CATFISH CREEK CONSERVATION AUTHORITY

Mission Statement
"To communicate and deliver resource management services and programs in order to achieve social and ecological harmony for the watershed"

A Full Authority meeting is to be held on
Thursday, August 15, 2024 at 10:00 a.m.

Meeting Location:
The meeting will be conducted in the CCCA Boardroom

A G E N D A

1) Welcome / Call to Order ..... Paul Buchner

2) Land Acknowledgement

3) Adoption of Agenda

4) Disclosure of Pecuniary Interest

5) Disclosure of Intention to Audio / Video Record Meeting

6) Adoption of Minutes of:

   a) Full Authority Meeting FA 05/2024 (June 9, 2024) 3-7
   b) Health and Safety Committee Meeting HS 02/2024 (July 25, 2024) 8-9

7) Business Arising from Minutes

8) Public / Special Delegations

9) Reports:

   a) Reports FA 46-49/2024 - Monthly Staff Reports 10-14
   (Peter Dragunas, Gerrit Kremers, Al Bradford, Brittany Bell)

   b) Report FA 50/2024 - June Summary of Revenue & Expenditures 15-16
   (Susan Simmons)

   c) Report FA 51/2024 - July Summary of Revenue & Expenditures 17-18
   (Susan Simmons)

   d) Report FA 52/2024 - Accounts Paid 19-20
   (Susan Simmons)

e) Report FA 53/2024 - Campground Registration Software 21-31
(Susan Simmons, Brittany Bell & Al Bradford)

f) Report FA 54/2024 - Draft Conservation Areas Strategy 32-53
(Dusty Underhill)

g) Report FA 55/2024 - Natural Hazard Infrastructure Asset Management Plan - Springwater Dam Operation, Maintenance, and Inspection Manual 54-99
(Dusty Underhill)

h) Report FA 56/2024 - Conservation Ontario Council Meeting 100-103
(Dusty Underhill)

i) Report FA 57/2024 - June 25-27 General Managers Meeting 104-105
(Dusty Underhill)

j) Report FA 58/2024 - Lake Erie Action Plan (LEAP) Update 106-108
(Dusty Underhill)

k) Report FA 59/2024 - Health and Safety Policy Addition 109-110
(Dusty Underhill)

l) Report FA 60/2024 - 75th Anniversary Committee 111
(Dusty Underhill)

m) Report FA 61/2024 - Watershed-based Resource Management Strategy 112-171
(Dusty Underhill)

10) General Manager / Secretary-Treasurer's Report 172
(Dusty Underhill)

11) Unfinished Business

12) Chairperson's / Board Member's Report

13) Notice of Motions / New Business:

14) Correspondence:

a) Copied:

b) Not Copied:
- Correspondence Register for August, 2024 173-177

15) Closed Session

16) Next Meeting of the Full Authority: September 12, 2024

17) Termination

MINUTES OF THE MEETING OF THE
CATFISH CREEK CONSERVATION AUTHORITY

Thursday, June 13, 2024 **Meeting #05/2024**

PRESENT:

Arthur Oslach	Member	Town of Aylmer
Scott Lewis	Member	Township of Malahide
Morgaine Halpin	Vice-Chairperson	Municipality of Central Elgin

STAFF:

Dusty Underhill	General Manager / Secretary-Treasurer
Peter Dragunas	Water Management Technician
Brittany Bell	Communications/Program Support Assistant
Gerrit Kremers	Resource Planning Coordinator

ABSENT:

Paul Buchner	Chairperson	Township of South-West Oxford
Gary Clarke	Member	City of St. Thomas
Susan Simmons	Financial Services Coordinator	
Al Bradford	Conservation Area Supervisor	

OTHERS PRESENT:

Rob Perry	Reporter, the Aylmer Express

WELCOME / CALL TO ORDER:

Vice-Chairperson Halpin welcomed everyone and called the meeting to order at (10:00 a.m.).

ADOPTION OF AGENDA:

Motion # 57/2024	S. Lewis	A. Oslach	CARRIED

THAT, the Agenda for the June 13th, 2024, Full Authority meeting be adopted as circulated.

DISCLOSURE OF PECUNIARY INTEREST AND THE GENERAL NATURE THEREOF:

No one had a pecuniary interest to disclose at this time.

DISCLOSURE OF INTENTION TO AUDIO / VIDEO RECORD MEETING:

The Chairperson asked for disclosures of intentions to audio or video record the meeting. No one indicated any such intentions at this time.

ADOPTION OF MINUTES:

Motion # 58/2024	A. Oslach	S. Lewis	CARRIED

THAT, the Minutes of Full Authority Meeting #04/2024 (May 9, 2024), be adopted as circulated.

Motion # 59/2024	A. Oslach	S. Lewis	CARRIED

THAT, the Minutes of Land Management Committee Meeting #01/2024 (May 9, 2024), be adopted as circulated.

Motion # 60/2024	A. Oslach	S. Lewis	CARRIED

THAT, the Minutes of Health and Safety Committee Meeting #01/2024 (April 18, 2024), be adopted as circulated.

BUSINESS ARISING FROM MINUTES:

No one reported any outstanding business to discuss from the previous Minutes.

PUBLIC / SPECIAL DELEGATIONS:

None

REPORTS:

Reports FA 33 to FA 36/2024 – Monthly Staff Reports, were presented, discussed, and resolved.

Motion # 61/2024	S. Lewis	A. Oslach	CARRIED

THAT, Staff Reports FA 33 to FA 36 for the month of May, 2024 be noted and filed.

Report FA 37/2024 – May Summary of Revenue and Expenditures, was presented, discussed, and resolved.

Motion # 62/2024	A. Oslach	S. Lewis	CARRIED

THAT, Report FA 37/2024 (May Summary of Revenue & Expenditures), be noted and filed.

Report FA 38/2024 – Accounts Paid, was presented, discussed, and resolved.

Motion # 63/2024	S. Lewis	A. Oslach	CARRIED

THAT, Accounts Paid totaling $49,612.02, be approved as presented in Report FA 38/2024.

Report FA 39/2024 – Maple Syrup Summary Report was presented, discussed, and resolved.

Motion # 64/2024	A. Oslach	S. Lewis	CARRIED

THAT, the 2024 Maple Syrup Financial and Statistical Summaries be received as information at this time; and further,

THAT, staff be directed to undertake a detailed operational and financial review of the program in consultation with the Jaffa Environmental Education Centre to determine efficiencies and improvements for 2025.

Report FA 40/2024 – Catfish Creek Channel Sounding, was presented, discussed, and resolved.

Motion # 65/2024	A. Oslach	S. Lewis	CARRIED

THAT, the channel sounding observations described in Report FA 40/2024, be received as information at this time.

Report FA 41/2024 –Port Bruce Riverine and Coastal Floodplain Mapping Information was presented, discussed, and resolved.

Motion # 66/2024	S. Lewis	A. Oslach	CARRIED

THAT, Report FA 41/2024 be received as information at this time.

Report FA 42/2024 –Watershed-based Resource Management Strategy was presented, discussed, and resolved.

Motion # 67/2024	A. Oslach	S. Lewis	CARRIED

THAT, Report FA 42/2024 Draft Watershed-based Resource Management Strategy be received as information;

AND THAT, the Catfish Creek Conservation Authority direct staff to undertake consultation on the draft Strategy from June 17, 2024 to July 26, 2024;

AND THAT, the Catfish Creek Conservation Authority send a letter to participating municipalities, and local Indigenous Communities to advise them of the consultation period on the draft Strategy.

Report FA 43/2024 –Approved Section 28 Regulations Applications was presented, discussed, and resolved.

Motion # 68/2024	S. Lewis	A. Oslach	CARRIED

THAT, the Full Authority receive the staff approved Section 28 Regulation Applications Report FA 43/2024, as information.

Report FA 44/2024 –A.D. Latornell Conservation Symposium was presented, discussed, and resolved.

Motion # 69/2024	A. Oslach	S. Lewis	CARRIED

THAT, the Full Authority authorize one delegate to attend the Annual Latornell Conservation Symposium on October 8-9, 2024.

Report FA 45/2024 –July Full Authority Meeting was presented, discussed, and resolved.

Motion # 70/2024	S. Lewis	A. Oslach	CARRIED

THAT, the Chairperson, Vice-Chairperson and General Manager / Secretary-Treasurer be authorized to discharge the Accounts Payable for July, 2024; and further,

THAT, the Personnel / Finance Committee be given the power to deal with any urgent business matters that may arise prior to the next Full Authority meeting.

GENERAL MANAGERS REPORT:

- Completed the Draft Water-based Resource Management Strategy, letter of dispersal for members and Indigenous consultation.
- Completed Land Management and May Full Authority meetings
- Sandy, our Intern completed the last three watershed report cards for 2013, 2018, 2023 and presented them to staff for approval. Sandy did an amazing job on these and staff were very happy with the outcome. When the 2028 Report Card is due, staff will have an easy transition to complete necessary updates etc. for completion of the 2028 Watershed Report Card.
- Held a monthly staff meeting to discuss any concerns amongst staff. A monthly roundtable discussion opens up the table to proper communication and keeps everyone in the know. Any issues that arise between meetings, projects or updates are shared amongst staff to encourage healthy dialogue.
- Completed the renewal of my Forest Pesticide License.
- Arranged for a meeting with Elgin County Staff and Malahide staff to discuss the updates to the floodlines for Port Bruce. An information session was held in the CCCA Boardroom and a Public Consultation will occur later in July where residents who may have questions or concerns can have them addressed by Pat Prodanovic, of TRUE Consulting.
- Assisted in the Career Launcher application process.
- Met with Lauren Jones, Stewardship Coordinator for Six Nations Territory. We discussed current issues CA's are facing in regard to consultation and the lack of capacity provincially amongst Indigenous Communities to support these mandatory requirements.
- Continual work on the Conservation Areas Strategy and updates to property management plans to support the work we currently do.
- Submitted the Section 39 2024-2025 Year-Start Budget submission to MNRF.
- Submitted the 2024 – 2025 Conservation Lands Tax Incentive Program information.
- Attended a DFO Webinar, next phase of engagement to discuss fish and fish habitat restoration objectives and actions for the Lake Erie watershed.

CORRESPONDENCE:

a) Copied:

- Brandi Walter and Leslie Rich - Conservation Ontario's comments on the "Proposed Regulatory Changes under the Planning Act Relating to the Cutting Red Tape to Build More Homes Act, 2024 (Bill 185): Removing Barriers for Additional Residential Units" (ERO# 019-8366)
- Brandi Ealter and Leslie Rich – Conservation Ontario's comments on the "Review of proposed policies for a new provincial planning policy instrument" (ERO#019-8462)

- Correspondence Registers May, 2024.

Motion # 71/2024 A. Oslach S. Lewis CARRIED

THAT, the Copied Correspondence and Correspondence Register for May, 2024, be noted and filed.

CLOSED SESSION:

None

NEXT MEETING / TERMINATION:

The next meeting of the Catfish Creek Conservation Authority will be held on Thursday, August 15, 2024, commencing at 10:00 a.m.

Motion # 72/2024 S. Lewis A. Oslach CARRIED

THAT, the Full Authority be terminated at 10:36a.m.

_____ _____

General Manager / Secretary –Treasurer Authority Chairperson

MINUTES OF THE MEETING OF THE CATFISH CREEK CONSERVATION AUTHORITY HEALTH AND SAFETY COMMITTEE

Friday, July 25, 2024 **Meeting #HS 02/2024**

PRESENT:

Gerrit Kremers	Employee Representative (Chairperson)
Brittany Bell	Employee Representative (Secretary)
Al Bradford	Employee Representative
Dusty Underhill	Management Representative

WELCOME AND CALL TO ORDER:

The Chairperson of the Conservation Authority Health and Safety Committee welcomed everyone and called the meeting to order at 9:00 a.m.

ADOPTION OF AGENDA:

The Committee reviewed and approved the Minutes as amended from the April 18, 2024 Health and Safety Committee meeting as circulated, and approved the Meeting Agenda as circulated.

BUSINESS OUT OF MINUTES:

4 Inspection Reports: Review Recent Inspection Reports

The Employee Representatives reviewed the Inspection Reports completed to date with the Committee. All reports were current and up to date.

5 Health and Safety Policy Addition

The Committee reviewed a Health and Safety Policy Addition in regards to vehicle operation to be presented to the Full Authority at the August 2024 Meeting.

6 Healthy and Safety Training Software/Platform (Safetyhub)

The Committee discussed obtaining a Health and Safety Training Platform (Safetyhub) for employee health and safety training. The committee approved of purchasing that platform and to use the platform going forward for Employee Health and Safety training.

7 Review of Updated Employee Equipment Training Forms to Ensure Safe and Proper Use

The Committee reviewed an Update to Employee Training Forms and updated Standard Operating Procedures for Operating tasks and approved the SOP's and Training Forms for immediate use and circulation.

8 Review of Injury/Incident Reports

The Committee reviewed and discussed Injury/Incident reports that had taken place since the last Health and Safety meeting.

9 Other Business

The Committee discussed doing a full review of the 2020 Catfish Creek Conservation Authority Health and Safety Policy and will schedule a full review in the fall of 2024.

CLOSED SESSION

1 A matter was discussed regarding an identifiable individual

ADJOURNMENT:

There being no further business to be discussed, the meeting was terminated at 10:27 a.m.

Brittany Bell, Employee Representative

Gerrit Kremers, Employee Representative

Dusty Underhill, Management Representative

Al Bradford, Employee Representative

REPORT FA 46/2024 To The Full Authority

FROM: Water Management Technician

SUBJECT: Monthly Staff Report for the Months of June and July

DATE: July 23, 2024

Water Management Technician

Current Activities:

- Attended a 2024 flood line information session with CCCA, Member Municipality staff and local government emergency coordinators.
- Consultations with Pat Prodanovic, Water Resources and Coastal Engineer, TRUE Consulting regarding Port Bruce Flood Line Mapping and flood modelling.
- Responded to inquiries from Port Bruce residents concerning Geographic Information System) GIS technical queries for the new 2024 CCCA flood line mapping.
- Compilation of 2024 Port Bruce flood line mapping for operational Regulatory, Governance and Flood Forecasting use.
- Analysis of the 2023 – 2024 spring soundings, longitudinal profiles to better understand the hydraulic processes (sediment migration) in the lower Catfish Creek to assist with ice jam induced flood forecasting.
- Continuous: Maintaining the Catfish Creek water quantity (flows) database and analysis for seasonal flows (flood and low water).
- Continuous: Monitoring for watershed seasonal flows (low and or high) to verify and issue Watershed Condition Statements.
- Continuous: Monitoring Lake Erie weather patterns and water levels for Lake Erie Watershed Condition Statements. Assessments for wind induced storm surge and subsequent shoreline flood conditions.
- Current updates and documentation of the CCCA mandated Water and Natural Hazard Programs, to better identify and represent conditions within the Authorities administrative boundary.

Upcoming Activities:

- Continue monitoring for watershed seasonal flows to verify and issue watershed condition statements.
- Continue monitoring Lake Erie shoreline storms for storm surge and wave uprush conditions.
- Continued assessment and evaluation of the Catfish Creek Conservation Authority low water criteria, thresholds and low water condition ratings coupled with Geographic Information System (GIS) tool re-evaluations related to low water and climate change.
- Assessment of CCCA administrative areas flood plains for storage capacities.

Recommendation:

THAT, Staff Reports for the months of June and July 2024, be noted and filed.

Peter Dragunas
Water Management Technician

REPORT FA 47/2024: To Full Authority

FROM: Gerrit Kremers, Resource Planning Coordinator

SUBJECT: June & July Monthly Staff Report

DATE: August 6, 2024

Resource Planning Coordinator

Current Activities:

- Completed the Train The Trainer Course for Introduction to Professional Chainsaw Operation through Workplace Saftey North the provincial not-for-profit health and safety association for forest products industries;
- Attended a meeting with CCCA General Manager and City St. Thomas staff members in regards to Yarmouth Yards Development;
- Participated in planning pre-consultation meetings with member municipalities and private landowners looking to conduct work within adjacent lands of a natural hazard feature;
- Met with landowners to promote tall grass prairie planting and wetland stewardship projects on their private lands;
- Participated in an online webinar with Invasive Species Centre about invasive phragmites and potential grant opputunity;
- Participated in Lake Erie Action Plan (LEAP) Implementation team online meeting with staff of the other participating Lake Erie Conservation Authorities and other agencies;
- Held various site meeting with landowners to discuss CA policies, S.28, in regards to future development activities on their property;
- Participated in Health & Safety committee meeting, as a member of the CCCA Health and Safety Committee;
- Met with local Drainage Superintendents in regards to planned drainage works within the watershed;

Upcoming Activities:

- Update the CCCA Planning and Regulations Policy and Procedure Manual;
- Planning pre-consultation meetings with member municipalities and private landowners looking to conduct work within adjacent lands of a Natural Hazard Features;
- Continue to monitor on-going s.28 work permits and associated work permit conditions;
- Process s.28 work permit applications pursuant to the Conservation Authorities Act;
- Review *Planning Act* applications and comment on natural hazards pursuant to the *Conservation Authorities Act.*

Recommendation:

THAT, Staff Report for the month of June and July, 2024, be noted and filed.

Gerrit Kremers
Resource Planning Coordinator

REPORT FA 48/2024 : To The Full Authority

FROM: Al Bradford, Conservation Areas Supervisor

SUBJECT: June and July Monthly Staff Report

DATE: **August 7, 2024**

Conservation Areas Supervisor

Current Activities:

- Dryer vent properly installed at Whites Mill so its vented to the exterior of the building instead of the inside
- Dead limb removal as required throughout the campground
- Ongoing Trail Maintenance started this month at our CA's, Yarmouth Track, Archie & Springwater planned for June-Oct (mowing, cutting back branches, bench repairs),
- WJ Roofing installed a new steel roof on the Pavilion washroom on the east Campground end of June
- Continuing to taking delivery of firewood so we can ensure we have our wood cribs stay stocked for the 2024 season
- additional staff to complete there Food Handlers Course later this year so we have multiple trained
- Prepped for VanFest, met with organizer ensured both parties were on the same page and Operations staff handled the weekend well having woodsales back was a bonus this year also. Finance should be able to speak on how we did for our numbers
- Few days in June booked for TVDSB education classes which staff taught programs
- Actively looking for grants or funding that would assist with bringing upgrades to our Conservation Areas
- Accessibility ramp at schoolhouse and Admin Office have both been completed and final inspections were completed (Central Elgin building inspection was completed without any problems, Malahide inspections took a little more time as we had to have a Comittement to Review completed by GIRARD Engineering plus the Building Official from Malahide)
- Operations Staff have also been working on painting in the concession booth, pine ridge touchups, also replaced the fan at Pine ridge for better ventilation
- Ongoing tree trimming of both east and west campgrounds as needed
- Started to continue to look into legislation in order to obtain a permit for a potential dump station in the Day Use for transient campers
- Posted on Gov Deals of old surplus items not being used (broken chainsaws not worth repairing and the old 3point hitch snow blower)
- Uplink Communications has started to install internet throughout the campground for seasonal/transient campers to utilize
- Kiosk that was installed by Key West Gates has been used and look forward to seeing the potential added revenue & saving it should bring throughout the year
- Routine picnic table repairs are still being completed as needed
- Kids First Day I believe was successful as anyone that visits Springwater CA is a bonus (we offered wagon rides, fishing, games, canoe/kayak, items for sale at the concession booth
- Day Camps for the July week was booked but we are still advertising for a few spots in August, a report from CS Clerk & staff will be provided in September on both camps at Springwater CA which provided outdoor/environmental learning
- Worked on replacing site markers and site posts is almost completed
- July long weekend was very busy for all staff, as we had numerous groups booked in as well

as transient camping

- Operations staff dealt with some weather events which caused havoc with our large tent for a wedding, flooding in both our east and west campgrounds
- Prepared for our New Event with the London Canine Association Dog Show held from July 11th – July 14th
- July 22nd an event "Lets Watch the Stars" (with Aurther Oslach) was posted in hoping for a clear night for viewing the sky
- Attended my monthly online Conservation Area Workshop Committee meeting
- Would like to acknowledge my Operations Team for there hard work for getting things ready for all the events throughout season

Upcoming Activities:

- Attended monthly online Conservation Area Workshop Committee meeting
- Would like to acknowledge my Operations Team for there hard work for getting things ready for the season
- Numerous booking for Group Camping/ schoolhouse in August
- Continue all maintenance on properties and campground

Recommendation:

THAT, Staff Reports for the months of June and July, 2024, be noted and filed.

Al Bradford
Conservation Areas Supervisor

REPORT FA 49/2024: To Full Authority

FROM: Brittany Bell, Communications/Program Support Assistant

SUBJECT: June and July Monthly Staff Report

DATE: **August 7, 2024**

Communications/Program Support Assistant

Current Activities:

- Seasonal camper administration
- Maintained social media channels and posted entertaining content
- Monitoring CCCA website inquiries
- Catfish Creek Conservation Authority administrative and Communication duties
- Researched grant opportunities
- Booked Springwater Conservation Area facility rentals
- Continued training with current Springwater Conservation Staff
- Met with couples looking to book weddings at the schoolhouse, pavilions and Audreys Place Pavilion for 2025
- Springwater Conservation Area Campground Administrative duties
- Marketing for upcoming events at Springwater
- Continued work on virtual flip books for the Trail Guide and Maple Syrup Program Guide which readers can view on social media channels and our website
- Admin Preperation for Events taking place at Springwater (VanFest, London Canine Association Dog Show, Blues and Crusie, Springwater Inclusivity Day)
- Prepared and met with individuals (admin) for the numerous Family Reunions, Weddings and Company Picnics at Springwater Conservation Area
- Continued overseeing operation of the Springwater Conservation Area Gatehouse
- Implemented our new Health and Safety training platform – safetyhub
- Participated in Health and Safety Committee Meeting
- Attended CO Communications Meeting that centred around AODA needs for Conservation Communications

Upcoming Activities:

- Catfish Creek Conservation Authority administrative duties
- Maintain social media channels and post entertaining content
- Monitor CCCA website inquiries
- Springwater Conservation Area camping administration (end of the season prep)
- Planning for upcoming events
- Attend Conservation Ontario's Monthly Communications Meeting

Recommendation:

THAT, Staff Report for the months of June and July, 2024, be noted and filed.

Brittany Bell
Communications/Program Support Assistant

REPORT FA 50/2024 : To The Full Authority
FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Summary of Revenue & Expenditures
DATE: June 30, 2024

SUMMARY OF REVENUE

for the period ending June 30, 2024

	2024 Budget	2024 To Date	Difference	2023 To Date
MNRF Provincial Grants	$ 41,215.00	$ -	$ (41,215.00)	$ 41,215.00
Other Provincial Grants	$ 42,206.78	$ 19,987.12	$ (22,219.66)	$ 30,312.52
Federal Grants	$ 138,710.18	$ -	$ (138,710.18)	$ 90,766.01
Employment Program Grants	$ 15,000.00	$ 13,386.37	$ (1,613.63)	$ -
Municipal General Levies	$ 442,474.36	$ 380,604.72	$ (61,869.64)	$ 350,064.09
Donations/Sponsorships	$ 30,929.35	$ 19,352.70	$ (11,576.65)	$ 25,484.80
Conservation Areas Revenue	$ 727,649.00	$ 571,457.73	$ (156,191.27)	$ 543,955.32
Maple Syrup Revenue	$ 41,080.00	$ 46,187.52	$ 5,107.52	$ 61,361.67
Bank Interest Earned	$ 15,000.00	$ 10,999.19	$ (4,000.81)	$ 9,760.42
Legal Inquiries/Permit Applications	$ 5,000.00	$ 2,362.86	$ (2,637.14)	$ 3,592.95
Watershed Stewardship	$ 8,300.00	$ 39,985.00	$ 31,685.00	$ 11,093.52
Revenue from Other C.A. Lands	$ 13,546.00	$ 13,105.28	$ (440.72)	$ 13,412.59
Other Revenue	$ 1,700.00	$ -	$ (1,700.00)	$ -
Contract Services	$ -	$ 383.28	$ 383.28	$ 214.36
Environmental Education	$ 6,753.61	$ 8,244.27	$ 1,490.66	$ -
Vehicle & Equipment Rental Recoveries	$ 29,000.00	$ 17,913.20	$ (11,086.80)	$ 4,043.90
Previous Year Surplus (Deficit)	$ 9,204.92	$ 9,204.92	$ -	$ 1,716.73
Income Appropriation from Special Reserves	$ 17,100.00	$ -	$ (17,100.00)	$ -
Income Appropriation from General Reserves	$ 181,473.04	$ -	$ (181,473.04)	$ -
APPROPRIATION FROM RESERVES ADJUSTMENT	$ -	$ -	$ -	$ -
	$ 1,766,342.24	$ 1,153,174.16	$ (613,168.08)	$ 1,186,993.88

DONATIONS/SPONSORSHIPS	2024 Budget	Received To Date	Difference
Annual Report	$ 1,000.00	$ 1,000.00	$ -
Environmental Education	$ 2,000.00	$ 460.00	$ (1,540.00)
EESS ELP	$ 5,400.00	$ -	$ (5,400.00)
Commemorative Forest	$ 300.00	$ 240.00	$ (60.00)
Springwater Forest Trails	$ 9,829.35	$ 5,966.25	$ (3,863.10)
Archie Coulter C.A. Trails	$ 2,200.00	$ 488.10	$ (1,711.90)
YNHA	$ 2,200.00	$ 548.35	$ (1,651.65)
Trout Program	$ 1,000.00	$ 2,000.00	$ 1,000.00
Maple Syrup Festival	$ 4,000.00	$ 7,650.00	$ 3,650.00
Ontario Police College Path of Honour	$ 3,000.00	$ -	$ (3,000.00)
	$ -	$ 1,000.00	$ 1,000.00
TOTAL Donations/Sponsorships	**$ 30,929.35**	**$ 19,352.70**	**$ (11,576.65)**

REPORT FA 50/2024 : To The Full Authority
FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Summary of Revenue & Expenditures
DATE: June 30, 2024

SUMMARY OF EXPENDITURES

for the period ending June 30, 2024

	2024 Budget	2024 To Date	Difference	2023 To Date
MANDATORY PROGRAMS				
1 RISK OF CERTAIN NATURAL HAZARDS (Corporate Services)	$152,975.78	$ 84,144.93	$ (68,830.85)	$ 82,200.59
2 FLOOD FORECASTING & WARNING	$274,434.00	$ 172,357.23	$ (102,076.77)	$ 135,676.03
3 DROUGHT AND LOW WATER RESPONSE	$17,732.88	$ 8,399.22	$ (9,333.66)	$ 7,461.20
4 ICE MANAGEMENT	$25,797.86	$ 13,044.16	$ (12,753.70)	$ 12,162.52
5 INFRASTRUCTURE (Dam)	$24,766.80	$ 13,696.77	$ (11,070.03)	$ 14,141.27
6&7 ACT REVIEWS & PLAN REVIEW	$3,267.81	$ 1,402.21	$ (1,865.60)	$ 2,132.89
8 ADMININSTRATING & ENFORCING THE ACT (Section 28)	$46,949.19	$ 24,878.09	$ (22,071.10)	$ 22,909.54
9-11 CONSERVATION AND MANAGEMENT OF LANDS	$86,900.35	$ 38,808.28	$ (48,092.07)	$ 38,252.88
12 WATER QUALITY (PGMN & PSMP)	$9,366.44	$ 4,199.61	$ (5,166.83)	$ 6,731.71
13 SOURCE PROTECTION	$6,267.78	$ 1,638.40	$ (4,629.38)	$ 3,035.83
SUB TOTAL: MANDATED PROGRAMS Expenditures	**$648,458.89**	**$362,568.90**	**-$285,889.99**	**$324,704.46**
OTHER PROGRAMS AND SERVICES				
WATERSHED STEWARDSHIP	$19,877.23	$ 18,500.72	$ (1,376.51)	$ 12,826.86
EDUCATION PROGRAMS	$16,253.61	$ 3,793.88	$ (12,459.73)	$ 223.14
SPECIAL PROJECTS	$9,200.00	$ 5,115.80	$ (4,084.20)	$ 5,461.91
C.A. DEVELOPMENT PROJECTS	$176,904.18	$ 36,387.56	$ (140,516.62)	$ 120,608.14
OTHER CAPITAL PROJECTS	$23,381.00	$ 16,394.50	$ (6,986.50)	$ -
MAPLE SYRUP PROGRAM	$45,080.00	$ 37,994.43	$ (7,085.57)	$ 79,858.53
SPRINGWATER CONSERVATION AREA	$751,867.53	$ 291,293.78	$ (460,573.75)	$ 254,513.27
VEHICLE & EQUIPMENT OPERATIONS	$75,319.80	$ 63,729.45	$ (11,590.35)	$ 53,296.43
SUB TOTAL: OTHER PROGRAMS Expenditures	**$1,117,883.35**	**$473,210.12**	**-$644,673.23**	**$526,788.28**
AMORTIZATION	$ -	$ -	$ -	$ -
APPROPRIATION TO SPECIAL RESERVES	$ -	$ -	$ -	$ -
APPROPRIATION TO GENERAL RESERVES	$ -	$ -	$ -	$ -
APPROPRIATION TO RESERVES ADJUSTMENT	$ -	$ -	$ -	$ -
GRAND TOTAL	**$ 1,766,342.24**	**$ 835,779.02**	**$ (930,563.22)**	**$ 851,492.74**

Susan Simmons

Susan Simmons,
Financial Services Coordinator

REPORT FA 51/2024 : To The Full Authority
FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Summary of Revenue & Expenditures
DATE: July 31, 2024

SUMMARY OF REVENUE

for the period ending July 31, 2024

	2024 Budget	2024 To Date	Difference	2023 To Date
MNRF Provincial Grants	$ 41,215.00	$ -	$ (41,215.00)	$ 41,215.00
Other Provincial Grants	$ 42,206.78	$ 20,250.20	$ (21,956.58)	$ 34,897.28
Federal Grants	$ 138,710.18	$ -	$ (138,710.18)	$ 158,590.01
Employment Program Grants	$ 15,000.00	$ 13,386.37	$ (1,613.63)	$ -
Municipal General Levies	$ 442,474.36	$ 380,604.72	$ (61,869.64)	$ 350,064.09
Donations/Sponsorships	$ 30,929.35	$ 21,785.55	$ (9,143.80)	$ 27,292.39
Conservation Areas Revenue	$ 727,649.00	$ 649,010.62	$ (78,638.38)	$ 599,511.46
Maple Syrup Revenue	$ 41,080.00	$ 46,187.52	$ 5,107.52	$ 61,361.67
Bank Interest Earned	$ 15,000.00	$ 16,448.90	$ 1,448.90	$ 12,732.18
Legal Inquiries/Permit Applications	$ 5,000.00	$ 2,557.55	$ (2,442.45)	$ 4,159.33
Watershed Stewardship	$ 8,300.00	$ 39,985.00	$ 31,685.00	$ 11,190.32
Revenue from Other C.A. Lands	$ 13,546.00	$ 13,105.28	$ (440.72)	$ 13,412.59
Other Revenue	$ 1,700.00	$ -	$ (1,700.00)	$ 1,503.11
Contract Services	$ -	$ 383.28	$ 383.28	$ 214.36
Environmental Education	$ 6,753.61	$ 9,615.27	$ 2,861.66	$ 1,624.00
Vehicle & Equipment Rental Recoveries	$ 29,000.00	$ 30,031.23	$ 1,031.23	$ 4,043.90
Previous Year Surplus (Deficit)	$ 9,204.92	$ 9,204.92	$ -	$ 1,716.73
Income Appropriation from Special Reserves	$ 17,100.00	$ -	$ (17,100.00)	$ -
Income Appropriation from General Reserves	$ 181,473.04	$ -	$ (181,473.04)	$ -
APPROPRIATION FROM RESERVES ADJUSTMENT	$ -	$ -	$ -	$ -
	$ 1,766,342.24	$ 1,252,556.41	$ (513,785.83)	$ 1,323,528.42

DONATIONS/SPONSORSHIPS	2024 Budget	Received To Date	Difference
Annual Report	$ 1,000.00	$ 1,000.00	$ -
Environmental Education	$ 2,000.00	$ 460.00	$ (1,540.00)
EESS ELP	$ 5,400.00	$ -	$ (5,400.00)
Commemorative Forest	$ 300.00	$ 290.00	$ (10.00)
Springwater Forest Trails	$ 9,829.35	$ 7,419.20	$ (2,410.15)
Archie Coulter C.A. Trails	$ 2,200.00	$ 641.05	$ (1,558.95)
YNHA	$ 2,200.00	$ 895.30	$ (1,304.70)
Trout Program	$ 1,000.00	$ 2,000.00	$ 1,000.00
Maple Syrup Festival	$ 4,000.00	$ 7,650.00	$ 3,650.00
Ontario Police College Path of Honour	$ 3,000.00	$ -	$ (3,000.00)
Special Conservation Projects	$ -	$ 430.00	$ 430.00
SPW CA Development	$ -	$ 1,000.00	$ 1,000.00
TOTAL Donations/Sponsorships	**$ 30,929.35**	**$ 21,785.55**	**$ (9,143.80)**

REPORT FA 51/2024 : To The Full Authority
FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Summary of Revenue & Expenditures
DATE: July 31, 2024

SUMMARY OF EXPENDITURES

for the period ending July 31, 2024

	2024 Budget	2024 To Date	Difference	2023 To Date
MANDATORY PROGRAMS				
1 RISK OF CERTAIN NATURAL HAZARDS (Corporate Services)	$152,975.78	$ 95,618.79	$ (57,356.99)	$ 89,166.52
2 FLOOD FORECASTING & WARNING	$274,434.00	$ 200,093.79	$ (74,340.21)	$ 160,830.10
3 DROUGHT AND LOW WATER RESPONSE	$17,732.88	$ 10,318.68	$ (7,414.20)	$ 9,276.97
4 ICE MANAGEMENT	$25,797.86	$ 15,926.48	$ (9,871.38)	$ 14,889.75
5 INFRASTRUCTURE (Dam)	$24,766.80	$ 16,051.88	$ (8,714.92)	$ 16,548.53
6&7 ACT REVIEWS & PLAN REVIEW	$3,267.81	$ 1,721.99	$ (1,545.82)	$ 2,633.88
8 ADMININSTRATING & ENFORCING THE ACT (Section 28)	$46,949.19	$ 29,700.35	$ (17,248.84)	$ 27,387.86
9-11 CONSERVATION AND MANAGEMENT OF LANDS	$86,900.35	$ 47,154.67	$ (39,745.68)	$ 46,069.13
12 WATER QUALITY (PGMN & PSMP)	$9,366.44	$ 5,159.34	$ (4,207.10)	$ 12,393.41
13 SOURCE PROTECTION	$6,267.78	$ 1,925.39	$ (4,342.39)	$ 3,725.95
SUB TOTAL: MANDATED PROGRAMS Expenditures	**$648,458.89**	**$423,671.36**	**-$224,787.53**	**$382,922.10**
OTHER PROGRAMS AND SERVICES				
WATERSHED STEWARDSHIP	$19,877.23	$ 28,281.41	$ 8,404.18	$ 13,535.10
EDUCATION PROGRAMS	$16,253.61	$ 3,829.48	$ (12,424.13)	$ 223.14
SPECIAL PROJECTS	$9,200.00	$ 5,176.83	$ (4,023.17)	$ 5,461.91
C.A. DEVELOPMENT PROJECTS	$176,904.18	$ 42,674.06	$ (134,230.12)	$ 122,308.96
OTHER CAPITAL PROJECTS	$23,381.00	$ 16,486.09	$ (6,894.91)	$ -
MAPLE SYRUP PROGRAM	$45,080.00	$ 38,056.35	$ (7,023.65)	$ 79,858.53
SPRINGWATER CONSERVATION AREA	$751,867.53	$ 429,706.58	$ (322,160.95)	$ 370,231.62
VEHICLE & EQUIPMENT OPERATIONS	$75,319.80	$ 67,950.79	$ (7,369.01)	$ 58,555.19
SUB TOTAL: OTHER PROGRAMS Expenditures	**$1,117,883.35**	**$632,161.59**	**-$485,721.76**	**$650,174.45**
AMORTIZATION	$ -	$ -	$ -	$ -
APPROPRIATION TO SPECIAL RESERVES	$ -	$ -	$ -	$ -
APPROPRIATION TO GENERAL RESERVES	$ -	$ -	$ -	$ -
APPROPRIATION TO RESERVES ADJUSTMENT	$ -	$ -	$ -	$ -
GRAND TOTAL	**$ 1,766,342.24**	**$ 1,055,832.95**	**$ (710,509.29)**	**$ 1,033,096.55**

