynamic metric that will influence what and how we deliver and what tools and training are required to ensure we continue to adapt the framework of informal environmental education.

In order to communicate, educate and inspire, we have to know who our audience is, primarily to ensure we make a connection, give them the right tools for the tasks and demonstrate measurable results from their actions.

One of the most valuable tools to determine who we are educating is to review past, current and future demographic trends. Demographics provides a degree of predictability that other tools used for competitive intelligence, do not. We know that demographics drive consumer demands and looking forward, factor prominently in changes to a multitude of sectors, environmental education included. (CLOCA Strategic Plan 2016 – 2020).

The Community Needs & Opportunities for Environmental Education Report begins with an overview of global, national and provincial demographics and then compares our regional demographics to assess and compare local trends with this larger context. The report then assesses current delivery of our education programs to formulate actions that staff will pursue in moving forward with measurable actions and outcomes.

RECOMMENDATION:
THAT Staff Report 5622-19 be received for information.

ATTACH.
PL/bb
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Community Needs & Opportunities for Environmental Education

Meeting the Needs of an Evolving, Diverse & Dynamic Watershed Community

December 2018
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1.0 Introduction – Nature $+U^2 =$ healthy watershed

We know human health and watershed health are inseparable. Our role as a conservation authority is to promote the conservation, restoration, responsible management, protection and enhancement of our watershed. We carry out our mandate through the delivery of a number of programs and services. One program area is environmental education. Environmental education is a process that allows individuals to explore environmental issues, engage in problem solving, and take action to improve the environment. As a result, individuals develop a deeper understanding of environmental issues and have the skills to make informed and responsible decisions.

The components of environmental education include:

- Awareness of the environment and environmental challenges
- Knowledge and understanding of the environment and environmental challenges
- Attitudes of concern for the environment and motivation to improve or maintain environmental quality
- Skills to identify and help resolve environmental challenges
- Appreciation of nature and its benefits
- Inspiration to participation in activities that support a healthy watershed

One of the actions from the “CLOCA Strategic Plan 2016 to 2020” focuses on a corporate goal to Communicate, Educate and Inspire. Our focus is to share our watershed story, to inspire our community to be watershed champions and to take action for real change. Within the focus there are two primary objectives. The first is to get the word out and ensure more people know about CLOCA, what we do and who we are and take action. The second is to encourage others to put watershed health first in thought and action. This report will focus on one of the Strategic Actions to support the two primary objectives of sharing our story. The Action is identified as:

“Assess community-based needs and identify opportunities for expanded conservation education and programming to meet the needs of an evolving, diverse and dynamic watershed community.”

CLOCA 2016

For the past 30 years, Central Lake Ontario Conservation Authority (CLOCA) has delivered formal and informal education programs to ensure our community is provided with an environmental literacy opportunity. We define formal education as having a framework that meets curriculum requirements within the Ministry of Education and targets grades 1 through 12. Informal education refers to the various hands-on workshops, online resources and publications, family and community events we deliver to present our knowledge on local environmental conditions and issues.
Community Needs & Opportunities for Environmental Education

In an effort to better deliver our formal education programs, we follow provincial guidelines including “Acting Today, Shaping Tomorrow, A Policy Framework for Environmental Education in Ontario Schools, and Elementary and Secondary Curriculum guidelines. As well our education staff receive evaluations from participating teachers and we recently completed the Education Program Delivery Assessment, 2018.

While we maintain and update our programs, we recognize that changes to our watershed community in terms of diversity is an evolving and dynamic metric that will influence what and how we deliver and what tools and training are required to ensure we continue to adapt the framework of informal environmental education.

In order to communicate, educate and inspire, we have to know who our audience is, primarily to ensure we make a connection, give them the right tools for the tasks and demonstrate measurable results from their actions. We begin the process with an overview of global, national and provincial demographics and then compare our regional demographics to assess and compare local trends with this larger context. Demographics provides a degree of predictability that other tools used for competitive intelligence, do not. We know that demographics drive consumer demands and looking forward, factor prominently in changes to a multitude of sectors, environmental education included. (CLOCA Strategic Plan 2016 – 2020)

2.0 A Global Perspective

Scientist refer to the 21st century as the Anthropocene Era, or simply put, the new period of humans. Never before in our planet’s history have human activities had a greater impact on the environment. Some of these are a direct result of our actions, others are secondary effects, part of a series of actions and or reactions. Common effects of the human population include decreased water quality, increased pollution and greenhouse gas emissions, depletion of natural resources and contribution to global climate change. It is estimated that 7.6 billion people call earth home and there are on average 240,000 people added to the world every day, that’s 166 people per minute and 1 billion people added every 11.4 years. (Worldometres 2018) What we know, is without a 180 degree shift in human behaviour and current technology on a global scale, the environment will continue to become degraded.

We also know the developed world is aging and the developing world is young and growing. Half the global population is under the age of 25, and for the first time in history, the world is currently populated by the largest number of adolescents ever. There is an estimated 1.8 billion youth on the planet today, and they are the shapers of our global future. With this extreme in population growth, it is no surprise that humans are central to the changes being tracked by scientists around increased greenhouse gas emissions, rising sea levels and loss of polar ice caps and glacial melt.

3.0 Scanning our Countryside

Canada continues to experience significant demographic shifts. Recent trends point to an aging population, increasing rate of immigration and growing Aboriginal population. This shifting demographic make-up brings with it challenges and opportunities and has implications for Canada in terms of managing diversity, facilitating sustainable growth and addressing issues related to the history of colonialism, gender, income inequality and social cohesion. (The Changing Demographic Structure, Government of Canada 2018) website.
3.1 Immigration Population
The proportion of immigrants in Canada was projected to reach slightly over 22% by 2017. This would be equal to the highest level observed since the beginning of the last century, namely the 22% recorded between 1911 and 1931. Few countries have a larger proportion of foreign-born than Canada. In the United States, for example, the proportion of foreign-born was 12.5% in 2006. (Statistics Canada, Canadian Demographics at a Glance, 2018)

3.2 Aging Population
Many of the changes in Canada’s future demographic and policy environment will hinge on the issue of population aging, resulting in wide-ranging implications for Canadian society. From 2015 to 2021, the number of seniors is projected to exceed the number of children aged 14 and younger for the first time ever. (Statistics Canada)

3.3 Aboriginal Population
Canada’s Aboriginal population represents a growing share of the Canadian population; it is younger, increasingly urban, and regionally concentrated. The population itself is diverse, mobile, transient and young, with some living in areas that are resource rich while others are struggling in isolated communities where trauma associated with colonialism continues to impact social and economic conditions.

At the same time, increased urban populations are being established, without adequate resources, support systems, skills and housing. Urban and on-reserve Aboriginals face different realities, as do different age cohorts. All these issues add to the complexity regarding appropriate policy levers and jurisdictional interventions. While there is much information available regarding Aboriginal people, there still remains mistrust on behalf of the Aboriginal population towards the research, statistics and data. (Government of Canada, 2018)

4.0 Closer to Home
CLOCA’s watershed is following both the social, economic and environmental trends occurring across the country. The overall health of the our watershed declines as you travel from the headwater areas in the Oak Ridges Moraine to the more urban and developing areas located in the mid reaches and along the Lake Ontario waterfront. Science and ongoing monitoring data clearly show that a decrease in natural features within a watershed results in a decrease in watershed health. The underlying principals taught in our environmental education programs
is that there is a direct relationship between our environment and our own health. We want to influence behaviour to sustain healthy natural systems in our watersheds that can respond positively to change like population growth, new infrastructure and climate change. Currently, our national thoughts about waste and waste management demonstrate a disconnect between our actions and the environment. In Canada, of the 58% of households that had batteries to dispose of in 2009, 42% discarded them in the garbage, when they should have disposed them through municipal hazardous waste programs. (Government of Canada, Battery Recycling in Canada – 2009 Update)

If our education program outcomes focus on improving knowledge about environmental systems and the behaviour change needed to reduce the human impact on those systems, we first have to understand the community we are engaging. We know our current audience is diverse in terms of age, culture, language, social and economic representation. The diversity of tomorrow will likely still show variety in those categories but will be different again. Our approach must be adaptive and flexible, innovative and inclusive and rely on new technologies that support the audiences we engage. It will require us to continuously review, consult, assess and reboot to ensure we are relevant environmental educators, increasing actions to achieve healthy resilient watersheds in the future.

With such potential to adversely impact our quality of life, one has to ask why our culture has been so passive on the issue of Climate Change. A Norwegian psychologist Per Espen Stoknes has been struggling with that question for many years and presents it in his recent book, What We Think About When We Try Not To Think About Global Warming? His research suggests that because the problem is thought to be in the distant future, it does not get our immediate attention. Also there is so much doom and gloom around the media reports, which makes the average human feel powerless because collectively, we contribute to the
5.0 Regional Watershed Demographic Social Trends

5.1 Population

Demographic trends at the global and national scale are repeating themselves closer to home both in and just outside our watershed. Regional population projections and trends show the GTA population increasing 31.3% from 2013 to 2041. Growth in Durham, Halton, Peel and York will be significantly faster than the Ontario average. Growth will vary across the CLOCA watershed from urban communities along the lakeshore to rural communities in our headwaters. Durham's population has increased significantly from 247,473 in 1974 to 608,124 in 2011 and 645,862 in 2016. Of that population 18% are 0 to 14 years, and 14.4% are 65 or older. The average age of the current population is 39.6 years of age. Durham Region has doubled its population since 1986 with Whitby and Ajax showing the greatest increase in population between 1986 and 2015. (Durham Region 2015)

<table>
<thead>
<tr>
<th>Year</th>
<th>Urban Population</th>
<th>Rural Population</th>
<th>Total Population</th>
<th>Households</th>
<th>Employment</th>
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<td>2011</td>
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<td>51,265</td>
<td>643,980</td>
<td>220,600</td>
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<td>2016</td>
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<td>809,990</td>
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<td>2031</td>
<td>905,380</td>
<td>54,610</td>
<td>960,000</td>
<td>356,610</td>
<td>350,000</td>
</tr>
</tbody>
</table>

Projections

Currently we are experiencing an aging population. In 2016, this was reflected in the 50-54 category with 55,045 people and 8.5% of the total population. (Statistics Canada 2016) Not surprising the 65 and older category totaled 92,790 of the population which is about 15% of the total. (Statistics Canada 2016) Adults in the category of 90 years and older, has consistently seen the most significant population increase, reminding us that aging populations are living longer with advances in medical and preventative health care. (Statistics Canada 2016)

According to the Age-Friendly Durham Strategy and Action Plan, prepared by the Region of Durham, the 2015 population estimates identify 177,678 residents aged 55 and older in Durham Region, making up nearly 27% of the total population. This is expected to increase to 34% by the year 2031.
We know we currently have a high number of seniors living in our urban areas. The population aged 65 and over are primarily found in Oshawa with an estimated 20,000 individuals. Whitby, Pickering, Clarington and Ajax have about 10,000 individuals each in this same category. Many live in rural areas, with the lowest percentage of persons over 65 living in Ajax and Whitby. (Durham Region 2015) This population will significantly increase when the current 50-54 category ages over the next 35 to 40 years.

Our youth population ages 0 to 14 was 116,185 or 18% of the total population in 2016, which was higher than average compared to the rest of Canada. (Statistics Canada 2016) Immigration from 1981 until 2016 has contributed to about 25% of our population growth compared to 21% in 2001. (Statistics Canada 2016) Most of that immigration came from Europe, Asia and the Americas and overall population growth was higher in Durham than the rest of Ontario from 2005 to 2015. (Durham Region 2015)

5.2 Aboriginal Population in Durham Region
Statistics Canada collects data on the number of persons who identify with Aboriginal groups. Within the GTA, Durham had the highest percentage of population identifying with at least one Aboriginal group, whereas York had the least at 0.4%. In 2011, 8,905 persons in Durham (1.5% of the population) identified with at least one Aboriginal group. In 2016, 12,535 identified with at least one Aboriginal group, increasing the population representation to 1.96%.

The Township of Scugog includes the population of the Scugog Island First Nation (Mississaugas of Scugog Island). Within Scugog, the proportion of the population with Aboriginal identity increased from 1.1% in 2006 to 1.8% in 2011. Although this population is not within the Central Lake Ontario Conservation jurisdiction, it has been included here to note the significance of Clarington and Oshawa with a higher percentage of Aboriginal within their populations of 2.0% each.

With current analysis of the 2016 Census lacking for Durham Region at this time, we are assuming that we follow and or exceed the trends identified by this most recent census as follows:
The largest portion of the Aboriginal community identifies as First Nation, followed by Metis and then Inuit and it is not uncommon in the census data for the Aboriginal population to identify under multiple aboriginal ancestries.

Populations identifying with one or more Aboriginal groups, is on the increase with an estimated 2% of the Ontario population identifying in the 2016 census.

There were 374,395 Aboriginal people in Ontario in 2016, which was the largest of any province or territory in Canada.

New data from the National Household Survey (NHS) show that 1,400,685 people had an Aboriginal identity in 2011, representing 4.3% of the total Canadian population. Aboriginal people accounted for 3.8% of the population enumerated in the 2006 Census, 3.3% in the 2001 Census and 2.8% in the 1996 Census. (Statistics Canada, 2018) As of the 2016 census, Aboriginal peoples in Canada were 4.9% of the national population, a growing population. It is anticipated that the overall percentage of the Canadian population reporting an Aboriginal identity could increase to 6.1% by 2036. (Projections of the Aboriginal Population and Households in Canada 2011 to 2036)

The average age of the Aboriginal population in Canada in 2016 was 32.1 years, almost a decade younger than the non-Aboriginal population which was 40.9 years.

More than 70 Aboriginal languages were reported in the 2016 Census and 208,720 aboriginal people reported an Aboriginal mother tongue. More people speak an Aboriginal language (260,550 speakers) than have an Aboriginal language as a mother tongue, especially among youth. This is evidence that people are learning Aboriginal languages as a second language.

First Nations peoples in Ontario include Algonquian-speaking Cree, Oji-Cree, Algonquin, Ojibwa, Odawa, Potawatomi and Delaware, plus the Iroquoian-speaking Six Nations (Mohawk, Oneida, Onondaga, Cayuga, Seneca and Tuscarora). (Government of Ontario, 2018)
5.3 Immigration

The Citizenship of Durham Region residents was 96% Canadian in 2016 and almost 97% in 2011. The breakdown of ethnicity was primarily European at 70.6%, followed by Asian at 12.8%, then North American at 29.4%, Caribbean at 6.6% and North American Indigenous at 2.9%. Ajax, Pickering and Whitby are more ethnically diverse likely due to their geographic proximity to Toronto. Our visible minorities in Durham Region* comprised 27.1% of the total population in 2016, an increase of more than 10% from 16.8% in 2006. There are a high percentage of visual minorities in Ajax at 56.48%, Pickering at 42.6% and Whitby at 25.0%. As distance from Toronto to Durham Region municipality’s increases, the visible minority population decreases accordingly. Oshawa and Clarington are 15.8% and 7.9% respectively.

It is estimated that 2/3’s of the population growth in Durham Region, an estimated 25,000 individuals, is attributed to immigration over the past 5 years. (Durham Diversity and Immigration Community Plan, 2016-2019)

* The Employment Equity Act defines a visible minority as “persons, other than Aboriginal peoples, who are non-Caucasian in race or non-white in colour.”

<table>
<thead>
<tr>
<th>The top 10 Countries for New Immigrant to Durham:</th>
<th>The top 10 Languages Spoken at Home in Durham</th>
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<tbody>
<tr>
<td>1. India</td>
<td>1. Urdu</td>
</tr>
<tr>
<td>2. Philippines</td>
<td>2. Tamil</td>
</tr>
<tr>
<td>3. Pakistan</td>
<td>3. Persian/Farsi</td>
</tr>
<tr>
<td>5. Jamaica</td>
<td>5. Spanish</td>
</tr>
<tr>
<td>7. United States</td>
<td>7. Arabic</td>
</tr>
<tr>
<td>8. United Kingdom</td>
<td>8. Cantonese</td>
</tr>
</tbody>
</table>
5.4 Language/Religion
The primary language spoken in the home in Durham Region is 91.9% English in 2011 and 2016 compared to the GTA at 56.2% in 2011 and 52% in 2016. In 2016 we see this increase to about 5.6% of the homes spoke French as the primary language and multiple languages were spoken in 2.4% of the homes. The most prevalent non-official languages were Urdu, Persian, Tamil, Spanish, Polish, Tagalog and Italian. Of note there are multiple languages spoken in 2.4% of Durham homes. Of the overall population in Durham Region, less than 1% of the population did not speak either English or French, our two official languages. Personal communication with staff at the Durham Region Welcome Centre indicated that new immigrant residents to Durham Region have well developed English as a second language skill, compared to those immigrants that settle in large urban centres like Toronto. The less than 1% likely represents parents and grandparents who are brought to Canada, but do not require education or employment services in the community where English would be an asset. It was also identified that the percentage of Christians is on the decline with an increase in the number of eastern non-Christian religions on the increase with secularism becoming more prevalent.

5.5 Family Structure
Data shows that marriage is around 85% of the population in the 2016 census with the balance of census families categorized as common-law couples. In 2011, about 80 percent of the families were headed by two parents, but of the 16% single parents reported in 2011 and 18% in 2016 indicates this trend of single parent households is increasing. Census data indicates about 80% of these single parent families were headed by women in 2011 and 2016 and that an estimated 45% of their income is used for housing.

6.0 Watershed Economic Trends

6.1 Employment
In Durham Region, the labour force tended to be highest in the sales and service sector at about 20.2 percent. Other categories include trades, transport and equipment operators, business finance and administration followed by social science, education government service and religion. Art, culture, recreation and sport tend to be one of the lowest segment of our labour force by occupation in Durham region from 2006 to 2011. In 2014, the Durham Region business count reported over 170,000 jobs and over 11,000 businesses. There are 3 main classes of workers, employees at 88 percent, self-employed at 8 percent and 5 percent not classified in 2011 showing little change from 2006.

There is a small trend in increased use of public transit from 9% in 2011 to 10% in 2016. It is estimated that 80 percent of the people drive their cars to their place of employment, with some walking and cycling. This is quite different than the GTA trend which shows around 65 percent of the people are taking their car to work and in Toronto, less than half. The dominant language in the workplace continues to be English at 95%. Businesses in Durham Region show Oshawa as having the largest share, followed by Whitby and Pickering.
The proportion of commuters living in Oshawa who traveled to Toronto for work was 42% and within Oshawa was 54%, with the balance of 4% of that population traveling to other places within the Greater Golden Horseshoe. Surprisingly, much higher percentages of the populations in communities like St. Catherine’s, Kitchener-Waterloo, Peterborough, Hamilton and Guelph worked in their own communities. This further demonstrates the dependence of urban centres in our watershed to function as bedroom communities. (Statistics Canada 2017, Commuters Using Sustainable Transportation in Metropolitan Areas)

Reports on workforce expectations for example in Ontario are likely to occur in Durham Region which is where the CLOCA jurisdiction is nested. The provincial population estimate right now is 13.6 million with an anticipated 16.7 million living in Ontario by the year 2030, and global immigration will continue to drive that growth. (Statistics Canada, 2016) There are significant changes anticipated in that same future, as baby boomers retire. It is predicted that the employment gap will be filled by the new Canadian population we receive as immigrants. This in turn will require a shift in employer and employee relationships to ensure the variety of languages, education, out of country experience and new cultural values contribute positively to this anticipated diverse workforce. (CLOCA 2016)

6.2 Income and Education
Compared to Ontario and the GTA, Durham had a lower percentage of the population with a university education and higher than average with college and non-university certificates or diplomas, apprenticeship and trades or high school as their highest level of education. There is a definite trend in education levels occurring in the population with a 7% increase in the number of individuals with a high school diploma and an 8% increase in the number of individuals with postsecondary education. (Statistics Canada 2011 and 2016) Female incomes are increasing considerably more than that of their male contemporaries, but likely due to adjustments for equality of pay for same work. Average family incomes increased from $95,873 in 2005 to $106,590 in 2010. Durham Region is 3rd in the GTA behind York and Peel Regions for average family income. Income sources continue to be from employment, government and investments. Note that Durham had the lowest prevalence of low income behind Halton Region for the entire GTA. Tenant households spend up to 45 percent of their annual income on housing and Ajax and Oshawa have the highest portion of affordability problems. Young graduates with bachelor’s degrees in the fields of study of 'nursing,' 'engineering,' 'education and teaching' and 'computer and information science' are more likely than other graduates to find work closely related to their studies. (Census in Brief, Statistics Canada, 2017)
7.0 Demographic Summary

7.1 Who is our Audience
In 2011, almost 91% of Durham Region’s population lived in an urban area. This is consistent with 2006 figures and represents a slight increase over 1996, when approximately 89% of the Region’s population was urban (Refer to Appendix, Table 1.15). The Townships of Brock, Scugog, and Uxbridge represent the greatest percentage of rural population in Durham. Urban/rural population forecasts for Durham indicate this trend will continue into 2031, when 94.3% of Durham residents are expected to be living within the urban areas.

The proportion of visible minorities living in Durham Region increased from 16.8% in 2006 to 20.7% in 2011. In addition, seniors are making up a greater percentage of the population in Durham, with residents 65 years and older increasing from 10.2% in 2006 to 11.4% in 2011. The majority of Durham residents reported European ethnic origin (70.6%).

Statistics Canada defines ethnic origin as the ethnic or cultural origins of the respondent’s ancestors. A person may report more than one ethnic origin in the census. In 2011, the ethnic origin for most Durham Region residents was European (70.6%), North American (29.4%), and Asian (12.8%) descent. Other notable ethnic groups in Durham included Caribbean (6.6%) and North American Aboriginal (2.9%).

The share of European ethnic origins was higher in Durham (70.6%) than it was in the GTA (53.0%) (Figure 2.2). There was also a notable difference between the GTA and Durham in regard to the share of Asian ethnic origins (35.4% and 12.8% respectively).

The percentage of ethnic origins in Durham varies among its area municipalities as well. All eight area municipalities had higher proportions of European and North American ethnic origins. Ajax, Pickering, and Whitby are marginally more diverse; with significant percentages of population reporting ethnic origins of Caribbean and Asian descent (refer to Appendix, Table 2.2).

Visible minorities comprised 20.7% of Durham’s total population in 2011, increasing from 16.8% in 2006. The composition of visible minorities in Durham is Black (7.0%) and South Asian (5.7%) people comprise the largest share of Durham’s visible minority population. The other most notable groups include Filipino (2.0%) and Chinese (1.5%). The composition of visible minority groups in 2011 did not change appreciably from 2006.

All area municipalities in Durham experienced increases in the number of visible minorities from 2006 to 2011 (refer to Appendix, Table 2.3). In 2011, Ajax had the highest proportion of visible minorities within Durham (45.8%), followed by Pickering (35.4%) and Whitby (19.2%). In all other area municipalities, visible minorities represented less than 10% of the total respective population in 2011.
8.0 Environmental Programs and Event Delivery Recommendations

8.1 What are we doing now?
Currently, we offer a suite of curriculum education programs which meet Ministry of Education guidelines and provide an opportunity for outdoor environmental experiences for grades 1 to 12 through our In Your Watershed Program. Outside of that we host two major Festivals each year. The Durham Children’s Watershed Festival is dedicated to teaching grade 4 students about water resources. The Purple Woods Maple Syrup Festival engages, families, primary and English as a Second Language students in a cultural heritage experience at our operating sugarbush. Our informal education programs involve hosting a number of our own hike and hands-on activities at Conservation Areas, as well as offering workshops, volunteer citizen science programs and attending a variety of environmental community events.

In 2016 we engaged 34,910 individuals and in 2017 33,664 individuals in our formal and informal education programs. Refer to Table 1, below. Those numbers represent about 10 percent of the population in the CLOCA jurisdiction. If we want to maintain, at a minimum, our current standard of delivery, we can anticipate that by the year 2031, we will need to reach 44,000 individuals and will need to increase our delivery products by about 25%. We estimate this would require an increase in additional staff resources, investments in new technologies, new financial and volunteer partnerships. In all likelihood this would require an increase in 1.25 staff to the Community Engagement team to deliver formal and informal education programs.

<table>
<thead>
<tr>
<th>Comparison 2016 to 2018</th>
<th>2016 Engaged</th>
<th>2017 Engaged</th>
<th>2018 Engaged</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLOCA Events and Programs</td>
<td>19 10,885</td>
<td>18 8,843</td>
<td>21 11,458</td>
</tr>
<tr>
<td>Corporate Presentations</td>
<td>12 273</td>
<td>12 2549</td>
<td>27 2,155</td>
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<tr>
<td>Community Presentations</td>
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<td>9 1462</td>
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<tr>
<td>Community Events Attended</td>
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<td>6 1125</td>
<td>10 1,433</td>
</tr>
<tr>
<td>Formal Education Programs</td>
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<td>6 12,661</td>
<td>12,921</td>
</tr>
<tr>
<td>Corporate Communication Products</td>
<td>6 4,070</td>
<td>2 4,070</td>
<td>7</td>
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<tr>
<td>Volunteer Participation</td>
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<td>6 901</td>
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<td>Watershed Tours</td>
<td>2 9</td>
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<td></td>
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<td>Summer Programs</td>
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<td>2 2299</td>
<td>3 2238</td>
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<tr>
<td>Media Releases</td>
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<td>26</td>
<td>26</td>
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<tr>
<td>Media Coverage</td>
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<td>64</td>
<td>47</td>
</tr>
<tr>
<td>Social Media Posts</td>
<td>253 33,662</td>
<td>177 34,910</td>
<td>32,185</td>
</tr>
</tbody>
</table>

Table 1 CLOCA 2016/2017/2018 Event Program Delivery & Participation
8.2 Looking Forward

The context for this introduction, looks at how we can better align our current and future environmental programs with our changing watershed community. We have created a summary of localized population growth and the social characteristics of that growth including evolving diversity of language, religion and family structure. We also included an overview of economic characteristics like education, income and employment infrastructure within the community. Our scope of works will take this information and determine how we respond to current and future trends in our population and how best to modify our programs to ensure our audience is empowered with the necessary tools to create healthy watersheds in their community.

Our underlying message will continue to focus on the context of our Watershed. That Homes, businesses, farms, forest, wetlands, streams, hamlets, towns and cities are all an integral part of the watershed and our collective actions or our living and lifestyles have both positive and negative impacts on its health. When a watershed is healthy, we all benefit and it is easily measured. Life for many species is sustained, we have green spaces to enjoy, beaches are clean, water is drinkable, swimmable and fishable and the effects of flooding and erosion are mitigated and reduced. At CLOCA our job is to work with others toward healthy watersheds ensuring positive and sustainable improvements for our communities. The following are recommendations that allow us to continue delivering this basic message in the context of the anticipated changing audience that will reflect our watershed community in the future.