Susan Simmons

Susan Simmons,
Financial Services Coordinator

REPORT FA 52/2024 : TO THE FULL AUTHORITY

FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Accounts Paid
DATE: August 7, 2024

VENDOR	CHQ #	TOTAL	EXPLANATION
Doxtator, Bobbi-Jo	31810	$ 125.00	seasonal camping refund
Aylmer Home Hardware Building Centre	31811	$ 463.96	campground supplies
Aylmer Tire	31812	$ 46.68	equipment maintenance
Baseline Nurseries & Garden Centre	31813	$ 5,680.87	Ontario Police College - Path of Honour
Berry Hill Market	31814	$ 6,076.50	Maple Syrup products for resale
Canadian Tire	31815	$ 868.84	campground supplies
Canon Canada Inc.	31816	$ 500.27	office equipment lease
Checkers Cleaning Supply	31817	$ 2,077.86	campground supplies
Conservation Ontario	31818	$ 9,990.00	installment 2 of 2 - annual Levy
Elgin Pure Water	31819	$ 158.99	campground supplies
EMCO Corporation	31820	$ 237.84	campground supplies
Erie Excavating & Liquid Waste Removal Limited	31821	$ 1,017.00	campground maintenance
Gilbert, Makaela	31822	$ 500.00	Student Scholarship
Glenbriar Bottled Water Co. Ltd.	31823	$ 132.42	water cooler service
H. Broer Equipment Sales & Service Inc.	31824	$ 2.15	equipment maintenance
Hyde Park Equipment Ltd.	31825	$ 52.36	equipment maintenance
Integrity IT Services	31826	$ 705.12	computer network support
J-Aar Materials Limited	31827	$ 615.29	campground maintenance
K&K Locksmiths	31828	$ 272.34	campground supplies
Koolen Electric	31829	$ 644.78	campground maintenance
London Quality Dairy and Wholesale	31830	$ 630.30	store product for resale
M Live Bait Wholesale	31831	$ 248.60	store product for resale
Mobile Vintage Repairs and Engineering	31832	$ 687.04	equipment maintenance
Passport Labs, Inc	31833	$ 10.50	mobile parking app fee
R Safety	31834	$ 451.57	campground supplies
RP Excavation	31835	$ 1,130.00	campground maintenance
Silverthorn Landscape Supplies	31836	$ 340.10	campground supplies
Springwater Mills Ltd.	31837	$ 5,932.50	firewood for resale
Township of Malahide	31838	$ 1,322.89	property tax - installment 3&4
Underhill, Dusty	31839	$ 223.56	expense remibursement
Union Sports Sales Limited	31840	$ 1,566.18	uniform items
Uplink Communications Inc.	31841	$ 440.14	telephone system monthly fees
Vector Electric	31842	$ 72.50	equipment maintenance
VIP Sportswear	31843	$ 768.40	ELP - MarshQuest
Aylmer Express Limited	31844	$ 435.05	advertising
Aylmer Home Hardware Building Centre	31845	$ 424.42	campground supplies
Canadian Tire	31846	$ 406.09	campground supplies
Checkers Cleaning Supply	31847	$ 715.28	campground supplies
Dowler-Karn Limited	31848	$ 3,685.35	equipment and vehicle fuel
Elgin Fire Extinguishers	31849	$ 15.21	campground maintenance
Francotyp-Postalia Canada	31850	$ 67.80	postage meter rental
Girard Engineering	31851	$ 888.75	Accessability Ramp project
Glenbriar Bottled Water Co. Ltd.	31852	$ 132.11	water cooler service
Green Lea Ag Centre Inc.	31853	$ 79.10	watershed services supplies
H. Broer Equipment Sales & Service Inc.	31854	$ 51.10	equipment maintenance
Integrity IT Services	31855	$ 26.84	computer network support
K&K Locksmiths	31856	$ 13.53	campground supplies
London Quality Dairy and Wholesale	31857	$ 517.31	store product for resale
M Live Bait Wholesale	31858	$ 113.00	store product for resale
Passport Labs, Inc	31859	$ 10.85	mobile parking app fee
Paul Fody	31860	$ 7,644.45	Accessability Ramp project
Printers Plus	31861	$ 858.78	office supplies
Somerville Nurseries Inc.	31862	$ 8,699.89	Nursery Stock - private landowners
Tebay, Mike	31863	$ 100.00	group camping cleaning deposit refund
Aylmer Express Limited	31864	$ 50.85	advertising
Canadian Tire	31865	$ 423.64	campground supplies
Checkers Cleaning Supply	31866	$ 1,573.47	campground supplies

REPORT FA 52/2024 : TO THE FULL AUTHORITY

FROM: Susan Simmons, Financial Services Coordinator
SUBJECT: Accounts Paid
DATE: August 7, 2024

VENDOR	CHQ #	TOTAL	EXPLANATION
Dance Sewer Cleaning Incorporated	31867	$ 621.50	campground maintenance
Duff's Garage	31868	$ 215.74	vehicle maintenance
Elgin Pure Water	31869	$ 122.04	campground maintenance
Glenbriar Bottled Water Co. Ltd.	31870	$ 64.17	water cooler service
H. Broer Equipment Sales & Service Inc.	31871	$ 5.42	equipment maintenance
Hyde Park Equipment Ltd.	31872	$ 584.51	equipment maintenance
Integrity IT Services	31873	$ 379.40	computer network support
Jaffa Machine Ltd.	31874	$ 75.22	equipment maintenance
K&K Locksmiths	31875	$ 104.33	campground supplies
Koolen Electric	31876	$ 944.16	campground maintenance
L.S. Putnam & Son	31877	$ 1,187.05	campground maintenance
Lockington, Lorna	31878	$ 1,721.00	Private Landowner Grant
London Quality Dairy and Wholesale	31879	$ 976.01	store product for resale
M Live Bait Wholesale	31880	$ 113.00	store product for resale
Municipality of Central Elgin	31881	$ 523.58	property tax - Tisdale C.A.
Nuhn Industries Ltd.	31882	$ 112.67	equipment maintenance
R Safety	31883	$ 88.33	campground supplies
Silverthorn Landscape Supplies	31884	$ 81.36	campground supplies
Springwater	31885	$ 100.00	group camping cleaning deposit refund
Springwater Mills Ltd.	31886	$ 4,237.50	firewood for resale
Township of South-West Oxford	31890	$ 171.15	property tax - installment 3&4
Uplink Communications Inc.	31891	$ 220.07	telephone system monthly fees
Ward Communications	31892	$ 1,108.78	Operations Centre maintenance
Bell Canada	Online	$ 104.44	gauge
CBSC Capital Inc.	Online	$ 859.30	office equipment lease
CIBC Visa	Online	$ 442.06	Communications - remote access software
CIBC Visa	Online	$ 48.57	Communications - meeting platform
CIBC Visa	Online	$ 65.52	SPW supplies - software (Adobe mapping)
CIBC Visa	Online	$ 584.47	SPW supplies - miscellaneous
CIBC Visa	Online	$ 192.12	SPW Maintenance - water system
CIBC Visa	Online	$ 1,059.56	Store Product for Resale
CIBC Visa	Online	$ 779.70	Communications - meetings
CIBC Visa	Online	$ 1,661.05	Office Equipment (chairs)
CIBC Visa	Online	$ 48.57	Communications - meeting platform
CIBC Visa	Online	$ 65.52	SPW supplies - software (Adobe mapping)
CIBC Visa	Online	$ 239.63	SPW supplies - miscellaneous
CIBC Visa	Online	$ 1,895.68	Store Product for Resale
Eastlink	Online	$ 243.65	gauges
Eastlink	Online	$ 243.65	gauges
Hydro One	Online	$ 10,355.21	campground and operations centre hydro
Hydro One	Online	$ 13,965.07	campground and operations centre hydro
Municipality of Central Elgin	Online	$ 5,778.99	property tax - installment 3&4
Receiver General HST	Online	$ 33,772.75	Quarterly Remittance - April to June
Reliance Home Comfort	Online	$ 56.18	water heater rental
Telus Mobility	Online	$ 453.86	mobile phones monthly fees
Telus Mobility	Online	$ 453.86	mobile phones monthly fees
Waste Connections of Canada Inc.	Online	$ 1,757.87	campground maintenance
Waste Connections of Canada Inc.	Online	$ 1,813.01	campground maintenance
		$ 161,622.70	

RECOMMENDATION:

THAT, Accounts Paid totalling **$161,622.70** , be approved as presented in Report FA 52/2024

Susan Simmons,
Financial Services Coordinator

REPORT FA 53/2024 : To The Full Authority

FROM: Susan Simmons, Financial Services Coordinator
Brittany Bell, Communications/Program Support Assistant
Al Bradford, Conservation Areas Supervisor

SUBJECT: Campground Registration Software

DATE: August 2, 2024

PURPOSE:

To provide the members with an update in regard to the requirement to replace the current campground software.

DISCUSSION:

As we look ahead to December 2024, it is important to address the forthcoming obsolescence of Astra, our current campground management software at Springwater Conservation Area. In preparation for this transition, staff has diligently researched alternative campground software platforms to replace Astra. After an extensive evaluation, we have narrowed our options to two promising candidates: CAMIS and FireFly.

1. CAMIS

- CAMIS is recognized as the industry standard for campground software, currently utilized by approximately 535 parks across the United States and Canada.
- It offers a comprehensive suite of features, including but not limited to:
    - Online booking capabilities
    - Point of Sale (POS) system
    - Camping reservations
    - Backcountry passes allowing users to purchase day passes online
    - Facilities rentals and equipment management
    - Integrated web store with inventory tracking and order fulfillment
    - Future Collaboration with KeyWest Gates for gate integration

2. FireFly

- FireFly is a newer program that has acquired Astra and provides a similar user experience to its predecessor.
- The software offers features that align with our current operational needs, including online reservations and a robust POS system.

Key Features Comparison

Both software solutions feature:

- Web-based functionality
- Online booking and camping reservation systems
- POS integration

However, they each have unique offerings that set them apart:

CAMIS Advantages:

- As CAMIS is currently the preferred campground registration software by Ontario Parks, as well as many Conservation Areas, the CCCA would have a larger pool of seasonal staff that are already trained on the software
- Online backcountry pass purchases and facility rentals.
- Comprehensive web store capabilities.
- Strong client support, including a Help Desk that operates year-round.
- Set up time estimated at 3-4 months with a detailed onboarding process.
- Pricing structure:

  - Year 1: $18,200
  - Year 2: $18,928
  - Year 3: $19,685.12
  - Year 4: $20,472.52
  - Year 5: $21,291.42

- Unlimited users and a dedicated Client Success Team.

FireFly Advantages:

- Pay-per-reservation model ($3.50 USD per booking), with no annual fees.
- A flexible setup process that can range from several days to weeks.
- Importing from Astra at no additional cost, easing the transition for staff.

Considerations and Challenges

While both CAMIS and FireFly provide valuable services, both have notable reservations regarding their respective pricing and operational impacts:

CAMIS:

While it offers a robust set of features, the cumulative costs over five years may be a concern, particularly with the goal of a timely implementation by early October. Additionally, the setup period may delay the implementation of end-of-season surcharges, leading to potential financial registration disarray.

FireFly:

The $3.50 USD per reservation fee can accumulate quickly, especially considering our average of 815 pre-booked reservations per year. This is further complicated by the need to adjust our current reservation fee structure, which could result in pricing inconsistencies and customer dissatisfaction.

Springwater Conservation Area has a significant number of seasonal campers (approximately 150) which translates to an estimated annual cost of around $6,300 USD in fees, problematic due to fluctuating exchange rates, simply for registering Seasonal Campers that camp year round.

An Estimate has been created based on the registrations accumulated an average camping year.

Catfish Creek Conservation Authority

FIREFLY Registration Sotware Estimate of Costs
08-May-24

# of sites	Type of Campsite	# months	Fee	Totals
157	Seasonal	12	$3.50	$6,594.00
# of sites	**Type of Campsite**	**# weekends**	**Fee**	**Totals**
19	West Campground	22	$3.50	$1,463.00
64	East Campground	22	$3.50	$4,928.00
1	South Pavilion 1st booking	22	$3.50	$77.00
	South Pavilion 2nd booking	22	$3.50	$0.00
1	North Pavilion 1st booking	22	$3.50	$77.00
	North Pavilion 2nd booking	22	$3.50	$0.00
1	Schoolhouse 1st booking	22	$3.50	$77.00
	Schoolhouse 2nd booking	22	$3.50	$0.00
1	Stage	22	$3.50	$77.00
				$13,293.00

Very Rough Estimate
accounts for site to be booked for both nights on a weekend
does not account for single night bookings
does not account for weekly bookings

After careful consideration, while both CAMIS and FireFly have their merits, the unpredictable annual costs and potential impacts on customer pricing structure with FireFly raise concerns regarding its suitability for our reservation model. There is a very real potential risk that FireFly could then be acquired by another American company, which may result in us having to restart the process within the next few years.

In contrast, CAMIS offers greater stability, having been a well-established platform in the industry for many years.

FEE RECOVERY OPTION:

Merchant Services Fees are becoming insurmountable for the CCCA to absorb. In 2023, the total fees totalled $35,365.50. The estimated total for 2024 is approximately $50,160.00.

Recovery of those fees would be in the very best interests of the CCCA.

Financial staff have reviewed the updates to Canada Revenue Agency Convenience Fee Guidelines. A copy is included with this Report. As per an update implemented in 2022, merchants now have the option to add a surcharge to credit card payments. It is stated, however, that Certain Merchant Services providers do not yet allow this feature.

This must be confirmed with the new Merchant Services Provider for the chosen Registration Software before the CCCA will be able to go this route.

RECOMMENDATION:

THAT, the Catfish Creek Conservation Authority choose CAMIS Registration Software as the replacement for Astra Campground Software at the Springwater Conservation Area; and further,

THAT, staff be directed to investigate the possibility of recouping Merchant Services fees for the 2025 season.

Susan Simmons
Financial Services Coordinator

Brittany Bell
~~Communications~~/Program Support Assistant

Al Bradford
Conservation Areas Supervisor

Merchant surcharges, service and convenience fees, and discounts

From: Financial Consumer Agency of Canada

On this page

Surcharges

A surcharge is a fee that a merchant may add to a transaction when a consumer pays by credit or debit card.

Surcharges for credit card payments

As a merchant, you have the option of adding a surcharge to a credit card transaction (except in Quebec). Some payment card network operators (PCNOs) forbid surcharging for prepaid cards.

PCNOs also have different surcharging requirements, such as:

- providing your acquirer and/or your payment card network with advance written notice of your intention to surcharge
- not applying a surcharge that is:
    - higher than your actual cost to accept the credit card
    - higher than 2.4%
    - in addition to a service or convenience fee
- displaying information on surcharges at
    - the point of sale, both in store and online
    - the entrance of physical stores
    - on every receipt

Merchants have the option of surcharging at the brand level or the product level for a specific PCNO's credit card. If a merchant decides to surcharge at the brand level, the surcharge must be the same across all credit cards for that specific payment card network.

If a merchant decides to surcharge at the product level, the surcharge amount may differ between categories of credit card. For example, standard vs premium card.

Certain PCNOs do not allow merchants to surcharge more for their credit cards than for other PCNOs' credit cards.

Merchants should consult with their acquirer regarding these rules.

Surcharges for debit card payments

Merchants should contact their acquirer about their ability to surcharge for accepting debit card payments. Some networks do not permit merchants to surcharge for debit card payments.

Service and convenience fees

Certain PCNO rules permit eligible merchants to charge a service or convenience fee for certain types of transactions. Terminology may vary by PCNO. A merchant can verify with their acquirer if they're eligible or not. Merchants who choose to charge those fees for credit or debit payments are not allowed to surcharge.

Disclosure of surcharges and fees

Merchants must clearly disclose surcharges and fees to cardholders before a transaction is completed. Cardholders must be able to cancel the transaction without penalty before authorizing payment or pay with an alternative form of payment, for example debit or cash.

Discounts

Under the Code of Conduct for the Credit and Debit Card Industry in Canada, merchants may choose to offer discounts for different payment methods and between different payment card networks.

If merchants choose to offer these types of discounts, they must clearly display the discounts at the point of sale.

Learn more about the Code of Conduct for the Credit and Debit Card Industry in Canada.

For more information on eligible types of transactions, visit the payment card network operators' web sites:

- Visa
- Mastercard
- American Express

- Discover
- UnionPay
- Interac
- THE EXCHANGE

Learn how to file a complaint with a payment card network operator.

Date modified:
2022-10-25

Reservations & Management Solutions for Parks

A more efficient reservation and park management system

Join over 535 park managers across the United States and Canada in the pursuit of a smarter end-to-end reservation and park management solution.

CAMIS

Solutions start here

CAMIS

Booking Management (RMS)

- Feature-rich & expandable
- End-to-end solution
- Reserve online & on-site
- In-house call center services
- Web chat
- Changes & cancellations
- Group bookings
- Events & activities
- Availability notifications
- SMS camper alerts
- Advanced reporting

Sales Management (POS & ECom)

- End-to-end solution
- Online & on-site
- Webstore system
- Day use passes
- Inventory management
- Store fulfillment
- Serialized stock
- Warehousing
- Secured data
- PCI & SOC compliant
- Advanced reporting

Payment Management (PMS)

- Ecommerce & in-park integrations
- Purchases & refunds
- In-house Gift Card solutions
- Donations
- Extensive payment integrations
- Portable payment devices
- Low per transaction costs
- Tax calculations (US & CDN)
- System integrations
- Secured data
- PCI & SOC compliant
- Advanced reporting

System Integration

- Website interfacing
- UX design
- Hosting
- Analytics
- Date security (MS Azure, SOC, PCI DSS)
- Systems integration
- SEO optimization
- AODA compliant
- ADA compliant

Services

- Dedicated Success Team
- Systems set-up
- Configurations management
- Systems integration
- Onsite & offsite support
- In-house call center services
- Help desk support
- Scalable Cloud infrastructure
- Users guide
- Training
- Detailed monthly reporting

Michigan, USA
Maryland, USA
Wisconsin, USA
Ontario, Canada

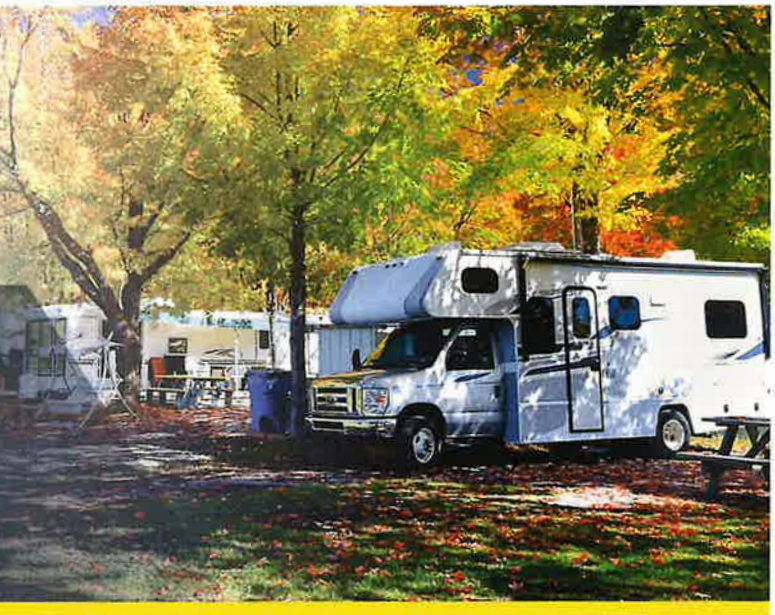
Yes. We provide an in-house call center!

*Not all features listed are standard. Some additional fees may apply. Consult your CAMIS advisor for details.

Contact us and book a demo!

1-800-371-6006 Email: sales@camis.com Online: www.camis.com

FIREFLY RESERVATIONS™



Built By Campground Owners For Campground Owners

Curious about what your **$3.50** software and service fee is covering? Check out the growing list of benefits below.

Software & Service Fee Includes:

- ✓ Automated Rate Calculations
- ✓ Automated Emails
- ✓ Guest Communication
- ✓ Secure Payment Method Storage
- ✓ Ability to Easily Add Charges to Guest
- ✓ Invoicing at the Click of a Button
- ✓ Online Guest Portal for Ease of Guests to Access Reservation and Make Payments
- ✓ No Login or Subscription Required for Guests, Access Reservations via Reservation Code
- ✓ Automated Billing/Recurring (Benefit of Using the Software for Long Terms)
- ✓ Automated Payments
- ✓ Revenue Reporting
- ✓ Tax Calculation
- ✓ Auto Check In/Out for Guests
- ✓ Integrated POS System
- ✓ Airbnb Integration
- ✓ E-Signatures on Park Polices Stored with Reservations
- ✓ Option to Run Software on a Kiosk
- ✓ Access to Customer Success Team for Training and Park Admin Questions
- ✓ Reservation Support for Campers and Park Owners
- ✓ Implementation Team to Assist in Setup
- ✓ Continued Product Development Guided by Feedback from Campground Owners
- ✓ Dynamic Pricing
- ✓ Lock Fees
- ✓ Customizable Taxes and Fees
- ✓ Unlimited Users and Devices
- ✓ Provide Internal Notes about Campers Quickly
- ✓ Send Messages to Past Campers
- ✓ Direct Booking from the Interactive Multi-Maps
- ✓ Drag & Drop Reservations Grid

Free 14 Day Trial, No Credit Card | FireflyReservations.com | 656-Firefly (347-3359)

REPORT FA 54/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary - Treasurer

SUBJECT: Draft Conservation Areas Strategy

DATE: July 23, 2024

PURPOSE:

The purpose of this report is to provide the Draft Conservation Area Strategy to the Board of Directors as information and to seek direction for staff to undertake consultation with stakeholders and the public regarding the Conservation Areas Strategy, as required by the regulation.

DISCUSSION:

Ontario Regulation 686/21: Mandatory Programs and Services, under the Conservation Authorities Act was enacted on October 7, 2021. Section 9 of the regulation requires an authority to prepare a Conservation Area Strategy. The Strategy must be completed on or before December 31, 2024. The regulation also requires, that "the authority shall ensure stakeholders and the public are consulted during the preparation of the strategies in a manner that the authority considers advisable." The draft Conservation Areas Strategy will be posted on our website and social medias for public consultation, our partners, municipal partners and local Indigenous Communities will be made aware of the consultation period which will be conducted from August 16, 2024 - September 27, 2024.

CCCA staff have completed a draft Conservation Area Strategy as attached for the Board of Directors information. It is proposed that the draft document be made available to stakeholders and the public for their review and comment. Based on input received through the consultation process, the draft strategy will be revised as appropriate and finalized for review and approval at the October 10, 2024 Full Authority meeting.

The Conservation Area Strategy identifies broad objectives for the CCCA's Conservation Areas and related programs and services. The strategy meets the requirements as outlined in the Conservation Authorities Act and Ontario Regulation 686/21 and is intended to provide guidance for the management and operation of the CCCA's Conservation Areas.

Ontario Regulation 686/21 also requires that an authority complete a Land Inventory by December 31, 2024. The Conservation Area Strategy and Land Inventory are related as the Land Use Categories identified through the Conservation Area Strategy will be applied, as outlined in the strategy, to the various parcels in the Land Inventory. The Land Inventory is currently being completed and finalized for consideration.

RECOMMENDATION:

THAT, the General Manager/ Secretary-Treasurer of the Catfish Creek Conservation Authority recommend to the Board of Directors that staff be directed to undertake public and stakeholder consultation regarding the draft CCCA Conservation Area Strategy.

D. Underhill

Dusty Underhill,
General Manager / Secretary - Treasurer

Conservation Areas Strategy

For the lands owned and operated by the Catfish Creek Conservation Authority

Approved by Board of Directors:
Effective Date:
Motion No:

Land Acknowledgment:

We would like to take this time to recognize that the land on which we gather is in the traditional territory shared between the Haudenosaunee (ho - din - oh - show - knee) confederacy, the Anishinabe (ah - nih - shih - nah - bai) nations, and the Attiwonderonk Neutrals. First Nations people have longstanding relationships to the land, water and Southwestern Ontario and we are thankful for the opportunity to live, learn and share with mutual respect and appreciation.

Contents

1. Introduction

1.1 Purpose

Subsection 9(1)1 of Ontario Regulation (O.R.) 686/21 sets out the required (mandatory) components of the Conservation and Management of Lands program and service area for all Conservation Authorities (CA). As outlined in subsection 9(1)1, each CA is required to prepare a Conservation Area Strategy (CAS) on or before December 31, 2024. The required components of the Strategy are further outlined in subsection 10(1) of the regulation. While these components must be included in Catfish Creek Conservation Authority (CCCA) CAS, the framework / formatting of the CAS was determined by senior staff of the CCCA.

As defined under Ontario Regulation 688/21 of the Conservation Authorities Act, "conservation area" means land owned by an authority.

The objective of the CAS is to ensure there is a documented and current set of objectives to inform decision-making related to the land the CCCA owns or controls. As part of the regulatory requirements, the Conservation Area Strategy will inform the mandatory CA Land Inventory, through establishing land use categories for the lands the CCCA owns or controls. Currently, the CCCA has been operating under the 1980's Land Management and Conservation Area Management Plans.

This document has been structured to meet the regulatory requirements related to the development of the CCCA's CAS. The required components of the CAS are summarized below;

1. Overarching objectives (as determined by the CA) which will inform CA decision-making related to the lands it owns or controls, including decisions related to policies for the acquisition and disposition of these lands. (s.10(1) paragraph 1),
2. Identification of the programs and services (Category 1 "mandatory, Category 2 "municipal" and Category 3 "other") that are provided on CA-owned and controlled lands, including the sources of financing for these programs and services. (s.10(1) paragraph 2)
3. Where the CA considers it advisable to achieve the overarching objectives outlined in the Strategy, an assessment of how the CA-owned and controlled lands may:
    i) Augment any natural heritage located within the CA's jurisdiction (s.10(1) paragraph 3i);
    ii) Integrate with other provincially or municipally owned lands or other publicly accessible lands and trails within the CA's jurisdiction (s.10(1) paragraph 3ii)
4. The establishment of land use categories for the purpose of classifying lands in the mandatory CA "land inventory". These categories are to be based on the types of activities that are engaged in on each parcel of land, or other matters of significance related to the parcel (s.10(1) paragraph 4).
5. A process for periodic review and updates to the Strategy by the authority, including procedures to consult with stakeholders and the public during these periodic reviews (s.10(1) paragraph 5).

2. Catfish Creek Conservation Authority

The CCCA was established under Order in Council on February 23, 1950 by request from the Town of Aylmer and Malahide Township. Conservation Authorities protect, restore and effectively manage impacts on Ontario's water resources such as lakes, rivers, streams and groundwater. Conservation Authorities develop programs that protect natural heritage and habitats and promote watershed stewardship practices that lead to healthy watersheds. The CCCA is a local not for profit organization located in southwestern Ontario who implements programs and objectives to;

1) Protect life and minimize property damage from natural hazards and climate impacts,
2) Improve and Protect the ecological health of the Catfish Creek watershed increasing biodiversity, habitat connectivity, and natural cover,
3) Curate an appreciation and create equitable access to nature,
4) Ensure our Conservation Lands are protected and enhanced,
5) Operate a sustainable, fiscally responsible and adaptable organization.

As our watershed population continues to grow, pressure on natural spaces for recreation, mental health, and passive use will continue to rise exponentially. The CCCA will undertake master plans for its properties to ensure sustainability and increase revenue potential. Conservation lands play a pivotal role in safeguarding biodiversity, preserving ecosystems, and ensuring the sustainability of natural resources. These protected areas serve as sanctuaries for countless species of plants and animals, providing them with vital habitats where they can thrive without the threat of human interference. By maintaining healthy ecosystems, conservation lands contribute to crucial ecological services such as clean air and water, carbon sequestration, and pollination, which are essential for human well-being. Additionally, these preserved landscapes offer invaluable opportunities for scientific research, education, and recreation, fostering a deeper understanding and appreciation of the natural world. Moreover, conservation lands serve as buffers against the impacts of climate change, helping to mitigate the loss of biodiversity and the degradation of ecosystems caused by factors such as habitat destruction, pollution, and deforestation. Therefore, the preservation and effective management of conservation lands are paramount in ensuring the long-term health and resilience of our watershed and all its inhabitants.

2.1 Mission

To communicate and deliver resource management services and programs in order to achieve social and ecological harmony for the watershed.

3. Our Conservation Areas

The CCCA owns 23 different land parcels throughout its jurisdictional boundary. 7 Conservation Areas, 5 Managed Forests, and 11 properties that hold Provincial Significance such as wetlands and/ or rare and endangered plants and animals.

Having a wide array of programs and recreational opportunities within our conservation areas offers numerous benefits for both people and the environment. The CCCA encourages public engagement and participation in all of our conservation efforts. When people have opportunities to experience and enjoy the natural world through activities such as hiking, birdwatching, camping, and guided tours, they develop a stronger connection to nature

and a greater appreciation for its value. This connection often leads to increased support for conservation initiatives and a sense of responsibility for protecting these areas.

Interpretive programs, nature walks, and workshops can help visitors learn about local ecosystems, wildlife habitats, conservation challenges, and sustainable practices. By increasing environmental literacy and awareness, these programs empower individuals to make informed decisions and take actions that support conservation both within and beyond the protected area.

Diverse recreational opportunities also attract a broader range of visitors, including families, outdoor enthusiasts, and tourists, thereby promoting inclusivity and accessibility. This diversity helps to foster a sense of community and shared stewardship among people from various backgrounds and interests.

Recreational activities within conservation areas contribute to local economies by attracting visitors who spend money on accommodations, dining, and other services. This economic benefit can help generate revenue for conservation efforts and support local businesses and communities.

The presence of diverse programs and recreational opportunities enhances the value of conservation areas by promoting active lifestyles, environmental stewardship, fostering community engagement, educating the public, supporting local economies, and providing opportunities for people to connect with nature in meaningful ways.

4. Management of Authority Owned Lands

Through the completion and implementation of Conservation Area Management Plans, the CCCA continues to financially offset the Category 1 Mandatory Programs and Services, well balancing revenue production with the effective management our Conservation Areas. Management Plans will be updated and include accessibility and natural heritage protection to balance pressures caused by increased demand for natural spaces, which will be informed by public input.

5. Land Acquisition and Disposition Policy

In updating the CCCA's Land Securement and Disposal Polices in 2020, guidance was sought from the Land Securement Strategy documents of member municipalities and other Conservation Authorities. In addition, the work of CCCA staff members and Board members was greatly appreciated.

The land securement policies further CCCA's mission by providing the basis and direction for securing interests in land, through purchases, donations, conservation easements and other methods primarily to achieve our primary mandate to protect life and minimize property damage from flooding and erosion, and to ensure conservation lands are protected and enhanced. Secondary priorities for land securement include improving the ecological health of the watershed and curating an appreciation for nature.

Land is eligible for disposal if the land has partial, limited or no provincially significant features. Disposition of provincially significant features is generally prohibited by the policy.

Please see https://www.catfishcreek.ca/about-us/publications/.

6. Guidelines for Conservation Land Management

The CCCA lands are divided into three categories, Conservation Areas, Managed Forests, and Other Properties.

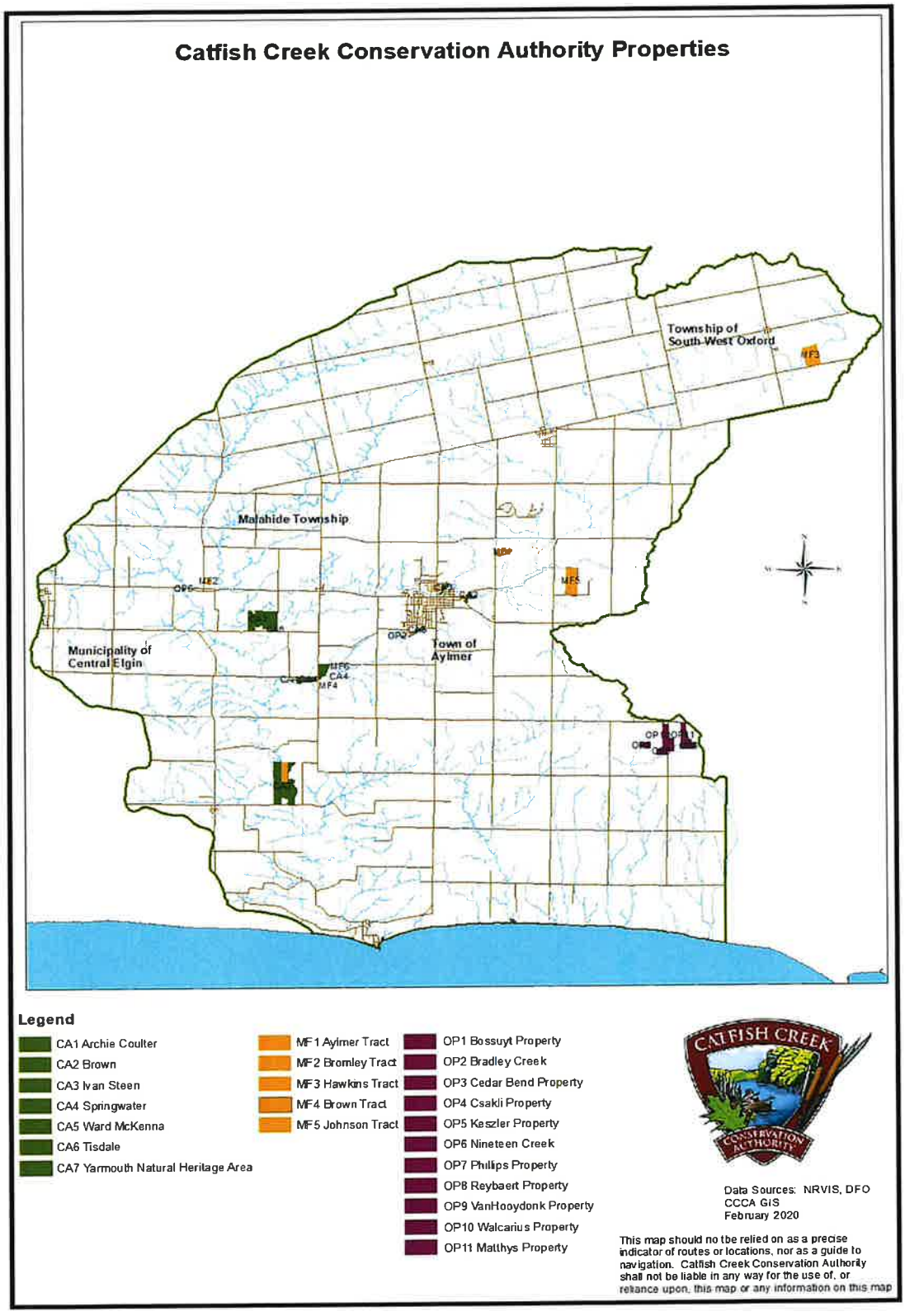


Figure 1: CCCA Owned and Controlled Lands

7. Conservation Authority Properties

The Catfish Creek Conservation Authority owns and manages 23 properties strategically located throughout the watershed totaling 535 hectares. Even though all CA owned lands are considered protected areas, the following list of properties are highlighted as the more significant ones on the landscape,

7.1 Conservation Areas

1. Archie Coulter Conservation Area:

The Archie Coulter Conservation Area (ACCA) was purchased by the Catfish Creek Conservation Authority in 1979 and is located within the lower reaches of Catfish Creek in the Municipality of Central Elgin. This location provides excellent water and land management opportunities and is one of the prime reasons why the 53 ha. property was purchased.

A Master Plan was developed and approved for the ACCA in 1983 containing twelve Management Objectives for the property ranging from rehabilitation and restoration to recreational opportunities. Most of the original goals and objectives for the ACCA have been achieved making it one of the most beautiful natural areas in the watershed.

2. Brown Conservation Area:

The Brown CA is a property consisting of flat valley grasslands, marsh wetlands, treed river bank, wooded and unwooded valley rim areas. The Brown CA has been an area of environmental restoration over the years for the CCCA. Valley grasslands, and grass waterways were planted around a newly created wetland feature provided by Ontario Power Generation and Ducks Unlimited.

3. Ivan Steen Conservation Area:

This park boasts a lit baseball diamond, disc golf course, a full size soccer pitch, tree arboretum, a paved walking trail leading over two scenic footbridges, and the perfect hills for tobogganing in the winter. Is it owned by the CCCA but is municipally operated by the Town of Aylmer.

4. Springwater Conservation Area:

The Springwater Conservation Area and adjoining Springwater Forest has been referred to as one of the 'Jewels' of southwestern Ontario. The environmental significance and importance of the Springwater Forest has been documented in the Natural Heritage/Feature Section of this Report.

The 37 hectares comprising the Springwater Conservation Area provides an array of environmental, cultural, and recreational significance and benefits to the watershed.

5. Ward McKenna Conservation Area:

Ward McKenna was acquired to provide protection for the sensitive and ecologically important species present. The Town of Aylmer and the CCCA work together to maintain this green space in a highly urbanized area. Named after one of CCCA's founders and managed in conjunction with the Town of Aylmer the Ward McKenna Conservation Area promotes biodiversity. The CCCA manages invasive species removal and provides hazard tree removal along the existing trail throughout the property. Due to Ash Tree removal from the Emerald Ash Borer the canopy is considerably open. The CCCA in conjunction with the Canadian Chestnut Council utilize this site to add species diversity and to reintroduce the American Chestnut to the watershed well providing a green space for people to enjoy.

6. Tisdale Conservation Area:

Located immediately East of the Archie Coulter Conservation Area, the Tisdale Conservation Area provides Natural Heritage features, a recently planted 17-acre Native Tallgrass Prairie and incised valley lands leading to the banks of the Catfish Creek. As a recently acquired property plans are underway to create trail connectivity between the Archie Coulter Conservation Area for passive day use recreation only.

7. Yarmouth Natural Heritage Area:

Located immediately to the north of the Catfish Creek Slope and Floodplain Forest site is a property owned and managed by the CCCA known as the Yarmouth Natural Heritage Area (YNHA). This 84 ha. tract of land was acquired through a donation from the County of Elgin in 1999 and is significant for its exceptional diversity of flora, fauna, and communities.

A Life Science Inventory completed by Harold Lee, Ecologist in 2001 identified 11 provincially rare or imperiled plant species, 24 regionally rare species, and 30 Carolinian species. Especially important is the section of Catfish Creek between the YNHA and the Catfish Creek Slope and Floodplain Forest is nearly all wooded and has suffered little land-use pressures.

The YNHA is being managed to preserve and restore the remaining fragments of forest cover and to reconnect corridors that would improve the landscape features for wildlife in this part of the watershed.

7.2 Managed Forests

The properties listed were acquired, beginning in the early 1960's by the Province and the CCCA. The majority of the properties were established (planted) and managed by the Province (MNR) on former developed agricultural lands throughout the watershed.

Active forest management is permitted within the listed properties and the MNR/CCCA have conducted numerous harvesting and tending operations since the inception of the original "Agreement Forest" program. The CCCA has now retained management and operations of all Authority forests/properties and continue to manage the same for a wide range of economic, social and wildlife benefits.

Past management (silviculture operations) have included regeneration harvests (commercial timber), stand improvement harvests (fuel wood) along with side branch pruning, wildlife enhancement (trees/shrub, brush piles, cavity tree protection) and passive recreational use (hiking, trail management, horseback riding) and exotic or invasive species management (buckthorn, garlic mustard removal).

Sustainable development and habitat protection will continue to be the predominant guiding principles for the properties within the Managed Forest Tax Incentive Program (MFTIP) in keeping with Authority Property/Watershed Management Plans.

1. Aylmer Tract:

A water recharge pond was dug in the middle of the property (for the Town of Aylmer) as it has a very high water table. Old home to the Trillium Railway forms the Southern property boundary. Natural regeneration of hardwoods is continuing (sub-canopy and open areas). Planted by MNR in the mid 1960's (former agricultural lands) and managed by the MNR until 1996. Operational and management activities included; crop tree pruning (1971, 1984, 1990), stand improvement cuts (thinning- 1984, 1990). A salvage cut (wind damaged trees) was completed by CCCA in 2003. 500 wildlife species are present. A open area plant was undertaken in (2003-2005) which consisted of extensive wind damage and blow down of White Pine, with dead Elm throughout.

2. Bromley Tract:

Property consists of some small open areas (meadows) throughout. Extensive invasive species, primarily Buckthorn, in the understory is present. Planted in 1980 (MNR-WIA #81-750) as White Pine/Black Walnut block, planting with White Spruce windbreak/ buffer along the West boundary. Property was purchased and managed by the CCCA in 1991, White Pine crop trees were pruned in 2002. Removal of dead pine and diseased walnut, along with stand improvement for fuel wood thinning was completed in 2003. Approximately 3000 seedlings planted in open areas in 2003. Property boundary maintenance and encroachment issues are ongoing.

3. Hawkins Tract:

Ash die back and cherry black knot can be found throughout the property. Small area in the centre (just North of the creek)- 5 acres has some large diameter Green Ash, a few large Soft Maple remain and good Hickory and White Pine has been planted. South side of creek- commercial harvest was conducted in 1986. Trees were marked in accordance with good forestry practices by MNR. Timber and fuelwood were also removed. Small open portions (2 acres) were planted with White Pine by MNR in the 1960's. North side of creek is an important wildlife area which was a past agricultural pasture which was planted by the MNR in 1962 and pruned/ thinned by CCCA '85-'90.

4. Brown Tract:

Catfish Creek flood-plain (seasonally wet throughout the property) with some small open areas (meadows) throughout. Some hiking/passive recreational use from adjacent senior's complex does occur on site. The property was purchased by the CCCA in 1976 with the primary use and objective to provide wildlife habitat and establish forest cover. Some open areas will be maintained for wildlife habitat. Extensive regeneration of hardwood seedlings and wildlife shrubs (natural and artificial) has occurred throughout.

5. Johnson Tract:

This compartment consists of three (3) five (5) acre parcels (P1, P2 and P3). Originally purchased by the CCCA in 1961 which consisted of former agricultural lands. Planted by the MNR under agreement in 1963 (also pruned by the MNR in mid-80's). Thinning operations were conducted in 1989, 1992 by MNR and a third thinning by CCCA (2nd row/selection) between 2002 and 2005 (material was utilized for fuelwood). W1 parcel of Johnson Tract is 36.37 acres and is an evaluated wetland (MNR- locally significant) and eligible/enrolled in the Conservation Land Tax Incentive Program. Originally purchased by the CCCA in 1961 as a natural water recharge area for ground water supply. Property was under agreement with and managed by the MNR until 1996. and no significant active forest management (regeneration/commercial timber removal) has occurred since the purchase. In 2020 the Johnson Tract was identified as a woodlot that required a regeneration cut to encourage new/natural regeneration and to salvage some of the remaining dead Ash trees throughout the stand.

7.3 Other Properties

Other properties signify areas of Natural Heritage and biodiversity protection. Protecting areas of significance is crucial for several reasons.

Forests are home to a vast array of species, many of which are not found anywhere else. By preserving forests, we help protect this rich biodiversity and the complex ecosystems that depend on it. Many plants and animals rely on specific environments that are often threatened by human activities. By safeguarding these areas, the CCCA assists in maintaining biodiversity and preventing species extinction.

Forests play a key role in regulating the Earth's climate. They absorb carbon dioxide during photosynthesis and store carbon, which helps mitigate climate change. Deforestation contributes to increased carbon emissions and global warming. Conservation efforts help combat climate change by preserving forests, wetlands, and other carbon sinks that sequester carbon dioxide. This helps reduce the impacts of global warming and maintains environmental balance. Forests influence local and global water cycles. They help regulate the flow of water in

rivers and streams, maintain groundwater levels, and contribute to rainfall patterns. This can prevent issues like droughts and floods. Tree roots help stabilize soil and prevent erosion. Forests also contribute to soil fertility through the decomposition of leaves and other organic matter. These services are essential for human well-being and help sustain agriculture, industry, and urban areas. Beyond the direct benefits, forests offer ecosystem services such as pollination of crops, pest control, and air purification. Overall, forests are integral to both the environment and human society, making their protection essential for sustainable living and the health of our planet.

The work of conservation authorities in acquiring/ protecting these lands is vital for preserving natural resources, supporting biodiversity, and ensuring a sustainable future for both people and the environment. The following is a list of properties that the CCCA has acquired to support Natural Heritage and life sciences features such as rare and endangered species and provincially significant wetlands:

1.	Bossuyt Property	2.	Bradley Creek Property	3.	Cedar Bend Property
4.	Czakli Property	5.	Keszler Property	6.	Nineteen Creek Property
7.	Phillips Property	8.	Reynaert Property	9.	VanHooydonk Property
10.	Walcarius Property	11.	Matthys Property		

8. Conservation Lands Programs and Services

Conservation Lands: Category 1 Mandatory Programs and Services	
Section 29 Minister's Regulation Rules of Conduct in Conservation Areas Mandatory in accordance to CA Act; Reg. 688/21	Conservation areas regulations enforcement/compliance. Incurred legal expenses for regulation and compliance.
Conservation Areas Mandatory in accordance to CA Act; Reg. 686/21 s.9(1)	Management and maintenance of three passive day use conservation areas (Yarmouth Natural Heritage Area, Archie Coulter and Springwater Forest, not the Campground) with recreational trails. Includes passive recreation, risk management program, hazard tree management, gates, fencing, signage, brochures, communications, pedestrian bridges, trails, parking lots, pavilions, roadways, stewardship, restoration, ecological monitoring, carrying costs such as taxes and insurance. Ivan Steen & Ward McKenna; existing agreements with The Corporation of the Town of Aylmer, for use of the Ivan Steen Conservation Area and Ward McKenna Conservation Area for public park space and recreational amenities which is maintained by The Corporation of the Town of Aylmer .
Conservation Area Major Maintenance Mandatory in accordance to CA Act; Reg. 686/21 s.9 (2)	Major maintenance and capital improvements to support public access, safety and environmental protection such as pedestrian bridges, boardwalks, trails.

Inventory of Conservation Authority Lands Mandatory in accordance to CA Act; CA Act 21.1(1) 0. Reg. 686/21 9 (3)	The land inventory includes the following information: location as well as date, method and purpose of acquisition, land use. One -time project with updates as properties are acquired or disposed of.
Conservation Areas Strategy Mandatory in accordance to CA Act; 21.1(1) 0. 0Reg. 686/21 9 (1)	A strategy to guide the management and use of CA-owned or controlled properties including guiding principles, objectives, land use, natural heritage, classifications of lands, mapping, identification of programs and services on the lands, public consultation, publish on website. Updates of existing conservation area management plans.
Land Acquisition and Disposition Strategy Mandatory in accordance to CA Act; Reg. 686/21 s.9 (2) (5)	A policy to guide the acquisition and disposition of land in order to fulfill the objects of the authority is to be created before the end of the Transition Period. The CCCA completed the Land Securement and Disposition Policy in August of 2020, Motion # 62/2020.
Springwater Conservation Area	CCCA operates one campground and its associated facilities, which generates our main revenue stream and offsets costs of mandated programs.
CCCA Forests and Management Areas (not Conservation Areas)	Management and maintenance of CA owned lands (will all be listed in the Land Inventory) Includes forest management, signage, gates, passive recreation, stewardship, restoration, ecological monitoring, carrying costs such as taxes and insurance.
Conservation Lands Category 3: Other Programs and Services	
Land Acquisition	Strategic acquisition of environmentally significant properties following guidance from the land acquisition and disposal policy.
Education Programming in Conjunction with Thames Valley Schoolboard	An annual Memorandum of Understanding is signed with Thames Valley District Schoolboard leasing a part of Springwater Forest to the Jaffa Outdoor Education Center for an outdoor classroom. The Maple Program, Marsh Quest and Forest Festival are all ran in conjunction with Thames Valley District Schoolboard staff.

ISSUES AND RISKS

Conservation Lands Program:

1. Complete Ecological Lands Classification (ELC) mapping and identify habitat of species at risk.
2. Funding for major trail improvements.
3. Aging infrastructure.
4. Signage updates required to address legislative and social needs.
5. Invasive plants, animals, and pathogens may spread rapidly, outpacing management efforts and threatening the integrity of native ecosystems.
6. Ecosystem enhancement and regeneration.

7. Engagement of volunteers to assist with Conservation Lands management.

8. Conservation lands often intersect with competing interests, such as agriculture, forestry, energy development, and indigenous rights.

9. Wildlife diseases, such as pathogens, parasites, and emerging infectious diseases, can spread rapidly among populations on conservation lands, causing mortality, population declines, and ecosystem disruption. Disease outbreaks may be exacerbated by factors such as habitat degradation, climate change, and wildlife-human interactions.

10. Recreational activities, tourism, and infrastructure development on conservation lands can lead to human disturbance, habitat degradation, and wildlife displacement. Overuse of trails, and camping sites can degrade sensitive habitats, disturb nesting sites, and stress wildlife populations.

9. Conservation Areas Strategy Objectives

Under the guidance of our CCCA 2024-2034 Strategic Plan five (5) Pillars were created to assist in guiding the delivery of our programs and services into the next decade. The five (5) Strategic Pillars were then used to develop underlying objectives to support the design of Conservation Area Programs and Services.

1) Protect life and minimize property damage from natural hazards and climate impacts.

a) Habitat Restoration and Resilience: Implement habitat restoration projects to enhance the resilience of conservation areas to natural hazards and climate impacts. This may involve reforestation, wetland restoration, and other ecosystem-based approaches to increase the ability of habitats to withstand and recover from disturbances.

b) Sustainable Tourism and Recreation: Manage visitor use and recreation activities on our lands and in our conservation areas to minimize impacts on fragile ecosystems. Implement sustainable tourism practices and visitor education programs to promote responsible behavior and environmental stewardship/ knowledge.

c) Climate Adaptation Strategies: Develop and implement climate adaptation strategies tailored to the specific ecosystems and species found within conservation areas. This may include enhancing connectivity between habitats, creating wildlife corridors, and facilitating species migration in response to changing climate conditions.

2) Improve and Protect the ecological health of the Catfish Creek watershed increasing biodiversity, habitat connectivity, and natural cover.

a) Biodiversity Conservation: Promote the conservation of native species diversity within our lands and conservation areas by preserving and restoring diverse habitats, including wetlands, forests, grasslands, and riparian zones. This may involve implementing habitat restoration projects, controlling invasive species, and protecting critical habitat areas.

b) Riparian Zone Restoration: Restore and protect riparian zones along streams and waterways within our lands and conservation areas to improve water quality, stabilize stream banks, and provide essential habitat for aquatic and terrestrial species. This may involve reforestation, revegetation, and erosion control measures to enhance the ecological functions of riparian areas.

c) Forest Conservation: Protect and manage forested areas within our lands and conservation areas to maintain ecosystem services, such as carbon sequestration, soil stabilization, and wildlife habitat. This may involve sustainable forest management practices, and efforts to prevent deforestation and forest fragmentation.

3) Curate an appreciation and create equitable access to nature.

a) Environmental Education and Outreach: Develop and implement environmental education programs to increase public awareness and appreciation of the natural world. Provide opportunities for hands-on learning experiences, guided nature walks, and interpretive programs that highlight the ecological significance of our lands and conservation areas.

b) Inclusive Outreach and Engagement: Ensure that outreach and engagement efforts are inclusive and accessible to all members of the community, including marginalized and underrepresented groups. This may involve targeted outreach efforts, translation services, and accommodations for individuals with disabilities.

c) Volunteer and Citizen Science Opportunities: Engage volunteers and citizen scientists in conservation efforts within the areas. Offer training and support for volunteers to participate in habitat restoration, wildlife monitoring, and other hands-on conservation projects that contribute to the health and vitality of the ecosystem.

4) Ensure our Conservation Lands are protected and enhanced.

a) Sustainable Land Management: Adopt sustainable land management practices such as controlled burns, and reforestation to maintain ecosystem health and resilience.

b) Monitoring and Research: Establish monitoring programs to track changes in biodiversity, ecosystem health, and climate patterns. Supporting scientific research within these areas can provide valuable insights for adaptive management strategies.

c) Sustainable Funding Mechanisms: Develop sustainable funding mechanisms to support conservation efforts, including government funding, grants, donations, ecotourism revenue, and public-private partnerships.

5) Operate a sustainable, fiscally responsible and adaptable organization.

a) Fiscal Responsibility: Manage financial resources efficiently and transparently to support conservation objectives and to allocate funds to priority conservation needs based on evidence and stakeholder input.

b) Maximizing Impact: Conservation resources are often limited, so it's essential to make the most of every dollar spent. Fiscal responsibility involves careful budgeting and prioritization to ensure that funds are directed toward activities with the greatest potential for conservation impact.

c) Diversification of Funding Sources: Expand revenue streams and secure diverse funding sources to reduce dependency on any single funding stream. Develop sustainable income-generating activities within our conservation areas.

10. Natural Heritage

The CCCA area of jurisdiction is within The Great Lakes eco-region which spans Ontario and eight U.S. states. Located along the north shore of Lake Erie, it is part of the largest freshwater ecosystem in the world. The Great Lakes eco-region has the greatest diversity of species in Canada and is one of the most diverse eco-regions in North

America in terms of ecological systems. (Comer *et al.*, 2003) This biodiversity reflects the variations in climate, terrain and altitude of the region in southern Ontario.

Biodiversity supports human societies ecologically, economically, culturally and spiritually. The global decline of biodiversity is now recognized as one of the most serious environmental issues facing humanity. (Environment Canada, *'Canadian Biodiversity Strategy'*, Ottawa, 1995)

CCCA Conservation Areas are also contained within the Carolinian Canada Life Zone, which biologically, represents Ontario's most threatened ecological region. Moreover, this region supports nearly 25 % of the total Canadian agricultural productivity. Given that agriculture is so interwoven into the landscape of this watershed, it may be considered to be part of the natural resources such as fresh water, air, forest, grasslands and wetlands.

Early settlement involved clearing forests for urban expansion, agriculture and forest products to help meet a growing demand for ship building material and lumber in Europe. The advancement of European settlers in the early 1800's initiated a continuous settlement pattern throughout the region. A grid-like pattern was created to accommodate human connections and land uses which includes roads, railways, hydro corridors, concessions and lot boundaries. The current location and alignment of the natural features that remain on the landscape mimic this pattern of human linkages.

Upper Branches/Catfish Creek Features:

Woodlots in the upper catchment areas of the watershed (north of Highway #3) that were retained tend to be located in the back portions of farms in the middle of concession blocks. This pattern is very prevalent in the northern portion of the watershed due to the level of gently rolling topography and fertile soil conditions within the Ekfrid clay plain. Lands in this area were easily accessible and woodlots were cleared with straight edges to accommodate the need for more acreage and larger agricultural equipment and implements.

The woodlots that remain are small and fragmented in comparison to the woodlands that once covered over 75% of the region. (*Oxford County Terrestrial Ecosystems Study*, UTRCA, 1997) Today, less than 11% of the watershed is forested (*Elgin County Landscape Strategy,* Elgin County Stewardship Council/MNR- Aylmer, 2004). Spatially this varies from about 8% in the Upper Catfish watershed to 19% in the Lower and other tributaries of Lake Erie.

In the upper portion of the watershed the major limiting factor that protected a few larger patches of forest cover was poorly drained soils. Regulatory controls relative to woodlot clearing has stabilized the loss of forest cover allowing stewardship initiatives to increase forest cover in portions of the watershed. Other disturbances such as logging, livestock, alien species introduction, tree disease/insect pest infestations and urban encroachment are still negatively impacting forest ecosystem form and functions.

It has been estimated that over 80% of the original wetlands have been drained in the upper reaches of the watershed. The Elgin Landscape Strategy has also identified a need to increase the wetland component in the headwaters of the watershed. The poorly drained soils within the low lying areas of the St. Thomas moraine may lend themselves to increasing the wetland component from the existing levels of less than 1%. The larger contiguous forests in this area include the 'East Aylmer Forest' which is a 103 ha. woodlot and includes a locally significant wetland. The 'North-East Glencolin Forest' is a 90 ha. woodlot with sections that exhibit wetland characteristics as well as containing rare plant species.

Typically the woodlots in this northern section of the watershed are comprised of climax-shade tolerant, deciduous species (Ash, Beech, Maple and Hickory). (MNR-FRI, 1978 and CCCA Conservation Reports, 1951)

Less than 1% of the forest cover is comprised of coniferous tree species the majority of which were established through various agency tree planting initiatives such as the MNR's 'Woodland Improvement Act' and the CCCA's 'Conservation Services Program. The dominant tree species that have been established over the last 30 years

include White Pine and White Spruce as block plantings in retired pasture fields and other marginal agricultural lands that were deemed to be impractical for active farming.

Lower Catfish and Lake Erie Tributaries:

The Natural Heritage Features in the southern half of the watershed (lower reaches of Catfish Creek and the tributaries of Lake Erie) reflect the contrasting quaternary geology and physiology. A large portion of the watershed is comprised of loamy/sandy soils associated with the Norfolk Sand Plain. The nature of the soils and the principal forces that shaped our landscape have created deeply incised valley systems throughout this area. The relatively well drained soils have allowed extensive land clearing to occur to the edge of the steep gully systems. As a result, most of the forest cover is found along steep valleys and associated flood plains. The linear nature of these ravines allows for good connectivity of ecological processes including wildlife movement and dispersal of flora and fauna.

This region exhibits a higher composition of rare Carolinian tree species such as Tulip, Sassafras, Oswego Tea, Blue Ash, Paw-Paw and Sycamore. The Sweet American Chestnut trees, that survived an outbreak of Chestnut Blight which decimated this once important species in the early 1900's, are persisting only as isolated, widely scattered trees. The remaining Chestnut trees are still very susceptible to the Blight and usually have a very short life span.

Although the majority of the woodlots south of Highway 3 can be characterized as "climax/tolerant hardwood's" (Maple, Beech and Ash), there is a higher component of mid-tolerant species such as Red Oak, White Oak, Basswood, Black Cherry and Ash. The southern portion of the watershed also exhibits a higher component of native deciduous trees such as White Pine and isolated stands of Eastern Hemlock.

Due to the prevalent sandy soil conditions in the southern portion of the watershed, private landowners and the Conservation Authority have established an extensive network of windbreaks (White Cedar and White Spruce) to help reduce the effects of wind erosion and to provide wildlife corridors throughout the watershed.

Although there is a general absence of large woodland patches that contain deep interior habitats (>100m from forest edge), a few remnant woodlots remain to provide valuable habitat for rare birds and plants. Examples of Carolinian Forests include Archie Coulter Conservation Area, The Tisdale Conservation Area, Calton Swamp, Springwater Forest, Yarmouth Natural Heritage Area and the Catfish Creek Slope and Flood Plain Forest.

Located at the extreme eastern edge of Malahide Township, Calton/Stewarts Swamp is the largest and most important wetland ecosystem in the watershed. The entire forest basin encompasses over 356 ha. and contains 13 individual wetlands ranging in size from 0.4 to 20 ha. The wetlands, which have been evaluated as being Provincially Significant, fulfill an important hydrologic function and provide critical habitat for a number of flora and fauna species. (Environmentally Significant Areas Report, CCCA- 1983) Public agencies now own a significant part of this woodland basin, (MNR- 40 ha.; CCCA 82 ha.) a large portion of which is managed as a Provincial Wildlife Management Area.

One of the CCCA properties supports the only known Canadian population of the Small Whorled Pogonia (*Isotria medeoloides*). This orchid is classified as endangered by both the Committee on the Status of Endangered Wildlife in Canada (COSEWIC) and the Committee on the Status of Species at Risk in Ontario/MNR (COSSARO). COSSARO's official designation has resulted in the species being regulated under Ontario's Endangered Species Act. (Small Whorled Pogonia Biological Inventory; CCCA/MNR- Aylmer, July 2001)

Contiguous to the CCCA Administrative Office, the Authority owns and manages a 160ha. portion of a 205 ha. woodlot, referred to as the 'Springwater Forest'. This area is one of Southwestern Ontario's best examples of a Carolinian Forest with "old-growth" characteristics. This woodlot has been designated by the Province as an 'Area of Natural and Scientific Interest' (ANSI) as well as encompassing over 33 ha. of Provincially Significant wetland complexes.

Located at the western edge of the Norfolk Sand Plain, the topography ranges from flat to gently rolling which supports mesic deciduous and mixed forest ecosystems. Although American Beech, Hard Maple, Oaks and White Ash form the main forest cover, a large number of White Pine (considered to be "super canopy trees") are scattered throughout the forest as well as American Chestnut, Tulip, Sassafras and several other Carolinian plant species. The area provides critical wildlife habitat for the Flying Squirrel, Pileated Woodpecker, Hooded Warbler, and the Acadian Flycatcher with several reports of the threatened American Badger.

The Catfish Creek Valley system from the outlet in Port Bruce to the Archie Coulter Conservation Area just south of Highway 3, provides outstanding vistas of flood plain terraces and forested valley slopes. At the "heart of the valley" is an area referred to as the 'Catfish Creek Slope and Floodplain Forest'. A unique 233 ha. portion of the valley has been designated an ANSI by the MNR and identified as Elgin County's only 'Carolinian Canada Signature Site'. The site supports 358 different species of plants, representing one-sixth of the total found in Canada including distinctive Carolinian trees. Also found on this site are five Provincially rare and threatened species of plants such as Blue-Eyed Mary and Oswego Tea. The Red Shouldered Hawk, Acadian Flycatcher and Louisiana Waterthrush are some of the rare birds that frequent this site. (Carolinian Canada 2014)

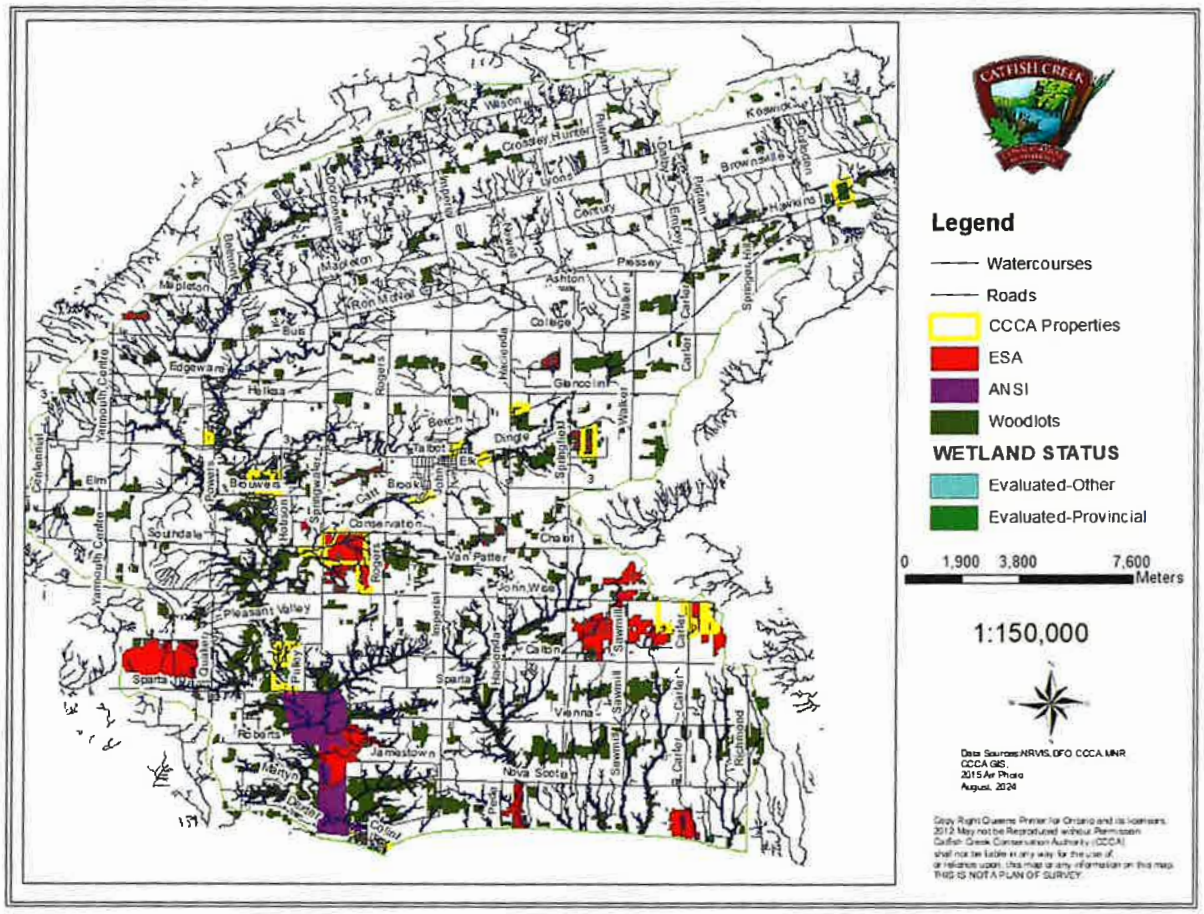


Figure 2: Natural Heritage

10.1. Species-at-Risk

The Catfish Creek Conservation Authority (CCCA) watershed is located within some of Canada's most heavily developed and altered landscapes. Carolinian Canada suggests there are over 125 species that are declared at risk and over 400 others are considered rare in Southwestern Ontario.

A review of the terrestrial and aquatic species at risk, as tracked by the Natural Heritage Information Center (MNR), lists over 82 records which are Rare, Threatened or Endangered in the Catfish Watershed. Earlier sections in this report have provided insights into some of the habitats the Authority owns as part of its Land Acquisition and Disposition Policy to purchase environmentally sensitive areas within the watershed.

Some of the rare species the CCCA is monitoring and actively managing for include the Acadian Flycatcher, Prothonotary Warbler, American Badger, Flying Squirrel, Small Whorled Pogonia, Green Dragon, American Ginseng, and several Carolinian Canada tree species including Blue Ash, Sycamore and American Chestnut.

The CCCA is also a partner in the development of a multi-species recovery plan for aquatic Species-at-Risk associated with coastal wetlands and inland tributaries of Western Lake Erie. The goal of the strategy is to ***"maintain and restore ecosystem quality and function in the Essex-Erie region to support viable populations of fish species at risk in their current and former range."*** (*Draft Essex-Erie Recovery Strategy*, January 2006)

The recovery planning exercise broadened awareness of two fish species (Eastern Sand Darter, Black Redhorse) which have historical populations in the Catfish Creek. Both species are considered Threatened in Canada and are the primary species the Authority is targeting stewardship initiatives toward. The strategy lists the following general threats and limiting factors specific to fishes and mussels within the study area: habitat loss/degradation; nutrient and sediment loadings; pollution; climate change; altered water flow/barriers and exotic species.

10.2. Natural Heritage Protection Strategies:

Carolinian Canada's '*Big Picture Project*' provides a macro level vision of a natural heritage system in this region. The *Elgin County Stewardship 'Landscape Strategy'* assesses the restoration potential of areas in the County that will help contribute to the vision. In order to improve ecological diversity, recent stewardship initiatives are more focused on reconnecting these and other "Islands of Green" to one another.

To date, there are no detailed life sciences surveys which assess the current condition or health of the terrestrial ecosystems within Catfish Creek lands and conservation areas that can relate those conditions to the physical landscape. This is a significant deficiency in that in order to ensure biodiversity we must first address the need to accurately measure the condition of the watershed's natural heritage features.

Historically the CCCA has relied on regulatory and environmental planning measures to protect natural features, particularly water resources. In order to improve ecological bio-diversity within the watershed, the CCCA must continue to develop comprehensive environmental land use planning and regulatory policies. The CCCA will also assist all levels of government, member municipalities and the general public in the identification/mapping and protection of all terrestrial and aquatic ecosystems.

10.3. Natural Heritage Augmentation:

Conservation lands provide safe havens for native flora and fauna, preserving their habitats from encroachment by human development. This preservation ensures that the natural heritage within the jurisdiction remains intact and viable. By protecting diverse ecosystems within conservation lands, authorities can safeguard the biodiversity of

the region. This includes rare and endangered species, as well as maintaining healthy populations of plants and animals that contribute to the overall ecological balance.

Conservation lands and areas often provide vital ecosystem services such as clean air and water, carbon sequestration, and soil fertility. These services support the health and well-being of both natural habitats and surrounding human communities.

Many of our lands and conservation areas serve as living laboratories for scientists, educators, and students. By studying these preserved ecosystems, researchers can better understand natural processes, species interactions, and the impacts of human activities. This knowledge can inform conservation efforts and sustainable land management practices.

Opportunities for outdoor recreation and eco-tourism is highly sought after, allowing visitors to experience and appreciate the natural heritage of the region. This not only fosters a connection between people and nature but also generates economic benefits for local communities through tourism-related activities.

Conservation lands and areas can contribute to climate resilience by acting as buffers against the impacts of climate change. Well-managed ecosystems have greater capacity to adapt to changing environmental conditions, such as extreme weather events and shifting temperature and precipitation patterns.

River valleys often serve as natural corridors, allowing for the movement of wildlife between different habitats. This connectivity is essential for maintaining healthy populations and genetic diversity among species. Valley lands also play a vital role in regulating water quality and quantity. Riparian vegetation helps filter pollutants from runoff, stabilize stream banks, and regulate water flow, thus contributing to the overall health of aquatic ecosystems. Healthy valley lands can help mitigate the impacts of flooding by absorbing and slowing down floodwaters. Vegetation along riverbanks and floodplains acts as a natural buffer, reducing erosion and preventing damage to downstream communities.

11. Due Date & Publishing Requirements:

The CAS must be prepared on or before December 31, 2024. The CCCA will ensure that the Strategy is made available to the public on the Authority's website, or by other means the CA considers advisable, by December 31, 2024.

The CAS will be posted on the established CA Governance Webpage (where certain other documents are required to be posted pursuant to O. Reg. 400/22). There is no legislative requirement to submit the CAS to the Province. The Strategy will be reviewed every five years or as updates are required.

12. Implementation of the Conservation Lands Strategy:

The creation and adoption of the Conservation Lands Strategy is an important step in managing the lands owned by the CCCA and implementation of the strategy will be of the same importance. Resources will be required to meaningfully undertake implementation including;

1) Inform implementation by yearly work planning and annual budgetary processes.

2) Member municipality involvement will be required to support implementation and Conservation Lands Mandatory Programs and Services,

3) Other Conservation Authorities, environmental and social organizations to assist in implementation,

4) The general public and volunteers to participate in public consultation and CCCA volunteer programs.