Our current delivery models will require regular review and assessment to insure participants are meaningfully engaged. They will likely be made up of a greater percentage of visible minorities as immigration trends suggest that will contribute greatly to our population growth. This may require cultural sensitivity training for staff and volunteers, assessing content and hands-on delivery.

We also recognize that the majority of that increased population, may not speak English as their first language, but most will in all likelihood speak and understand English. Offering printed, spoken and electronic information in a variety of languages as well as English offers inclusion and acceptance as well as options to better understand the content of our programs and messaging.

Knowing the overall population will consist of a large sector of seniors and youth and a significant community of individuals who identify as Aboriginal, will need to offer meaningful learning and call to action components suitable to a diverse audience.

While we anticipate our programs will continue to be secular in nature, we can anticipate a broader belief system which will require recognition and understanding by CLOCA staff, to ensure we are inclusive and provide a safe and respectful environment for multi-faiths, customs and cultural experiences. Again further sensitivity training for staff and volunteers will be key.
Community Needs & Opportunities for Environmental Education

We will continue to offer programs that suit a range of income and education levels in our community to ultimately result in behaviour change and overall watershed health improvements. Free and paid programs are offered currently and will shift between those two models, however subsidies through external partnerships will continue to be solicited outside of our operating budget.

Program content should continue to recognize that audiences vary in terms of learning styles and knowledge and understanding levels, and concepts and ideas should be presented to ensure, verbal and tactile learning opportunities are offered. Continued efforts to support local post-secondary programs either through coop placements, volunteer opportunities or summer employment positions, would assist in current and future economic benefits for our watershed. Exploring new programs that target the aging population and provide volunteer, mental and physical health benefits will be essential. Efforts to continually survey and request input and feedback on program delivery, will help us develop new programs and update current programs.

9.0 Action Plan

9.1 Changing Social Context

How do we reach a growing population with our programs?
- More social media education tools, Ted Talks, U-tube and CLOCA specific how too videos or publications that are available on line;
- More neighbour to neighbour influence - develop hands-on action or tool kits with basic train the trainer workshops for self-delivery by community volunteers.

How do we reach a culturally diverse population with our programs?
- Reach out and empower local champions – all ages, all cultures to better connect with diverse audiences in their community;
- Staff and CLOCA Board human resources should reflect diversity in the community and offer language, faces and values that the community can recognize and trust;
- Continue to connect with the Community Partners in Diversity and local Welcome Centre Immigrant Services, Durham Region.
- Offer more opportunities for intern positions and placements to post secondary students who identify as Aboriginal and new Canadian.

How do we reach a population where English is not their first language?
- Using available software technology, ensure publications and web based tools and media are offered in multiple languages;
- Train volunteers to provide live interpretation for programs, services and events that require verbal engagement.
- Develop more citizen science programs online that provide multi-language instruction and tools for data input on specific easily identified species e.g. Fish On The Run (CLOCA Program) or Amphibian Marsh Monitoring Program (Canadian Wildlife Service)
- Offer English as a Second Language Hikes during weekdays, but also on weekend so students can bring their family or friends to participate in a program that builds on simple English language foundation of environmental literacy.

**How do we reach an aging population with our programs?**
- Offer more meaningful long term volunteer opportunities to take advantage of this significant knowledge and competent resource;
- Support a healthier aging population with more physical programs that would attract all ages i.e. yoga, pole walking, running, hiking to help our population associate healthy lifestyles with environmental experiences;
- Ensure programs and facilities to support those programs, are accessible;
- Develop programs that offer partnerships between our programs and seniors who actively participate in delivery as volunteers.

**How do we reach a population of individuals who self-identify as indigenous?**
- Ensure messaging for printed and verbal communications reflect local heritage land claims;
- Through local Aboriginal volunteers, offer teachings as part of programs;
- Partner with Aboriginal programs and services to provide better connections to the land through the shared use of Conservation Areas; Refer to Appendix One.
- Develop a program that brings Aboriginal and new Canadians together to build stronger community relationships and contributes to national reconciliation efforts.

9.2 **Changing Economic Context**

**How do we reach individuals and families facing economic challenges?**
- Ensure programs offered are free and or sponsored by an external partner to cover delivery costs and frequent enough to develop meaningful participation; example 2019 Back2Nature program for New Canadians. Refer to Appendix Two.
- Offer resources to encourage follow up activities by the individual or families in natural areas in their own communities, either public open space or our Conservation Areas where accessible;
- Send home a postcard of the conservation area the students visited the day of their formal education program along with a brochure, information about the library lending program and a list of upcoming free environmental programs. Refer to Appendix Three
How do we connect individuals and families to our Conservation Areas where transportation/costs are a barrier?
- Provide shared transportation means, like a school bus or Corporate CLOCA van to events and activities
- As public transit systems are developed to support new development, CLOCA planning staff should be encouraging transportation linkages cycling routes and pathway linkages within a reasonable distance of conservation areas for long term access accommodations to create sustainable communities.
- Develop more programs like the Conservation Area Pass Library Lending Program.

How do we engage families with limited time for environmental experiences and education?
- Develop programs that help students complete an environmental project, while spending time with their families. Might consider targeting a specific grade where curriculum aligns with what we have to offer and opportunities to experience all four seasons;
- Offer flexibility i.e. programs could be offered at various times on a weekend, evenings during the week and in the community as a-welcome-to-you-program;
- Develop a back yard nature kit that families can borrow from the library and explore nature in their own backyard, local open space or community park;
- Promote citizen science programs offered by other organizations that allow families to participate when it suits their schedule.

How do we engage social services departments in partnerships that offer environmental education opportunities for their clients?
- Offer our education programs to local and regional social services agencies that support individuals and families by offering environmental education experiences designed to overcome economic and social barriers.

10.0 Next Steps
How do we design our education programs to ensure we offer inclusive, accessible and affordable formal and informal education programs to our many audiences who will present us with a diverse list of social and economic needs? The following outlines our next steps in this undertaking.

10.1 Program Assessment
The first step to determine how best to incorporate these new delivery methods, will be to assess our existing education programs and identify their relevance, messaging and make modifications to best serve the changing demographics of our audience noted in this report. Gaps will be identified and addressed in current program delivery and new programs will be identified.

10.2 Identify and Assess Barriers to Engagement
Identify current and future barriers to program participation through surveys and consultations with social and economic agencies in Durham Region. Develop a program framework to assess existing and new programs for delivery to our changing audience.
10.3 Staff Training
We will need to provide staff training to ensure we have the necessary skills to shift the education programs toward our goal of engaging a diverse and changing community.

10.4 Define Learning Outcomes
Determine priority learning outcomes and corporate messages to incorporate into new and existing programs to benefit watershed health and create livable communities. Corporately we will need to focus learning outcomes on priority messages that address our diverse communities and support our strategic plan with measurable outcomes.

10.5 Evaluate and Measure Success
And lastly we will need to develop metrics for measurement to determine the success or failure of our programs to change behaviour and result in positive actions in terms of watershed health. Evaluate, Inform, Update and Replace (EIUR) as required, existing and new programs based on feedback, local trends, suggestions from community support organizations, booking demand and learning outcome success measurements.
11.0 Appendix

Appendix One - Durham Region Aboriginal Advisory Circle

Since 2013, CLOCA staff have worked collaboratively with the Oshawa Community Health Centre which offers a range of free programs servicing the needs of parents, children, youth and the Aboriginal community living in Durham Region. As part of this partnership we agreed and continue to offer partnership support and contribute to the delivery of programs, services and events to the Aboriginal community in Durham Region.

We are members of the Durham Region Aboriginal Circle and meet regularly to update the partners on programs and projects that support the above. To date we continue to host and offer in-kind meeting space for the Durham Region Aboriginal Advisory Circle meetings, provide in-kind space to host an annual Big Drum Social Event, which draws an audience of about 500 people, and we provide family activities at other Big Drum Socials held throughout Durham Region.

With 2019 declared by the United Nations as the International Year of Indigenous Languages we anticipate and the First Nations Library in October
Appendix Two - Back2Nature Program Profile

Program Description
A learn to hike program for new Canadians and immigrants living in Durham Region currently serviced by the Welcome Centre Immigrant Services and their community partners.

The Back to Nature program will be available to 80 participants during 2019. The program is suitable for all ages and abilities and will encourage families, couples as well as individuals. All participants will be required to take a mandatory 2 hour learn to hike orientation session conducted by an instructor from Hike Ontario and hosted at the Ajax or Pickering Welcome Centres.

The Back to Nature program will provide the participants with a seasonally appropriate hike program with group transportation to and from the destination as outlined below. The participants will have the option of selecting one of the following:

Session One – Winter/Spring (Two Saturdays) – 40 Participants
February Enniskillen Conservation Area Snowed In Snowshoe
May Heber Down Conservation Area April Showers Bring May Flowers

Session Two – Summer/Fall (Two Saturdays) – 40 Participants
June Purple Woods Conservation Area Firefly Fireworks (Night Hike)
October Lynde Shores Conservation Area Migration Fascination

The hikes will be led by education and community engagement staff from CLOCA with nature interpretation provided by the Durham Region Field Naturalists and language interpretation by the Community Development Council. We will be purchasing backpacks, refillable water bottles and identification guides specific to the sessions outlined above. For session one participants will receive an animal tracks and wildflower guide. For session two a bat and raptor guide. The backpacks and guides will be kept by the participants after they complete their session so they can continue exploring nature on their own at local green spaces, conservation areas and beyond. Participants will also receive a free pass to the 2019 and 2020 Purple Woods Maple Syrup Festival, valued at $5 per person and be added to our volunteer events list to receive email notices about free upcoming programs.
Appendix Three - Conservation Area Pass Library Lending Program Profile

Program Description

Central Lake Ontario Conservation owns six conservation areas where vehicle parking passes are required (Lynde Shores, Heber Down, Long Sault, Enniskillen, Stephen’s Gulch and Bowmanville/Westside Conservation Areas). To support accessibility to our conservation areas, a Conservation Areas Library Program was initiated in 2018. Our conservation areas are extremely valued by the public and support environmental education, awareness, stewardship, community engagement and community health. They provide outdoor recreational opportunities for people of all ages and there is an increasing body of evidence suggesting that one of the best ways to improve mental well-being is by simply spending more time in nature. We also know from the work that the Regional Health Department has completed under the Health Neighbourhoods Program that there is a correlation between low-income rates and poor health outcomes. We want to ensure that individual or family financial means is not an impediment to access to our conservation areas by offering free parking passes through our local libraries. It is also anticipated that the Library Program will have additional positive impacts for CLOCA such as: increasing awareness and value of conservation areas, educating a new and future generation about outdoor experiences, and marketing opportunities.

It is not uncommon for libraries to offer similar programs for municipal recreational programs as a community loaning program. The program has been promoted on both CLOCA’s and the Library’s websites. We have provided up to 10 passes to libraries in Whitby, Clarington and Oshawa. As of November 3, the Clarington Library had 85 checkouts for 8 passes. The Whitby library had 66 checkouts and 22 holds as of November 29th. The Oshawa Library has not yet reported as of December 1st.
12.0 References and Resources

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15. Statistics Canada, Canadian Demographics at a Glance, 2018
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20. Statistics Canada 2017, Commuters Using Sustainable Transportation in Metropolitan Areas
22. The Employment Equity Act, 2018
23. www.worldometres.info
MEMO TO: Chair and Members, CLOCA Board of Directors
FROM: Cathy Grant, Education Instructor
Patricia Lowe, Community Engagement
SUBJECT: 2019 Education Program Delivery Assessment

Background
Central Lake Ontario Conservation (CLOCA)’s Strategic Plan includes 45 actions to help achieve our vision of a healthier watershed for today and tomorrow. Under the goal to “Communicate, Educate and Inspire” we committed to continuing to offer innovative education programs to inform and raise awareness of the value of a healthy watershed by:

Collaborating with schools, teachers and school boards to identify and act on opportunities to integrate watershed based education into a variety of curricula.

The task was to review current curriculum objectives and survey participating teachers and program partners for input to improve program delivery. The attached Education Program Delivery Assessment incorporates a summary of current curriculum objectives, survey objectives, methodology, results and interpretation of results. There were 28 questions and 35 surveys completed during the previous school year from September 2017 to June 2018. Using the results from this survey the report includes a number of enhancements for continued, new and future education program practices that will be implemented by staff.

RECOMMENDATION:
THAT Staff Report 5623-19 be received for information.

ATTACH.
CG/PL/bb
2019 Education Program Delivery Assessment

Survey Results & Interpretation
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Survey Objectives ....................................................................................................................... 1
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In Our Watershed

Central Lake Ontario Conservation (CLOCA)’s Strategic Plan approved at the January 19, 2016 Authority Board meeting, included 45 actions to help achieve our vision of a healthier watershed for today and tomorrow. Under the goal to “Communicate, Educate and Inspire” and the objective to “Take Action,” we committed to continuing to offer innovative education programs to inform and raise awareness of the value of a healthy watershed by:

- Collaborating with schools, teachers and school boards to identify and act on opportunities to integrate watershed based education into a variety of curricula.

The task was to review current curriculum objectives and survey participating teachers and program partners for input to improve program delivery.

Current Curriculum Objectives

The objective of the “In Our Watershed” programs is to give teachers and students the opportunity to learn, explore and discover the natural environment. Our programs are designed around the Ontario Provincial School Curriculum Expectations, particularly Science and Technology for elementary programs and Science for secondary programs. By participating in one of our hands-on and experiential programs, students will develop a better understanding, where applicable, of the natural world.