Timelines for implementation will be medium-term, up to 5 years, with an aim to have implementation underway or completed by 2029 for the next review and update.

Appendix A: Ontario Regulation 686/21 Requirements and Conformity Assessment:

Section	Requirement	Section of the Strategy
10(1)1	Objectives established by the authority that will inform the authority's decision-making related to the lands it owns and controls, including decisions related to policies governing the acquisition and disposition of such lands.	Section 5
10(1)2	Identification of the mandatory and non-mandatory programs and services that are provided on land owned and controlled by the authority, including the sources of financing for these programs and services.	Section 8
10(1)3	Where the authority considers it advisable to achieve the objectives referred to in paragraph 1, an assessment of how the lands owned and controlled by the authority may, i. augment any natural heritage located within the authority's area of jurisdiction, and ii. ii. integrate with other provincially or municipally owned lands or other publicly accessible lands and trails within the authority's area of jurisdiction.	Section 10.1, 10.2, 10.3, 10.4
10(1)4	The establishment of land use categories for the purpose of classifying lands in the land inventory described in section 11 based on the types of activities that are engaged in on each parcel of land or other matters of significance related to the parcel.	Section 6
10(1)5	A process for the periodic review and updating of the conservation area strategy by the authority, including procedures to ensure stakeholders and the public are consulted during the review and update process.	Section 11
10(2)	The authority shall ensure stakeholders and the public are consulted during the preparation of the conservation area strategy in a manner that the authority considers advisable.	Section 12
10(3)	The authority shall ensure that the conservation area strategy is made public on the authority's website, or by such other means as the authority considers advisable.	Section 11

REPORT FA 55/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary - Treasurer

SUBJECT: Natural Hazard Infrastructure Asset Management Plan
Springwater Dam Operation, Maintenance, and Inspection Manual

DATE: July 31, 2024

PURPOSE:

For the Board of Directors to consider approval of the Springwater Dam Operation, Maintenance, and Inspection Manual and the Springwater Dam Natural Hazard Infrastructure Asset Management Plan.

DISCUSSION:

Mandatory Program and Service Regulation 686/21, Risk of Natural Hazards, Section 5, Infrastructure lays out the directives Conservation Authorities are to follow when creating Natural Hazard Infrastructure Asset Management and Operation plans.

The Mandatory Program and Service Regulation 686/21 states;

5. (1) Subject to subsection (3), an authority shall provide programs and services that support the operation, maintenance, repair and decommissioning of the following types of infrastructure the authority owns or manages:

1. Any water control infrastructure, the purpose of which is to mitigate risks to life and damage to property resulting from flooding or to assist in flow augmentation.

2. Any erosion control infrastructure.

(2) Programs or services provided under subsection (1) shall include the following components:

1. The development and implementation of an operational plan on or before December 31, 2024.

2. The development and implementation of an asset management plan on or before December 31, 2024.

3. The undertaking of any technical or engineering studies necessary to ensure the proper operation and maintenance of the infrastructure to which the program or service applies.

(3) If an authority enters into an agreement with an owner of infrastructure mentioned in paragraph 1 or 2 of subsection (1) to manage the infrastructure on the owner's behalf, the authority shall provide the programs and services to operate, maintain, repair and decommission the infrastructure only in accordance with its obligations under the agreement.

(4) An authority may update the plans mentioned in paragraphs 1 and 2 of subsection (2), from time to time, as the authority considers it advisable.

Springwater Dam Natural Hazard Infrastructure Report and Asset Management Plan

An asset is anything tangible or intangible that can be owned or controlled with the expectation that it will provide a benefit. Today, asset management can also address natural assets, and establish clear policy objectives, decision-making processes, customer service levels, and training programs to ensure that everyone who controls or influences a built or natural asset has and knows their roles and responsibilities. Ecosystem services provided by natural assets contribute to the improvement of public services such as through the provision of clean drinking water, improved air quality, and flood control, as well as added benefits such as recreation and greenspace. Recognizing natural assets and the range of services they provide to local governments and their residents is essential to ensure these assets are effectively managed and that the vital services they provide do not deteriorate. As with built assets, having in place a natural asset management plan is essential to ensure a sustainable long-term supply of critical ecosystem services.

By integrating natural asset management into frameworks, CCCA can ensure the proactive and sustainable management of the Springwater Dam. This approach will help preserve the ecosystem services provided by these assets and prevent their deterioration. Proper natural asset management will not only protect the Springwater Dam and its prosperity but also the interconnected natural heritage and water resource systems influenced by the Springwater Dam.

In 2021 William Grandy, EXP Services Inc. completed a Dam Inspection Study which entailed a series of corrective measures with prices and timelines associated. Staff took the information from the study and created an asset management plan according to the short and long term measures that were suggested. Upon the expiration or completion of said measures another dam inspection study can be conducted which will support keeping the Asset Management Plan current and up to date.

Springwater Dam Operation, Maintenance, and Inspection Manual

A Springwater Dam Operation, Maintenance, and Inspection Manual is crucial for ensuring the safe and efficient management of a dam. The primary purpose of a dam operations manual is to safeguard human lives and property. It provides detailed procedures for emergency situations, including flood events, structural failures, or other hazards, ensuring that operators know how to respond promptly and effectively.

The manual outlines standard operating procedures (SOPs) for day-to-day operations, including water level management, maintenance schedules, and equipment usage. This helps ensure that the dam operates smoothly and efficiently, optimizing water resources and energy production if applicable. It can be utilized as a key training tool for new personnel. It provides a structured framework for training, helping operators understand their roles and responsibilities, and ensuring consistency in operations. A well-developed manual ensures that operations are carried out consistently, regardless of who is on duty. This standardization helps reduce errors and improves overall reliability.

Emergency response plans and procedures are incorporated into the manual, ensuring that all team members are prepared for potential crises. It outlines communication protocols,

evacuation plans, and other critical actions to minimize damage and protect lives. Regular maintenance is crucial for dam safety. The manual includes guidelines for routine inspections and maintenance tasks, helping to prevent equipment failures and prolong the lifespan of the dam. Maintaining a dam responsibly enhances public trust. An operations manual demonstrates that the dam is being managed according to best practices and regulatory standards, which can be important for community relations and accountability.

The Springwater Dam Operation, Maintenance, and Inspection Manual was built on the previous Dam Operations Manual well incorporating on many other aspects of dam operations.

RECOMMENDATION:

THAT, the Full Authority approve the Springwater Dam Natural Hazard Infrastructure Report and Asset Management Plan and the Springwater Dam Operation, Maintenance, and Inspection Manual which meet all the conditions and criteria described in Ontario Regulation 686/21.

D. Underhill

Dusty Underhill,
General Manager / Secretary - Treasurer

Springwater Dam Operation, Maintenance, and Inspection Manual

July 2024

Catfish Creek Conservation Authority
8079 Springwater Road
R.R.#5 Aylmer, ON
N5H 2R4

REVISION SHEET

No.	Description of Revision Made	By	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date
#	Click here to enter text.	by	Date

DISTRIBUTION LIST

Copy No.	Distributed To:
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.
#	Click here to enter text.

Table of Contents

APPENDICES

APPENDIX A: MONITORING AND INSPECTION FORMS

Dam Data Sheet

General

Dam Name:	Springwater Dam
Owner & Operator:	Catfish Creek Conservation Authority
Location:	4732585.6North and 497208.3East
	County: Elgin Nearest City: Aylmer
Purpose of Dam:	Flood Control/ Recreation
Construction History:	Constructed in 1968

Reservoir

Volume	217,000 m^3
Drainage Area	0.37 km^2
Surface Area	90,000 m^2

Dam

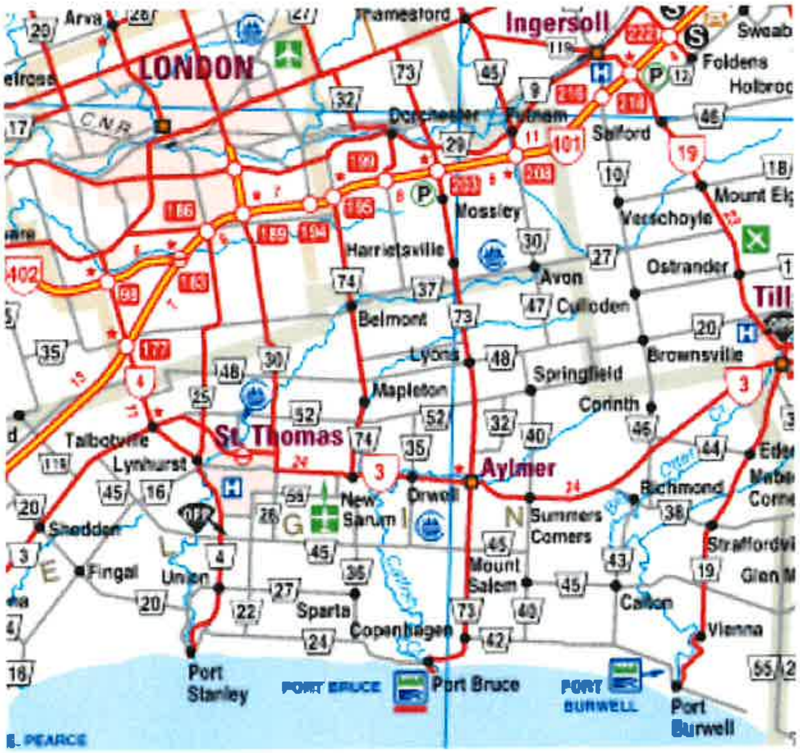
Dam Type:	Concrete Gravity Dam
Sill Elevation Stop Log Bay	682.0 ft
Invert Elevation of Sluice Valve:	681.0 ft

Outlet Works

Control Gate (s)	1 Valve Sluice Gate 0.53m x 0.53m
Stop Logs	20 Stop logs, Two Spillways

Sluiceway(s)

There are 10 stop logs in each of the 2 sluiceways. 10 of these logs were replaced approximately 8 years ago, 5 in each sluiceway (in positions 2 to 6, top log would be in position 1). The stop log dimensions are 305mm x 305mm x 4.8m long each. The stop logs are removed and installed using 5- ton capacity manual winches (Timberland Ellicott) mounted on concrete pedestals. When too much water is seeping through the logs they are jacked together hydraulically forcing the seepage to stop and flow over top of the stop logs. Logs are rarely removed as the sluice gate provides the necessary water level adjustments required.


LONDON
Ingersoll
St. Thomas
Aylmer
Dorchester
Mossley
Harrietsville
Belmont
Avon
Culloden
Lyons
Springfield
Mapleton
Corinth
Brownsville
Ostrander
Verschoyle
Salford
Talbotville
Lynhurst
Shedden
Fingal
Union
Port Stanley
New Sarum
Orwell
Summers Corners
Mount Salem
Sparta
Copenhagen
Port Bruce
Calton
Vienna
Richmond
Port Burwell
PORT BRUCE
PORT BURWELL


Catfish Creek Conservation Authority

1.0 GENERAL INFORMATION

1.0 General Information

- 1.1 Operation, Maintenance, and Inspection Manual Introduction
- 1.2 Purpose and Description of Project
- 1.3 Location and Access to the Dam and Facilities
- 1.4 Assignment of Responsibility
- 1.5 Attendance and Communications
- 1.6 Public Safety and Health
- 1.7 Restricted Areas

1.0 GENERAL INFORMATION

1.1 OPERATION, MAINTENANCE, AND INSPECTION MANUAL INTRODUCTION

This document is the Operation, Maintenance and Inspection Manual (Manual) for Springwater Dam. The document provides procedures, guidance, and standard forms for the normal operation, maintenance, monitoring, and inspection of the dam.

If Springwater Dam is failing or is experiencing an unusual condition that may lead to failure, you should immediately activate your Emergency Action Plan (EAP). At a minimum, take the following actions:

- ***Call 911 and let the operator know what roads or buildings downstream of the dam may need to be blocked or evacuated.***
- ***Call the County of Elgin Emergency Management Coordinator***
- ***Call Malahide Emergency Management Coordinator and Public Works***
- ***Call Central Elgin Emergency Management Coordinator and Public Works***
- ***Open drain valves or spillway gates to begin lowering the reservoir in a controlled manner.***

The purpose of the Manual is to ensure adherence to operating procedures over long periods of time and during changes in operating personnel. The instructions will permit personnel, knowledgeable in reservoir operations but unfamiliar with the conditions at the dam, to operate the dam and reservoir at times when regular operating personnel cannot perform their normal duties. Throughout this Manual there are numerous recommendations to contact an engineer experienced in the design and construction of dams. The importance of these recommendations cannot be overstated. Dams are complex structures and the causes and remedies of certain problems may not be obvious.

This Manual has been adapted from various similar products developed by local agencies:

- Province of Ontario, Dam Management
- Lakes and Rivers Improvement Act
- Dam Construction Guidelines
- EXP Springwater Dam Inspection Report

Dams are complex structures subject to several forces that can cause failure. These forces are active over the entire life of the dam, and the fact that a dam has stood safely for years is not an indication that it will not fail.

Dams fail throughout the country every year. In many cases, failure could have been prevented had these structures been properly maintained. Dams must not be thought of as part of the natural landscape, but as human-made structures, which must be designed, inspected, operated, and maintained accordingly. Maintenance is an ongoing process that not only involves such routine items as mowing the grass but also includes regularly inspecting the structure and properly repairing its components.

1.2 PURPOSE AND DESCRIPTION OF DAM AND RESERVOIR

The concrete gravity dam (which is part of the adjacent roadway bridge) was constructed in its current configuration in 1968 (replacing the mill dam). It consists of 2 stop log sluiceways and 1 low flow valve, flanked by earth embankments. The primary purpose of the dam is to maintain water levels on Springwater Reservoir for the upstream and downstream aquatic environment. It also maintains water levels on Springwater Reservoir for recreation purposes and flood control.

1.3 LOCATION AND ACCESS TO THE DAM AND FACILITIES

Springwater Dam is located in Lot 1, Concession 5 of Malahide Township at the outlet of Springwater Pond (part of the Bradley's Creek watershed). The UTM coordinates of the dam are 4732585.6North and 497208.3East, UTM Zone 17T (deck elevation 699.5ft, 213.21m).

1.4 ASSIGNMENT OF RESPONSIBILITY

The Conservation Areas Supervisor (CAS) is responsible for regular maintenance checks on the Springwater Dam, including records and other data. The CAS is also responsible for implementing all preventative, routine, and minor maintenance of the structure.

1.5 RECORD KEEPING

Proper documentation of the current condition and past performance of the dam is necessary to assess the adequacy of operation, maintenance, surveillance, and proposed corrective actions. A complete record or history of the investigation, design, construction, operation, maintenance, surveillance, periodic inspections, modifications, repair and remedial work should be established and maintained by the CAS so that relevant data relating to the dam is preserved and readily available for reference. This documentation should commence with the initial site investigation for the dam and continue through the life of the structure. Records should be well organized, complete, and accurate, enabling easy understanding and evaluation of the recorded information.

Routine operation, maintenance and inspections should be fully documented. In addition to records of the actual operations, the operating record should include data relating to reservoir levels, and structural behavior. If there are maintenance problems that require continuing

remedial work, a thorough record of the work should be maintained, and a final report made after complete remedy of the problem.

The CAS should fill out a dated operations log form, which should be filed along with any photographs taken (which should also be dated). In addition to inspection observations, reservoir staff gage elevations and weather conditions (especially recent rains, extended dry spells and snow cover) should be systematically included in the inspection record.

Immediately following an inspection, observations should be compared with previous records to see if there are any trends that may indicate developing problems. If a questionable change or trend is noted, and failure is imminent, the owner should consult a professional engineer experienced in dam safety. Reacting quickly to questionable conditions will ensure the safety and long life of a dam and possibly prevent costly repairs.

Dam owners should periodically review all records associated with the dam (at least every 10 years) to determine if any changes have occurred over a long time, or if the existing design does not comply with current standards.

1.6 SECURITY AND PUBLIC SAFETY

Galvanized chain link fencing is installed on the operation deck to prevent entry to our users. Chain link fencing is also installed on the crests of the upstream wingwalls to prevent access and entry.

1.7 RESTRICTED AREAS

A safety boom is installed on the upstream side of the dam. It consists of 18 boom unit floats with one center can buoy all connected by wire. Its V-shape is maintained by a center in-water anchor. Each end is connected to a steel anchor mounted on the concrete wingwall. The boom remains in place year-round. All components of the safety boom are in good condition.

2.0 OPERATION PROCEDURES

2.0 Operation Procedures

- 2.1 Reservoir Operations
- 2.2 Flood Operation
- 2.3 Control Gates
- 2.4 Spring Startup Procedure
- 2.5 Fall Shutdown Procedure

2.0 OPERATION PROCEDURES

2.1 RESERVOIR OPERATIONS

The reservoir is managed to provide maximum flood storage when it is needed most – in the spring, to handle the spring melt, and in the fall to deal with remnants of tropical storms. However, major storms can strike at any time of the year so the reservoir is operated year-round to reduce flood damages. Water levels are lowest over the winter. The reservoir is filled during the spring runoff and reaches peak levels around June 1. During the spring melt or after a heavy rain, river flows upstream of the reservoirs can rise quickly and dramatically – sometimes hundreds of times greater than normal. As water flows into a reservoir, some of it is stored temporarily, depending on how much space is available. At these times, discharges from the reservoir will be less than the inflows so downstream flood peaks will be lower. Discharges may continue for some time after the storm is over to regain storage space and prepare for the next storm. The reservoir can reduce flood peaks significantly.

After the spring melt, the water stored in the reservoir is slowly released to add to the natural flows in the river system. Natural flows drop off in the summer and fall. In a dry year, natural flows can be only a fraction of normal flows in low water conditions.

Springwater Reservoir also serves recreational purposes such as boating, fishing, and other forms of recreation during our operating season.

2.2 FLOOD OPERATION

The Water Management Technician will track general weather trends and forecasts on a regular basis to provide forewarning for events to the CAS that may result in heavy inflows into the reservoir and require adjustments to release rates. When operating in flood conditions, visits to the dam should be made and the dam should be inspected during each visit for indications of distress.

Conditions that are forecast may warrant consideration of lowering water levels in advance of the increased inflow. This may be accomplished by opening the sluice gate. Consider the impact of the increased flow on downstream persons, property, and natural resources. Prior to making releases, the following procedures should be considered:

1. Verify that the upstream area is free of debris.
2. Verify that the downstream discharge channel is free of debris.
3. Open the outlet works sluice gate to the appropriate level for the desired release rate. *Use caution not to exceed the safe channel capacity or cause downstream flooding though excessive releases.*

4. After the desired release has been made, return the outlet works sluice gate to the fully closed position (or partially open if required to facilitate downstream releases).

5. When flooding is occurring the dam operator should visit at least twice daily, observe the water levels, adjust release rates, and check the condition of the dam.

When lowering the reservoir, the rate of lowering should not exceed twelve (12) inches per day to ensure the stability of the dam embankment, except in the case of an emergency.

2.3 CONTROL GATES

A sluice gate is a mechanism used to control water flow. The device is used in the dam to allow for the controlled release of water. The gate is made of metal, and slides vertically on a frame to open or close, allowing water to flow or to be contained.

2.4 SPRING STARTUP PROCEDURE

Close sluice gate valve to retain water for recreation and periods of drought and low flow after spring freshet.

2.5 FALL SHUTDOWN PROCEDURE

Allow adjustments to be made via the sluice valve to lower the water level so in a major flood event the Springwater Reservoir has the capacity to retain and hold back some of the water which alleviates pressures of flooding downstream.

3.0 MONITORING & INSPECTION

TABLE OF CONTENTS

3.0 MONITORING & INSPECTION

3.1 TYPES AND FREQUENCY OF INSPECTIONS

An effective inspection program is essential to identification of problems at the dam that require maintenance, repair or further evaluation. The program should involve four types of inspections:

- Periodic technical inspections (Comprehensive Dam Safety Review);
- Periodic regulatory inspections;
- Annual maintenance inspections; and
- Informal observations by project personnel as they operate the dam.

Periodic technical inspections are comprehensive inspections and reviews of the dam's design and construction performed by engineering specialists engaged by the dam owner. These comprehensive inspections and reviews are recommended to take place at least once every five (5) to ten (10) years depending on the condition of the dam, the hazard potential, and the results of previous findings.

Periodic regulatory inspections are visual inspections with limited review of the dam design/construction and maintenance history.

Annual maintenance inspections are visual inspections completed by the CAS at least once every year. The inspection should include, at a minimum, a review of any potential new downstream development that may change the hazard potential (typically using online aerial image services like Google Earth), a visual inspection of the dam, and photographs of the dam.

Informal Observations can occur year round at any time by any personnel that are operating or maintaining the dam. These personnel should feel empowered to check for deficiencies or unusual conditions and report them to the appropriate personnel. In addition, informal observations are recommended following certain events such as:

- Prior to a major storm or heavy snowmelt: check sluiceway and outlet channel.
- During or after a severe storm: check sluiceway, embankment and outlet channels, to the extent practicable based on inspector safety.
- Earthquake: make complete inspection right after the event and weekly inspections for the next six weeks to detect any delayed effects (i.e. cracking, seepage, slumps, excessive settlement, etc.).
- If emergency conditions are observed, the responses outlined in the EAP should be implemented. Emergency conditions include erosion threatening the integrity of the dam, seepage that is cloudy or excessive, and/or extremely high water surfaces.

3.2 PERFORMING AN INSPECTION

Descriptions of new and existing conditions that may be observed during an annual maintenance inspection or during informal observations and the type of information to record are provided in Table 3-1.

Prior to each scheduled inspection (i.e., those other than informal observations) vegetation on the dam should be removed or mowed to a height of six (6) inches or less. At a minimum, for each annual maintenance inspection, the following are required:

1. Record the weather (current and notable weather conditions from past week), persons in attendance, reservoir water surface elevation, and gate positions/openings.
2. If the dam has instrumentation, monitor/complete measurements of all appropriate instruments.
3. Walk the entire length of the dam and inspect the following dam features looking for,
    a. Upstream slope;
    b. Crest;
    c. Downstream slope;
    d. Downstream toe;
    e. Abutment contacts;
    f. Principal/Service spillway structure(s);
    g. Reservoir area.
4. Perform a visual inspection of the following structural features as appropriate for each dam for signs of changing conditions:
    a. Check for debris in inlet and outlet;
    b. Check condition of concrete, metal, plastic or timber materials, note any deterioration;
    c. Check condition of gates and operating mechanisms;
    d. Check condition of fencing/security measures; and
    e. Check condition of, bulkheads, chain hoists, and lifting frames, confined space or fall protection equipment for signs of corrosion or disrepair.
5. Note areas to be painted.
6. Record results of the inspection on the checklist.

7. If conditions requiring maintenance are observed during the current inspection, perform the maintenance at the conclusion of the inspection, or make note to perform the maintenance in a reasonable period of time.

Table 3-1 Unusual Conditions or Deterioration to Look For During Inspections
(See Also Information in Appendix B)

CONDITIONS TO LOOK FOR:	WHAT TO RECORD IF FOUND:
	For all the conditions: ▪ new or existing ▪ change from previous observation
Seepage ▪ Flowing water ▪ Lush vegetation ▪ Wet areas	▪ size limits (width, length) ▪ clear or cloudy ▪ flow rate ▪ station, offset and elevation
Erosion ▪ Gullies ▪ Scarps ▪ Riprap displacement	▪ limits (width, length, depth) ▪ station, offset, and elevation ▪ estimate cause of erosion ▪ description of materials damaged ▪ estimated rate of erosion
Embankment Movement ▪ Cracks ▪ Settlement ▪ Bulges ▪ Slides ▪ Misalignment of downstream toe or crest	▪ limits (width, length, depth, height) ▪ station, offset, and elevation ▪ rate of change/movement
Structure Movement ▪ Spillway walls ▪ Spillway control structure ▪ Outlet works	▪ limits (width, length, displacement) ▪ station, offset, and elevation ▪ rate of change
Operational Components ▪ Damage ▪ Deterioration ▪ Malfunction	▪ description ▪ location ▪ impact of damage/malfunction on dam operation
Excessive vegetation (tall vegetation, woody vegetation within 15 feet of dam embankment or 25 feet of control structure)	▪ limits (width, length) ▪ station, offset, and elevation ▪ type of vegetation and special equipment necessary to remove
Animal damage (burrows, beaver debris, etc.)	▪ limits (diameter, depth) ▪ station, offset, and elevation ▪ signs of active rodent activity
Damaged Concrete ▪ Cracks and Spalling ▪ Erosion ▪ Deterioration	▪ limits (width, length, depth) ▪ station, offset, and elevation ▪ exposure of reinforcing steel ▪ indications of delamination (hollow

Table 3-1 Continued

Damaged Gates/Valves ▪ Seized/Binding ▪ Excessive Leaks ▪ Material Deterioration	▪ description ▪ location
Damaged/Deteriorated Pipes/Conduits ▪ Blockages ▪ Collapse ▪ Leaks (into or out of) ▪ Material Deterioration	▪ description ▪ location ▪ flow rate ▪ severity
Safety ▪ Fences/Gates/Bollards ▪ Fall Protection Equipment	▪ description ▪ location
Debris Buildup	▪ location and limits ▪ approximate volume to be removed
Vandalism / Trespassing	▪ description ▪ location

3.2.1 RECOMMENDED INSPECTION EQUIPMENT/MATERIALS

The inspectors should use the appropriate equipment to perform the inspection. Suggested equipment for performing inspections include:

- **Notebook and pencil** – should be available so that observations can be written down at the time they are made, reducing mistakes and avoiding the need to return to the site to refresh the inspector's memory.
- **Inspection checklist** – serves as a reminder of all important conditions to be examined.
- **Digital camera** – can be used to photograph field conditions. Photographs taken from the same vantage points as previous photographs can also be valuable in comparing past and present conditions. GPS enabled devices with timestamps are recommended.
- **Measuring tape** – allows for accurate measurements so that meaningful comparisons can be made of movements.
- **Flashlight** – may be needed to inspect the interior of an outlet in a small dam.
- **Water level indicator** – used to measure water levels in observation wells.

- **Stakes, flagging tape, grease pencils** – used to mark areas requiring future attention and to stake the limits of existing conditions, such as wet areas, for future comparison.

- **Hand-held GPS** – particularly helpful when inspecting larger dams to collect positional data on locations of interest.

- **Watertight boots** – recommended for inspecting areas of the site where water is standing.

- **Personal protective equipment (PPE)** - Insect repellent, sunscreen, snake protection, other PPE as conditions dictate (e.g., air meters, harnesses, fall protection, personal floatation devices).

3.3 INSPECTION TIPS

The embankment slopes, and sluiceway are the locations most likely to reveal a defect or deficiency during an inspection; however, the entire structure and adjacent areas should be inspected regularly, as problems may not be evident at the dam itself. Whenever the reservoir is emptied or the pool lowered, the upstream slope should be thoroughly inspected for settlement areas, rodent activity, sinkholes, or slides. The reservoir basin (bottom of the reservoir) should be inspected at this time for sinkholes or settlement as well.

As the inspector(s) crisscrosses the slopes during an inspection, they should look carefully for these items:

1. Cracks;
2. Slumps, slides;
3. Whirlpools (upstream slope);
4. Wet areas, unusually lush vegetation, seepage flow (downstream slope); and
5. Missing slope protection.

The first four conditions may indicate serious problems within the embankment and should be immediately reported to appropriate personnel for further evaluation or emergency action.

Looking for and spotting cracks is difficult. The slope must be traversed in such a manner that the inspector is likely to walk over the cracks. Cracks may be only a fraction of an inch wide but two (2) or three (3) feet deep. Cracks indicate possible foundation movement, embankment failure, or a surface slide.

Slides and slumps are almost as difficult to spot as cracks. Their appearance is subtle, since there may be only minor settlement or bulging out from the normal slope. When the dam was constructed it may not have been uniformly graded by the bulldozer or grade operator. A good familiarity with how the slope looked at the end of construction helps identify new slides. A pre-

and post-inspection comparison of new and older photographs can also help reveal changes in the slope over time. The lack of protection against wave action on the upstream slope can lead to erosion and the decrease of the embankment width and/or freeboard.

Standing at one end of the dam and sighting along linear features (the water edge, curbs, guardrails, and fences) can indicate changes in the slope that may be from a displacement or slide/slump. Also, if a crack is seen, the crest and downstream slope in that area should be carefully inspected to note any other changes in that area on the embankment that could be associated with the upstream crack.

Dam operation and maintenance staff *must* receive proper training and equipment to perform necessary inspections and the safety of the dam inspector must be considered paramount. Terrain is often steep, with uneven footings and potentially slippery surfaces.

4.0 DAM INSTRUMENTATION

TABLE OF CONTENTS

4.0 DAM INSTRUMENTATION

4.1 GENERAL

Dam Instrumentation refers to a variety of devices installed within, on, or near the dam to monitor structural behavior during construction, initial filling and subsequent operation. Instruments provide a means for detecting and analyzing abnormal conditions that could lead to major problems.

This section describes the instrumentation at Springwater Dam, the methods and frequency of data collection, transmittal of data, and procedures to evaluate the data. Timely evaluation of instrumentation readings is critical if an abnormal condition is to be detected, defined, and to allow for effective corrective action.

The following device is located on the upstream north wingwall:

> ***Reservoir Staff Gage***: A graduated marker mounted on the structure within the reservoir that is used to measure the water level in the reservoir.

Instrumentation and proper monitoring and evaluation are extremely valuable in determining the performance of a dam. Specific information that instrumentation can provide includes:

- Warning of a problem (i.e., settlement, movement, seepage, instability);
- Definition and analysis of a problem, such as locating areas of concern;
- Proof that behavior is as expected; and
- Evaluating remedial actions.

The dam operator (CAS) is the primary entity responsible for collecting and reporting instrumentation readings. The recommended frequency of reading the instrumentation is once per month.

It is essential that instrumentation data be processed, reviewed, and assessed in a timely manner by specialists (Water Management Technician) familiar with the design, construction, and operation of the project.

Instruments should be examined periodically for proper functioning. The adequacy of the installed instrumentation should be assessed from time to time by specialists to determine if it is sufficient to help evaluate the performance of the dam.

4.2 RESERVOIR STAFF GAGE

Reservoir water surface elevations should be read to the nearest tenth of a foot. When reading the reservoir water surface on the staff gage is difficult due to windy conditions, the average water surface elevation observed over several minutes should be recorded as the reservoir

elevation. A note should be recorded in the comment section that the weather conditions were windy at the time of the instrument reading.

If the reservoir staff gage becomes damaged or illegible it should be replaced. In general, reservoir water surface elevations within one (1) foot of normal pool are considered normal; however each dam is different and the range of normal reservoir levels may be greater or lesser than one (1) foot.

5.0 MAINTENANCE

TABLE OF CONTENTS

5.0 MAINTENANCE

5.1 CRITICAL CONDITIONS

The following conditions are critical and require immediate repair or maintenance under the direction of a qualified engineer retained by the dam owner. Emergency authorization can be made to start necessary repairs in the event of an imminent dam failure or to prevent an emergency from worsening. The critical repairs or maintenance need to address the specific conditions encountered and are not covered in this Manual.

- Erosion, slope failure or other conditions that are endangering the integrity of the dam;
- Piping or internal erosion as evidenced by increasingly cloudy seepage or other symptoms;
- Spillway blockage or restriction; or
- Excessive or rapidly increasing seepage appearing anywhere near the dam site.

5.2 PERIODIC MAINTENANCE

The following items should be noted during normal inspections and added to the work schedule for maintenance/repair as soon as possible:

- Remove bushes and trees from the embankment and abutments;
- Repair erosion gullies;
- Repair defective gates or valves;
- Repair deteriorated concrete or metal components; and
- Maintain riprap or other erosion protection.

Continued maintenance should also be performed for the following items:

- Test, clean and lubricate gates and valves;
- Inspect and maintain instrumentation; and
- Remove debris from embankment face and from areas around the intake structures.

5.3 ROUTINE EMBANKMENT MAINTENANCE

5.3.1 General

The establishment and control of proper vegetation is an important part of dam maintenance. Properly maintained vegetation can help prevent erosion of embankment and earth channel surfaces and aid in the control of groundhogs and muskrats. The uncontrolled growth of vegetation can damage embankments and concrete structures and make close inspection difficult. Equally important is maintenance of a grass lined emergency/ auxiliary spillway – which must be maintained with at least the same level of effort as the dam embankment.

5.3.2 Grass

Properly maintained grass vegetation is an effective and inexpensive way to prevent erosion of embankment surfaces. If properly maintained it also provides a surface that can be easily inspected. Roots and stems tend to trap fine sand and soil particles, forming an erosion-resistant layer once the plants are well established. Grass vegetation is least effective in areas of concentrated runoff, such as the contact of the embankment and abutments, or in areas subject to wave action.

If the dam is mowed at regular intervals, the growth of saplings, trees, and brush will not become a problem. However, if the dam is not mowed regularly, the resulting growth will make it difficult to properly maintain and inspect the project.

5.3.3 Trees and Brush

Trees and brush should not be permitted on embankment surfaces or in vegetated earth spillways. Growth of brush and trees on an embankment will cause several problems:

- It will obscure the surface of an embankment and prevent a thorough inspection of the dam;
- Large trees can be uprooted by high wind or erosion and leave large holes that can lead to breaching of the dam;
- Some root systems can decay and rot, creating passageways for water, causing erosion or piping of embankment material;
- Growing root systems can lift concrete slabs or structures;
- Trees, brush, and weeds can prevent the growth of desirable grasses; and
- Rodent habitats can develop as brush hides the burrows and provides protection.

Tree and brush growth adjacent to concrete walls and structures may eventually cause damage and should be removed. Where tall retaining walls are part of the dam structure, tree growth must not be allowed within a distance equal to the height of the wall, or 15 feet, whichever is greater.

5.3.4 Roads/ Pathways Along Crest

Roads/ pathways along or on the crest of dams should be maintained not only to keep the road/ pathway in passable condition, but, more importantly, to prevent damage of the embankment. Roads/ pathways on dams should be constructed with the proper subbase, base, and wearing surface. If a designed wearing surface has not been provided, traffic should not be allowed on the crest during wet conditions. Water collected in ruts may cause localized saturation thereby weakening the embankment. Ruts that develop in the crest should be repaired as soon as possible. The crest of the dam should be graded to direct all surface drainage into the impoundment. Road/ pathway drainage should not result in concentrated flows directed at or along the dam embankment.

5.3.5 Erosion

Whether on a slope, at a groin area, i.e., where the face of a dam contacts the abutments, or at a spillway outlet, erosion is one of the most common maintenance problems of embankment structures. Erosion is a natural process, and its continuous forces will eventually wear down almost any surface or structure. Periodic and timely maintenance is essential in preventing continuous deterioration and possible failure.

Prompt repair of vegetated areas that develop erosion is required to prevent more serious damage to the embankment. Not only should the eroded areas be repaired, but also the cause of the erosion should be addressed to prevent a continuing maintenance problem. Erosion might be aggravated by improper drainage, settlement, pedestrian traffic, animal burrows, or other forces. The cause of the erosion will have a direct bearing on the type of repair needed.

5.3.6 Rodent Control

If rodent burrowing is occurring at or near the dam, a program to trap nuisance animals should be developed and implemented. This program should be extended until such time that there is no evidence of new burrowing activities in the dam embankments. Creating conditions inhospitable to the rodents should be a goal of the program by ensuring that tall grasses, trees, vegetation at the water line are maintained

Large active or collapsed burrows should be excavated to remove loose soil, and then filled with compacted lifts of the excavated soil or a new compatible material. Prior to making any excavations into a dam embankment, any required permitting and engineering controls should be pursued. Excavations should be conducted when water levels in the lake/reservoir are at a seasonal low.