We engage students from the Durham Catholic District School Board, Durham District School Board, Kawartha Pine Ridge District School Board, Peterborough Victoria Northumberland Clarington Catholic School Board, Toronto District School Board, home school groups and private schools.

Survey Objectives

From September 2017 – June 2018 we surveyed teachers attending our education programs. The purpose of this survey was to determine how well we are meeting teacher’s expectations in regards to program delivery, booking processes, barriers to participation, facilities, learning outcomes and where we need to make improvements to enhance the students overall learning experience. This survey was not an evaluation of education staff.

Methodology

From September to November, survey participation and completion was facilitated on-site by a dedicated Durham College placement student. During this time, we received feedback from 75% of participating teachers (30 surveys completed). From December to June, teachers were provided with a paper copy and asked to return it by mail, fax or email (5 surveys completed). In total, we received feedback from 31% of teachers participating in our programs from September 2017 to June 2018.

Initially we surveyed every participating teacher, but later we limited surveys to only the teacher who actually booked the program, as they were better prepared to answer all the questions. In our survey responses, sometimes not every question was answered, and occasionally teachers selected more than one answer.
Survey Questions, Results, & Interpretation of Results
The following is a summary of the 27 question survey, the responses and our interpretation of the results. This is what we used to assist us in developing recommendations to improve delivery and learning outcomes for participants in the “In Our Watershed” education program.

CATEGORY OF QUESTIONS: GENERAL

1) What grade(s) do you teach?
Grades taught ranged from JK/SK to high school.
- 61% taught K-3
- 23% taught grades 4-6
- 16% taught grades 7-10

2) What program(s) did you book?

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of bookings</th>
</tr>
</thead>
<tbody>
<tr>
<td>Seasonal Changes Hike with Pond Study</td>
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</tr>
<tr>
<td>Seasonal Changes Hike</td>
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<tr>
<td>Orienteering</td>
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<td>Geodash (GPS)</td>
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<tr>
<td>Plantastic</td>
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<tr>
<td>Insects</td>
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</tr>
<tr>
<td>Hike with Project Wild</td>
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</tr>
<tr>
<td>Alien Invaders (Invasive species)</td>
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<tr>
<td>Snowshoeing</td>
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</tr>
<tr>
<td>Sugar Bush Tour</td>
<td>4</td>
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<tr>
<td>Stream Study</td>
<td>2</td>
</tr>
<tr>
<td>Wetlands</td>
<td>5</td>
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</table>

From the surveys received, the Seasonal Changes Hike with or without the Pond Study is our most popular program (32% of bookings). This is likely because 61% of students were grades K-3 and this program offers the most curriculum connections to these grades. Also, this program is quite flexible, allowing teachers to bring multiple grades, which helps reduce bussing costs.

3) Is this your first program with CLOCA?

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<tr>
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<td>No</td>
<td>21</td>
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</table>

This question resulted in 60% of teachers indicated that this was not their first visit, the remaining teachers were experiencing a CLOCA program for the first time. This number is likely inflated since we mainly limited our survey to teachers that booked the program. In the past we have found that booking teachers are more likely to be returning teachers, while new teachers are often introduced to our programs by booking teachers.
4) What are the barriers/challenges for you when booking a CLOCA field trip?

<table>
<thead>
<tr>
<th>Barrier / Challenge</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Program Cost</td>
<td>7</td>
</tr>
<tr>
<td>Bussing Cost</td>
<td>13</td>
</tr>
<tr>
<td>Parent Volunteers</td>
<td>9</td>
</tr>
<tr>
<td>Accessibility</td>
<td>3</td>
</tr>
<tr>
<td>Relevance to Curriculum</td>
<td>2</td>
</tr>
<tr>
<td>Principal Support</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>12</td>
</tr>
</tbody>
</table>

The largest barrier teachers’ experienced was bussing costs (39% indicated this barrier). We recognize this barrier and allow a maximum of 60 students to participate in each program. This flexibility allows schools the option to book multiple classes at once, which lowers the per student bus cost. The second largest barrier was parent volunteers (26% of teachers indicated this barrier). This issue could be in recruiting parent volunteers or capping volunteer numbers to maintain our required maximum ratios. 15% of teachers indicated program costs were a barrier. 2% of teachers indicated that program relevance to curriculum was a barrier. Only 35% of teachers said there were no barriers to booking a trip.

5) Recognizing that CLOCA Education staff have limited phone access, we’ve tried to create a seamless online process. You have the option to book online, communicate through email, or talk in person. Which method do you prefer?

<table>
<thead>
<tr>
<th>Booking Option</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Online</td>
<td>24</td>
</tr>
<tr>
<td>Email</td>
<td>21</td>
</tr>
<tr>
<td>Talk In Person</td>
<td>1</td>
</tr>
</tbody>
</table>

Teachers prefer to book online (77%) or through email (65%). The teacher that indicated their preference was to talk in person, actually checked off all three options indicating no preference.
6) Please indicate other programs you would consider booking in order of preference: (if relevant to grade)

<table>
<thead>
<tr>
<th>Program</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Climate Change</td>
<td>15</td>
</tr>
<tr>
<td>Stewardship</td>
<td>10</td>
</tr>
<tr>
<td>Soils</td>
<td>9</td>
</tr>
<tr>
<td>Survival Game (Food Chain)</td>
<td>22</td>
</tr>
<tr>
<td>Photo Orienteering</td>
<td>6</td>
</tr>
<tr>
<td>Trappers and Traders</td>
<td>4</td>
</tr>
<tr>
<td>Aboriginal People</td>
<td>16</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

The most popular requested program was the “Survival Game (Food Chain)” (22 teachers), followed by “Aboriginal People” (16 teachers), and “Climate Change” (15 teachers). There were also some teachers interested in “Stewardship” (10 teachers) and “Soils” (9 teachers). We currently offer the Survival Game as a 2 hour program, though it is only offered in the winter due to its off trail requirements and exposure to tripping hazards, stinging nettle and the black legged deer tick and Lyme disease in the spring, summer and fall.

7) Do you like the current program titles, or would you prefer they align with curriculum standards wording?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>24</td>
</tr>
<tr>
<td>No</td>
<td>10</td>
</tr>
<tr>
<td>No Answer</td>
<td>1</td>
</tr>
</tbody>
</table>

For this question, 71% of teachers indicated that the program names should be kept the same rather than aligning with the wording associated with curriculum standards. This preference could be because 60% of the teachers surveyed were returning teachers who are familiar with our current program names and their corresponding curriculum connections.

8) Would your students benefit from live, on-site teaching animals?

<table>
<thead>
<tr>
<th>Response</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>29</td>
</tr>
<tr>
<td>No</td>
<td>3</td>
</tr>
<tr>
<td>No answer</td>
<td>3</td>
</tr>
</tbody>
</table>

The majority (85%) of teachers agree that live, teaching animals would be a benefit to students. Our current programs offer limited, unpredictable wildlife viewing due to the noise and disturbance of the class and the habits of wildlife. We more often see animal signs like pileated woodpecker holes, scat, or tracks in the snow. These findings engage and excite the students.
9) What resources to take back to the classroom would add value to learning outcomes for your students?

<table>
<thead>
<tr>
<th>Resources</th>
<th>Number of Teachers</th>
</tr>
</thead>
<tbody>
<tr>
<td>List of native plants, animals and habitats discussed during program</td>
<td>23</td>
</tr>
<tr>
<td>Follow-up worksheets</td>
<td>18</td>
</tr>
<tr>
<td>Follow-up activities</td>
<td>24</td>
</tr>
<tr>
<td>other</td>
<td>1 – French material</td>
</tr>
</tbody>
</table>

The majority of teachers, 69%, indicated they would like follow-up activities, 66% of teachers indicated they would like classroom resources like a list of native plants, animals and habitats discussed during their visit.

10) Would a web based or printed pre-trip and follow up activity list be helpful?

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes- web-based</td>
<td>30</td>
</tr>
<tr>
<td>Yes- printed</td>
<td>8</td>
</tr>
<tr>
<td>No or no answer</td>
<td>2</td>
</tr>
</tbody>
</table>

The majority of teachers, 86%, surveyed, are interested in web-based follow up activities. This is likely due to internet access in most classrooms as a learning tool. Supplying relevant web-based material would allow students to further their independent study learning that is implemented by some school boards. It would also decrease waste and resource use associated with printed materials and give us an extended opportunity for providing watershed based learning.

11) Would you be willing to dedicate 10 minutes of your program to making name tags to improve student engagement by CLOCA staff?

<table>
<thead>
<tr>
<th></th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td></td>
</tr>
<tr>
<td>No, I prefer to make at school</td>
<td>18</td>
</tr>
<tr>
<td>I don’t see a need for name tags</td>
<td>8</td>
</tr>
</tbody>
</table>

About half of our teachers indicated they would prefer to make their own name tags at school. Name tags make it easier for staff to interact with visiting students e.g. when asking questions and when giving safety reminders. It also allows for a more personalized program delivery model.

12) Regarding payment, would you prefer a group fee (max. 30) or payment per individual?

<table>
<thead>
<tr>
<th></th>
<th>12</th>
</tr>
</thead>
<tbody>
<tr>
<td>Group fee</td>
<td></td>
</tr>
<tr>
<td>Individual fee</td>
<td>21</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
</tbody>
</table>
For this question 62% of the respondents preferred the per person fee rather than the per class fee. This preference is likely because it allows teachers to show the breakdown of how much is field trip expense vs. bussing costs. Also, it gives the option to teachers to combine one or two smaller classes as long as they comply with our maximum group size requirements.

13) We know that bussing is always a cost issue when planning field trips and know that a full day program would allow for more of a learning return on that investment. What could we offer to you as a teacher to make a whole day booking more appealing? (Check all that apply)

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Another science based program</td>
<td>15</td>
</tr>
<tr>
<td>A program from a different curriculum</td>
<td>16</td>
</tr>
<tr>
<td>Campfire, cookout, free play and activities</td>
<td>17</td>
</tr>
<tr>
<td>Split day partnership with another local experiential opportunity</td>
<td>9</td>
</tr>
<tr>
<td>Stewardship component</td>
<td>7</td>
</tr>
<tr>
<td>Citizen science activity</td>
<td>10</td>
</tr>
</tbody>
</table>

71% of the teachers surveyed picked more than one option, the most popular was the campfire cookout followed by a program from a different curriculum strand. In the past, we have had schools requesting a campfire or cookout so it was not surprising that many teachers were in favour of that option. We already offer “Nature Art” as a program from a different curriculum strand. Perhaps “Trappers and Traders” could be offered as it follows the Canadian and World Studies curriculum strand. For ideas to increase our program offerings we will refer to the results from question 6. It was encouraging that there was so much feedback for this question as it gives us the opportunity to look at more ways to make a full day booking more appealing and also indicates that teachers are interested in full day bookings.

14) Would you be interested in an in-school program?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>26</td>
</tr>
<tr>
<td>No</td>
<td>8</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
</tbody>
</table>

In-school programs were desired by 76% of the teachers. We currently offer some at-school programs with the frequency depending mostly on the season. Snowshoeing is our most popular at-school activity (6 of our available 27 winter bookings were done at school sites) though we also offer other programs during spring/fall to schools. (Only 1 was booked during the spring/fall sessions)

15) How much would you be willing to pay for a 1 hour in-school program for 30 students?

<table>
<thead>
<tr>
<th>Option</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Free</td>
<td>9</td>
</tr>
<tr>
<td>$3.50/student</td>
<td>17</td>
</tr>
<tr>
<td>$75.00/class</td>
<td>10</td>
</tr>
</tbody>
</table>

About half of the responses indicate they would prefer to pay $3.50 per student, while 29% indicated they would prefer a class fee ($75). For cost recovery reasons we require a minimum of 2 one hour contiguous sessions per school.
16) Select the level of risk for your students that you are comfortable with.

<table>
<thead>
<tr>
<th>Level of Risk</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>On the trail, look but not touch</td>
<td>7</td>
</tr>
<tr>
<td>On trail, look and touch</td>
<td>14</td>
</tr>
<tr>
<td>Occasionally off trail, look, touch, smell</td>
<td>18</td>
</tr>
</tbody>
</table>

For this question, 53% of the teachers were comfortable with students occasionally going off the trail to look, smell and touch; 40% preferred to stay on the trail to look and touch. Currently we do not request information regarding the teacher’s comfort level with risk: given this result, the teacher’s comfort level is an important consideration and we can easily customize programs to suit their comfort level.

17) Did you perceive or experience any health and safety concerns on your field trip with CLOCA?

<table>
<thead>
<tr>
<th>Health and Safety Concern</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inappropriate behaviour of others CA guests</td>
<td>0</td>
</tr>
<tr>
<td>Inadequate trail maintenance</td>
<td>0</td>
</tr>
<tr>
<td>Dogs off leash</td>
<td>2</td>
</tr>
<tr>
<td>Poison Ivy</td>
<td>4</td>
</tr>
<tr>
<td>Ticks</td>
<td>3</td>
</tr>
<tr>
<td>Stinging Nettle</td>
<td>0</td>
</tr>
<tr>
<td>Allergies</td>
<td>1</td>
</tr>
<tr>
<td>Red Ants</td>
<td>0</td>
</tr>
<tr>
<td>Off-trail hiking and exploring</td>
<td>1</td>
</tr>
<tr>
<td>None</td>
<td>0</td>
</tr>
<tr>
<td>Other</td>
<td>0</td>
</tr>
</tbody>
</table>

For this question 85% of the teachers indicated they had no health and safety concerns while participating in a CLOCA field trip. Six teachers indicated they had concerns and 3 of the 6 teachers selected multiple concerns. Currently during programs staff notify teachers and students about avoiding poison ivy and safety surrounding black legged deer ticks (where relevant). Off trail hiking and exploring concerns can be addressed in the booking process by requesting information about the teachers comfort level.
CATEGORY OF QUESTIONS: FACILITIES

18) How far did you travel for this program?

<table>
<thead>
<tr>
<th>Distance</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-20 minutes</td>
<td>23</td>
</tr>
<tr>
<td>21-30 minutes</td>
<td>6</td>
</tr>
<tr>
<td>31-45 minutes</td>
<td>5</td>
</tr>
<tr>
<td>46-60 minutes</td>
<td>1</td>
</tr>
<tr>
<td>&gt;60</td>
<td>0</td>
</tr>
</tbody>
</table>

The distance travelled to our programs varies. In this survey, 68% stated that their schools are within a 15-20 minute drive of their chosen location.

19) Did you select your CLOCA field trip based on facility amenities?

<table>
<thead>
<tr>
<th>Option</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>16</td>
</tr>
<tr>
<td>No</td>
<td>18</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
</tbody>
</table>

The results show that about half of our bookings are related to facility amenities.

20) Do you select your CLOCA field trip based on proximity to your school?

<table>
<thead>
<tr>
<th>Option</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>29</td>
</tr>
<tr>
<td>No</td>
<td>5</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
</tbody>
</table>

For this question, 83% of teachers choose their facility based on its proximity to their school. It should be noted that some programs are site specific like snowshoeing and Sugarbush Tours. Based on travel time, we estimate the average traveling distance from a school to a program facility is 25-30 kilometres. Although they did not complete surveys, 3 of the 30 schools who booked Sugarbush Tours in 2018 came from Scarborough (approximately 48 km), and 1 group of Japanese exchange students came from Toronto (approximately 74 km). The results from Question 20 indicate that 83% of teachers choose their facility based on its proximity to their school: proximity seems to be more important to teachers than amenities.

21) Which of the following statements best describes your comfort level with the trails used for your program?

<table>
<thead>
<tr>
<th>Statement</th>
<th>Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>We are outside! They are supposed to be natural. Leave them with some challenges in terms of up-hill and narrowing</td>
<td>32</td>
</tr>
<tr>
<td>If trails are challenging, it hinders my student’s experience</td>
<td>2</td>
</tr>
<tr>
<td>Fully accessible trails are a necessity</td>
<td>2</td>
</tr>
<tr>
<td>No answer</td>
<td>1</td>
</tr>
</tbody>
</table>
The results of this question show that a majority (91%) of teachers are prepared to have a true outdoor experience, and are ready for any natural challenges the trails may provide. However, teachers’ noted the challenges should not create barriers to their student’s individual experience. The 2 teachers that indicated that fully accessible trails are a necessity, also selected option one (“We are outside! They (the trails) are supposed to be natural. Leave them with some challenges in terms of uphill and narrowing”). This could indicate that these 2 teachers had physically challenged students in their class with a desire for accommodating a variety of abilities.

22) Did you find the trails accessible?

<table>
<thead>
<tr>
<th>Yes</th>
<th>33</th>
</tr>
</thead>
<tbody>
<tr>
<td>No Answer</td>
<td>2</td>
</tr>
</tbody>
</table>

The majority (94%) of teachers found our trails accessible. The Devil’s Den trail at Heber Down CA is wheelchair accessible, a floating dock was added to the education pond to assist visitors with mobility issues. The addition of the Turtle Trail and docks at Enniskillen CA has allowed for wheelchairs access. Long handled nets were also purchased to assist students in wheelchairs when visiting the pond at either location.

23) How accessible (i.e. convenience, availability) is the parking at our Conservation Areas?

<table>
<thead>
<tr>
<th>Fully Accessible</th>
<th>29</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderately Accessible</td>
<td>2</td>
</tr>
<tr>
<td>Needs Improvement</td>
<td>1</td>
</tr>
<tr>
<td>No answer</td>
<td>3</td>
</tr>
</tbody>
</table>

The majority (83%) of teachers that answered this question felt our parking lots at our conservation areas were fully accessible. Only 1 teacher said that the parking area needed improvement. Unfortunately they did not indicate which conservation area they visited, and did not leave contact information for a follow up. The parking lot at Enniskillen has been enlarged to make it easier for multiple busses to turn around.

24) Considering user safety and comfort, are running water and flush toilets important for a CLOCA field trip?

<table>
<thead>
<tr>
<th>Yes</th>
<th>30</th>
</tr>
</thead>
<tbody>
<tr>
<td>No</td>
<td>3</td>
</tr>
<tr>
<td>No answer</td>
<td>2</td>
</tr>
</tbody>
</table>

The majority (94%) of the teachers surveyed said running water and flush toilets are preferred. One teacher said it depends on whether the program is a half day or full day.

25) How accessible did you find the washrooms (i.e. change tables etc.)?

<table>
<thead>
<tr>
<th>Fully accessible</th>
<th>26</th>
</tr>
</thead>
<tbody>
<tr>
<td>Moderately accessible</td>
<td>2</td>
</tr>
<tr>
<td>Needs Improvement</td>
<td>0</td>
</tr>
<tr>
<td>No answer</td>
<td>7</td>
</tr>
</tbody>
</table>
The majority of the teachers found the washroom facilities fully accessible, and none said they needed improvements. This was the most unanswered question with 7/35 teachers not providing any response. In all likelihood, they attended a half day program and did not use the washroom during their visit.

26) Were you able to read the signage regarding appropriate trail use, permitted activities, risk and interpretation?

One teacher stated they were unable to read signage because they were not close enough and one teacher stated that there were no signs. For many of our habitat enhancement projects like our pollinator garden and ponds, we have installed interpretive signage, however our staff provide group specific interpretation verbally and demonstratively. Education staff also verbally inform teachers and students about trail use and permitted activities as per regulatory signage at each Conservation Area.

What would you suggest to improve our messaging and information for you and your students?
This was a comment box question and no suggestions were made.

27) Any other comments?
- “Great information”
- “Directly related to study unit”
- “Wish we could come more”
- “Thank you”
- “The staff at PW were great”
- “Loved our visit”
- “Explanations were somewhat lengthy and over the students heads”
- “Great time”
- “Very informative guide spoke at our level – awesome day”
- “Interesting and informative”

This final question was an opportunity for teachers to share their experience and/or suggestions. Most comments related directly to the program they received. This feedback informs CLOCA staff of where improvements to program delivery can be made.
Recommendations
Based on the responses to the survey, staff have developed a number of action items to improve the quality of the teacher’s experience when booking and receiving one of our In Your Watershed programs; as follows:

1. Continued Program Practices and Enhancements 2018/2019 School Year
3. Future Program Practices and Enhancements 2020 and Beyond

Continued Education Program Practices & Enhancements
2018/2019

- We understand that teacher’s needs, concerns, and curriculum requirements change, and we desire to stay relevant, accessible, and accommodating. In an effort to offer the best programs possible, we rely on continuous feedback from our participating teachers. Staff will continue to remind teachers of our online survey opportunity.
- Continue using our online booking system via JotForm and will look for opportunities for its enhancement as new technology becomes available.
- Continue with the per-student fees and the program titles as they are currently posted on the website and in our brochure.
- Continue to notify teachers and students about poison ivy, stinging nettle, and black legged deer tick safety where necessary.
- Continue to offer hand sanitizer / hand washing after pond programs to reduce the risk of exposure to water or soil born bacteria.
- Continue with our current volunteer ratio as our guidelines are consistent with those recommended by York and Durham Region school boards. They will be 1:4 for students in grade K-3, and 1:8 for students in grade 4-8.
- We will remind teachers they are welcome to bring additional volunteers for a nominal per person fee. Teacher’s and education assistants are not included in the maximum volunteer number, as we prefer teacher(s) to be available to address issues should they arise. Programs may be altered at the discretion of CLOCA education staff for classes that do not have the requested ratio of adult volunteers.
- Continue to ensure that regulations are verbalized by instructors for the safety of participants and the protection of the conservation areas. Regulatory signage at our conservation areas provides a framework for all participants in our education programs.
- Interpretive signage will continue to be developed as projects like our pollinator garden and pond enhancements are implemented. These provide an opportunity for students to explore unique habitats during their lunch breaks at some of our sites and benefit users beyond our education program.
New Program Practices & Enhancements
2018/2019
To improve and expand our program delivery, during the booking process we will:

- Ensure teachers are aware of potential risks. We will continue to send suggestions on how to prepare for the field trip and how to dress. We will ask teacher’s what their level of risk is in regards to the hands-on aspect of the program being delivered.
- Going forward, we will require student name tags and provide the option of making name tags on-site for programs. The use of name tags allows our staff to connect with students and facilitate group management. It is also helpful for parent volunteers.
- We will suggest other programs from our list that teacher’s may find of value to encourage full day bookings.
- To provide access to our programs for all students in our watershed, we will continue to seek out partnerships to sponsor schools with economic or social disadvantages identified by our school board partners. Ensure teachers are aware that we can accommodate a maximum of 60 students to help reduce bussing costs.
- Although many of our surveyed teachers identified their interest in citizen science opportunities was low, there are always a few teachers with a keen interest. Efforts to make the links for one teacher or all the teachers is the same. In that regard we will continue to supply the links and attachments to our program information email. This will give the teachers the option to use the information if they want. There is still a value to provide teachers with printed, electronic and web-based resources that support Citizen Science and respective programs. This will encourage continued watershed learning and awareness.

Future Program Practices & Enhancements
2020 and Beyond
As staff resources and funding are available through partnerships, sponsorship and post-secondary student placements, we will consider initiating the following practices and or enhancements:

- Initiate pilot education programs focused on “Climate Change” and “Indigenous Peoples.” Of specific potential is the “Trappers and Traders” program. Although only 4 teachers chose this as a program they would like to see in question 6 of the survey, it would be a way to introduce Indigenous Peoples which was chosen by 16 teachers in the same question. This program links the topics of Indigenous Peoples and the Fur Trade to the “Canadian & World Studies” curriculum (responds to feedback from Questions 6 & 13). “Trappers and Traders” is currently offered by other Conservation Authorities: the program content is readily available. To include it as part of our program offerings, we will modify to work within our staff complement and engage parent volunteers in the delivery where necessary. This program will be offered in November to take advantage of a time of year with limited opportunities for nature exploration.
- We will look into the feasibility of a camp fire/cookout option at our Conservation Areas and fire permit requirements of local municipalities.
- Determine location sites to offer a modified “Survival Game” in the spring and fall months at Heber Down and Enniskillen Conservation Areas.
- Develop classroom resources and in-school programs.
• Consider incorporating teaching animals into our on-site and possibly in school programs in partnership with local wildlife rescue rehabilitation facilities.
• Explore funding sources for all terrain wheel chair to offer students with mobility issues an opportunity to participate in an interactive way.
Appendix A – Survey Document
Teachers’ Survey

INTRODUCTORY STATEMENT
As one of 36 Conservation Authorities across the province of Ontario, our education program “In Our Watershed” is designed and delivered with the intent to increase environmental literacy and overall appreciation of our natural environment through fun and hands-on experiences. The purpose of this questionnaire is to determine how well we are meeting your expectations and where we need to make improvements to meet your expectations as a teacher and enhance the students’ overall learning experience. Our corporate message, which is part of each program, provides participants with a foundation and knowledge about what a watershed is, why it should be protected, respect for the environment and what role does Central Lake Ontario Conservation play in ensuring healthy watersheds.

GENERAL

1) What grade(s) do you currently teach?