Beavers are persistent in their efforts to stop the flow of water, thus trapping and relocating beavers and frequent removal of beaver debris from spillways may be required. Few, if any, structural means to prevent beavers from clogging spillways are adequate.

5.3.7 Public Safety

Owners should be aware of their responsibility for public safety, including the safety of people not authorized to use the facility. Proper signage should be posted, and fences should be erected around dangerous areas.

5.3.8 Recommended Embankment Maintenance Schedule

- Mow grass on dam embankment regularly.
- Fill erosion gullies with properly compacted cohesive soil material. Seed or riprap repaired area to stabilize from future erosion.
- Fill rodent burrows with a slurry of soil. Remove the rodents.
- Maintain grass cover by spraying weeds, fertilizing, and watering as needed
- Remove brush, bushes and trees from embankment and from the groins, the toe of embankment, and from the control structure.
- Maintain grading of the embankment crests to prevent potholes, rutting, or other potential for standing water to accumulate.
- Maintain fences to provide site security and to exclude unwanted foot or vehicle traffic from the embankments. Repair and re-vegetate damaged embankment surfaces.
- Perform regular inspections of the embankments and abutments to identify potential maintenance items.

5.4 ROUTINE SPILLWAY AND CONTROL STRUCTURE MAINTENANCE

5.4.1 General

Structural spillway components and mechanical equipment (spillway gates, sluice gates or valves) must be adequately maintained to ensure overall performance of the dam.

Gate stems and couplings should be examined for corrosion, broken or worn parts, and damage to protective coatings. Fluidways, leaves, metal seats, guides, and seals of gates and valves should be examined for damage due to cavitation, wear, misalignment, corrosion, and leakage. Hydraulic hoists and controls should be checked for oil leaks and wear.

These elements are often difficult to visually inspect, therefore a change in effort to operate, new or increasing leaks, and other visual/auditory signs should be used to determine if a more thorough visual inspection is necessary.

5.4.2 Sluice Gates

Sluice gates (typically found in outlet control structures) should always be operable in order for the pool level to be drawn down in case of an emergency or for necessary repair. The recommended procedure to ensure the smooth operation of the sluice gate is to operate the gate through its full range at least once a year and preferably more often. Some manufacturers recommend operating gates as often as four times a year. Sluice gates that have not been operated for a long time present a special problem for dam owners. If the valve cannot be closed after it is opened, the impoundment could be completely drained. An uncontrolled and rapid drawdown could also induce more serious problems such as slides in the saturated upstream slope of the embankment. Large discharges could also cause downstream flooding and sedimentation overload. Therefore, before operating a valve or gate, it should be inspected and all appropriate parts lubricated and repaired.

Operation of the gates minimizes the buildup of rust in the operating mechanism and therefore the likelihood of its seizure. During this procedure:

- Check the mechanical parts of the hoisting mechanism—including drive gears, bearings, and wear plates—for adverse or excessive wear;
- Check all bolts, including anchor bolts, for tightness;
- Replace worn and corroded parts; and
- Make mechanical and alignment adjustments as necessary.

The way the gate actually operates should also be noted. Rough, noisy, or erratic movement could be the first signs of a developing problem. The causes of operational problems should be investigated and corrected as soon as possible.

Excessive force should be neither needed nor applied to either raise or lower a gate. Most hoisting mechanisms are designed to operate satisfactorily with minimum force on the operating handle or wheel. If excessive force seems necessary, something may be binding the mechanical system. Excessive force may result in increased binding of the gate or damage to the outlet works. If there does seem to be undue resistance, the gate should be worked up and down repeatedly in short strokes until the binding ceases or the cause of the problem should be investigated.

If the gate does not properly seal when closed, debris may be lodged under or around the gate or frame. Raise the gate at least two to three inches to flush the debris; then attempt to reclose the gate. This procedure should be repeated until proper sealing is achieved. However, if this problem or any other problem persists, consult a manufacturer's representative or engineer experienced in gate design and operation. **CAUTION**: If, at any time, the sluice gates will not close, open or otherwise malfunction, stop operating the gate and determine the cause of the malfunction. Contact an engineer before resuming gate operation for a professional opinion. Do not try to force a malfunctioning gate to open or close; this may damage the gate and/or the lifting mechanism.

An outlet gate's operating mechanism should always be well-lubricated in accordance with the manufacturer's specifications. Proper lubrication will not only reduce wear in the mechanism, but also protect it against adverse weather. Gates should be checked at least twice annually to assure they are free and clear from unwanted problems. If such mechanisms are neglected, water could enter the encasement pipe through the lower oil seal and could cause failure of the upper or lower seals, which in turn could lead to the corrosion of both the gate stem and the interior of the encasement pipe.

The metal used in gate seats is usually brass, stainless steel, bronze, or other rust resistant alloys. Older or smaller gates may not be fitted with seats, making them susceptible to rusting at the contact surfaces between the gate leaf and gate frame. Operation of gates should prevent excessive rust buildup or seizure.

Any operational adjustments or repair of damaged components should be performed immediately. All mechanical parts of the sluice gates should be periodically lubricated in accordance with the manufacturer's instructions. All gates should be repainted periodically.

The following procedure should be used when exercising the sluice gate:

1. Check operation, stem guide and gate attaching bolts for proper tightness.
2. Check gate guide groove and clean any foreign matter. Also, remove foreign matter, especially between the frame if accessible and safe to do so.
3. Verify that the downstream discharge channel is clear of debris.
4. Remove locking plates for sluice gates and open the gates in the following sequence.
    a. Barely open (crack) the sluice gate, then close the gate.
    b. Open the sluice gate 10 percent, then close.
    c. Open the sluice gate 25 percent, then close.
    d. Observe whether there is still water discharge through the pipes when the gates are closed completely. Record the observations.
    e. Return the sluice gate to the fully closed position, or to the opening required to provide required releases.

All exercising activities and results should be recorded.

5.4.3 Concrete

Repair of deteriorated concrete should be discussed with an engineer. Any vegetation observed growing from cracks in the concrete should be removed.

Over time, concrete surfaces will weather, leaving the concrete rough to the touch, or will hold moisture on the surface. When this occurs, consider applying a protective coating to the

concrete to help prevent moisture from entering the structure. By applying a protective coating to the concrete surface and sealing the cracks the chances of freeze/thaw damage will be greatly reduced, increasing the life expectancy of the structure. Prior to the application of a concrete sealer, the structure should be cleaned, existing cracks should be sealed with a flexible sealant, and any spalling repaired. Any sealer chosen for the concrete should be a water or solvent-based acrylic protective coating, which may be either clear or colored, and may be textured.

Periodic maintenance should be performed on all concrete surfaces to repair deteriorated areas in coordination with your engineer. Repair deteriorated concrete as soon as possible when noted; it is most easily repaired in its early stages. Deterioration can accelerate and, if left unattended, can result in serious problems. Consult an experienced engineer to determine both the extent of deterioration and the proper method of repair. Seal joints and cracks in concrete structures to avoid damage beneath the concrete.

More serious damage such as spalling should be repaired as soon as it is identified, especially if steel reinforcing has been exposed. All surfaces to be patched need to be structurally sound, clean, and free of loose debris, oils, vegetation, paints, sealants, and other contaminants. Remove all deteriorated concrete to depth sufficient to avoid delamination of the repair (consult your engineer). Cut edges should be square with the concrete surface, and not feathered. Surfaces should be sufficiently rough to ensure a good bond. Any existing reinforcing bars should be thoroughly cleaned. If required, existing concrete should be removed to fully expose the reinforcing bar. Sandblasting may be required to clean them thoroughly. All surfaces should be fully saturated and freestanding excess water should be removed before applying the repair material.

Visible cracking, scaling, or spalling are signs of concrete movement and stresses within the concrete. Cracks in concrete walls that are not repaired are subject to freeze/thaw damage, which widens the gap and leads to additional spalling of the concrete. When examining any concrete structures, spalling, scaling, or cracking should be minimal.

5.4.4 Metal

There may be two or more types of metal components at a dam. Galvanization and painting are common metal treatments. The galvanization process protects metals against corrosion. However, if corrosion does form, it should be completely removed with an appropriate method, and the area re-coated with a galvanizing touch-up product.

Any corrosion that forms on painted metal components should be completely removed with an appropriate method, and the area re-coated with paint.

When areas are repainted, ensure that paint does not get on gate seats, wedges, or stems (where they pass through the stem guides), or on other friction surfaces where paint could cause binding. Use heavy grease on surfaces where binding can occur. Because rust is especially damaging to contact surfaces, remove existing rust before the periodic application of grease.

5.4.5 Access Equipment

Many dams have structures above and below ground that require some type of access. Water supply outlet works, reservoir drains, gate spillways, drop box spillways, and toe drain manhole interceptors are typical structures that will require bridges, ladders, confined space entry equipment and procedures, fall protection equipment, or walkways. Care should be taken to properly design, install, and maintain these means of access for the safety of persons using them. Requirements for walkways may include toe plates and handrails. Walkways, and handrails should be examined for deteriorated or broken parts or other unsafe conditions.

5.4.6 Recommended Maintenance Schedule

- Test gates and valves. **[At least twice annually, Spring and Fall]**
- Lubricate gates and valves. **[Twice annually or as recommended by the manufacturer]**
- Repair defective gates and valves to ensure smooth operation and prevent leakage. **[As needed, consult with an engineer]**
- Repair deteriorated concrete or metalwork. **[As needed, consult with your engineer]**
- Remove debris from the upstream face of the dam, trash racks, plunge pool and outlet channels **[As needed and before/after heavy storms]**
- Repair or replace markings for staff gages, EAP trigger level indicators. **[Within 30 days of first observation of problem]**

APPENDIX A – MONITORING & INSPECTION FORMS

DAM OPERATIONS LOG DAM NAME: DATE OF REPORT: WEATHER: POOL LEVEL: PERSONS PRESENT:
Describe Operational Changes Made (e.g., adjust gates/valves):
Describe Maintenance Activities Completed (e.g., mowing, exercise valve, repaint handrails):
Describe General Observations Made:
Other Items:

Dam:_____ **Weather:**_____ **Date:**_____

Inspectors:_____ **Pool Level:**_____

CATFISH CREEK CONSERVATION AUTHORITY DAM INSPECTION	Y	N	Monitor
1. CREST			
Ground cover in good condition			
Settlements Depressions Cracks			
2. UPSTREAM SLOPE			
Ground cover in good condition			
Riprap in good condition			
Erosion Animal Burrows Trees Shrubs			
Settlements Depressions Bulges Cracks			
3. DOWNSTREAM SLOPE			
Ground cover in good condition			
Erosion Animal Burrows Trees Shrubs			
Settlements Depressions Bulges Cracks			
Seepage_____gpm			
4. INTERNAL DRAINAGE SYSTEM			
Seepage/drain flow: Left_____gpm Right_____gpm Other_____gpm			
Does seepage contain fines?			
5. ABUTMENT CONTACTS			
Trees Shrubs Erosion			
Seepage_____gpm			
6. SPILLWAY/RISER STRUCTURE Concrete or Metal Pipe			
Spalling Cracking Corrosion Erosion Scaling Exposed Reinforcement			
Joints: Displacement Leakage Loss of joint material			
Trash racks: Operational Broken Bent Rusted Debris Obstructed			
Sluice/Drain gates: Operational Broken Bent Corroded Leaking			
7. SPILLWAY CONDUIT Concrete or Metal Pipe			
Debris Cracking Leakage Spalling Exposed reinforcement			
Joints: Displacement Leakage Loss of joint material			
8. STILLING BASIN/PLUNGE POOL Riprap or Concrete			
Spalling Cracking Erosion Scaling Exposed Reinforcement Joint Deterioration			
Undercutting Eroding			
Outlet channel condition:			
Tailwater elevation and flow condition:			
9. EMERGENCY SPILLWAY			
Ground cover in good condition			
Erosion Trees Shrubs Obstructions			
OVERALL CONDITION: Excellent Good Fair Poor Unsafe			

Springwater Dam Natural Hazard Infrastructure Report and Asset Management Plan

July 2024

Catfish Creek Conservation Authority
8079 Springwater Road

R.R.#5 Aylmer, ON
N5H 2R4

Table of Contents

Contents

List of Figures

No.	Title	
1.1	Springwater Dam Location Plan	2
1.2	Springwater Dam Plan & Elevation View	3

1.1 Introduction

Springwater Dam is located in Lot 1, Concession 5 of Malahide Township at the outlet of Springwater Pond (part of the Bradley's Creek watershed). The UTM coordinates of the dam are 4732585.6North and 497208.3East, UTM Zone 17T (deck elevation 699.5ft, 213.21m). Figure 1-1 presents a location plan for the dam.

The Springwater Dam is owned by the Catfish Creek Conservation Authority (CCCA) and is operated by CCCA staff.

The concrete gravity dam (which is part of the adjacent roadway bridge) was constructed in its current configuration in 1968 (replacing the mill dam). It consists of 2 stop log sluiceways and 1 low flow valve, flanked by earth embankments (see Figure 1-2 – Plan & Elevation Schematic). The primary purpose of the dam is to maintain water levels on Springwater Pond for the upstream and downstream aquatic environment. It also maintains water levels on Springwater Pond for recreation purposes and flood control.

Dam upgrades since its 1968 construction have included:

- Culvert Underpass (1972)
- Overhead Gantry Lifting System (2009)
- Stop Logs Replacement (2015)
- Security Fencing on Upstream Side of Operation Deck

The sill elevation for the stop log bays is 682.0ft (207.87m). The invert elevation of the valve is ~681.0ft (207.57m).

1.2 Access Route

Springwater Dam is located within Malahide Township, and is part of the Springwater Bridge on County Road 35, approximately 3.3km south of the Highway 3(Talbot Line)/Highway 35 intersection (~3km west of the Town of Aylmer). The CCCA Administration Office is located on the opposite side of County Road 35.

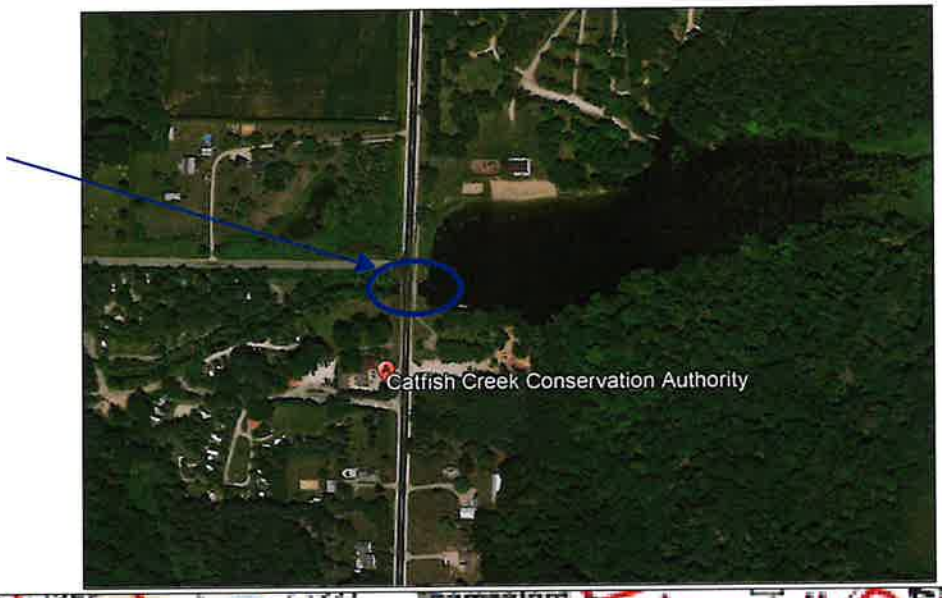
The municipal roads are maintained year-round.

1.3 Foundation

According to the 1968 construction drawings, the Springwater Dam is founded on a stiff clay soil layer.

1.4 Hydrotechnical Description

The surface area of Springwater Pond is approximately 90,000 m^2 (9.0 ha). The dam outlets into Bradley's Creek, which is a tributary of Catfish Creek. The volume of Springwater Pond at the normal water level is 217,000 m^3 (from Riggs report, 2004). The drainage area of Bradley's Creek at the dam is 0.37 km^2 (37 ha) (from Riggs report, 2004).



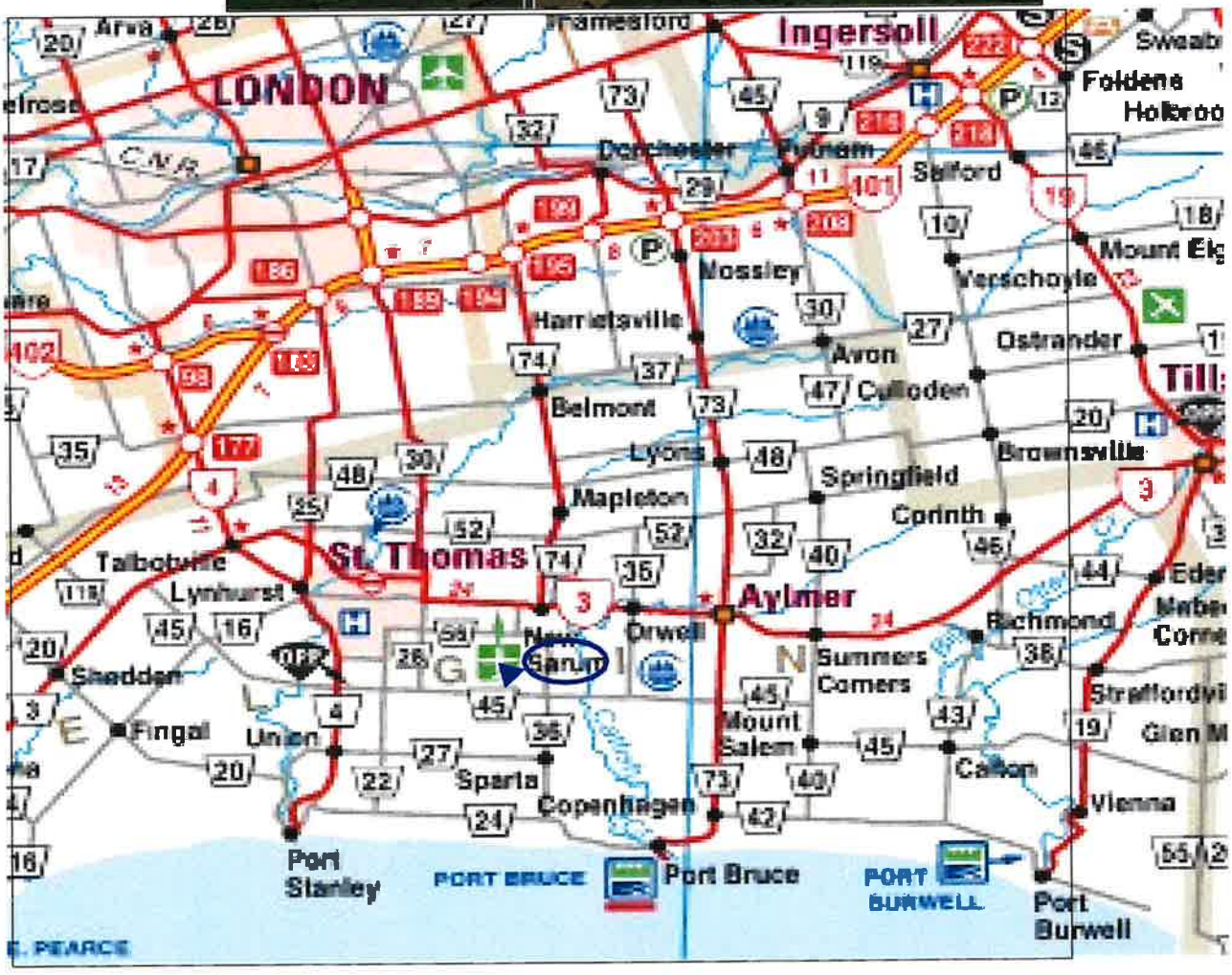


Figure 1-1
Springwater Dam
Location

1.5 Summary of Previous Formal Inspection

The Springwater Dam was inspected on September 22, 2020 by William Grandy of EXP Services Inc. The report can be obtained by request from the CCCA Administration Office. In general, the concrete of the structure was noted to be in good condition. Deficiencies noted at the time included:

Deficiency/Recommendation	Corrected?	2020 Comparative Condition
Significant spalling of concrete at the upstream north wingwall crest	No	Some concrete cracking observed at that location, EXP would not describe it as "significant spalling".
Corrosion of steel stop log gains (lower portion), replacement of corroded portions recommended	Uncertain	EXP could only inspect the portion of the gains above water, which appeared to be in good condition. Dewatering likely required to inspect (or divers).

1.6 Dam Structure and Concrete Condition

The dam consists of a center control structure (8.5m high, 11.6m wide, with 2 stop log bays (4.95m wide each) and 1 valved sluice opening (0.53m x 0.53m), with upstream and downstream wingwalls on the control structure's north and south sides (upstream wingwalls are 7.7m high, 14.6m long, downstream wingwalls are 7.4m high and 9.8m long).

Overall, the dam's concrete is in good condition. Note that the downstream stilling basin was submerged at the time of inspection, so it could not be assessed. The following table lists the concrete deficiencies that were noted during the inspection:

Location	Deficiency	Description	Probable Cause
Operation Deck – Vertical Upstream Face above Centre Pier	Cracks and efflorescence	Pattern cracks, hairline/narrow width, 1m length	Concrete shrinkage
North Upstream Wingwall – Crest near Operation Deck	Cracking and Spalling	Cracks, narrow width, 1m length, light spalling	Differential pressure (one side backfilled)
North Upstream Wingwall – Vertical Face near Operation Deck	Cracks and efflorescence	Hairline/narrow width, 4m length	Slight differential structure movement
South Upstream Wingwall – Crest near Operation Deck	Cracking	Wide crack in longitudinal direction, length ~1m	Possible separation of wall at construction joint.

96

North Downstream Wingwall – Crest near Roadway	Cracking and Spalling	Medium spalling at crest, small area (length <1m), depth <50mm	Concrete deterioration from proximity to roadway salt
North Winch Pedestal	Exposed rebar near top	Rebar exposed, corroding (length < 1m)	Insufficient cover for rebar at that location

1.7 Operation Equipment

The dam has one valve sluice gate, with an opening size of 0.53m x 0.53m. It was repaired in 2009 (estimated date). It is not frequently operated, since seepage through the stop logs provides the necessary downstream flow under most circumstances. The valve was operated during the summer of 2022 and reportedly works well. It appears to be in good condition.

There are 10 stop logs in each of the 2 sluiceways. 10 of these logs were replaced approximately 8 years ago, 5 in each sluiceway (in positions 2 to 6, top log would be in position 1). The stop log dimensions are 305mm x 305mm x 4.8m long each. The stop logs are removed and installed using 5- ton capacity manual winches (Timberland Ellicott) mounted on concrete pedestals. The winches are painted metal and are in good condition (some surface corrosion and flaking paint).

An overhead lifting gantry was installed at the dam in 2009. It is mainly used for lifting the gain covers. It is constructed of painted metal, with 2 chain hoist mountings that slide on a steel beam. The chain hoists are stored at the CCCA building and are in good condition. The gantry is in good condition, with some flaking paint and surface corrosion, particularly at the baseplates. There is also an overhead lifeline constructed on the downstream side of the operation deck for body harness connection during operation of stop logs. It is in good condition.

The Gantry and components were resurfaced in the summer of 2023 including a sanding, epoxy, and repaint.

A staff gauge is presently mounted on the upstream north wingwall. It is 1.0m in length and provides measurements in metric. The gauge is connected directly to the wall with fasteners, there is no mounting bracket or backing. The staff gauge was replaced in summer of 2023.

The stop log openings have galvanized steel grating covers. These are in good condition.

1.8 Hardware

2 steel pipe handrails (painted) are mounted on the upstream side of the operation deck. Some surface corrosion and flaking paint was noted, particularly at the baseplates, overall the handrails are in good condition.

Galvanized chain link fencing is installed on the operation deck. Corrosion was noted at the baseplates, overall it is in good condition. Chain link fencing is also installed on the crests of

the upstream wingwalls. Some corrosion was noted on the fencing and baseplates, overall it is in satisfactory condition.

The base plates and hand rails were sanded, epoxied, and repainted in the summer of 2023.

1.9 Recommendations

EXP makes the following recommendations for the Springwater Dam:

- Monitor all concrete cracks/spalling noted.
- Monitor all corroding steel noted.
- Install new staff gauge

1.10 Construction Costs/Priority for Implementation of Recommendations

The estimated construction costs and their associated priority are presented in the following tables:

Minor Maintenance (less than $100,000)

Item	Unit	Quantity	Unit Price	Estimated Price	Priority Ranking*
Replace staff gauge (Complete)	each	1	$500	$500	2
Sand corroded baseplates for gantry and fencing, re-paint (Complete)	each	20	$200	$4,000	3
Repair Wide Crack at crest, South Upstream Wingwall (Complete)	each	1	$2,000	$2,000	3
Repair concrete vertical cracks, North Upstream Wingwall vertical face	m	4	$2,000	$8,000	4
Repair Hairline/Narrow cracks with efflorescence, various locations	m	10	$2,000	$20,000	5
Sand and Repaint hand railing and gantry	each	1	$10,000	$10,000	5
TOTAL				**$44,500**	

Major Maintenance (more than $100,000)

- None

Priority	Description
1	Urgent - Unexpected repair/rehabilitation, corrective action required immediately.
2	Now - Corrective action required within 1 year.
3	1-5 Years - Corrective action required within 1 to 5 years, monitor until corrected.

4	6-10 Years - Corrective action required within 6 to 10 years, monitor until corrected.
5	None - Corrective action not anticipated in the next 10 years, monitor defect, take corrective action only when required.

REPORT FA 56/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary-Treasurer

SUBJECT: Conservation Ontario Council Meeting

DATE: June 27, 2024

PURPOSE:

To update the members on the business items discussed at the Conservation Ontario Annual General Meeting.

DISCUSSION:

The General Manager / Secretary-Treasurer and Chairperson attended the Conservation Ontario Annual General Meeting held virtually on June 24, 2024. Highlights of the meeting include:

a) Annual Report / Financial Statements:

Highlights of both documents were presented to Council for approval and are available online for reference.

b) Progress on Conservation Ontario's 2024 Workplan

Promoting the Conservation Authorities:

Conservation Ontario will promote Conservation Authorities at 22 strategically aligned events in 2024 through sponsorships, exhibits, presentations, and hosting and create an increased presence and profile at in person symposiums.

Supporting Conservation Authorities' Implementation of changes to the Conservation Authorities Act (CAA):

3 CO guidelines were circulated to support transition to the new O. Reg. 41/24 Prohibited Activities, Exemptions and Permits which took effect April 1, 2024.

GM Information Sharing sessions were held to discuss approaches to public consultation and engagement, and conservation land inventories and to discuss the role of Ombudsman Ontario and Minister's Permit and Review Powers.

Financial Support to Leverage the work of Conservation Authorities

Completed the management and implementation of Year 3 of the Nature Smart Climate Solutions project and initiated Year 4 of the Nature Smart Climate Solutions Program and wrapped up Year 3 of 3 of the Canada Nature Fund.

Two CO funding applications were made in February under the Great Lakes Freshwater Ecosystem Initiative, one partnered with AquaAction and supported the review and allocation of provincial funding to CA Water and Erosion Control Infrastructure major maintenance projects

Supporting the Province and CAs by facilitating a successful Drinking Water Source Protection (DWSP) program

Co-Chaired 2 Program Manager meetings with Conservation & Source Protection Branch Staff. And facilitated and coordinated a Source Water Protection Seminar series for DWSP.

Hosted regular meetings of the Project Managers on DWSP-specific topics (e.g. Keeping Source Protection Committee Members Engaged, Transport Pathways, Updating Groundwater Information, etc) and developed the "Climate Change Vulnerability Assessment Approach Template"

Supporting internal governance

Hosted in-person Annual General Meeting electing a new Board, and annual reporting on Standing Committees and CO representatives on Interagency Committees/Councils/Boards, CO Committees and CA discussion groups. Delivered 2023 financial audited statement, orientation for new Council Members and the CO 2023 Annual Report. Hosted monthly GM meetings enabling discussion of issues and planned two-day GM 'strategy' session at the end of June.

c) Conservation Ontario's comments on the "Regulation detailing new Minister's Permit and Review powers under the Conservation Authorities Act" (ERO#019-8320)

Given the broad scope of provincial interests which could facilitate a Minister's review or order, the lack of procedural details, and concerns regarding liability of permitting decisions, Conservation Ontario recommends the Province pause implementation of this regulation and engage with CAs and Municipalities. Further conversation is necessary to ensure the process remains transparent, procedurally fair, and does not circumvent locally established processes.

d) Conservation Ontario Governance Accountability and Transparency Initiative

The Conservation Ontario Governance Accountability and Transparency Initiative (GATI) identifies several required and best management practice actions for CAs to demonstrate accountability and transparency to the Province and municipal partners.

e) Conservation Ontario's comments on Bill 185, the Cutting Red Tape to Build More Homes Act, 2024

In May 2024, the Province proposed legislative and regulatory changes through Bill 185, the Cutting Red Tape to Build More Homes Act, 2024. This report provided an overview of the proposed changes and Conservation Ontario's responses.

f) Conservation Ontario's comments on the "Review of proposed policies for a new provincial planning policy instrument" (ERO# 019- 8462)

In April 2024, the Ministry of Municipal Affairs and Housing (MMAH) sought feedback on an updated proposed Provincial Planning Statement (PPS) that incorporates feedback received through the previous consultation on the proposed. Conservation Ontario is pleased with

proposed references to CA roles in natural hazard management and watershed planning, as well as promoting collaboration between CAs, planning authorities, and the Province.

g) Natural Asset Management

As a result of the November, 2023 workshop for Conservation Authorities on Natural Asset Management Planning, a team of conservation authority staff from Toronto and Region CA (TRCA), Credit Valley Conservation (CVC), Conservation Halton (CH), Niagara Peninsula CA (NPCA), Lake Simcoe Region CA (LSRCA) and Ausable-Bayfield CA (ABCA) with Conservation Ontario (CO) have co-developed a draft Roadmap about Natural Assessment Management for CAs. The Roadmap is intended to guide CO and CAs collectively towards common understanding of the potential role of CAs corporately and in support of watershed municipalities.

h) Policy and Planning Program

The report provided updates on Member Services provided by Policy and Planning staff since the April 15th Annual General Meeting. The services support Conservation Authorities Act (CAA) implementation (e.g., GM sessions, training, funding, committees) and advocacy on Great Lakes water quality and coastal resilience (e.g. Ottawa Hill Day Great Lakes and St. Lawrence, current circulations of consultations re: freshwater science needs and Great Lakes Water Quality Agreement 2012 review).

i) Business Development and Partnerships Program

The report provided an update on engagement with partners at events and on initiatives, including the promotion of investments and collaborations in support of CA services and programs.

j) Drinking Water Source Protection Program

The Clean Water Act received Royal Assent in 2006, establishing the Drinking Water Source Protection (DWSP) program administered by the Conservation and Source Protection Branch (CSPB) of the Ministry of the Environment, Conservation and Parks (MECP). The program is funded by the Province. Conservation Ontario (CO) provides coordination and support to Conservation Authorities (CAs) as Source Protection Authorities (SPAs) who deliver and implement this program on a watershed basis.

k) Marketing and Communications

It is strategically important for Conservation Ontario to have a strong presence at conferences across Ontario to showcase the vital role of Conservation Authorities in watershed management. By participating in conferences, Conservation Ontario engages with stakeholders, shares best practices, and fosters collaboration to create safe, healthy, and sustainable communities. Additionally, conferences provide a platform for Conservation Ontario to stay informed about the latest trends, innovations, and policies, enabling us to enhance our knowledge and expertise. Overall, having a presence at conferences is essential for Conservation Ontario to network, develop partnerships, educate, and advocate for the importance of Conservation Authorities to conservation efforts in Ontario.

l) Information Management Program

The report provided an update on current, key information management activities involving Conservation Ontario and member CAs. The report highlighted initiatives endorsed by Council through the Conservation Ontario Strategic Plan.

RECOMMENDATION:

THAT, the information outlined in Report FA 56/2024, be noted and filed.

D. Underhill

Dusty Underhill
General Manager / Secretary-Treasurer

REPORT FA 57/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary-Treasurer

SUBJECT: June 25-27 General Managers Meeting

DATE: June 28, 2024

PURPOSE:

To update the members on discussions and workshops held at the in-person General Managers Meeting held at the Kingbridge Conference Centre.

DISCUSSION:

From June 25-June 27, 2024 General Managers of Conservation Authorities met at the Kingbridge Center for a two-day workshop. Highlights included;

Emerging Technology

Abdi Aidid, Assistant Professor, University of Toronto Faculty of Law gave an excellent presentation "Emerging Technology: AI and ChatGPT".

Professor Aidid explained how AI can automate repetitive tasks, leading to increased productivity and efficiency in industry. AI-powered systems can operate continuously without breaks, leading to improved availability of services and support. Algorithms can analyze large amounts of data quickly and make data-driven decisions with minimal human intervention, improving accuracy and reliability and enables the development of new products and services that were previously unimaginable, driving technological advancements across various fields. Algorithms assist in personalizing the user's experiences by analyzing user preferences and behaviors, leading to tailored recommendations in niche areas.

AI and automation can lead to job losses or changes in job roles, impacting employment opportunities, particularly for jobs that involve repetitive tasks. AI systems often require access to large amounts of personal data, raising concerns about data privacy and security breaches. Algorithms can perpetuate biases present in the data they are trained on, leading to unfair outcomes in niche areas. On occasion, AI can be prone to errors, especially when encountering situations outside their training data or face adversarial attacks.

In closing Professor Aidid explained that navigating the benefits and drawbacks of AI requires careful consideration of ethical, social, and economic implications to harness its potential while mitigating its risks.

Administrative Reviews/Minister's Powers/Hearings/Discussion and Q&A

Brandon W. Orct, Associate & John A. Olah, Partner, of Beard Winter discussed and led a roundtable on the implication of the new Ministers Powers, and the ramifications of said power on Conservation Authorities.

One Health Approach

Peter Carter of the Ministry of Natural Resources provided a brief overview of One Health. One Health promotes collaboration across disciplines such as medicine, veterinary science, environmental science, and public health, fostering a more comprehensive understanding of health issues. By monitoring and addressing health threats at the human-animal-environment interface, One Health improves early detection, response, and control of infectious diseases that can affect multiple species which emphasizes sustainable practices to protect ecosystems and biodiversity, recognizing their role in human and animal health. One Health encourages efficient use of resources by integrating health interventions across sectors, potentially reducing costs and improving outcomes.

Achieving effective collaboration across different sectors and disciplines can be challenging due to differing priorities, language barriers, and institutional silos. Health issues at the interface of humans, animals, and the environment are often complex and multifaceted, requiring nuanced approaches and solutions. Implementing One Health strategies may require changes in policy, regulations, and governance structures, which can be slow and challenging to achieve. Raising awareness about the interconnectedness of health and fostering community engagement are essential but can be difficult due to varying levels of understanding and interest.

Conservation Areas Strategy

A presentation was made by St Clair Region Conservation Authority's Lands Manager on their Board Approved Conservation Areas Strategy. The St Clair CAS Strategy is one of the first strategies presented and approved and will assist others in content and requirements by providing an excellent template to follow.

Communicating to Achieve a Goal: Fed/ Provincial Pre-Budget/CA Messaging for MPs/MPPs

Conservation authorities bring additional, valuable resources to projects by leveraging vast, long standing local, municipal and provincial partnerships. We work closely with property owners to plan, develop, and implement significant, practical, projects. When added up, these actions provide significant improvements to the Great Lakes – St. Lawrence River region and its waters. Conservation authorities' watershed management expertise ensures: effective delivery of programs, value for money, local buy-in, and a more meaningful impact than any one organization can achieve independently.