2) What program(s) did you book?
   o Seasonal Changes (pond and hike)
   o Seasonal Changes (other)
   o Orienteering
   o Geodash
   o Plantastic
   o Insects
   o Hike with Project Wild Games
   o Invasive Species
   o Snowshoeing
   o Maple Syrup
   o Stream Study
   o Wetlands

3) Is this your first program with CLOCA
   o Yes
   o No

4) What are the barriers/challenges for you when booking a CLOCA field trip?
   o Program Cost
   o Bussing Cost
   o Payment Process
   o Parent Volunteers
   o Accessibility
   o Relevance to Curriculum Standards
   o Principal Support
   o Other ____________________
5) Recognizing that CLOCA Education staff have limited phone access, we’ve tried to create a seamless online process. You have the option to book online, communicate through email, or talk in person. Which method do you prefer?
   ○ Online booking
   ○ Email
   ○ Person to person (phone call)

DELIVERY/CONTENT

6) The programs we currently offer are Seasonal Changes, Seasonal Changes with Pond Study, Wetlands, Orienteering, Geodash, Stream Study, Plantastic, Insects, Hikes, Project Wild, Invasive Species, Snowshoeing, Species at Risk, and Maple Syrup. Please indicate other programs you would consider registering for in order of preference: (if relevant to grade)
   Climate Change
   Stewardship
   Soils
   Survival Game (food chain)
   Photo Orienteering
   Trappers and Traders
   Aboriginal Peoples
   ○ Other ____________________

7) Do you like our current program titles, or would you prefer they align with curriculum standards wording?
   ○ Keep them the way they are
   ○ Change to reflect curriculum terminology

8) Would your students benefit from live, on-site teaching animals?
   a) Yes
   b) No

9) What resources to take back to the classroom would add value to learning outcomes for your students?
   ○ List of native plants, animals, habitats discussed during program
   ○ Follow up worksheet(s)
   ○ Follow up activity(ies)
   ○ Other ____________________

10) Would a web based or printed pre-trip and follow up activity list be helpful?
    ○ Yes, web based
    ○ Yes, printed
    ○ No
11) Would you be willing to dedicate 10 minutes of your program to making name tags to improve student engagement by CLOCA staff?
   - Yes
   - No, I would prefer to make name tags in advance
   - I don’t see a need for name tags for my students

12) Regarding payment, would you prefer a group fee (max 30) or payment per individual?
   - Group Fee
   - Individual Fee

13) We know that bussing is always a cost issue when planning field trips and know that a full day program would allow for more of a learning return on that investment. What could we offer to you as a teacher to make a whole day booking more appealing? (check all that apply)
   - another science based program
   - a program from a different curriculum strand (math, art, health and physical education)
   - campfire cookout, free play and activities
   - split day partnership with another local experiential opportunity (ie Knox Pumpkin Farm, Pingles Farm)
   - stewardship component (junior/intermediate only) (ie bird box maintenance (winter), Garlic Mustard removal (May))
   - citizen science activity (ie worm watch, lost ladybug, bird feeder watch)
   - Other: ________________________________

14) Would you be interested in an in-school program?
   - Yes
   - No

15) How much would you be willing to pay for a 1 hour in-school program for 30 students?
   - $0
   - $3.50 per student
   - $75 per class

16) Select the level of risk for your students that you are comfortable with
   - On the trail, look but don’t touch
   - On the trail, look and touch
   - Occasionally off trail, look, smell, touch

17) Did you perceive or experience any health and safety concerns on your field trip with CLOCA?
   Please check all that apply:
   - Inappropriate behaviour of other Conservation Area guests
   - Inadequate trail maintenance and challenging trail surfaces
   - Dogs off leash
   - Poison ivy
EDUCATION PROGRAM DELIVERY ASSESSMENT

- Ticks
- Stinging nettle
- Allergies
- Red ants
- Off-trail hiking and exploring
- Other: ______________

FACILITIES

18) How far did you travel for this program?
   - 15-20 min
   - 21-30 min
   - 31-45 min
   - 46-60 min
   - >60 min

19) Do you select your CLOCA field trip location based on facility amenities?
   - Yes
   - No

   What Conservation Area did you visit? (Please circle)
   Enniskillen   Heber Down   Lynde Shores   Purple Woods

20) Do you select your CLOCA field trip location based on its proximity to your school?
   - Yes
   - No

21) Which following statement best describes your comfort level with the trails used for your program?
   - We are outside! They are supposed to be natural. Leave them with some challenges in terms of up-hill, downhill and narrowing.
   - If trails are challenging, it hinders my student’s experience
   - Fully accessible trails are a necessity

22) Did you find the trails accessible?
   - Yes
   - No

23) How accessible (ie convenience, availability) is the parking?
   - Fully accessible
   - Moderately accessible
   - Needs improvement
24) Considering user safety and comfort, are running water and flush toilets important for a CLOCA field trip?
   - Yes
   - No

25) How accessible did you find the washrooms (ie change tables etc.)?
   - Fully accessible
   - Moderately accessible
   - Needs improvement
   - N/A

26) a. Were you able to read signage regarding appropriate trail use, permitted activities, risk and interpretation?
   - Yes
   - No
   - There were none

   b. If you answered no to the above question, what would you suggest to improve our messaging and information for you and your students?

______________________________________________________________________________

On behalf of CLOCA, thank you for taking the time to complete this survey. Your responses will help us ensure our quality education and facilities continue in the future. In appreciation for your time, please fill out your name and email below to enter a draw for a $75 off coupon for a future CLOCA “In Our Watershed” education booking.

Name:____________________________________
E-mail:___________________________________

27) Any other comments?

______________________________________________________________________________
In Our Watershed
ENVIRONMENTAL OUTDOOR EDUCATION
PROGRAM GUIDE

Outdoor and Classroom Curriculum Linked Programs 2018-2019

Healthy watersheds for today and tomorrow.
ABOUT US
Central Lake Ontario Conservation (CLOCA) is a local community based environmental organization. We were established in 1958 and are committed to protecting, preserving and enhancing the watershed.

OUR VISION
Healthy watersheds for today and tomorrow.

OUR MISSION
Advancing watershed health through engagement, science, and conservation.

OUR FOCUS
To share our watershed story, to inspire our community to be watershed champions, and to take action for real change.

ENVIRONMENTAL EDUCATION PROGRAMS
The goal for our environmental education programs is to communicate, educate and inspire. Within this guide, you will find programs designed around the Ontario Curriculum Expectations. Most of our programs are offered at local conservation areas, but some are offered in-school. Customized programs are available by request.

FOR MORE INFORMATION CONTACT
Cathy Grant, Education Instructor
Tel: (905) 579-0411 x108 Fax: (905) 579-0994
Email: cgrant@cloca.com
www.cloca.com

Watershed: the entire area of land that drains into a specific creek, river, or lake.
BOOKING YOUR PROGRAM

1. **Choose the desired program(s)** from this guide based on the grade(s) you teach.

2. **Pick the Conservation Area** (where applicable). You can check out our conservation areas and maps online at www.cloca.com.

3. **Select a specific time and date** for your trip (an alternative date or two is encouraged)

4. **Register for your trip** online at www.cloca.com or email or call Cathy Grant, Education Instructor, at cgrant@cloca.com or 905-579-0411 x108.

5. **Have the following information available:** school name, address and postal code, phone number, teacher’s name, preferred dates, grade, number of students, and program requested.

6. **Book the bus.** In most cases, we can accommodate 60 students at one time (Geodash Program excluded).

7. **Ensure appropriate dress and supervision.** Supervising adults are not permitted to bring younger children on the trip. Ratio varies with grade and program. Extra fees apply for additional parents.

8. **Bring payment and signed agreement with you on the day of your program.** Payment MUST be made on the day of the trip by cheque (payable to CLOCA), cash or visa/mastercard (by calling 905-579-0411). CLOCA K-8 programs are HST exempt.

APPROPRIATE DRESS

The outdoors is an enjoyable place to learn any time of year, especially if you are prepared and properly dressed. Programs run rain or shine, so please check the forecast and plan ahead.

Teach your students how to dress for long periods of time outdoors including layering clothing for cool days and rain coats, splash pants, and rubber boots for wet days. Being prepared for the winter includes layers of clothing, winter coats, hats, scarves, mittens, snow pants, and winter boots. Insect repellent, sun hats, water bottles, and sunscreen are important on hot days.

“IN OUR WATERSHED” PROGRAM COSTS

- **$6.00/student for half day** ($125 min.)
- **$10.00/student for full day** ($200 min.)
- **$3.50/student for In-School Programs**
- **or Sugar Bush Tours** ($75 min.)
  - Additional $4/student for Sugar Bush Tour with pancake lunch option

**Cancellation Fee:** $25.00
(for reasons other than weather)

DOING IT ON YOUR OWN

All of our Conservation Areas are available to classes wishing to conduct their own outdoor programs. Teachers are requested to call Central Lake Ontario Conservation during office hours for permission. Booking fees may apply.
EXPLORING IN NATURE (2 hours)
While on a hike, students will use their senses to discover the natural world around them. Through hands-on investigation, explanation, activities, and stories, students will gain an understanding of the natural world including how plants and animals change with the seasons. Students may also have the opportunity to explore a pond habitat with dip-nets or focus on insects in various habitats.

Location: Enniskillen, Heber Down (fall/spring), Purple Woods (fall/spring), or Lynde Shores (fall/spring)
Curriculum Connections: Personal & Social Development; Science & Technology -Natural Environment, Free Exploration

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb.) or Purple Woods (Oct-Dec)
Curriculum Connections: Personal & Social Development; Science & Technology -Natural Environment, Free Exploration

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
Curriculum Connections: Personal & Social Development; Science & Technology -Natural Environment, Free Exploration

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Personal & Social Development; Science & Technology -Natural Environment, Free Exploration

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)
Curriculum Connections: Personal & Social Development; Science & Technology; Health & Physical Activity

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Personal & Social Development; Science & Technology; Health & Physical Activity
SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.
Location: Purple Woods (March - April)
Curriculum Connections: Personal & Social Development; Science & Technology -Natural Environment

EXPLORING LIVING THINGS IN NATURE (2 hours)
While on a hike, students will use their senses to discover the natural world around them. Through hands-on investigation, explanation, activities, and stories, students will gain an understanding of the natural world including how plants and animals change with the seasons. Students may also have the opportunity to explore our learning furs and skulls, investigate insects in different habitats, or explore a pond habitat with dip-nets.
Location: Enniskillen, Heber Down (fall/spring), Purple Woods (fall/spring), or Lynde Shores (fall/spring)

LAST WHISPERS OF FALL (2 hours)
What do animals do when it’s cold? We invite you and your students to explore with us our forests and meadow as we learn about animal winter survival strategies including hibernation, migration, and adaptations. Our learning furs are always a favourite!
Location: Enniskillen (Oct-Dec) or Purple Woods (Oct-Dec)

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.
Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec.)

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.
Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.
Location: Enniskillen (Nov-Dec)

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.
Location: Enniskillen (Jan-Feb)

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).
Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.
Location: Purple Woods (March - April)

EXPLORING ANIMAL CLUES IN NATURE (2 hours)
While on a hike, students will use their senses to discover clues left by local wild animals. Through hands-on investigation, explanation, activities, and stories, students will gain an understanding of animals’ life cycles and adaptations including how animals change with the seasons. Students may also have the opportunity to explore our learning furs and skulls, investigate insects in different habitats, or explore a pond habitat with dip-nets, search for animal tracks and scat.
Location: Enniskillen, Heber Down (fall/spring), Purple Woods (fall/spring), or Lynde Shores (fall/spring)
LAST WHISPERS OF FALL (2 hours)
What do animals do when it’s cold? We invite you and your students to explore with us our forests and meadow as we learn about animal winter survival strategies including hibernation, migration, and adaptations. Our learning furs are always a favourite!

Location: Enniskillen (Oct-Dec) or Purple Woods (Oct-Dec)

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they gather and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

(see next page)
**SUGAR BUSH TOUR** (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

**Location:** Purple Woods (March - April)
**Curriculum Connections:** Social Studies – Traditions & Celebrations

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**EXPLORING PLANTS IN NATURE** (2 hours)
From trees to mosses, students will become familiar with a variety of plants in their local environment. While on a hike, students will explore the parts of a plant, seed production, the needs of a plant, plant uses by Indigenous Peoples, and the importance of native versus non-native plants. This program includes hands on exploration with magnifying glasses.

**Location:** Enniskillen, Heber Down (fall/spring), Purple Woods (fall/spring), or Lynde Shores (fall/spring)
**Curriculum Connections:** Science & Technology – Growth & Changes in Plants, Soils in the Environment

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**NATURE ART** (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

**Location:** Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
**Curriculum Connections:** Science & Technology – Growth & Changes in Plants, Soils in the Environment

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**IN YOUR BACKYARD** (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

**Location:** In-school, schools must be within CLOCA watershed and have access to a natural area.
**Curriculum Connections:** Science & Technology – Growth & Changes in Plants, Soils in the Environment

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**WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT** (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

**Location:** Enniskillen (Nov-Dec)
**Curriculum Connections:** Science & Technology – Growth & Changes in Plants

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SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.
Location: Enniskillen (Jan-Feb)
Curriculum Connections: Health & Physical Activity; Science & Technology – Growth & Changes in Plants, Soils in the Environment

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).
Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.
Location: Purple Woods (March - April)

EXPLORING HABITATS & COMMUNITIES (2 hours)
During a guided hike, students will have a chance to explore various habitats, from wetlands to forests, found in our Conservation Areas. Magnifying glasses will be used by students to discover how local animals are adapted to their habitat and interconnected within their community. Students may also have the opportunity to explore our learning furs or a pond habitat with dip-nets.
Location: Enniskillen, Heber Down (fall/spring), Purple Woods (fall/spring), Lynde Shores (fall/spring)
Curriculum Connections: Science & Technology – Habitats & Communities

COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the diet, adaptations, and vocalizations of this common wildlife species. Food chains and human impacts will be discussed. Students may also have the opportunity to explore various habitats through a guided hike.
Location: Enniskillen (all year) or Heber Down (fall/spring)
Curriculum Connections: Science & Technology – Habitats & Communities
WETLAND HABITAT DISCOVERY (2 hours)
As students engage in wetland exploration using dip-nets, they will discover the diversity and adaptations of animals that live in our pond habitat. Human impacts, food chains, interrelationships, wetland habitats, and the importance of wetlands will be explored through various outdoor activities and games.

Location: Enniskillen (fall/spring) or Heber Down (fall/spring)
Curriculum Connections: Science & Technology – Habitats & Communities

ORIENTEERING WITH MAP AND COMPASS (2 hours)
After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. Each orienteering course is composed of hidden markers that can only be found by carefully using the map and compass.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology – Habitats & Communities

WATERSHED HIKE WITH PROJECT WILD GAMES (2 hours)
As they explore different habitats through a guided hike, students will gain an appreciation of the importance of a healthy watershed and how their actions impact the ecology of their local watershed. Project WILD based games and activities will give students the opportunity to become familiar with populations, food chains and human impacts on natural communities. The goal of this interactive program is to encourage students to become more ecologically aware citizens.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology – Habitats & Communities

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
Curriculum Connections: Science & Technology – Habitats & Communities

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
Curriculum Connections: Science & Technology – Habitats & Communities

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Science & Technology – Habitats & Communities

(see next page)
SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.
Location: Enniskillen (Jan-Feb)
Curriculum Connections: Health & Physical Activity; Science & Technology – Habitats & Communities

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).
Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.
Location: Purple Woods (March - April)
Curriculum Connections: Science & Technology – Habitats & Communities

WATERSHED HIKE WITH PROJECT WILD GAMES (2 hours)
As they explore natural communities through a guided hike, students will gain an appreciation of the importance of a healthy watershed and learn how their actions impact the ecology of their local watershed. Project WILD based games and activities will give students the opportunity to become familiar with ecological relationships and human impacts on those relationships. The goal of this interactive program is to encourage students to become more ecologically aware citizens.
Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the diet, adaptations, and vocalizations of this common wildlife species. Food chains, conservation, and human impacts will be discussed. Students may also have the opportunity to explore various habitats through a guided hike.
Location: Enniskillen (all year) or Heber Down (fall/spring)
Curriculum Connections: Health & Physical Activity
WETLAND HABITAT DISCOVERY (2 hours)
As students engage in wetland exploration using dip-nets, they will discover the diversity and adaptations of animals that live in our pond habitat. Human impacts, food chains, interrelationships, wetland habitats, and the importance of wetlands will be explored through various outdoor activities and games.

Location: Enniskillen (fall/spring) or Heber Down (fall/spring)
Curriculum Connections: Health & Physical Activity

ORIENTEERING WITH MAP AND COMPASS (2 hours)
After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. Each orienteering course is composed of hidden markers that can only be found by carefully using the map and compass.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

GEODASH (2 hours)
This program will introduce students to the world of GPS and Geocaching. Students will learn the technology behind GPS, the limitations of this technology, and how to use a hand-held GPS. Students will then have the opportunity to apply their knowledge by completing a navigation course. They will use a set of preloaded waypoints to find hidden markers encrypted with Morse code and will need to find all the markers to decipher the puzzle.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
Curriculum Connections: Health & Physical Activity

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, or animals). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
Curriculum Connections: Health & Physical Activity

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Health & Physical Activity

(see next page)
SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)
Curriculum Connections: Health & Physical Activity

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

Location: Purple Woods (March - April)
Curriculum Connections: Health & Physical Activity

BIODIVERSITY IN NATURE (2 hours)
While hiking through different habitats, students will have the opportunity to explore and appreciate the diversity of living things while recognizing the roles and interactions of individual species. Students will also be introduced to local invasive species and learn how humans impact biodiversity. There may also be the opportunity to explore our learning furs or a pond habitat with dip-nets.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology –Biodiversity

COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the characteristics of this common wildlife species as well as its natural community. Biodiversity, conservation and human impacts will be discussed. Students may also have the opportunity to explore the biodiversity at Enniskillen Conservation Area through a guided hike.

Location: Enniskillen (all year) or Heber Down (fall/spring)
Curriculum Connections: Science & Technology –Biodiversity
ALIEN INVADERS: IMPACTING BIODIVERSITY (2 hours)
While hiking through different habitats, students will discover the difference between native, non-native and invasive species. Students will be introduced to various local invasive species and learn how these alien invaders are impacting habitats as well as the characteristics that enable them to become such incredible trespassers. Depending on the season, this program may include garlic mustard (invasive species) removal.
Location: Enniskillen (fall/spring), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology – Biodiversity

ORIENTEERING WITH MAP AND COMPASS (2 hours)
After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. Each orienteering course is composed of hidden markers that can only be found by carefully using the map and compass.
Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

GEODASH (2 hours)
This program will introduce students to the world of GPS and Geocaching. Students will learn the technology behind GPS, the limitations of this technology, and how to use a hand-held GPS. Students will then have the opportunity to apply their knowledge by completing a navigation course. They will use a set of preloaded waypoints to find hidden markers encrypted with Morse code and will need to find all the markers to decipher the puzzle.
Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

WATERSHED HIKE WITH PROJECT WILD GAMES (2 hours)
As they explore natural communities through a guided hike, students will gain an appreciation of the importance of a healthy watershed and learn how their actions impact the ecology of their local watershed. Project WILD based games and activities will give students the opportunity to become familiar with ecological interrelationships and human impacts on those relationships. The goal of this interactive program is to encourage students to become more ecologically aware citizens.
Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.
Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, animals, invasive species, or biodiversity). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.
Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

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WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

Location: Purple Woods (March - April)
Curriculum Connections: Health & Physical Activity; Science & Technology – Biodiversity

INTERACTIONS IN NATURE (2 hours)
While hiking through different ecosystems, students will have the opportunity to explore and appreciate the interactions that exist between various abiotic and biotic elements. Students will be introduced to local invasive species and learn how humans impact the environment. There may also be the opportunity to explore a pond habitat with dip-nets.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology – Interactions in the Environment; Geography – Physical Patterns in a Changing World, Natural Resources around the world: Use and Sustainability
COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the diet, adaptations, and vocalizations of this common wildlife species. Food chains, conservation and human impacts will be discussed. Students may also have the opportunity to explore various ecosystems through a guided hike.

Location: Enniskillen (all year) or Heber Down (fall/spring)
Curriculum Connections: Science & Technology – Interactions in the Environment

ALIEN INVADERS: IMPACTING ECOSYSTEMS (2 hours)
While hiking through different habitats, students will discover the difference between native, non-native and invasive species. Students will be introduced to various local invasive species and learn how these alien invaders are impacting habitats as well as the characteristics that enable them to become such incredible trespassers. Depending on the season, this program may include garlic mustard (invasive species) removal.

Location: Enniskillen (fall/spring), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Science & Technology – Interactions in the Environment

STREAM ECOSYSTEMS AND COMMUNITIES (2 hours)
Using dip-nets and measuring equipment, students will explore the biotic and abiotic elements and interactions in our dynamic stream ecosystem. They will develop an understanding of the role streams play in a watershed and how plants, animals, insects, and people depend on healthy stream systems every day. Erosion, flood control, and pollution will also be discussed. Students should come prepared with rubber boots. In the event of high water, a pond ecosystem will be explored instead.

Location: Heber Down (fall/spring)
Curriculum Connections: Science & Technology – Interactions in the Environment; Geography – Natural Resources

ORIENTEERING WITH MAP AND COMPASS (2 hours)
After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. Each orienteering course is composed of hidden markers that can only be found by carefully using the map and compass.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

GEODASH (2 hours)
This program will introduce students to the world of GPS and Geocaching. Students will learn the technology behind GPS, the limitations of this technology, and how to use a hand-held GPS. Students will then have the opportunity to apply their knowledge by completing a navigation course. They will use a set of preloaded waypoints to find hidden markers encrypted with Morse code and will need to find all the markers to decipher the puzzle.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity

WATERSHED HIKE WITH PROJECT WILD GAMES (2 hours)
As they explore natural communities through a guided hike, students will gain an appreciation of the importance of a healthy watershed and learn how their actions impact the ecology of their local watershed. Project WILD based games and activities will give students the opportunity to become familiar with interrelationships within natural communities, human impacts on those relationships, and how populations depend on the health of their ecosystems. The goal of this program is to encourage students to become more ecologically aware citizens.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment
NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment

IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, animals, invasive species, or biodiversity). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.
Curriculum Connections: Health & Physical Activity

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

Location: Purple Woods (March - April)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment
STREAM ECOSYSTEMS AND COMMUNITIES (2 hours)
Using dip-nets and measuring equipment, students will explore the biotic and abiotic elements and interactions in our dynamic stream ecosystem. They will develop an understanding of the role streams play in a watershed and how pants, animals, insects, and people depend on healthy stream systems every day. By organizing our stream’s macroinvertebrates according to their pollution tolerance level, students will gain an understanding of bioindicators. Factors that affect local water quality including erosion and pollution will be discussed. Students should come prepared with rubber boots. In the event of high water, a pond ecosystem will be explored instead.

Location: Heber Down (fall/spring)
Curriculum Connections: Science & Technology – Water Systems

COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the diet, adaptations, and vocalizations of this common wildlife species. Food chains, conservation and human impacts will be discussed. Students may also have the opportunity to explore various ecosystems through a guided hike.

Location: Enniskillen (all year) or Heber Down (fall/spring),

ORIENTEERING AND GPS (2 hours)
This program provides an excellent introduction to maps, compasses, and GPS where students can experience firsthand the pros and cons of different orienteering technologies. After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. When this ancient technology has been mastered, students will be introduced to the world of GPS and Geocaching. Students will learn the technology behind GPS, the limitations of this technology, and how to use a hand-held GPS. Students will then have the opportunity to apply their knowledge by completing a navigation course. They will use a set of preloaded waypoints to find hidden markers encrypted with Morse code and will need to find all the markers to decipher the puzzle.

Location: Enniskillen (all year) or Heber Down (fall/spring)

WATERSHED HIKE WITH PROJECT WILD GAMES (2 hours)
As they explore natural communities through a guided hike, students will gain an appreciation of the importance of healthy watersheds and learn how humans impact ecosystems and water quality. Project WILD based games and activities will give students the opportunity to become familiar with interrelationships within our local watersheds, human impacts on those relationships, and how populations depend on the health of their ecosystems. The goal of this interactive program is to encourage students to become more ecologically aware citizens.

Location: Enniskillen (all year), Heber Down (fall/spring), or Purple Woods (fall/spring)

NATURE ART (2 hours)
With natural objects as their medium and the forest as their studio, students will have the opportunity to collaborate and create as they collect and assemble art with nature, on nature, in nature. This creative opportunity will benefit students of all artistic abilities as it allows for a variety of creative expressions. The program will conclude with a student guided tour of the group’s newly created ephemeral gallery.

Location: Enniskillen (Oct-Feb) or Purple Woods (Oct-Dec)
IN YOUR BACKYARD (In-school, 1 hour)
If you have access to a natural area near your school, then this program is for you. This is a customized program for schools within our watershed. “In Your Backyard” is a great way to introduce students to the natural world around them! Teachers can request specific themes and topics (e.g. habitats, plants, animals, or biodiversity). Schools are requested to book a minimum of 2 morning or 2 afternoon classes.

Location: In-school, schools must be within CLOCA watershed and have access to a natural area.

WINTER’S COMING: NATURE HIKE WITH HOLIDAY CRAFT (2 hours)
Come create and explore with us! In this program, students will make a seasonal craft as well as explore our forests and meadow. Different habitats, animal winter survival strategies, and the importance of conservation will be experienced and discussed on a guided hike with activities.

Location: Enniskillen (Nov-Dec)
Curriculum Connections: Health & Physical Activity; Science & Technology – Interactions in the Environment

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Class sizes limited by number of snowshoes available.

Location: Enniskillen (Jan-Feb)

SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 45 small snowshoes (Kindergarten – Grade 3), 30 medium snowshoes (Grade 4-6), and 30 large snowshoes (Grade 7-8).

Location: In-school, schools must be within CLOCA watershed.

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

Location: Purple Woods (March - April)

(see next page for secondary programs)
WATER QUALITY EVALUATION (2 hours)
Using dip-nets and measuring equipment, students will explore the biological, chemical, and physical elements that are indicators of a healthy stream ecosystem. By organizing our pond’s macroinvertebrates according to their pollution tolerance level, students will gain an understanding of bioindicators. Students will also have the opportunity to use various measuring instruments to determine our pond’s pH, turbidity, substrate depth, and temperature. Students will compare their finds with healthy ranges and evaluate the quality of our pond ecosystem. Erosion and various types of pollution will be discussed. Students should come prepared with rubber boots. In the event of high water, a pond ecosystem will be explored instead.

Location: Heber Down (fall/spring)

COYOTE CACHE SURVIVAL GAME (2 hours)
Your class will be transformed into a population of coyotes as students work together in packs to find a den site, avoid the lurking cougars, and collect enough food to feed their new pups. This interactive role-playing game will introduce students to the diet, adaptations, and vocalizations of this common wildlife species. Food chains, conservation and human impacts will be discussed. Students may also have the opportunity to explore various ecosystems through a guided hike.

Location: Enniskillen (all year) or Heber Down (fall/spring)

ALIEN INVADERS: IMPACTING ECOSYSTEMS (2 hours)
While hiking through different habitats, students will discover the difference between native, non-native and invasive species. Students will be introduced to various local invasive species and learn how these alien invaders are impacting habitats as well as the characteristics that enable them to become such incredible trespassers. Depending on the season, this program may include garlic mustard (invasive species) removal.

Location: Enniskillen (fall/spring), Heber Down (fall/spring), or Purple Woods (fall/spring)

ORIENTEERING AND GPS (2 hours)
This program provides an excellent introduction to maps, compasses, and GPS where students can experience firsthand the pros and cons of different orienteering technologies. After learning the basics of compass use, students will be given an aerial orthophoto map and the opportunity to explore the conservation area’s orienteering course. When this ancient technology has been mastered, students will be introduced to the world of GPS and Geocaching. Students will learn the technology behind GPS, the limitations of this technology, and how to use a hand-held GPS. Students will then have the opportunity to apply their knowledge by completing a navigation course. They will use a set of preloaded waypoints to find hidden markers encrypted with Morse code and will need to find all the markers to decipher the puzzle.

Location: Enniskillen (all year) or Heber Down (fall/spring)

SNOWSHOEING (2 hours)
Students will go on a hike through different habitats on snowshoes. During this program, students will develop an appreciation for our natural world and enjoy playing our environmentally themed games. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 30 students.