Other Roundtable and Topics of Discussion Included;

- Natural Asset Management: Roundtable Discussion, How CA's can Support Municipalities
- Watershed Use, Interest in Tool and Capacity Needs
- Business Development & Partnerships

RECOMMENDATION:

THAT, the Full Authority receive Report FA 57/2024 as information.

D. Underhill

Dusty Underhill
General Manager / Secretary-Treasurer

REPORT FA 58/2024 : To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary-Treasurer

SUBJECT: Lake Erie Action Plan (LEAP) Update

DATE: June 11, 2024

PURPOSE:

To provide the members with an update on the LEAP.

DISCUSSION:

For years Canada and Ontario have worked with the United States to try to control nutrient pollution that enters Lake Erie. The common objective over the years has been to reduce phosphorous loads that are entering waterways. Although essential for plant and animal life, to much can be harmful and encourage algal bloom and cyanobacteria (formerly known as Blue Green Algae).

Early efforts (1980's) were put in place to control and lower phosphate levels in detergents and to enhancing municipal wastewater treatment programs which assisted in improving the amount of phosphates entering the Lake Erie basin dramatically. Climate change, hydrologic patterns, land use changes and management, development and population, and arrival of Invasive Species such as the zebra and quagga mussels, and a change in substrate once again started appearing in the Lake Erie's western basin each year and a low oxygen zone in the eastern basin encouraged the harmful cyanobacteria to bloom and last long periods of time. Canada, Ontario, and partners are working together through the Canada–Ontario Agreement on Great Lakes Water Quality and Ecosystem Health (COA), to restore, conserve and protect the Great Lakes basin ecosystem.

Catfish Creek Conservation Authority (CCCA) located in the Central Basin of Lake Erie assists by increasing our focus on actively managing CCCA lands to minimize phosphorus losses by enhancing, and enlarging wetland areas, retiring marginal and erodible lands, naturalizing conservation lands, and planting trees. Where possible, the CCCA also provides on-farm technical assistance and deliver financial assistance programs for landowners, which are implemented in partnership with watershed municipalities and other environmental sector organizations. Each agricultural and rural site is unique in terms of its landscape, soil type, vegetative cover, and past and present land management practices. LEAP activities aimed at reducing phosphorus from the agricultural landscape therefore emphasized site- and sector-specific planning, funding, and technical support.

Natural heritage features, including wetlands and riparian areas also play a vital role in filtering out nutrients from runoff before it can enter a waterway in addition to providing other important ecosystem services such as habitat and carbon sequestration. The restoration and protection of these natural heritage features and their functionality helps reduce phosphorus loads to the lake. Since 2018, LEAP partners have carried out hundreds of natural heritage projects across the Lake Erie basin.

Building on the actions and findings from the first LEAP cycle, work in the next cycle will be guided by the following six (6) priorities.

Priority 1: Continue to target reductions at high-risk phosphorus loading sources, with a focus on the Thames River watershed, the Sydenham River watershed, and the Leamington/ Kingsville area of the Lake Erie basin. While we will continue to implement and enhance phosphorus reduction actions across the watersheds, it is clear more work is needed, especially in these priority watersheds/areas. Advanced management approaches, such as precision conservation, and multi-scale modelling tools can be used to tailor actions to site conditions, identify types of BMPs (e.g., agricultural, municipal, natural heritage), and will allow us to evaluate the cumulative effect of those actions in achieving binational and domestic phosphorus loading reduction targets.

Priority 2: Continue to prioritize efforts that address the seven LEAP phosphorus loss pathways: livestock management, field crop management, greenhouse management, urban storm water management, municipal and tile drainage systems, natural areas management, and land user behavior and adoption of BMPs. Focusing our ongoing efforts on these seven LEAP pathways will be key to achieving phosphorus load reduction targets.

Priority 3: Continue to build understanding of how individual management practices, and combinations of practices, work to reduce phosphorus. We will use the best available monitoring, modelling, science and decision support tools to guide action and investments at various scales including watershed and field scales. We will assess the performance of management practices under different conditions through monitoring and modelling. Where and how are they most effective? What might cause them to be less effective? What are the climate change considerations when implementing these practices? Are there optimal groupings or placements for such actions? How much phosphorus would be reduced if a given action, or combination of actions, was implemented?

Priority 4: Seek out and emphasize measures that provide multiple benefits. We know that reducing phosphorus loads to Lake Erie has many benefits. LEAP partners support, fund and/or promote management practices to reduce phosphorus loss resulting in cost savings and co-benefits to the Canadian Lake Erie community. In this first LEAP cycle, we were able to demonstrate that management practices to reduce phosphorus loss resulted in several co-benefits, such as cost savings in water treatment, protection of storm water infrastructure, erosion reduction, and enhanced soil health. Additional co-benefits include carbon sequestration, reduced greenhouse gas emissions and enhanced biodiversity. In the next LEAP cycle, the LEAP Implementation Team will strive to boost implementation by leveraging other initiatives and funding programs that have co-benefits in addition to reducing phosphorus.

Priority 5: Continue to expand the LEAP partnership to include more municipalities, agricultural organizations, and other key partners who are committed to supporting the LEAP. Expanded LEAP partnerships will be used to prioritize and enhance opportunities for LEAP actions and to collaborate and recognize partner accomplishments and participation.

Priority 6: Actively work to support and strengthen First Nations and Métis participation in implementing the LEAP through existing mechanisms and new partnerships. For example, Canada's Great Lakes Freshwater Ecosystem Initiative is working to enhance First Nations and Métis capacity to implement on-the-ground actions and plans that restore and protect Great Lakes water quality and ecosystem health, conduct science and monitoring that informs decision making, and participate in Great Lakes governance. Through its Great Lakes Program,

Ontario will continue to build relationships and support on-the-ground actions led by First Nations and Métis to support the LEAP.

Canada has made a commitment to the Great Lakes Freshwater Ecosystem Initiative which will greatly enhance and support boots-to-the-ground actions following the Precision Conservation approach. This will target phosphorus load reduction measures in critical source areas for nutrient loss, as well as increasing participation in the application of phosphorus load reduction measures by demonstrating innovative approaches for implementation of BMPs, and filling knowledge gaps that have been verified through research and science.

Ontario's Great Lakes funding program and other initiatives support LEAP partners and the implementation of key initiatives such as the LEAP Multi-Scale Watershed Framework, LID / green infrastructure installations, watershed management plans, First Nations technical programs, and First Nations Youth Stewardship programs.

Part of Ontario's 2023 Budget announced funding of $9.5 million over three years to implement the Soil Resource Inventory and to develop the Ontario Agricultural Soil Information System, which are two key actions within the Soil Strategy and the Grow Ontario Strategy. Healthy soil helps protect water quality by retaining nutrients that may otherwise run off the land into adjacent streams and lakes. Agriculture-specific programming continues through the CAP to support farmers in making agricultural lands more productive, environmentally sustainable, and resilient to the impacts of climate change. The funding includes the Resilient Agricultural Landscape Program; and support for the ONFARM program.

This first LEAP adaptive management cycle attests to effective governance across sectors and what can be accomplished towards a common goal. It also highlighted the continued need for focused and strengthened actions to keep phosphorus on the land and out of Lake Erie basin's waterways.

RECOMMENDATION:

THAT, the Full Authority receive Report FA 58/2024 as information at this time.

D. Underhill

Dusty Underhill
General Manager / Secretary-Treasurer

REPORT FA 59/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary - Treasurer

SUBJECT: Health and Safety Policy Addition

DATE: July, 26 2024

PURPOSE:

To request approval by members of CCCA's Health & Safety Policies and Procedures Manual 2021

BACKGROUND:

As per CCCA By-Law B.15, the Health & Safety Committee shall report to the General Membership, presenting any recommendations made by the Advisory Board or Committee.

The Health & Safety Committee met on July 26, 2024 and is proposing an update to Section 11.2 Motor Vehicle Operations. A recommendation was brought fourth to the Health and Safety Committee by a staff member to vehicles and equipment to be backed into designated parking areas etc. unless otherwise directed by authorized personnel. The office and parking area are located at the bottom of the hill and traffic from North and South can approach quickly. If backing out there is not enough reaction time to avoid the situation.

The following paragraph will be added as a bullet point to section 11.2 Motor Vehicle Operations:

While there may be situations where backing onto a roadway is unavoidable (such as in emergencies), it should generally be avoided due to the significant safety risks it poses. Vehicles should only back into designated parking areas unless otherwise directed by authorized personnel. Drivers should use mirrors, check blind spots, and if available, use backup cameras or sensors to assist in backing maneuvers. Spotters should be used when backing into tight or congested areas where visibility is limited. Before backing, drivers must conduct a pre-backing check to ensure the path is clear of obstacles, pedestrians, and other vehicles. Drivers should be extra mindful of fixed objects such as poles, walls, or equipment that may obstruct the backing path. Non-compliance may result in disciplinary action or additional training as deemed appropriate by authorized personnel of the Catfish Creek Conservation Authority.

RECOMMENDATION:

THAT, the Board of Directors approve the updated Health & Safety Policies and Procedures addition outlined in Report FA 59/2024; and further;

AND THAT, the General Manager / Secretary-Treasurer advise staff of the addition to Section 11.2 of the Health & Safety Policies and Procedures manual which becomes effective immediately.

D. Underhill

Dusty Underhill,
General Manager / Secretary - Treasurer

REPORT FA 60/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary - Treasurer

SUBJECT: 75th Anniversary Committee

DATE: July 4, 2024

PURPOSE:

To consider appointing an ad hoc committee to develop a list of ideas to celebrate the 75th Anniversary of the Catfish Creek Conservation Authority.

DISCUSSION:

2025 will mark the 75th Anniversary of the Catfish Creek Conservation Authority. It has been suggested that some type of event(s) or project(s) should be considered to officially recognize this milestone.

Staff are recommending that a 75th Anniversary ad hoc committee be appointed consisting of the General Manager / Secretary – Treasurer, Communications/Program Support Assistant, and two members from the Board of Directors.

The Full Authority will be responsible for making any final decisions on this matter.

RECOMMNEDATION:

THAT, the Full Authority appoint a 75th Anniversary ad hoc committee consisting of _____, _____, the General Manager / Secretary – Treasurer, and the Communications/ Program Support Assistant.

D. Underhill

_____

Dusty Underhill,
General Manager / Secretary - Treasurer

REPORT FA 61/2024: To The Full Authority

FROM: Dusty Underhill, General Manager / Secretary - Treasurer

SUBJECT: Watershed-based Resource Management Strategy

DATE: July 4, 2024

PURPOSE:

To approve the Watershed-based Resource Management Strategy (Strategy).

DISCUSSION:

On June 17, 2024 the draft Strategy was posted online for a 6-week time frame. Letterhead was also addressed to all five member municipalities mayor and councils and local Indigenous Communities to encourage their senior staff and constituents to participate by providing input. Over the course of 6 weeks no responses were received from councils, senior staff, Indigenous communities or the general public.

The General Manager is asking the Board of Directors to approve the draft Strategy for publication which assists in the completion of another requirement of Ontario Regulation 686/21, Mandatory Programs and Services.

RECOMMENDATION:

THAT, the Full Authority approve the draft Watershed-based Resource Management Strategy for publication on the Catfish Creek Conservation Authorities website and by any other means the Authority deems adequate.

D. Underhill

Dusty Underhill,
General Manager / Secretary - Treasurer

Watershed-based Resource Management Strategy

Approved by Board of Directors:
Effective Date:
Motion No:

Land Acknowledgment:

We would like to take this time to recognize that the land on which we gather is in the traditional territory shared between the Haudenosaunee (ho - din - oh - show - knee) confederacy, the Anishinabe (ah - nih - shih - nah - bai) nations, and the Attiwonderonk Neutrals. First Nations people have longstanding relationships to the land, water and Southwestern Ontario and we are thankful for the opportunity to live, learn and share with mutual respect and appreciation.

Contents

Acknowledgments and Authors:

The Catfish Creek Conservation Authority (CCCA) would like to thank Conservation Ontario for the guidance documents that were provided to assist in fulfilling the requirements of the Mandatory Watershed-based Resource Management Strategy (Strategy), other Conservation Authorities for draft content and the Conservation Authorities Act and its regulations.

The authors of the CCCA Strategy are Peter Dragunas, Water Management Technician and Dusty Underhill, General Manager/ Secretary - Treasurer.

Thank you to everyone who took the time to contribute to the Strategy through public consultation that occurred from June 17, 2024 to July 26, 2024 with final review and approval from the CCCA Board of Directors on August 8, 2024.

1.0 INTRODUCTION

1.1 Purpose

The purpose of the Watershed Based Resource Management Strategy is to assist the Catfish Creek Conservation Authority (CCCA) with developing or improving the delivery of programs and services and their efficiencies and their effectiveness in supporting Mandatory Category 1 Programs.

As part of the Strategy, each Conservation Authority (CA) across the province will develop guiding principles and objectives that inform the design of our programs and services. This document is a summary of information the CCCA can rely upon to directly inform and support program and service delivery, and identify any issues and risks which may limit the delivery of Category 1 programs/services, including actions to address such risks. As such, the Strategy may be used as a management and communications tool with the CCCA's member municipalities, all levels of government, and members of the community to identify actions and Category 2 and 3 programs and services that are recommended to support the delivery of mandatory CA programs and services if necessary. It provides a mechanism to update CCCA's Programs and Services Inventory and to identify where opportunities exist for improving and/ or maintaining watershed health.

To understand the environmental health of the Catfish Creek watershed and the Lake Erie tributaries within CCCA's jurisdiction all environmentally natural and developed artificial components within the watershed require consideration. The CCCA administrative area is comprised of many natural and urbanized elements, from agriculture to municipal to old growth forest, water resources and recreation all of which are comprised of individual ecosystems, together they make-up the watershed bionetwork.

1.2 Goal

The goal of the Strategy is to design and deliver cost effective programs and services that protect people and property from natural hazards and climate change impacts, protect municipal drinking water resources, conserve nature, and provide opportunities for outdoor recreation and education across the watershed. By considering the interconnectedness of the above noted components, this approach helps in achieving holistic and effective management of water resources and associated ecosystems.

1.3 About CCCA

The CCCA was established under Order in Council on February 23, 1950 by request from the Town of Aylmer and Malahide Township. Conservation Authorities protect, restore and effectively manage impacts on Ontario's water resources such as lakes, rivers, streams and groundwater. Conservation Authorities develop programs that protect natural heritage and habitats and promote watershed stewardship practices that lead to healthy watersheds. The CCCA is a local not for profit organization located in southwestern Ontario who implements programs and objectives to;

1) Protect life and minimize property damage from natural hazards and climate impacts,

2) Improve and protect the ecological health of the Catfish Creek watershed's increasing biodiversity, habitat connectivity, and natural cover,

3) Curate an appreciation and create equitable access to nature,

4) Ensure our Conservation Lands are protected and enhanced,

5) Operate a sustainable, fiscally responsible and adaptable organization.

1.4 Legislative Background

Proclaimed provisions within the Conservation Authorities Act (CAA) and accompanying regulations establish requirements for Mandatory Programs and Services (see Section 21.1 of the Act https://www.ontario.ca/laws/statute/90c27#BK29 and Ontario Regulation 686/21 (O.Reg 686/21) https://www.ontario.ca/laws/regulation/210686).

O.Reg. 686/21 sets out the Mandatory Programs and Services, which must be delivered by all Conservation Authorities in Ontario. Subsection 12(1)3 of the regulation requires all Conservation Authorities to prepare a WBRMS in accordance with subsections 12(4) through (9).

Proclaimed provisions within the Conservation Authorities Act and accompanying regulations establish a requirement for Transition Plans including a Program and Service Inventory and Agreements for Programs and Services (Category 1: Mandatory Programs and Services, Category 2: Municipal Programs and Services Provided on Behalf of a Municipality, Category 3: Programs and Services Advisable by the Conservation Authority). The Strategy may include both Category 2 (municipal - s21.1.1) and Category 3 (other - s21.1.2) programs and services provided by the CA, where the agreement which provides for the delivery of these programs or services permits the inclusion of these programs or services in the Strategy. The CCCA currently only has Category 1 Mandatory Programs and Services and Category 3, Other Programs and Services. The CCCA's Category 3 programs are cost recoverable or paid in full by monies not acquired from municipal levy such as grants, reserves and cost recovery.

2.0 VISION, MISSION, CORPORATE VALUE, STRATEGIC PILLARS, NEXT STEPS

2.1 CCCA's Strategic Plan 2024-2034 (Guiding Principles and Objectives)

In 2023 the Board of Directors approved a Strategic Plan to guide the CCCA from 2024-2034. The new ten (10) year Strategic Plan builds on previous successes and accomplishments, while moving the CCCA forward so we can modernize how staff operate. This will allow staff to be more responsive to changing watershed conditions and economic factors.

The strength and success of the CCCA has been the emphasis on local community involvement. The conservation movement has been a movement of, by and for the people over the past 75 years. We strive to create and implement programs to further the conservation, restoration, development, and management of the natural resources of the Catfish Creek watershed.

2.1.1 Our Vision:

Harmony between the social and ecological needs of the watershed of present and future generations.

2.1.2 Our Mission:

To communicate and deliver resource management services and programs in order to achieve social and ecological harmony for the watershed.

2.1.3 Our Corporate Values:

1. Committed; We are committed to conservation and work every day to improve the health and function of the Catfish Creek watershed, and to provide sustainable outdoor recreation opportunities and customer service that the community expects from us.
2. Creative; We are creative in our solutions and we understand the challenges of today's economy. We are committed to be creative and adaptive in our business solutions to ensure we are a sustainable organization for years to come.
3. Compassionate; We are compassionate towards landowners and we understand both their interests and those of a changing environment. We will continue our great history of working with landowners to find solutions that work for all parties.
4. Proud; We are proud of the Catfish Creek Conservation Authority and dedicating ourselves to the protection of the watershed. We will work hard to increase natural spaces so that future generations can also be proud of the watershed.

Please refer to https://www.catfishcreek.ca/about-us/publications/ to view the 2024-2034 Catfish Creek Conservation Authority Strategic Plan in its entirety.

3.0 GOVERNANCE/JURISTICDTION

3.1 Conservation Authorities Act (CAA)

The Conservation Authorities Act was created by the Ontario Provincial Legislature in 1946 to ensure the conservation, restoration and responsible management of hydrological features through programs that balance human, environmental and economic needs. The Act authorizes the formation of Conservation Authorities on a watershed basis.

The purpose of the Conservation Authorities Act is to provide for the organization and delivery of programs and services that further the conservation, restoration, development and management of natural resources in Ontario watersheds.

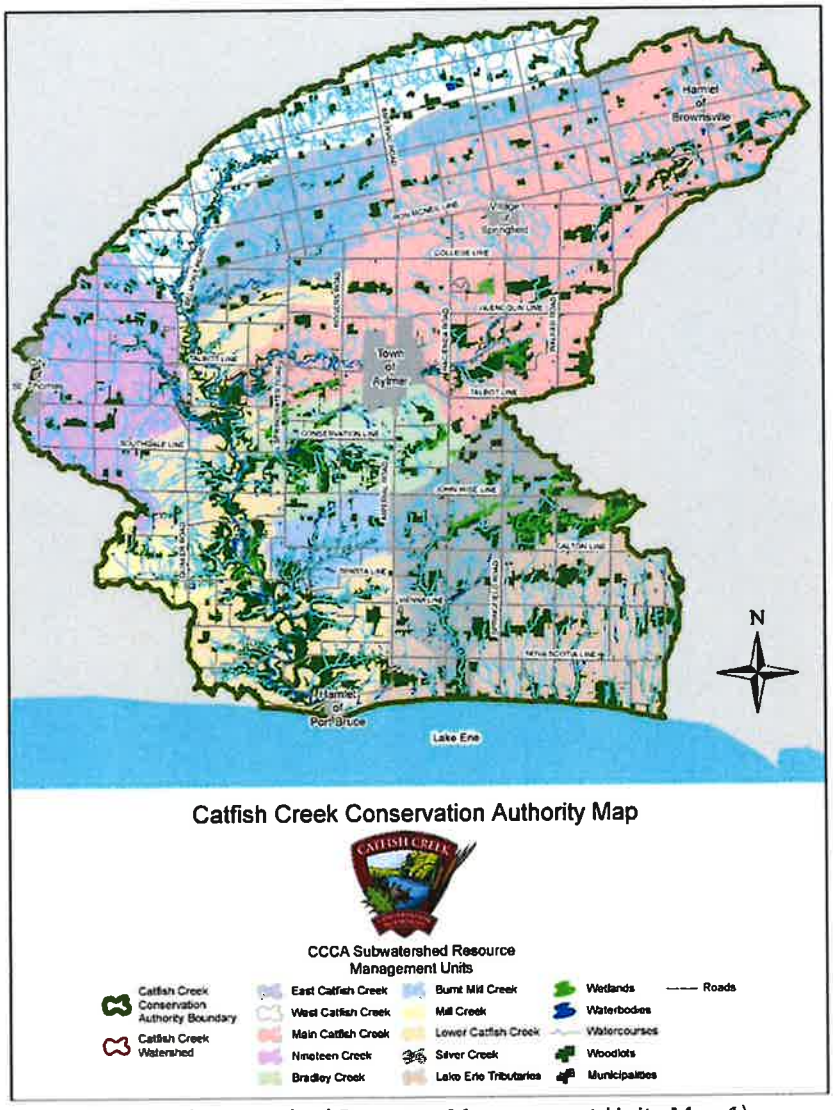
The CCCA was formed under The CAA by Order in Council on February 23, 1950. Ted Clement, Walter Curtis and Stu McBrien wanted an Authority, which would find water. The Town of Aylmer and Malahide Township petitioned the Minister of Public Works to form an Authority on Catfish Creek. At the time there were six member municipalities including the Town of Aylmer, the Village of Springfield, Townships of Malahide, Dereham, South Dorchester and Yarmouth. Today the CCCA watershed encompasses all or portions of the Town of Aylmer (100%), The Township of Malahide (82%), The Township of Southwest Oxford (8%), The Municipality of Central Elgin (40%), and The City of St Thomas (4%).

3.2 Clean Water Act

The Catfish Creek Source Protection Plan was approved on September 19, 2014 and came into effect on January 1, 2015. The Ontario government passed the Clean Water Act in 2006 to implement some of the recommendations of the Walkerton Inquiry. The Act ensures communities protect their municipal drinking water supplies through prevention by developing collaborative, watershed-based source protection plans based on science. The Act created source protection areas and source protection regions. A source protection region can have one or more source protection areas. The Act also created

a local multi-stakeholder source protection committee for each region. These committees identify significant existing and future threats to their municipal drinking water sources and develop plans to address those threats. The CCCA watershed has one municipal drinking water system in the village of Brownsville in the Township of South-West Oxford. The system has two wells that provide water to about 500 people. The Elgin Area Primary Water Supply System also provides municipal water to a number of communities in the watershed, including the Town of Aylmer, Port Bruce and Copenhagen both in the Township of Malahide. The CCCA Source Water Protection Assessment Report can be viewed at; https://www.sourcewater.ca/en/source-protection-areas/Catfish-Creek-Source-Protection-Plan.aspx#gsc.tab=0.

3.3 Jurisdiction



(CCCA Sub-watershed Resource Management Units Map 1)

The Catfish Creek watershed is located in the heart of the Carolinian zone in southwestern Ontario. The CCCA administrative boundary is divided into ten sub-watershed management units (CCCA Sub-Watershed Resource Management Units Map 1). Catfish Creek and its tributaries drain an area of approximately 490 square kilometres in Elgin and Oxford counties. The Catfish Creek and seven of the encompassing sub-watershed management units enters Lake Erie at Port Bruce. Much of the land of the watershed is used for agriculture. The City of St. Thomas and the Town of Aylmer are the major urban areas, with other settlements in Malahide such as Springfield and Port Bruce. The Town of Aylmer, the City of St. Thomas, the Township of Malahide, the Township of South-West Oxford, and the Municipality of Central Elgin are our participating municipalities. The total population in the watershed as of 2023 was an estimated 22,000.

3.3.1 Town of Aylmer

Centrally located in the Catfish Creek basin, Aylmer is a charming small town found in Elgin County in Southwestern Ontario. The Town of Aylmer is the largest urban municipality in the CCCA watershed. There are 7,695 residents in Aylmer, with an average age of 40.6. Males make up 48.2% of the population, while females account for 51.8%. Locals under 14 years old represent the largest age group in Aylmer (1,560 individuals), followed by those aged over 65 (1,550 people). Typically, urban centers face a number of challenges with regard to protecting water quality in developed landscapes. Municipalities in the watershed have developed policies for the treatment of stormwater. Requirements are consistent with the concepts and technological requirements established by the Province through its stormwater management quality guidelines and planning and design manual. The Town of Aylmer is also faced with the challenges of promoting the principals/benefits of stormwater management with existing (or retrofitting) infrastructure in older urban areas.

The Town of Aylmer's Official Plan provides guidance for the physical development of the Town through the establishment of land use designations and development policies while having regard to relevant social, economic, and environmental issues for the planning period of 2011 to 2031, though policies will be reassessed every five years in accordance with the Planning Act. In more specific terms, the purpose of The Town of Aylmer's Official Plan is to provide a policy framework, which encourages growth and prosperity in Aylmer while preserving and enhancing the Town's unique small town character.

3.3.2 City of St. Thomas

St Thomas is located in the heart of Southwestern Ontario in beautiful Elgin County. Surrounding St. Thomas are numerous picturesque towns, lakeside villages and historic hamlets, each with their own unique charm. St Thomas is a quick hop from London, Ontario and the shores of Lake Erie. There are 42,840 residents in St. Thomas, with an average age of 43.0. Males make up 48.3% of the population, while females account for 51.7%. Locals over 65 years old represent the largest age group in St. Thomas (9,115 individuals), followed by those aged under 14 (7,155 people). A small (eastern) portion of the City of St. Thomas is within the watershed. The area is over 80 percent developed with a mixture of residential, commercial and industrial land uses. The final remaining parcel (agricultural land) in the watershed is designated for residential development and is currently proceeding by plan of subdivision on full services. The $7-billion Volkswagen electric vehicle battery manufacturing plant is currently being built at an industrial park area in St. Thomas. The structure will cover an area of roughly 370 acres, equivalent to the size of more than 210 soccer or football fields. The site is approximately eighty percent (80%) in the CCCA watershed.

3.3.3 Township of Malahide

The Township of Malahide is located on the north shore of Lake Erie. The Township is directly linked to Canada's major transportation artery, Highway 401, with exchanges on Imperial Road (Hwy 73), Belmont Road (Hwy 74), Dorchester Road and Putnam Road. There are 9,310 residents in Malahide, with an average age of 37.9. Males make up 51.1% of the population, while females account for 48.9%. Locals under 14 years old represent the largest age group in Malahide (2,180 individuals), followed by those aged over 65 (1,450 people). The Township of Malahide encompasses 67% of the total land area within the watershed. The Official Plan emphasizes the predominant use of land in the Township will be related to agricultural activities. Policies have been developed to permit agriculture-related uses and compatible secondary land uses throughout the Township.

The policies and land use designations included in The Municipality of Malahide's Official Plan were prepared to guide development in the Township of Malahide for the twenty-year period between 2009 and 2029. In addition, every five years, the policies of the Official Plan are reviewed for their effectiveness and future utility. Background data is also updated at this point. For the most part, the Official Plan emphasizes that the predominant use of land in the Township will be related to agricultural activities. Several policies have been incorporated in the Official Plan for the specific purpose of preserving highly productive farmland for agricultural purposes. The Official Plan has also identified lands, which would be the most appropriate for non-farm development. These lands are adjacent to existing built-up areas and are designated as settlement areas for varying levels of growth and development. In all cases, historical communities and local urban areas have been identified and recognized as settlement areas in their Official Plan.

3.3.4 Township of Southwest Oxford

South-West Oxford is a township located within Oxford County. There are 7,585 residents in South - West Oxford, with an average age of 39.4. Males make up 51.4% of the population, while females account for 48.6%. Locals under 14 years old represent the largest age group in South - West Oxford (1,595 individuals), followed by those aged over 65 (1,260 people). A small portion of the County of Oxford is within the Catfish Creek watershed. The County is responsible for the preparation of Official Plan policies and for the appraisal of any proposed amendments. Oxford County Council through the Community and Strategic Planning Department develop land use strategies to help guide development of the member municipalities. Individual municipalities are responsible for the approval and enforcement of the Zoning By-law provisions, in this case all lands within the Corporation of the Township of South-West Oxford.

The Township of South-West Oxford comprises the extreme northeast quadrant of the watershed and corresponds to the headwaters of the main branch of Catfish Creek. Dominated by rural agricultural land uses, this area is designated 'Agricultural Reserve' in the County's Official Plan. The primary use permitted within this designation is farming, including general farming, animal or poultry operations, cash crop farming, nurseries, and agricultural research, together with agricultural residential uses required for the farm and farm buildings and structures necessary to the farming operation. Secondary uses include agricultural commercial/ industrial, resource extraction (sand and gravel), and protection of environmentally significant features.

3.3.5 Municipality of Central Elgin

Central Elgin is a township located in Elgin County on Lake Erie. There are 13,745 residents in Central Elgin, with an average age of 45.3. Males make up 50% of the population, while females account for 50%. Locals over 65 years old represent the largest age group in Central Elgin (3,155 individuals), followed by those aged 55 to 64 (2,490 people). The Municipality, consistent with directives in the Provincial Policy Statement- 2005, promotes efficient development in designated growth areas. The municipality is striving to ensure that necessary infrastructure and public services are in place to encourage future development to only proceed on full services (water/sewage). The designated growth priority areas are located outside the watershed. Expansion within the communities of Sparta (no municipal services) and New Sarum (partial services) is limited to minor infilling/ lot creation for single-family residential building lots.

3.4 Governance

The CCCA is governed by a Board of Directors, which is formed by a member from each of our member municipalities. Proportion of representation is based on population of the member municipalities located within the CCCA watershed. The CCCA Board of Directors is comprised of five members, which fulfills our legal requirement under the CAA. An Agricultural Representative can be appointed at any time under the Ministers Discretion.

- Township of Malahide one (1) member
- Town of Aylmer one (1) member
- Municipality of Central Elgin one (1) member
- Township of Southwest Oxford one (1) member
- City of St Thomas one (1) member

4.0 WATERSHED CHARACTERIZATION

4.1 Climate of Elgin County

The Catfish Creek watershed, situated on the north shore of Lake Erie, has a geographic location, which provides a more temperate climate compared to other parts of Southern Ontario. The temperate climate denotes moderate, even precipitation throughout the year, summers that are warm to hot and humid and freezing temperatures in winter. Winters are mild compared to the rest of Ontario due to the watersheds southerly location and the moderating effect of Lake Erie. Map 4 shows the location of precipitation monitoring stations in the watershed.

General weather patterns in this region consist of four seasons. Winter is generally considered to have temperatures lower than zero degrees Celsius, beginning in December and lasting until late February or early March. Spring lasts approximately two months, followed by four months (June to September) of summer and two months of autumn (Sanderson, 1998). The average annual temperature is about 7.5 degrees Celsius to 8.5 degrees Celsius. Extreme temperatures in this region have been known to reach as low as -32 degrees Celsius in January and as high as 38 degrees Celsius in July (Table 1).
Lake Erie moderates the climate in this region by absorbing heat from the sun during the summer months and releasing it slowly throughout the winter months. Winds coming across the lake are

generally warmer than the land in winter and cooler in summer, thereby moderating the air temperature over the Catfish Creek watershed, adding to a longer frost-free growing season in the lowland plains.

Table 1: Temperature Characteristics Within The Catfish Creek Watershed

Location	Temperature	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Culloden Easey	Daily Average (°C)	-6.3	-5.2	-0.1	6.5	13.5	18.4	20.8	19.8	15.4	9.1	3.1	-3	7.7
	Standard Deviation	2.9	2.9	2.1	1.6	2.2	1.3	1.1	1.2	1	1.4	1.6	2.8	
	Daily Maximum (°C)	-2.9	-1.6	3.9	11.2	19	23.9	26.4	25.2	20.5	13.5	6.4	0.1	
	Daily Minimum (°C)	-9.8	-8.9	-4.1	1.8	8	12.9	15.2	14.3	10.3	4.6	-0.2	-6.1	
	Extreme Maximum (°C)	15	18	23	29	32	36	37	36	33	25	20.6	18	
	Extreme Minimum (°C)	-30	-28	-23	-13	-4	1	6	1	-2.2	-7.8	-15		
Port Stanley	Daily Average (°C)	-5.5	-5.2	0	6.1	12.4	17.2	20	19.4	15.6	9.4	4.1	-2	7.6
	Standard Deviation	2.7	2.7	1.9	1.4	1.6	1.2	0.8	1.1	0.9	1.7	1.4	2.7	1
	Daily Maximum (°C)	-1.7	-0.9	4.1	10.6	17.6	22.2	25.2	24.6	20.8	14.2	7.7	1.5	12.2
	Daily Minimum (°C)	-9.4	-9.5	-4	1.6	7.2	12.2	14.7	14.1	10.4	4.5	0.4	-5.4	3.1
	Extreme Maximum (°C)	14.4	13	21	27.2	31.7	34.4	34.4	33.9	31.7	25.6	20	15.5	
	Extreme Minimum (°C)	-32.8	-32	-27.2	-16.7	-5	-0.6	3.3	0	-2.2	-8.3	-18.9	-31.7	
St. Thomas WPCP	Daily Average (°C)	-4.8	-3.7	1	7.4	13.8	18.6	21	20.2	16.1	10	4.1	-1.8	8.5
	Standard Deviation	2.7	2.6	1.9	1.4	2.1	1.3	1.1	1.3	0.8	1.5	1.4	3	1
	Daily Maximum (°C)	-0.9	0.6	5.6	12.9	19.9	24.5	26.8	25.8	21.5	15.1	7.8	1.7	13.4
	Daily Minimum (°C)	-8.6	-7.9	-3.7	2	7.8	12.6	15.2	14.6	10.7	4.9	0.3	-5.3	3.5
	Extreme Maximum (°C)	14.5	18.5	24.5	29.5	32.5	38	37	34.5	32.5	26	21.5	18.5	
	Extreme Minimum (°C)	-31	-30	-23.5	-16	-3	1	6	0	-2	-7	-13.5	-27.5	
Westminster TWC WPCP	Daily Average (°C)	-6.3	-5.7	-0.1	6.7	13.2	18	20.7	19.7	15.5	9.2	3.3	-2.8	7.6
	Standard Deviation	2.9	2.7	2.1	1.6	1.9	1.3	0.9	1.1	1	1.8	1.5	2.5	1.2
	Daily Maximum (°C)	-2.7	-1.8	4	11.8	19.1	23.8	26.5	25.4	20.8	14	7	0.6	12.4
	Daily Minimum (°C)	-9.9	-9.7	-4.2	1.6	7.3	12.1	14.7	14	10.1	4.4	-0.3	-6.1	2.8
	Extreme Maximum (°C)	13.9	14	24	29	31.7	37	37	35	32.5	29.4	22.2	18.5	
	Extreme Minimum (°C)	**-32.2**	-30.6	-27	-13	-5.6	-1.1	3.3	1	-3.9	-9.4	-13.5	-28.9	
London A	Daily Average (°C)	-6.3	-5.5	-0.3	6.3	13	18	20.5	19.5	15.3	9	3.1	-3	7.5
	Standard Deviation	2.8	2.9	2.3	1.7	2.1	1.4	1.1	1.2	1.1	1.7	1.6	2.7	0.8
	Daily Maximum (°C)	-2.4	-1.4	4.2	11.6	19	23.8	26.3	25.2	20.9	14	6.9	0.6	12.4
	Daily Minimum (°C)	-10.1	-9.7	-4.7	1	7	12.1	14.6	13.7	9.6	4	-0.7	-6.5	2.5
	Extreme Maximum (°C)	16.7	17.8	24.8	29.4	32.4	**38.2**	36.7	37	34.4	30	24.4	18.5	
	Extreme Minimum (°C)	-31.7	-29.5	-24.8	-12.2	-5	-0.6	5	1.5	-3.3	-11.1	-18.3	-26.9	

Annual average precipitation in the watershed is generally between 950 millimetres to 1,075 millimetres. A majority of winter precipitation falls as rain.

Precipitation is quite evenly distributed throughout the year, although the intensity, duration and frequency of precipitation are quite different among the seasons. The accumulation of snow in the winter months prolongs the effects of precipitation, as infiltration is delayed until a thaw. Spring thaw often brings long, low intensity rainfall and when coupled with the melting snow can make the spring season appear to be constantly wet and overcast. The summer often brings short, high intensity rainfalls with high evapotranspiration rates, which makes precipitation appear to be infrequent and less than the other seasons. As seen in Table 1: Temperature Characteristics Within the Catfish Creek Watershed, Figure 1: Normal Average Precipitation and Temperature for Catfish Creek Watershed, and Table 2: Precipitation Patterns within the Catfish Creek Watershed, precipitation amounts are quite evenly distributed throughout the year despite seasonal perception rates in this region.

The water requirements for human and environmental purposes over the course of the year are quite variable. The demands on climate to replenish the streams and groundwater aquifers are often not met during the summer months, while the winter and spring seasons often see a surplus of water for the watershed.

Figure 1: Normal Average Precipitation and Temperature for Catfish Creek Watershed

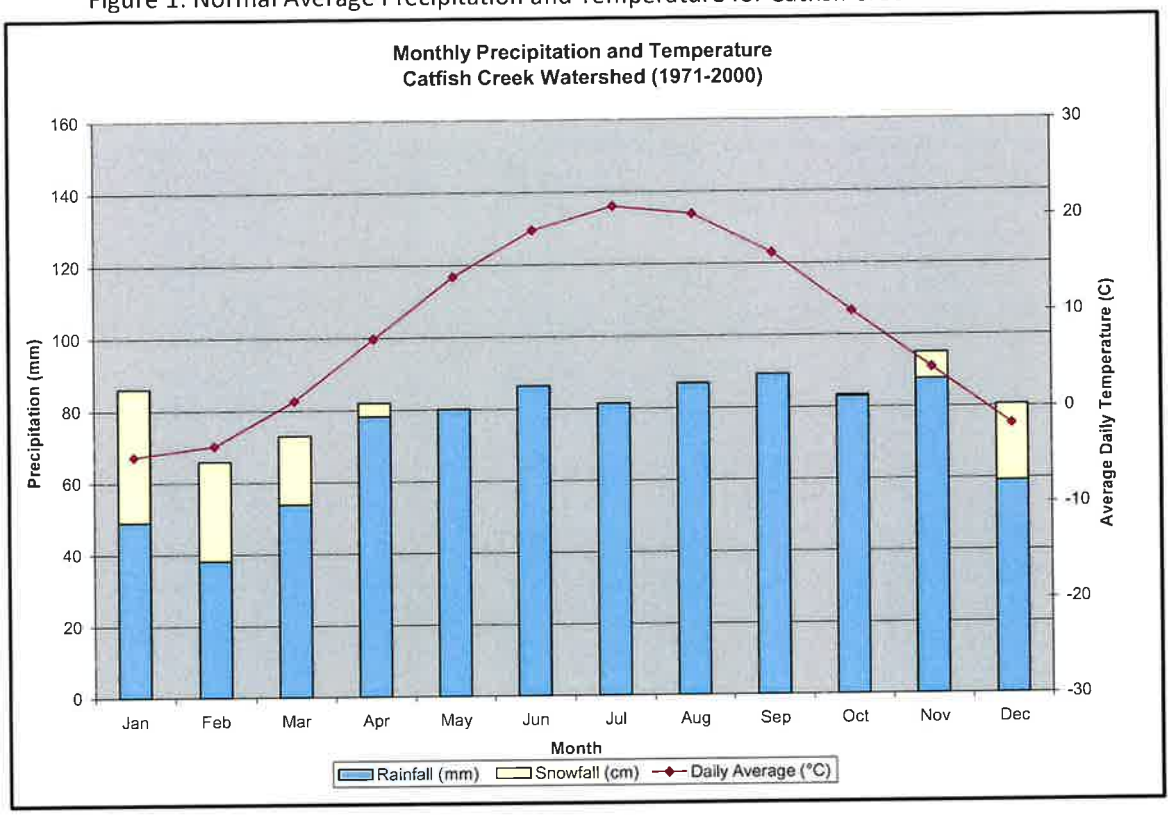


Table 2: Precipitation Patterns With in the Catfish Creek Watershed

Location	Precipitation	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Year
Aylmer Ont Hydro	Rainfall (mm)	49	38.2	53.9	78.2	80.1	86.4	81.4	86.9	89.2	82.9	87.6	59.2	872.9
	Snowfall (cm)	37	27.7	19	3.7	0	0	0	0	0	0.3	7.4	21.2	116.3
	Precipitation (mm)	86.1	65.9	72.9	81.9	80.1	86.4	81.4	86.9	89.2	83.2	95.1	80	988.8
	Extreme Daily Rainfall (mm)	80	45.6	29.2	47.8	45.2	53.4	79.6	65.2	75.4	67	60.6	40	
	Extreme Daily Snowfall (cm)	20.2	29	16.4	11.4	0	0	0	0	0	2.5	12	19.4	
	Extreme Daily Precipitation (mm)	80	45.6	36.2	47.8	45.2	53.4	79.6	65.2	75.4	67	60.6	42	
Culloden Easey	Rainfall (mm)	36.8	31.2	59	84.9	84.2	94.7	95.3	90.7	101.5	86	92.8	56	913.1
	Snowfall (cm)	43.7	28.8	22.9	5.3	0.2	0	0	0	0	0.9	13.5	39.1	154.4
	Precipitation (mm)	80.5	60	81.9	90.2	84.4	94.7	95.3	90.7	101.5	87	106.4	95.1	1067.7
	Extreme Daily Rainfall (mm)	54.4	52.6	62	51.8	60.4	116	68.4	88.4	58.8	68.4	63.6	38.8	
	Extreme Daily Snowfall (cm)	30	19	20	12	5	0	0	0	0	6	17	25	
	Extreme Daily Precipitation (mm)	54.4	52.6	62	51.8	60.4	116	68.4	88.4	58.8	68.4	63.6	38.8	
Westminster TWC WPCP	Rainfall (mm)	25.6	29.5	56.7	71.1	76.9	85	84.6	100.6	93.3	74.2	87	51.8	836.2
	Snowfall (cm)	46.3	33.7	18.6	4.9	0	0	0	0	0	1.2	9.6	38.4	152.7
	Precipitation (mm)	71.9	63.1	75.3	76	76.9	85	84.6	100.6	93.3	75.4	96.6	90.2	988.9
	Extreme Daily Rainfall (mm)	47.4	49.7	37.1	54.6	52.6	**93**	72.9	75	52.4	45	43	39.9	
	Extreme Daily Snowfall (cm)	32	**51**	17.5	14.5	1	0	0	0	0	6	26	40	
	Extreme Daily Precipitation (mm)	47.4	51	37.1	54.6	52.6	**93**	72.9	75	52.4	45	43	40	
	Extreme Snow Depth (cm)	51	**60**	22	14	0	0	0	0	0	5	6	51	
London A	Rainfall (mm)	31.1	29.1	53.8	73.8	82.6	86.8	82.2	85.3	97.7	74.9	73.7	47	817.9
	Snowfall (cm)	52.6	38.1	28.6	9.2	0.3	0	0	0	0	2.7	19.7	51.1	202.4
	Precipitation (mm)	74.2	60	78.4	82.2	82.9	86.8	82.2	85.3	97.7	77.6	91.1	88.6	987.1
	Extreme Daily Rainfall (mm)	45	58.8	43.2	66.4	58.2	82.8	63	69.9	89.1	56.9	56.5	45.6	
	Extreme Daily Snowfall (cm)	32.5	30	27.4	21.8	5.8	0	0	0	0	15.7	40.6	57	
	Extreme Daily Precipitation (mm)	46	58.8	44.2	66.4	58.2	82.8	63	69.9	89.1	56.9	56.5	45.6	
	Extreme Snow Depth (cm)	69	47	43	20	0	0	0	0	0	13	51	70	

4.1.1 Catfish Creek Precipitation

Climate change is overarching and influences resource issues. Changes to precipitation patterns, including storm intensity and frequency, temperature patterns (especially as they apply to snow accumulation, winter ice formation, and melt), and wind patterns all influence on-the-ground conditions. As hydrologic inputs change, the changes to flooding and low water (drought) conditions will follow. More intense rain events will increase the risk of flash floods. This is particularly true in urban areas where the land is impervious, and drainage is dependent on local storm sewers and their capacity to handle the event flow and their rate of discharge to local streams will determine flood risk. Changes to storm frequency can lead to longer periods of dry conditions, which is of concern for several municipal water supplies, as well as for the many residents who rely on private wells.

4.1.2 Catfish Creek Conservation Authority Natural Hazards

A fundamental resource management concept is to first understand the local conditions and the natural processes affecting a natural resource in order to choose a suitable planning and management approach.

The following is a list of natural hazards, which have affected or may affect the CCCA:

- Flooding hazards, lake and riverine
- Lake and riverine ice conditions
- Wave uprush, lake
- Storm surge, lake
- Dynamic beaches, lake
- Lake shore stability
- Riverine bank erosion
- Slope stability, lake, riverine and inland

Development shall generally be directed, in accordance with guidance developed by the province (as amended from time to time), to areas outside of:

a) hazardous lands adjacent to the shorelines of the Great Lakes - St. Lawrence River System and large inland lakes which are impacted by flooding hazards, erosion hazards and/or dynamic beach hazards;
b) hazardous lands adjacent to river, stream and small inland lake systems which are impacted by flooding hazards and/or erosion hazards; and
c) hazardous sites.

Development and site alteration shall not be permitted within:

a) the dynamic beach hazard;
b) defined portions of the flooding hazard along connecting channels (the St. Mary's, St. Clair, Detroit, Niagara and St. Lawrence Rivers);

c) areas that would be rendered inaccessible to people and vehicles during times of flooding hazards, erosion hazards and/or dynamic beach hazards, unless it has been demonstrated that the site has safe access appropriate for the nature of the development and the natural hazard;
d) and a floodway regardless of whether the area of inundation contains high points of land not subject to flooding.

4.1.3 Human-Made Hazards

Development on, abutting or adjacent to lands affected by mine hazards; oil, gas and salt hazards; or former mineral mining operations, mineral aggregate operations or petroleum resource operations may be permitted only if rehabilitation or other measures to address and mitigate known or suspected hazards are under way or have been completed.

Sites with contaminants in land or water shall be assessed and remediated as necessary prior to any activity on the site associated with the proposed use such that there will be no adverse effects.

Planning authorities should support, where feasible, on-site and local re-use of excess soil through planning and development approvals while protecting human health and the environment.

4.1.4 Flooding and Erosion

Managing the risk associated with flooding and erosion is one of the primary roles of the CCCA under the Conservation Authorities Act. The CCCA monitors and predicts flood flows and water levels year-round, operate one flood control structure and relay flood messages to local municipalities and emergency management officials. This information is used to keep people out of harm's way in advance of potential flood and erosion events.

4.1.5 Flood Management Activities of Conservation Authorities

Undertake floodplain mapping, modelling, and monitoring streamflow, rainfall and snowpack. Regulate development in flood prone areas in cooperation with municipalities and the Province. Provide planning support and advice to municipalities to minimize flood impacts and issue warnings. If able to, acquire important floodplain lands and flood vulnerable structures.

The CCCA brings added protection and benefits with our foundational watershed management activities, which include watershed-scale monitoring, data collection management and modelling, watershed-scale studies, plans, assessments and strategies, and watershed-wide actions including stewardship, communications, and outreach and education activities. For more information on our Flood Management efforts please see our Flood Management Manual at https://www.catfishcreek.ca/about-us/publications/.

4.1.6 Ice Management

Historically the Catfish Creek Conservation Authorities (CCCA) administrative area has predominantly been subject to ice jam induced flooding. Therefore, the CCCA administers the Catfish Creek Conservation Authority Ice Management Plan. This plan is considered a live document and is revised/updated as required; it is not a guarantee to prevent any future flooding within CCCA's administrative area.

The purpose of the Ice Management Plan is to provide the Conservation Authority, its member municipalities Emergency Coordinators and any applicable government agencies the basic and recommended tools during flooding within the CCCA administrative area. All agencies public or private who are likely to be involved with flood emergencies must be aware of their agency responsibilities at times of emergency response due to flooding. Additionally, watershed residents who have been warned/notified of Flood Watch or Flood Warning watershed conditions must assume the responsibility to safeguard their personal safety and belongings. It is highly recommended that residents pay close attention during their fall/ winter preparations that properties and belongings are flood proofed.

The Ontario Ministry of Natural Resources & Forestry is the provincial agency responsible for flood emergencies. Within the CCCA administrative boundary, this role is assigned to the CCCA, and staff are tasked with the responsibility for alerting member municipalities and applicable agencies of possible flooding within its administrative area.

An internal Flood Operations Plan has been compiled to provide a systematic procedure for the Authority Flood Co-coordinator and staff to consult during flood emergencies. The flood operations manual can be found at https://www.catfishcreek.ca/about-us/publications/.

A minimum requirement of the Flood Management Program necessitates that the Flood Operation Plan be reviewed annually or additionally if required.

The Conservation Authority is not responsible for notifying individual citizens of the watershed. This responsibility lies with the applicable municipal Emergency Coordinator. It is this position who has responsibility to ensure the notification of its citizens.

Understanding of Catfish Creek channel hydraulics and Port Bruce local knowledge has identified that keeping the channel flowing within Port Bruce during break-up is an effective method of reducing flood damage due to ice jams. A component of the Ice Management Strategy is for Malahide Township to contract equipment on standby (icebreaker and/or dragline) to help keep the channel clear of ice jams, principally in the area of Rocabore Bay and the Harbour. Provided Lake Erie ice does not plug Port Bruce Harbour, this would provide in-channel ice flow unobstructed passage to Lake Erie.

4.1.7 Drought or Low Water Response

The Ontario Low Water Response (OLWR) was developed to ensure provincial preparedness, to assist Government Agencies in the co-ordination and to support local response in the event of low water and drought conditions.

The Ontario Government announced that there was no provincial funding available for OLWR for 2019 or beyond, consequently the Catfish Creek Conservation Authority formally terminated the program but by default maintained the monitoring of water flows within the Catfish Creek.

Under the amended Conservation Authorities Act, Ontario Regulation 686/21, Mandatory Programs and Services the OLWR has been restored and;

3. (1) An authority shall provide programs and services to support its functions and responsibilities to facilitate drought and low water forecasting and warning as set out in subsection (2).

(2) The authority's functions and responsibilities with respect to drought and low water forecasting and warning mentioned in subsection (1) are the following:

1. Maintaining information on surface water hydrology and the areas within the authority's area of jurisdiction that are vulnerable to drought or low water events.

2. Maintaining a stream flow-monitoring network that, at a minimum, includes stream flow gauges available as part of the provincial-federal hydrometric network and, where the authority considers it advisable, includes additional local stream flow gauges.

3. Monitoring of weather and climate information, snow surveys and water levels and flows utilizing local, provincial and federal data sources.

4. Analysis of local surface water hydrologic conditions related to risk of drought and low water events.

5. Gathering information to determine when low water levels exist within the authority's area of jurisdiction and initiating and maintaining the appropriate response to confirmed low water levels in accordance with the document entitled Ontario Low Water Response, dated March 2010, and available on request from the Ministry of Northern Development, Mines, Natural Resources and Forestry, as amended from time to time.

6. Communications to inform persons or bodies that the authority considers advisable of the potential or actual impact of drought and low water events in a timely manner.

7. Provision of ongoing information and advice to persons and bodies mentioned in paragraph 6 to support,

i. emergency and drought or low water activities during a drought or low water event, and,

ii. documentation of drought and low water events.

The CCCA historical/ existing OLWR plan is and was based on current legislation and regulations. The Authority has presently reviewed and updated the Low Water Response Plan to assure it complies with the current Section 28 regulations.

CCCA will be reinstating all applicable committees/ teams relative to low water response. Historically a Provincial Low Water Level Response Task Force was formed to coordinate an inter-ministry response to low water levels and to make recommendations for sustained management of low water conditions. Through this the OLWR plan recognizes the partnership between provincial government agencies and local authorities that sustainable environmental management must be approached at all levels of government, agriculture, recreation and special interest groups to maintain beneficial access to water.

The province provides overall direction and coordinates policies, science and information systems. In extreme circumstances the province, has in the past, provided support where local declarations of an emergency have been made.

At the local level, applicable agencies are directed to collect information, interpret policy and deliver programs to minimize the effects of low water condition levels. The three condition levels are Level I (10% voluntary conservation), Level II (20% voluntary conservation) and Level III (Conservation, Restriction and Regulation).

Precipitation and streamflow indicators are used to determine the OLWR condition level for watersheds. Guidelines/thresholds for these indicators are provided in the OLWR manual along with the procedure to determine when a watershed moves from one level into another. Agency roles and responsibilities for each level are also identified within the manual, Ontario Low Water Response, 2010. For more information on the CCCA's Ontario Low Water Response, please see https://www.catfishcreek.ca/about-us/publications/.

4.2 Water Resources/ Management

Water management is a truly important program of the Catfish Creek Conservation Authority. It involves various characteristics of surface and groundwater management, relating to water quality and quantity. Other programs within CCCA, Ministry of the Environment, Conservation and Parks (MOECP), local municipalities, and Ministry of Natural Resources and Forestry (MNRF) are associated with the CCCA Water Management Program. In order to sustain water quantity to an acceptable recognized quality, co-operation amongst the aforementioned agencies is necessary (Catfish Creek Conservation Authority, Watershed Plan, Draft No.1 April, 1983).

The Authorities jurisdictional boundary was defined at the inception of the Authority. Today the Authority manages, in principal, the waters within the hydrological boundaries of the Catfish Creek watershed, coupled with a small number of adjacent Lake Erie tributaries.

Flood control, source water protection, surface water and ground water recharge, wetland area protection, surface and groundwater quality and quantity are all components of the current CCCA Water Management Program. Future significance is expected on each of these, through assorted government funded programs, administered through Conservation Authority advancements, particularly in water quality and quantity

4.3 Benefits

If natural ecosystems are maintained and degraded ecosystems are rehabilitated, then the areas resources can be naturally managed. Natural ecosystems manage our natural resources by regulating the areas environment through the extent and variety of the regions flora and fauna. A diverse flora ecosystem will minimize the impact of not only extreme weather but also normal weather patterns by reducing the erosion effect of rain on areas not covered by vegetation and increasing infiltration in areas, which have vegetation cover.

Environmental nature-based solutions can help to:

- Sustain (clean) water supplies by increasing the water infiltration and storage capacity of wetlands/soils and the recharge of aquifers.
- Mitigate drought by releasing water from natural storage features, including soil and groundwater, surface water and aquifers.
- Prolong the life of reservoirs by reducing siltation.

At high rainfall storm intensities, a percentage of the rainfall flows directly off the land into a watercourse and while some penetrates the soil, where plants may take it up. A portion moves in the soil towards rivers and streams and another fraction penetrates deeper into the ground, replenishing groundwater. Steady release of water stored underground and in wetlands serves to maintain river flows long after rainfall events. These ecosystem services regulate the impacts of rainfall events and directly moderate the supply of water in the basin.

In conjunction with these water flows, the condition of the water in the system may vary dramatically. In a high rainfall event where a catchment has degraded land, the run-off water may have very high turbidity from eroded soils and pollutants that have washed off the land. This results in siltation of water storage systems and increased costs to water treatment systems. Water that penetrates the ground or is held on floodplains and wetlands allows much of the silt and pollution to be deposited or removed. Water passing through the soil or wetlands is cleaned by physical and biological processes and requires less treatment to reach potable and or recreational quality. The quality of a catchment therefore directly affects water quality.

Nature-based solutions can help to:

- Treat polluted water from point and non-point sources by trapping and/ or containing sediments, pollutants in sediments, soils and vegetation (filtration and chemical conversion).
- Protect groundwater from contamination by removing sediments, heavy metals and other pollutants.
- Relieve pressure on existing water treatment infrastructure through bio retention and infiltration.
- Improve the quality of wastewater, e.g. using constructed wetlands alone or in conjunction with conventional wastewater treatment plants.

(UN Environment-DHI, UN Environment and IUCN 2018. Nature-Based Solutions for Water Management: A Primer.)

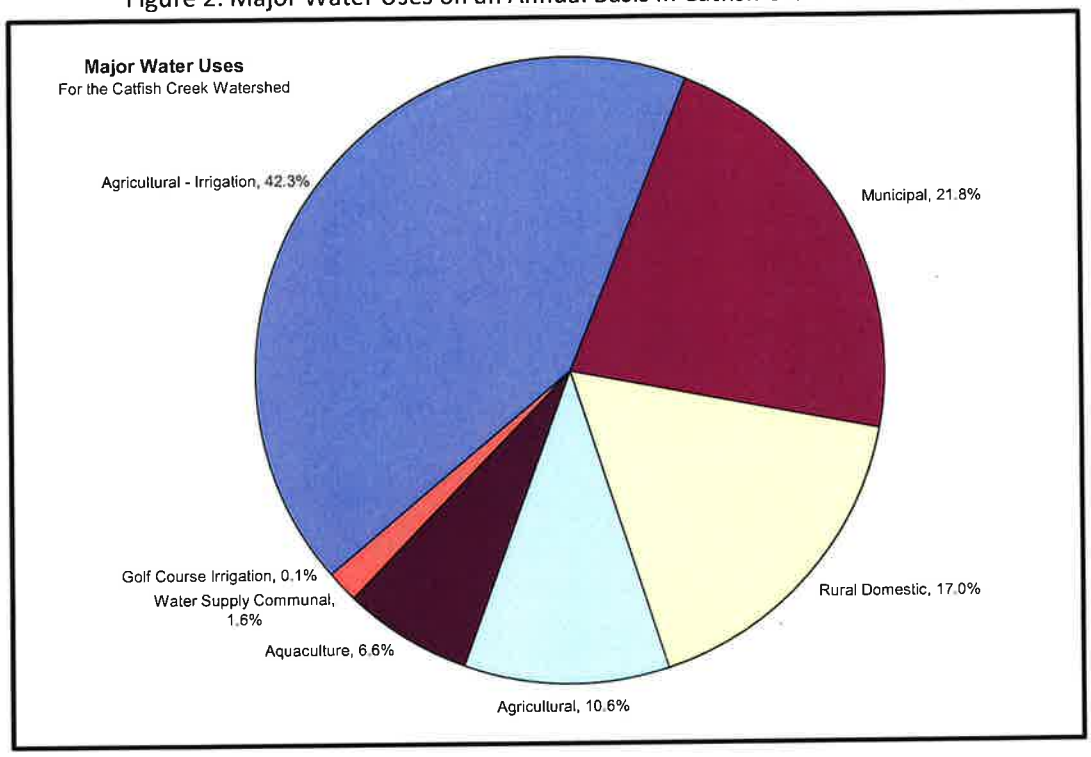
5.0 WATER USE INVENTORY

This section is a summary of the water uses within the Catfish Creek watershed for 2005 as found in a report entitled "Water Use in the Catfish Creek Watershed" (Wong and Bellamy, 2005). Water use estimates are broken down into four subgroups: Municipal Supply, Agricultural, Un-serviced Population and Other Permitted Takings (larger than 50,000 L/day). The water use estimates were determined using the best available data, including Census of Population, Census of Agriculture, municipalities, and the Permit to Take Water (PTTW) database. A phone survey of the permit holders was completed to refine water use estimates based on their records, with a 50 percent response rate. The analysis of all water use data identified the water uses and percentages within the basin.

Table 3: Total Water Use Comparison (in cubic metres)

	Water Use Category	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	TOTAL
1	Agricultural - Irrigation						637,750	1,275,500	637,750					2,551,000
2	Municipal	103,960	97,260	105,440	91,940	120,160	115,240	141,280	114,560	115,090	104,000	89,980	118,050	1,316,950
3	Rural Domestic	87,160	78,720	87,160	84,350	87,160	84,350	87,160	87,160	84,350	87,160	84,350	87,160	1,026,200
4	Agricultural	40,150	36,260	40,150	38,850	40,150	38,850	94,770	94,770	93,470	40,150	38,850	40,150	636,560
5	Aquaculture	33,800	30,530	33,800	32,710	33,800	32,710	33,800	33,800	32,710	89,975	32,710	33,800	397,920
6	Water Supply Communal	6,630	5,610	6,790	6,570	7,370	6,890	8,040	8,280	7,620	7,870	6,970	6,960	97,540
7	Golf Course Irrigation					1,180	1,140	1,180	1,180	1,140	1,180			7,000
	TOTAL	271,700	248,380	273,340	254,420	289,820	916,930	1,641,730	977,500	334,380	330,335	252,860	286,120	6,033,170

Figure 2: Major Water Uses on an Annual Basis in Catfish Creek Watershed



5.1 Municipal Water Supply

Municipal water use is the supply of water provided through a central distribution system operated by a municipality. Municipal water use includes urban domestic use, whether indoor or outdoor, and includes uses for industrial, commercial, institutional or other uses that rely on municipalities for their water supply.

Brownsville (approximately 500 residents) has the only groundwater source for municipal water takings in the Catfish Creek watershed. All other municipalities receive their water from Lake Erie from either primary or secondary water systems from an intake in Lake Erie off Port Stanley. These communities include Aylmer (approximately 2,600 residents), and smaller communities in both Central Elgin and Malahide Townships. Municipal water use totalled 1.3 million cubic metres in 2004 in this region.

5.1.1 Groundwater Use

Groundwater and surface water are vital resources for the livelihood and recreation of constituents and visitors of the Catfish Creek watershed. Area residents use groundwater as the primary source of potable water, which is categorized as un-serviced domestic water use. Un-serviced domestic water use is described as; all water for domestic indoor and outdoor residential applications, not on a municipal water distribution system. Generally, un-serviced domestic water use is established within rural communities and private landowners that take water from private wells.

The rural population in the Catfish Creek watershed is estimated at 22,000 and draws 1.0M cubic metres of groundwater per year. Groundwater is also the source of water for a community in the northern region of the watershed and draws more than 33 000 cubic metres of water per year (Water Use in the Catfish Creek Watershed, September 2005 Draft, Amanda Wong, Samuel Bellamy, Grand River Conservation Authority).

A draft report of the Catfish Creek groundwater (Groundwater Resources of the Catfish Creek Conservation Authority and Kettle Creek Conservation Authority) study has been completed in partnership with Ontario Geological Survey (OGS).

5.1.2 Surface Water

Areas not utilizing un-serviced water systems for domestic water use are linked to a municipal water supply system, which obtains water from Lake Erie through the Elgin Area Primary Water Supply System. Municipal water use is described as; a supply of water that is provided through a central distribution system operated by a municipality and includes; indoor or outdoor urban domestic use, industrial, commercial and institutional and other applications that rely on municipalities for their water supply.

The proximity to Lake Erie provides easy access to municipally serviceable water supplies to the southern regions of the watershed. Municipal water use totals 1.3M cubic metres per year for this region (Water Use in the Catfish Creek Watershed, September 2005 Draft, Amanda Wong, Samuel Bellamy, Grand River Conservation Authority).

5.1.3 Combined

Various water uses for agricultural operations such as livestock watering and irrigation, may use a combination of groundwater or surface water from municipal drainage ditches, ponds, or natural channels. Since inexpensive and reliable water sources are fundamental to an agricultural economy such as exists in the Catfish Creek watershed, the Authorities ground and surface water base flow capacities must be maintained year-round to facilitate the agricultural surface water applications.

5.1.4 Agricultural Water Use

Agricultural water use was divided into two categories livestock/farming operation water use and crop irrigation water use. This division was based on the information available for the two categories, as well as the differing water requirements for each use throughout the year. Water use for livestock and other farming operations are generally year-round takings, as opposed to crop irrigation, which only occurs

during the summer growing season. Other farming operations considered in this water use category include greenhouse operations.

Livestock water demands were estimated using a water use coefficient for daily water requirements and the number of livestock in the watershed. The volume of livestock and other year-round agricultural water requirements, excluding irrigation water, is relatively small, accounting for 0.7 million cubic metres per year.

Crop irrigation is the application of supplemental water onto cropped fields when natural precipitation is insufficient. The estimation of irrigation water requirements were completed using the irrigated area estimation from Census of Agriculture information and a demand model, estimating an average number of irrigation events likely to occur in the watershed per growing season. This demand model (GAWSER), bases the irrigation water requirements on soil moisture content, and averaged four irrigation events per year, for the CCCA watershed. The irrigation demand model only considers irrigation events meant for maintaining soil moisture at adequate levels for plant growth. Irrigating for climate control, such as spring irrigation to protect against frost, was not considered in this exercise. To determine a possible breakdown of the source of irrigation water, the Permit to Take Water database was consulted. It was determined that from the 239 agricultural irrigation sources, 138 were supplied by groundwater and 101 were supplied from surface water, producing a 58 percent, 42 percent split, respectively. Irrigated crops in this watershed may include tobacco, ginseng, potatoes and vegetables, and the water requirements for all irrigation activity accounts for 2.6 million cubic metres per year.

5.1.5 Use of Irrigation

The use of irrigation in the watershed is not extensive, and is generally only applied onto specialty crops such as vegetables, sod, fruit and root crops such as tobacco, potatoes and ginseng. It is rare that other crops are irrigated unless the growing season is particularly dry.

The use of irrigation is concentrated mostly in the Norfolk Sand Plain area in the southeast portion of the watershed where there is a higher percentage of specialty crops grown in well-drained soils. Irrigation for agriculture in the Catfish Creek watershed is concentrated in the summer months of July and August with some exceptions earlier or later in the growing season. The concentration of these large water takings during warmer and often dryer periods and in a limited area poses problems to water quantity in both groundwater and surface water sources.

5.1.6 Un-serviced Domestic Water Use

Un-serviced domestic water use is all water uses for domestic (indoor and outdoor residential water use) use that are not on a municipal distribution system. Generally, these are rural communities and water could be taken from private wells. The estimation of un-serviced domestic water use was based on population estimates and per capita water use rates for rural residents.

Rural domestic per capita water use has traditionally been much lower than urban domestic use. While the actual rate varies depending on a large number of factors, 160 litres per day was assumed to be the rural domestic per capita water use rate (Vandierendonck and Mitchell, 1997). It should be noted that a large percentage of this water is likely returned to the shallow groundwater system via septic systems. This water use is assumed relatively constant throughout the year. The rural population in the Catfish Creek watershed is estimated to be 17,500 and draw 1.0 million cubic metres of water per year.

5.1.7 Other Permitted Water Takings

For water uses in the watershed that did not fall into the three previously mentioned categories (municipal, agricultural and rural un-serviced), the Ministry of the Environment (MOE) Permit to Take Water database was used. The MOE requires any person taking greater than 50,000 litres of water on any day of the year (animal watering, domestic usage and firefighting excluded) to apply for a PTTW. This generally includes many industrial and larger commercial operations, as well as many agricultural water requirements, such as irrigation.

A phone survey of the water takers in the Catfish Creek watershed was completed in the summer of 2005 (June to August), to get better estimates or actual volumes of water use by each user. The survey generated responses from two of the four permits (50 percent response rate) to refine the estimates of their water uses. Where no data could be obtained from the user, adjustments were made based on seasonality of the water takings. For instance, golf course irrigation is likely to occur only during the months of May through October, while commercial water uses are year-round water takings. These adjustments were included where available in the calculation of the water use estimate for large permitted water takings.

The total volume of water takings for all these permits in 2005 was 0.5 million cubic metres, with golf courses taking the bulk of this volume at 0.4 million cubic metres and communal water supplies for just less than 1.0 million cubic metres per year.

5.1.8 Water Control Structures

The CCCA operates one water control structure for flood attenuation and recreation, the Springwater Dam.

6.0 HABITATS AND WILDLIFE

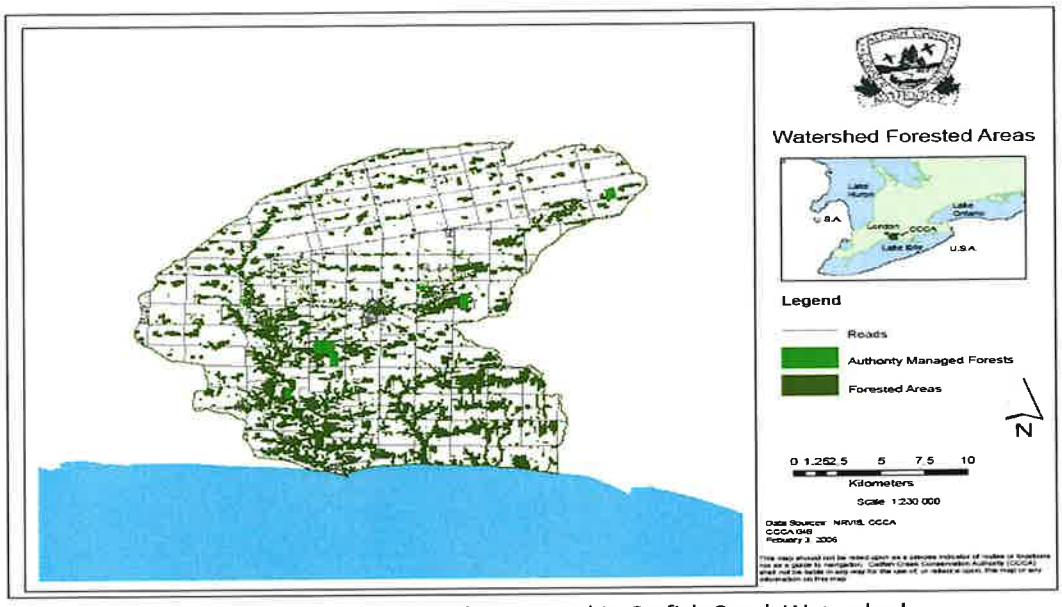
6.1 Forestry and Reforestation

Programs within Catfish Creek Conservation Authority may well be measured and classified in order of significance, however, to administer a watershed effectively all curriculum need to be interconnected and addressed collectively. This involves characterizing terrestrial and aquatic resources sequentially to assist in connecting entire environmental assets, relating to mandated programs within CCCA, and government agencies associated with the CCCA Watershed Management Plan.

As outlined in the Water Management component "Flood control, source water protection, water recharge, wetland area protection, surface and groundwater quality and quantity are all components of the current CCCA Water Management Program." Increased significance and awareness is anticipated on each of these, particularly in water quality and quantity, which links with the forestry management element, *Water Management, CCCA Watershed Management Plan, 2006*.

The Forest Management program of the Catfish Creek Conservation Authority predominantly focuses on Authority owned lands including selected woodlot management consultation services for municipally owned woodlots and private lands within the watershed. Forest cover (Map 2) within Catfish Creek Conservation Authorities administrative boundary is largely located along incised valley slopes, flood plains and wetland areas in the southern section of the watershed and is estimated at 14.4% (17,500

acres, 7, 000 ha). The forested areas are protected to a significant degree by the tree bylaws of Elgin and Oxford Counties.