Location: Enniskillen (Jan-Feb)
SNOWSHOEING (In-school, 1 hour)
Discover the schoolyard in a whole new way. Education staff will come to your school for a 1 hour snowshoe experience. Schools are asked to organize a minimum of 2 morning or afternoon classes. This program was made possible by Mountain Equipment Co-op and TD Friends of the Environment Foundation. Limited to 30 students/hour

Location: In-school, schools must be within CLOCA watershed.

SUGAR BUSH TOUR (Maple Syrup, 1 hour)
Students will travel through time to learn about the history of maple syrup, from its discovery by Indigenous Peoples, to the changes made by European Settlers, to our current methods. Other topics include how trees produce sap, tapping methods, and the importance of the Oak Ridges Moraine. Pancake lunch option available for 10:45am and 1pm programs.

Location: Purple Woods (March - April)
ALTERNATIVE PROGRAM OPPORTUNITIES

SHAPING OUR WATERSHEDS (Schoolwide Program)
The Shaping Our Watersheds program uses an Augmented Reality Sandbox as a hands-on interactive tool to help students understand the importance of water resources. The Augmented Reality Sandbox includes a computer projector and a motion sensing input device (Kinect 3D Camera) mounted above a box of sand. Colours and contour lines are projected onto the sand. As students interact with the sand, the Kinect detects the changes in the projectors distance to the sand and alters the projected colours and contour lines in real time. A simulation of rainfall happens when an object (like student’s hand) is sensed between the projector and the sand. The virtual rain is visualized by the projector as blue, shimmering on the sand that appears to flow down the contours to lower elevations.

Our Augmented Reality Sandbox engages all who dig in the sand to fully appreciate the rain, water flow, creation and destruction of landforms and the interaction between them. It is an excellent visualization tool to teach earth science concepts.

For more information or to book this program please contact Yvonne Storm, ystorm@cloca.com.

STREAM OF DREAMSTM (Schoolwide Program - Elementary)
This program combines watershed awareness and art to create a long-term message for the community. Through the Stream of DreamsSTM program, students discover the stories of creeks, what makes them healthy, the water cycle, stormwater management and how people impact local waterways. Each student receives a wooden fish to paint. The collective school of fish, is then installed on the schoolyard's chain link fence, reminding the students and the neighborhood, to be good watershed stewards.

For more information or to book this program please contact Cathy Grant, cgrant@cloca.com.

DURHAM CHILDREN’S WATERSHED FESTIVAL (Grade 4)
This festival increases the awareness of grade four students concerning water issues and motivates them to become water stewards in their home, classroom and community. Like a giant, outdoor science centre, this festival has 35 hands-on, interactive, curriculum linked activities with watershed based messages relevant to the student’s daily lives. Students spend the day at various activity centres, discovering the importance of water in their lives and how their actions affect the watershed in which they live. Hosted on Camp Samad’s beautiful grounds, a highlight is watching and cheering for the migrating salmon as they swim up the Oshawa Creek to spawn.

For more information or to book this program please contact Yvonne Storm, ystorm@cloca.com.
MEMO TO: Chair and Members, CLOCA Board of Directors
FROM: Meagan Breems, Education Assistant
       Cathy Grant, Education Instructor
       Patricia Lowe, Community Engagement
SUBJECT: New Professional Development Day Camp Program

Background
This Report provides information on a new Professional Development Day Camp Program offered by CLOCA during Durham District & Durham Catholic District School Board designated Professional Development (PD) days. This new program will increase our ability to engage a broader audience of children and fill gaps left in our curriculum based program delivery during PD days.

For the past 30 years, CLOCA has delivered formal and informal outdoor education programs to support environmental literacy and provide increased opportunities for experiences in nature. We know from our own experience delivering education programs, that there are multiple benefits. Often, out of a childhood connection with nature, future environmental stewards emerge (Into Nature – A guide to teaching in Nature). Richard Louv, in his book “Last Child in the Woods: Saving Our Children from Nature Deficit Disorder,” reveals that there is a growing amount of science based evidence that indicates when children regularly spend time in nature, they are healthier, happier and better learners. Unfortunately, compared with previous generations, most children today spend far less time outdoors and far more time in front of their screens, likely more so on PD days.

Initiating a PD Day Camp is well aligned with our Strategic Plan goal to communicate, educate and inspire. Other conservation authorities including Toronto and Region Conservation and Nottawasaga Valley Conservation Authority offer similar programming on PD days. We have 2 CLOCA education staff who will develop and deliver the PD Day Camp Program for a maximum of 30 campers per day. Based on nine PD days for an average school year, and consideration for some overlap between the two school boards, this could result in delivery of 10 to 15 PD Day Camp Programs per year. The content and focus of the program would vary based on the season and Conservation Area from which it is delivered. The program will be held at Enniskillen, Purple Woods and Heber Down Conservation Areas on a rotating basis.

Our first PD Day Camp Program will be at Heber Down Conservation Area on June 7, 2019. We would deliver this as a pilot program and assess and evaluate outcomes. Our goal would be to fully launch the PD Day Camp Program September 2019 through to June 2020.

Marketing the PD Day Camp Program would be done through our website, a poster in our Conservation Areas, community centres and libraries, on social media and through a postcard to be distributed to both the Durham District and Durham Catholic District School Boards. This same postcard will be distributed to YMCA camp participants and students attending our school programs.

RECOMMENDATION:
THAT Staff Report 5624-19 be received for information.
The Solar application is now in its eighth year of operation. In 2018, we generated net revenue of $8,655.29 (2017 - $8,581.93) to be replenished into the reserve for working capital. The Board’s approval was based on financing the system from the reserve for working capital and replenishing the reserve from net annual revenues. In 2018, we observed an output of 10,826 kW of electricity. This figure represents a 0.84% increase from 2017. The cash flow forecast below has been updated to reflect the system output generated in 2018 and we are still expecting the break-even point to be towards the middle of 2020. Please refer to the attached information circular which includes a monthly summary of electrical generation, payments and service charges from Oshawa PUC Networks Inc.

The following is a summary of the output for the period January 1 to December 31, 2018:

<table>
<thead>
<tr>
<th>Revenue</th>
<th>$8,722.13</th>
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<td>Expenditures</td>
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<td>Repair Costs</td>
<td>$ -</td>
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<td>Net Revenue</td>
<td>$8,655.29</td>
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</tbody>
</table>

Also attached for your interest are pages downloaded from the SolarVu Energy Portal, describing carbon footprint, payback and Best Days – Maximum Output:

(\text{http://www.cloca.solarvu.net/green/solarVuAnalyzer.php?ac=cloca\&page=carbon})

**RECOMMENDATIONS:**

\text{THAT Staff Report #5627-19 be received for information; and,}

\text{THAT the net revenue of $8,655.29 from generation be returned to the reserve for working capital.}

Attach.
Solar Application at CLOCA Office

CASH POSITION

BEST DAYS
## Summary Oshawa PUC Network Inc.

### Monthly Payments – CLOCA Electrical Generation

<table>
<thead>
<tr>
<th>Payment Period</th>
<th>Generation (KWh)</th>
<th>Payment Amount</th>
<th>HST Recoverable Service Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 01 - Jan 31</td>
<td>213</td>
<td>170.83</td>
<td>0.78</td>
</tr>
<tr>
<td>Feb 01 - Feb 29</td>
<td>371</td>
<td>297.54</td>
<td>1.36</td>
</tr>
<tr>
<td>Mar 01 - Mar 31</td>
<td>1,123</td>
<td>900.65</td>
<td>4.12</td>
</tr>
<tr>
<td>Apr 01 - Apr 30</td>
<td>1,060</td>
<td>850.12</td>
<td>3.89</td>
</tr>
<tr>
<td>May 01 - May 31</td>
<td>1,604</td>
<td>1,286.41</td>
<td>5.88</td>
</tr>
<tr>
<td>Jun 01 - Jun 30</td>
<td>1,459</td>
<td>1,170.12</td>
<td>5.35</td>
</tr>
<tr>
<td>Jul 01 - Jul 31</td>
<td>1,584</td>
<td>1,270.37</td>
<td>5.81</td>
</tr>
<tr>
<td>Aug 01 - Aug 31</td>
<td>1,235</td>
<td>990.47</td>
<td>4.53</td>
</tr>
<tr>
<td>Sep 01 - Sep 30</td>
<td>1,063</td>
<td>852.53</td>
<td>3.90</td>
</tr>
<tr>
<td>Oct 01 - Oct 31</td>
<td>574</td>
<td>460.35</td>
<td>2.10</td>
</tr>
<tr>
<td>Nov 01 - Nov 30</td>
<td>306</td>
<td>245.41</td>
<td>1.12</td>
</tr>
<tr>
<td>Dec 01 - Dec 31</td>
<td>234</td>
<td>187.65</td>
<td>0.86</td>
</tr>
<tr>
<td><strong>Total of 2018 - Booked into GL</strong></td>
<td><strong>10,826</strong></td>
<td><strong>8,682.45</strong></td>
<td><strong>39.68</strong></td>
</tr>
</tbody>
</table>

### Summary (2011-2018) – CLOCA Electrical Generation

<table>
<thead>
<tr>
<th>Payment Period</th>
<th>Generation (KWh)</th>
<th>Payment Amount</th>
<th>HST Recoverable Service Charges</th>
</tr>
</thead>
<tbody>
<tr>
<td>Jan 01 - Jan 31</td>
<td>297, 265, 200, 415, 384, 298, 213</td>
<td>$243, $217, $161, $334, $309, $240, $172</td>
<td></td>
</tr>
<tr>
<td>Feb 01 - Feb 29</td>
<td>520, 399, 301, 38, 542, 465, 371</td>
<td>$425, $326, $243, $31, $437, $375, $299</td>
<td></td>
</tr>
<tr>
<td>Mar 01 - Mar 31</td>
<td>1117, 1037, 978, 1,047, 837, 950, 1,123</td>
<td>$913, $847, $788, $844, $674, $765, $905</td>
<td></td>
</tr>
<tr>
<td>Apr 01 - Apr 30</td>
<td>1,332, 1,233, 1,247, 984, 1,327, 1,142, 1,060</td>
<td>$1,089, $1,008, $1,005, $793, $1,069, $920, $854</td>
<td></td>
</tr>
<tr>
<td>May 01 - May 31</td>
<td>1,698, 1,739, 1,516, 928, 1,619, 1,261, 1,604</td>
<td>$1,388, $1,421, $1,221, $748, $1,304, $1,016, $1,292</td>
<td></td>
</tr>
<tr>
<td>Jun 01 - Jun 30</td>
<td>1,613, 1,147, 1,539, 796, 1,720, 1,364, 1,459</td>
<td>$1,318, $1,183, $1,240, $641, $1,386, $1,099, $1,175</td>
<td></td>
</tr>
<tr>
<td>Jul 01 - Jul 31</td>
<td>1,549, 1,657, 1,600, 1,583, 1,265, 1,636, 1,440, 1,584</td>
<td>$1,242, $1,354, $1,308, $1,275, $1,019, $1,318, $1,160, $1,276</td>
<td></td>
</tr>
<tr>
<td>Aug 01 - Aug 31</td>
<td>1,355, 1,306, 1,542, 1,452, 787, 1,503, 1,305, 1,235</td>
<td>$1,087, $1,067, $1,260, $1,170, $634, $1,211, $1,051, $995</td>
<td></td>
</tr>
<tr>
<td>Sep 01 - Sep 30</td>
<td>1,142, 1,194, 1,208, 1,234, 1,144, 1,201, 1,266, 1,063</td>
<td>$916, $976, $987, $994, $922, $968, $1,020, $856</td>
<td></td>
</tr>
<tr>
<td>Oct 01 - Oct 31</td>
<td>735, 651, 775, 641, 766, 798, 738, 574</td>
<td>$589, $532, $633, $516, $617, $643, $595, $462</td>
<td></td>
</tr>
<tr>
<td>Dec 01 - Dec 31</td>
<td>297, 199, 160, 222, 216, 157, 125, 234</td>
<td>$238, $163, $131, $179, $174, $126, $101, $189</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>5578, 12082, 11730, 11251, 8885, 12280, 10735, 10826</td>
<td>$4,474, $9,874, $9,586, $9,065, $7,158, $9,894, $8,649, $8,722</td>
<td></td>
</tr>
</tbody>
</table>
## UNFINISHED BUSINESS

<table>
<thead>
<tr>
<th>#</th>
<th>Subject</th>
<th>Origin</th>
<th>Direction</th>
<th>Responsible</th>
<th>Expected Response</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>Lake Ontario Shoreline Management at Port Darlington, Municipality of Clarington</td>
<td>5538-17 PSSG4177, PSSG212 Sept. 19/17 Meeting</td>
<td>THAT CLOCA staff be directed to report back to the Board of Directors with the completed study with options for implementation in conformity with the recommendations of the study and provincial Great Lakes shoreline natural hazard management policy; THAT the Council of the Municipality of Clarington be so advised in response to Resolution C-203-17.</td>
<td>Chris Jones P. Sisson</td>
<td>Mar. 2019</td>
</tr>
<tr>
<td>2.</td>
<td>Docking facilities at St. Mary’s Cement</td>
<td>Sept. 19/17 Meeting</td>
<td>THAT staff report back on the history of CLOCA’s position regarding the docking facilities at St. Mary’s Cement</td>
<td>C. Jones</td>
<td>Mar. 2019</td>
</tr>
</tbody>
</table>