Map 2: Forested Areas Within Catfish Creek Watershed

The foundation of the CCCA Forest Management Program focuses on the retention of existing forest cover and reforestation of priority water management areas, with the purpose of benefiting the aquatic and terrestrial environment, watershed resource base, constituents and visitors. Included in these areas are soil and slope regulated highly erodible land, marginal/poor agricultural land, water retention and discharge areas. By recognizing and focusing on these areas, the Authority understands their value in achieving the objectives of accompanying Authority programs by providing erosion control, groundwater recharge/discharge areas, fish and wildlife habitat.

Trees (and other vegetation in the catchment), intercept rainfall and increase infiltration, thus moderating both run-off into the river system and storage of water in the soil. The ability of soils in forest areas to store water and release it through seepage, transpiration and evaporation helps to regulate the water supply in the catchment.

Establishing or conserving forests (and promoting other sustainable land use activities in the watershed) can help to improve water quality. Forests improve water quality by reducing sediment in water bodies and trapping or filtering other water pollutants.

Forests and areas with good vegetation cover can moderate extreme events by reducing the likelihood or frequency of elevated water conditions, landslides and mudflows, which can cause extensive damage to infrastructure and inhabited areas.

Use of riparian buffers to maintain water quality in streams and rivers is a forest and conservation management best practice in many countries and is mandatory in some areas. Riparian buffers are vegetated, often forested, areas ("strips") next to streams, rivers, lakes and other waterways protecting aquatic environments from the impacts of surrounding land use.

The CCCA will incorporate the following strategies and initiatives in an integrated forestry program:

a) Programs and restoration efforts will be coordinated and focused, consistent with approved, applicable agency plans and studies (e.g. *'Elgin Stewardship Strategy', CCCA Watershed Plans, Source Water Protection Plans);*
b) Prepare, monitor, review and update forest management plans/activities on Authority owned properties;
c) Assist private landowners with reforestation and management of forests throughout the watershed (e.g. landowner extension, information transfer, technical assistance);
d) Assist municipalities to ` protect, manage and expand forest cover (e.g. Municipal Woodlot Management, Roadside Tree Planting, County Tree-Cutting By-laws);
e) Continue the acquisition of prioritized environmentally sensitive areas; and,
f) Develop partnerships for program delivery and education (volunteers, service clubs, scouting groups, funding sources).

The Authority offers limited woodlot management services to landowners of private woodlots through the preparation of Managed Forest Tax Incentive Plans (MFTIP), renewals and approvals of plans prepared by other accreted individuals. Reforestation assistance is offered by the Authority on a first-come first-served basis, and is paid for through grants, reserves and fee for service (cost recoverable).

Technical and workforce assistance for reforestation is available from the Authority upon request, for areas requiring a minimum of 500 trees. An additional program initiated by the CCCA, the Municipal Woodlot Management Program is designed to assist with managing municipally-owned lands by providing comprehensive woodlot management and reforestation services for these areas on a fee for service basis.

6.1.1 Riparian Zones

Riparian buffers help to maintain water quality in waterways by protecting streams from non-point source pollution (e.g. surrounding agricultural activities). Riparian vegetation cover provides a barrier between sediments, and pollutants such as nitrates and phosphates, washed from the land and water bodies. Temperature moderation from shading creates an important aquatic habitat, especially for fish and insect life, providing protection from extreme temperatures. During flood events, riparian vegetation slows run-off by absorbing excess water, reducing peak flow and helping to mitigate potential flood damage downstream. Some studies show that riparian buffers can help to reduce the amount of sediment reaching streams by as much as 80 percent.

6.1.2 Wetlands

The definition of wetlands is very broad but normally refers to shallow vegetated water bodies, swamps and marshes or areas that may periodically be dry, varying in size from a few square metres to many square kilometres. The water regulation services provided by wetlands are often cost-competitive and more sustainable than those provided by conventional infrastructure solutions, at the same time providing a wide range of socioeconomic co-benefits. Wetlands contribute to water quality through their natural ability to filter effluents and absorb pollutants. Microorganisms in the sediment and vegetation in the soil help to break down many types of waste, eliminating pathogens and reducing the level of nutrients and pollution in the water. There is a limit to the amount of pollution wetlands can

absorb, however. If this tipping-point is reached, their ability to treat pollution may be greatly reduced until they are restored to health, which can be a difficult and lengthy process.

Protecting, restoring or constructing wetlands can help to provide clean water for ecosystems, harvesting biomass, drinking water needs and other uses. The ability of wetlands to store large amounts of water and release it slowly plays a key role in the natural regulation of water quantity during periods of drought and flooding. Wetlands also trap sediments and thus reduce their downstream transport.

Wetlands can 'slow' flood waters, reducing potential flood damage downstream, and increase resilience to storms, thereby avoiding potential damage to grey infrastructure and human lives. In periods of drought, they can function as 'retention basins', providing water through slow release of stored water. The retention capacity of different types of wetlands varies and needs to be evaluated individually.

Constructed wetlands are created artificially with the aim of simulating the hydrological processes of natural wetlands. They function as biological wastewater treatment 'technologies', either supplementing or replacing conventional treatment plants. They are often used for nutrient pollution control (and thus reduction of eutrophication risk) of various wastewater streams (domestic wastewater, grey water, urban wastewater from sewerage).

Constructed wetlands can also be used to reduce flow velocity, remove nutrients and sediments and mitigate surface run-off from agricultural and livestock fields, as well as in urban areas. Their main water management benefits include reduced downstream pollution, improved water quality and flood and drought regulation. (UN Environment-DHI, UN Environment and IUCN 2018)

6.1.3 Tall Grass Prairie

In Ontario, tallgrass prairies were historically found in the southwestern part of the province, particularly in the Elgin County to Windsor Essex Region and along the shores of Lake Erie. However, due to agricultural expansion, urbanization, and other land use changes, the tallgrass prairie ecosystem in Ontario has been severely reduced, and much of what remains is fragmented and degraded.

The tallgrass prairies in Ontario were once home to a diverse array of plant and animal species, including tall grasses like big bluestem and Indian grass, as well as wildflowers such as blazing star and prairie clover. Wildlife such as grassland birds, and small mammals also depend on these habitats for food and shelter. Tallgrass prairies provide important habitat for pollinators such as bees, butterflies, and other insects. Many prairie wildflowers rely on pollinators for reproduction, and healthy pollinator populations are essential for maintaining ecosystem functioning and supporting agricultural productivity.

The deep root systems of tallgrass prairie plants help to store carbon in the soil, contributing to carbon sequestration and helping to mitigate climate change. The dense network of roots in tallgrass prairies helps to improve soil structure, prevent erosion, and increase water infiltration, leading to healthier soils and improved water quality. Tallgrass prairies act as natural water filters, trapping sediment and pollutants and helping to regulate water flow and prevent flooding.

Efforts to conserve and restore tallgrass prairies in Ontario are underway, with organizations like the CCCA and Nature Conservancy of Canada working to protect remaining patches of native prairie habitat and restore degraded areas. These efforts often involve initiatives such as controlled burns, native

grassland plantings, and invasive species removal to help restore the ecological integrity of these important ecosystems.

Despite the challenges of conserving tallgrass prairies in Ontario, there is growing recognition of their ecological significance and efforts to protect and restore them for future generations to enjoy and benefit from. Overall, tallgrass prairies are important ecosystems that provide a wide range of ecological services and support diverse plant and animal communities. Protecting and restoring these habitats is essential for maintaining biodiversity, supporting ecosystem health, and mitigating the impacts of climate change.

6.1.4 Description

Ecosystem integrity may be defined as "the ability to support and maintain a balanced, integrated, and adaptive community of organisms having a species composition, diversity and functional organization comparable to those of natural habitats within a region" (Karr, J. R. and D. R. Dudley. 1981. *Ecological Perspectives On Water Quality Goals*. Environmental Management 5: (55-68).

Located in the Carolinian Forest Ecosystem; early descriptions (circa 1837 - 1851) suggest that the forests were mostly hardwoods, combined with a southern species component. The region was mottled with white pine stands on well-drained soils, sugar maple and beech dominated the better-quality soils, while soft maple, elm and oak savannas colonized the sand plains. Mixed stands of white cedar, eastern hemlock, white pine, soft maple and yellow birch established on poorer-quality soils.

Development within Catfish Creek watershed is largely agricultural with small urban pockets speckling the landscape. The importance of agriculture within Catfish Creek to the local economy is clear, but the effect that agriculture has on forest ecosystems requires paramount attention and investigation. Suitability of soils for agriculture led to a rapid decline of the forested lands; by 1860 60% of Elgin County forests were depleted and by 1910, only 10% remained. Today with an aggressive reforestation program 17% of Catfish Creek watershed has a forest component, located along watercourses, valley lands or in areas of poor drainage that are privately, municipal, authority and provincially owned.

7.0 GENERAL LAND USE

7.1 Agricultural Sector Distribution

Agriculture is a large part of the Catfish Creek watershed, as 84 percent of the land area is designated and used for agricultural purposes. Both livestock and agricultural crops are prominent practices, with 70 percent overall in cropped agricultural land. There are a total of 14,400 head of cattle, 40,000 heads of swine and 290,500 heads of poultry across the watershed. The majority of crops grown in the watershed are corn (36.5 percent), soybean (31 percent) and grains (12 percent).

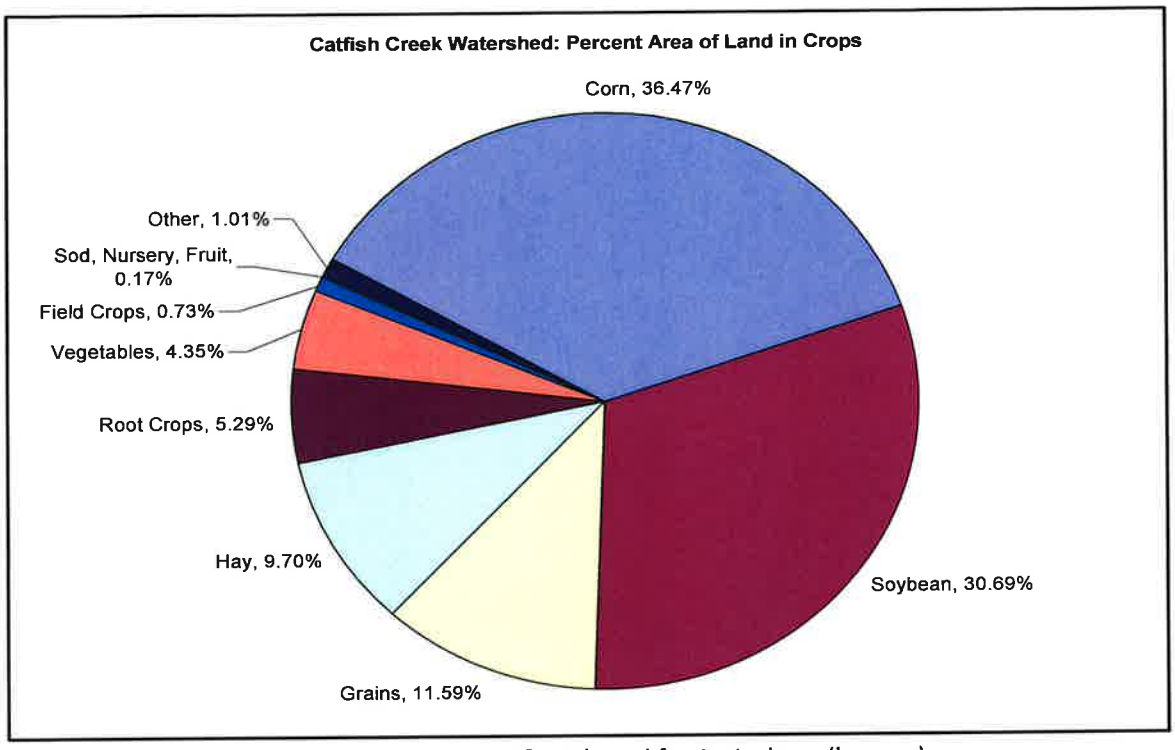


Figure 3: Percent Area of Land used for Agriculture (by crop)

7.1.1 Cropping Characteristics in the Catfish Creek Watershed

Agricultural crops in the Catfish Creek watershed are typical to south western Ontario. Corn and soybean are the highest in land area, with grains and hay as the next largest in land area. Vegetables and root crops, however, make up a large percentage of land relative to the rest of south western Ontario, due to the location of ideal soils of the Norfolk Sand Plain. Vegetables and root crops generally have smaller field sizes and higher water requirements than other row crops. Root crops such as tobacco and potatoes were substantially higher in the southern Catfish area, with 88 percent of all hectares of root crop reported in this area. Overall, root crops comprised 11 percent of the cropped land area in the lower Catfish, while only occupying 1.1 percent of the upper Catfish. All other crops were in similar or greater quantities in the upper Catfish.

7.1.2 Livestock

Livestock farming in the Catfish Creek watershed is fairly high considering the small size of the watershed. The Upper Catfish Creek has the majority of livestock with large intensive farms, which could pose problems to the downstream reaches for nutrient loadings. Swine farms are prominent in number and are found mostly in the Upper Catfish Creek, averaging over 1,100 pigs per farm. Poultry is also much more intensive in the upper Catfish, with double the number of farms and head of poultry found on these farms, averaging 5,600 per farm. Approximately 75 percent of the farms in the upper Catfish reported raising cattle, accounting for 84 percent of the total number of cattle found in the entire watershed. Cattle in the upper Catfish average 102 per farm (Table 3).

Livestock	Total Numbers			Average Number Per Farm			Per Hectare Farmed Land		
Sub-basin	Cattle	Pigs	Poultry	Cattle	Pigs	Poultry	Cattle	Pigs	Poultry
Lower Catfish	2,260	3,580	57,500	60	390	2,666	0.13	0.20	3.2
Upper Catfish	12,170	36,420	232,970	102	1186	5,557	0.54	1.61	10.3
All CCCA	14,430	40,000	290,470	80	790	4,110	0.33	0.91	6.76

Table 4:Total Head of Livestock (by sub-basin) in Catfish Creek Watershed

The highest nutrient values are found in the lower Catfish due to the greater amount of farmland in crops and in stream cumulative effects. In this area, approximately 25 percent of the total farmland is applied with manure over the year. There was considerably more farmland in root crops on sandy soils in this lower Catfish, which could require more organic material provided by manure applications. Runoff into the creeks and groundwater system could be an issue in lower Catfish area. Livestock can also introduce bacteria, as well as silt from the banks, directly into the waterways if proper fencing is not in place.

7.1.3 Agricultural Management Practices

Management practices include such activities as conservation tillage and grassed waterways, and are preventative actions against erosion into the waterways or chemical runoff. Across the watershed, to reduce the amount of sediment loading in the waterways, 34.7 percent of farms reported using grassed waterways, 5.7 percent use contour cultivation and 8.3 percent use strip cropping. The use of winter cover crops (42.5 percent) and the use of windbreaks or shelter belts (24 percent) has helped to prevent the removal of topsoil by wind. Crop rotation is the most widely used conservation practice at 61.2 percent of farms reporting. This increases the longevity, productivity and environmental quality of farmland by replacing nutrients into the soil.

7.1.4 Soils and Vegetated Land

Maintaining good soil structure and vegetation cover has benefits for farming on every scale, from large scale irrigation to rain-fed smallholder systems. Causes of soil degradation include deforestation, extensive cultivation on marginal land and improper cultivation practices such as poor manuring management, misuse of fertilizers, excessive irrigation, overgrazing and water erosion. As agriculture uses about 70 per cent of global water withdrawals and a large proportion of surface water pollution originates from agriculture, the potential benefits of improved water management in agriculture are enormous.

Low or zero-till systems, mulching, crop rotation and maintenance of vegetation cover (conservation agriculture) all contribute to good soil structure, improve water retention and drainage and reduce erosion and pollution of surface waters. Along with other structural and management interventions, these measures can help improve agricultural productivity, while also improving resilience to drought and flooding.

7.1.5 Mining and Aggregate Extraction

There are no open pit/mining operations currently licensed within the Catfish Creek watershed.

Currently, there are five areas licensed by the Ministry of Natural Resources and Forestry (MNRF) pursuant to the Aggregate Resources Act, relative to aggregate extraction within the watershed. All of the licensed operations are located in a small cluster along County Road 45 (John Wise Line) and Pleasant Valley Line in the Municipality of Central Elgin. The situation of these licenses is due to the localized surficial geology (sand and gravel deposits).

Two of the licenses are located on one property (Pleasant Valley Aggregates/Trout Farm) and have almost exhausted the material within the 55 hectare licensed area. Extraction did occur below the water table to a level of 178 metres above sea level (pit floor elevation). Extensive rehabilitation has occurred on this site to permit land uses which include passive recreation, aquaculture and a put-and-take/public fishing area.

The third license has been issued to a property immediately to the east of the above operation, on Lot: 26; Concession: 5; geographic Township of Yarmouth. The licensed area is 29 hectares with a proposed tonnage of 45,350 tonnes annually. Terms of the license will allow for extraction to proceed to a level of 180.3 metres above sea level, which is below the water table, however, no active extraction has been initiated to date.

On the north side of Pleasant Valley Line is the fourth license issued to North Shore Farming Company. The licensed area encompasses 19 hectares (annual tonnage of 150,000 tonnes) with a final pit floor elevation of 206 metres above sea level being above the water table.

The final active pit is 65 hectares in size and is licensed to Alisar Aggregates Inc. on John Wise Line. Extraction will be above the water table (pit floor elevation 198 metres above sea level) with an annual maximum tonnage of 300,000 tonnes.

Also of note, is the issuance of a 'way-side-permit' to The Township of Malahide to allow the use of sand material (total tonnage of 33,080 tonnes) for specific road projects within the municipality. Located on Lot: 7; Concession: 3 in the Township of Malahide, this authorization will permit the removal of a small "sand knoll" (well above the water table) with the final rehabilitation back to agricultural production.

8.0 WATERSHED CHALLENGES

The CCCA identified a number of challenges that may influence program priorities and services over the next several years. Challenges may include, but are not limited to:

8.1 Capacity Levels

Increases to conservation authority roles and responsibilities disproportionately impact smaller conservation authorities such as the Catfish Creek Conservation Authority with a very limited tax base within our area of jurisdiction to support mandatory program and service delivery. Variances in capacity affect the extent to which the CCCA can support hazard management policy objectives. Conservation Ontario and municipalities have repeatedly requested increases to provincial funding levels to conservation authorities, which have not been increased in well over 20 years.

8.1.1 Increased Development Pressure

If development continues at prevailing densities in the watershed, land will be consumed at an even faster rate than population grows, particularly in rural and suburban areas. This expanding footprint will put additional pressure on diminishing wildlife resources and their habitats, and has the potential to drive more plants and animals toward extinction.

8.1.2 Invasive Species

Invasive species are the second most significant threat to biodiversity, after habitat loss. In their new ecosystems, invasive species become predators, competitors, parasites, hybridizers, and diseases of our native and domesticated plants and animals.

8.1.3 Climate Change

Watersheds are affected by climate changes that are altering the quantity, quality, timing and distribution of water. The cumulative impacts of past land-uses, water withdrawals, and disturbances in a watershed are all exacerbated by climate changes.

8.1.4 Species at Risk

Ontario has the most species at risk in Canada, a number which has jumped by 22 per cent since 2009 (although no new species have been added to the Species at Risk in Ontario List since 2018) while approvals to impact species at risk have increased by 6,262 per cent in that same time frame.

8.1.5 Agricultural Runoff

When plant nutrients from synthetic fertilizers or organic fertilizers, decomposed crop residues, and agricultural waste products, such as wastewater from dairies, run off into fresh water, they speed up the eutrophication of water bodies.

8.1.6 Habitat and Biodiversity Loss

Biodiversity loss can have significant direct human health impacts if ecosystem services are no longer adequate to meet social needs. Indirectly, changes in ecosystem services affect livelihoods, income, local migration and, on occasion, may even cause or exacerbate political conflict.

8.1.7 Water Quality

Water quality degradation affects both aquatic life and human uses of water. For example, higher concentrations of nutrients may result in uncontrolled plant growth and reduce the amount of dissolved oxygen available for fish and other aquatic animals. They can also foster the growth of algae, some of which can cause health effects in humans and animals. Degraded water quality can also undermine economic activities such as fisheries, tourism and agriculture.

8.1.8 Floodplain Mapping

Mapping of floodplains and flood damage centres is critical to flood preparedness. With changing precipitation patterns, the return period for events of a given magnitude (e.g., 1:25 year or 1:100 year flood) is changing. Floodplain mapping needs to be updated accordingly, or in the case of some sub watersheds, needs to be assessed for the first time.

8.1.9 Erosion

In areas with expanding population, agricultural production, construction and urbanization as well as human activities soil erosion is a major problem. Soil erosion adversely hinders the growth of plants, agricultural yields, quality of water, and recreation. It is a key cause of degradation of soils as it occurs naturally on all lands.

8.1.10 Flooding

Flooding is considered the most significant natural hazard in Ontario in terms of death, damage and civil disruption and is the costliest type of natural disaster in Canada in terms of property damage.

8.1.11 Drought

Historically, periods of dry weather and low water levels, or drought, were relatively uncommon in Ontario occurring once every 10-15 years. However, in recent years, periods of drought are becoming more common, as the demand for water steadily increases and climate change impacts weather patterns and water availability.

8.1.12 Urbanization and Development

Rapid urbanization leads to increased impervious surfaces, such as roads and buildings, which can disrupt natural hydrological processes and increase runoff, leading to erosion, flooding, and water quality degradation.

8.1.13 Water Pollution

Pollution from various sources such as agricultural runoff, industrial discharge, and urban runoff can degrade water quality, impacting aquatic ecosystems and human health.

8.1.14 Resource Management Conflicts

Conflicts over the allocation and use of water resources among various stakeholders, including municipalities, industries, agriculture, and environmental conservation interests, can complicate watershed management efforts.

8.1.15 Data Deficiency and Monitoring

Limited availability of data on water quantity, quality, and ecosystem health, as well as challenges in monitoring and assessing watershed conditions, hinders effective decision-making and management.

8.1.16 Community Engagement and Education

Engaging and empowering local communities in watershed management efforts, as well as raising awareness about the importance of conservation and sustainable water use practices, are ongoing challenges.

8.1.17 Financial and Human Resources

Limited funding and capacity constraints within conservation authorities can restrict our ability to implement comprehensive watershed management programs and initiatives effectively.

Addressing these challenges requires integrated approaches that incorporate ecosystem-based management principles, stakeholder collaboration, adaptive management strategies, and innovative technologies to safeguard the health and resilience of watersheds for current and future generations.

9.0 OVERVIEW OF CCCA PROGRAMS AND SERVICES

A new categorization of CA programs and services was initialized through amendments to the Conservation Authorities act by the Province of Ontario. A Programs and Services Guide was created and within it Category 1, Mandatory, Category 2, Municipally Advised, and Category 3, Non-mandatory; advisable by CCCA. Category 1 Programs and Services are to be included in the WBRMS and Category 2, and Category 3 Programs and Services can also be included if agreements have been reached between the CA and its member municipalities. The CCCA supports Category 1 Mandatory Programs and Services and Category 3 Programs and Services. All Category 3: Other Programs and Services are all compensated via grants, reserves or fee for service work (cost recoverable).

Category 1: Mandatory Programs and Services Overview **Category 3: Other Programs and Services Overview**	
Program Area	**General Description**
Natural Hazard Management: Category 1 Mandatory Programs and Services **Budget 2024 - $322,049.35**	
Section 28 Permit Administration and Compliance Activities/ Enforcing and Administering the Act Mandatory in accordance to CA Act; Reg. 686/21 s.8	Reviewing and processing permit applications, technical reports, natural hazards studies, mapping and updates to regulation limits mapping. Site visits/ inspections, communication with applicants, agents, and consultants. Property enquires and legal expenses for regulations and compliance. Administering and enforcing sections 28, 28.0.1, and 30.1 of the act as required.
Review Under Other Legislation Mandatory in accordance to CA Act; Reg. 686/21 s.6	Input and review on a variety of different Acts including, The Aggregate Resources Act, Drainage Act, Environmental Assessment Act and The Ontario Planning Act. Subdivisions, consents and minor variances.
Municipal Plan Input and Review Mandatory in accordance to CA Act; Reg. 686/21 s.7	Provide technical information, advice, and policy support to municipalities on matters relating to Natural Hazards Policies (Section 3.1 under the PPS) with a focus on Official Plan and Official Plan Amendments. This includes, broad policy interpretation, transfer of data, information and science to municipalities, and provision of advice on matters relating to natural hazards policy to Ministry of Municipal Affairs and Housing.

Flood Forecasting and Warning Mandatory in accordance to CA Act; Reg.686/21 s.2, Reg. 686/21 s.3	Daily data collection and monitoring of local weather forecasts hydrometric stations, local water level forecasts and watershed conditions. Flood event forecasting, provincial watershed condition statements and inter agency communications in the event of a flood. Maintenance of flood forecasting equipment and annual meeting with applicable inter agency flood emergency coordinators.
Flood and Erosion Control Infrastructure Operation and Management Mandatory in accordance to CA Act; Reg. 686/21 s.5	Flood and erosion control infrastructure and low flow augmentation includes 1 dam.
Ice Management Services Mandatory in accordance to CA Act; Reg. 686/21 s. 4	Providing advice for ice jam prevention and mitigation through-out the winter season. Suggest equipment for ice mitigation and create/ update an Ice Management Plan.
Catfish Creek Channel Monitoring Mandatory in accordance to CA Act; Reg. 686/21 s. 2, s.3, s.4	Monitoring the Catfish Creek channel morphology changes at Port Bruce due to seasonal loading and/or scour by bathometric sounding the lower reaches of the Catfish Creek through Port Bruce.
Drought and Low Water Response Mandatory in accordance to CA Act; Reg. 686/21 s.3	Monitoring of surface and groundwater conditions and analysis of low water data for dissemination to irrigators, landowners and applicable government agencies. Technical and administrative support to regional advisors, and the CCCA's Irrigation Committee.
Natural Hazards Technical Studies and Information Management Mandatory in accordance to CA Act; Reg. 686/21 s.1(1)	Data collection and study of technical report designs to mitigate natural hazard. Development and use of systems to collect and store data and to provide spatial geographical representations of data.

Natural Hazards Communications, Outreach and Education Mandatory in accordance to CA Act; Reg. 686/21 s.2, s.3, s.4, s.5	Promoting public awareness of natural hazards including flooding, drought, and erosion. Social media services. Media relations. Natural hazards studies, mapping and updates to Regulation Limits mapping and data transfer to public, through web based map(s) showing Regulation Limits .
Core Watershed - based Resource Management Strategy Mandatory in accordance to CA Act; 21.1(1) 0. Reg. 686/21 12 (1) 3	Collate/compile existing resource management plans, watershed plans, studies, and data. Strategy development, implementation, and annual reporting. This project builds on previous Watershed Management Strategies.

ISSUES AND RISKS

Natural Hazard Management:

1. CCCA does not currently provide stormwater management review, due to the changes under the CA Act. Should direction change or clarification be provided by the Province, the Board might decide to reassess this decision to ensure that stormwater management is reviewed consistently across the watershed.

2. Conservation authorities are restricted by the Province from commenting on planning applications regarding natural heritage, as has been done under agreement with municipalities for several years. The health of natural heritage systems and features within the watershed could be negatively impacted without this regional, watershed based review.

3. Climate change could result in more frequent flooding and low water events resulting in the need for more rain gauges and stream gauges, computer models for flood forecasting, and demand for more staff time and resources.

4. Major maintenance for Flood and Erosion Control works could be required when no provincial funding is available; most of the flood and erosion control structures at LTC are not eligible for provincial funding due to the nature of the scoring matrix for funding.

5. Plans and Technical Studies require considerable staff time and/or outside expertise. Municipal/provincial/federal funds and municipal agreements are needed to support completion of technical studies or mapping projects.

6. Natural hazards can be highly complex and uncertain in terms of their occurrence, intensity, and impacts. This uncertainty makes it difficult to predict and prepare for events effectively.

7. An increase in natural hazards enforcement and complaints results in an increased demand for staff time. The ability to hire new staff is paramount but limited by funding shortfalls. 8. Rapid population growth and urbanization in hazard-prone areas increase the vulnerability of communities to natural hazards. Urbanization often leads to the development of infrastructure in high-risk areas, exacerbating the potential for damage and loss of life. 9. Effective coordination and cooperation among various stakeholders, including government agencies, NGOs, and the private sector. Political and institutional challenges, such as bureaucratic hurdles and conflicting interests, can hinder effective collaboration and decision-making. 10. Reliance on technology for hazard monitoring, early warning systems, and communication can introduce risks such as system failures, malfunctions, or cyber-attacks, which may compromise the effectiveness of response and recovery efforts.	
Provincial Water Quality and Quantity Monitoring: Category 1 Mandatory Programs and Services Budget 2024 – $9,366.44	
Provincial Water Quality Monitoring Network (PWQMN) and Provincial Groundwater Monitoring Network (PGMN) Mandatory in accordance to CA Act; Reg. 686/21 s.12	Through a partnership with the MECP, CCCA undertakes stream water quality monitoring at four sites. The Conservation Authority collects the water samples at the four sites, ten times per year and MECP is responsible for the laboratory analysis and data management. The results are made available to CCCA. The data is used to prepare watershed report cards and report on watershed health. It also helps prioritize the need for watershed restoration projects. CCCA has a long-standing partnership with the MCEP for groundwater level and water quality monitoring at 5 stations (2 sites) across the watershed. CCCA costs include data collection, shipping, minor equipment repairs/purchases, data management, and reporting. The Province funded the installation of the network and continues to fund equipment replacements. Information collected is helping to build a database on groundwater levels and groundwater quality and is used in the preparation of watershed report cards.
Integrated Water and Climate Station Mandatory in accordance to CA Act; Reg. 686/21 s.12 (2)	CCCA uses four MECP hydrometric stations to monitor flows and precipitation within the Catfish Creek Watershed
Water Quality and Quantity Monitoring Category 3: Other Programs and Services Budget 2024 – Funded by Self-Generated Revenue	
Surface Water Quality Monitoring Program	In addition to PWQMN, CCCA maintains nine benthic monitoring sites across the watershed. CCCA responds to local spills events at the request of MECP. Costs include sampling, analysis and reporting.

Watershed Report Card	Conservation Authorities report on local watershed conditions every five years. Measuring environmental indicator changes within the watershed, with a focus on Authority managed projects to evaluate efforts and track progress.

ISSUES AND RISKS

Provincial Water Quality & Quantity Monitoring:

1. Agencies often face constraints in terms of funding, personnel, and equipment for monitoring water quality and quantity. Limited resources can lead to gaps in monitoring coverage and frequency, hindering the ability to identify emerging issues and trends.

2. Ensuring the accuracy, reliability, and consistency of water quality and quantity data across different monitoring sites and time periods can be challenging. Factors such as sensor calibration, sampling techniques, and data interpretation practices can vary, affecting the comparability and usefulness of the data for decision-making.

3. Interpretation and usefulness of PGMN data to support CCCA programs (e.g. low water program, watershed report card).

4. Climate change is altering precipitation patterns, temperature regimes, and hydrological cycles, leading to shifts in water availability, quality, and distribution. Provincial monitoring programs must account for these climate change impacts and incorporate adaptive strategies to assess and mitigate associated risks effectively.

5. Maintaining and upgrading monitoring infrastructure, such as gauges, sensors, and laboratory facilities, is necessary to ensure the reliability and continuity of water monitoring efforts. However, funding constraints and technological obsolescence may hinder efforts to modernize and optimize monitoring systems.

6. Ensuring the sustainability of groundwater resources requires long-term monitoring efforts to track changes in groundwater levels, quality, and usage over time. However, maintaining continuity and consistency in monitoring activities over extended periods can be challenging due to funding uncertainties, institutional changes, and competing priorities.

7. Groundwater contamination from sources such as industrial activities, agriculture, and urban development poses significant risks to human health and environmental integrity. Provincial groundwater monitoring programs must prioritize the detection and assessment of contamination threats and implement mitigation measures to protect groundwater resources.

8. Adequate funding, personnel, and equipment are essential for conducting groundwater monitoring (PGMN) activities effectively. However, CAs may face resource constraints, which can limit the frequency of monitoring, the number of monitoring wells, and the analytical capacity of laboratories.

9. Groundwater systems are complex, heterogeneous, and dynamic, with interactions between geological, hydrological, and environmental factors influencing groundwater flow and quality.

Understanding and monitoring these dynamics require interdisciplinary approaches and advanced modeling techniques, which may pose challenges to the CCCA.

10. Ensuring the quality and consistency of groundwater monitoring data is essential for making informed decisions about groundwater management. However, challenges such as sensor calibration, sampling protocols, and data validation procedures can affect the reliability and usability of monitoring data.

Drinking Water Source Protection: Category 1 Mandatory Programs and Services 2024 Budget - $6,267.78	
Drinking Water Source Protection (DWSP) Mandatory in accordance to CA Act; Reg. 686/21 s.13 (1)1	Locally, CCCA disseminates information and provides advice to local municipalities to facilitate implementation of the Source Protection Plan and to identify local priorities for future updates to the Assessment Report and Source Protection Plan. CCCA is responsible for administering the Catfish Creek Source Protection Authority – governance, administration, meetings, reports and the delivery of other activities required by the Clean Water Act and its regulations.

ISSUES AND RISKS

Drinking Water Source Protection (DWSP): Regional and Local:

1. Insufficient funding, personnel, and technical expertise can hamper drinking water source protection initiatives. Limited resources may result in inadequate monitoring, enforcement, and implementation of best management practices, leaving drinking water sources vulnerable to contamination and degradation.

2. Keeping the science current (updated technical studies needed including issues identification, water budgets, wellhead protection areas, intake protection zones and vulnerability).

3. Protection of non-municipal systems (communal and private).

4. Challenges with implementation of the Source Protection Plan.

5. Delivery of an effective education and outreach program.

6. Program Coordinator has no supervisory role over local Source Protection Authority staff within regional staffing structure.

7. Urbanization, agricultural expansion, and industrial development can lead to land use changes that compromise drinking water sources. Increased impervious surfaces, deforestation, and soil erosion can impact water quality through sedimentation, nutrient runoff, and contamination from pollutants.

8. Climate change exacerbates existing risks to drinking water sources by altering precipitation patterns, temperature regimes, and hydrological cycles. Extreme weather events, such as floods, droughts, and storms, can impact water availability, quality, and infrastructure resilience, posing challenges for drinking water source protection efforts.

9. Invasive species and habitat loss can degrade ecosystem functions and impair water quality in drinking water sources. Invasive plants, algae, and aquatic species can disrupt natural ecosystems, alter nutrient cycling, and increase the risk of harmful algal blooms and waterborne diseases. 10. Drinking water sources can be contaminated by various pollutants from point sources (such as industrial discharge pipes) and non-point sources (such as agricultural runoff and urban stormwater). Contaminants may include pathogens, chemicals, heavy metals, and nutrients, posing risks to human health and the environment.	
Conservation Lands: Category 1 Mandatory Programs and Services 2024 Budget - $86,900.35	
Section 29 Minister's Regulation Rules of Conduct in Conservation Areas Mandatory in accordance to CA Act; Reg. 688/21	Conservation areas regulations enforcement/compliance. Incurred legal expenses for regulation and compliance.
Conservation Areas Mandatory in accordance to CA Act; Reg. 686/21 s.9(1)	Management and maintenance of three passive day use conservation areas (Yarmouth Natural Heritage Area, Archie Coulter and Springwater Forest, not the Campground) with recreational trails. Includes passive recreation, risk management program, hazard tree management, gates, fencing, signage, brochures, communications, pedestrian bridges, trails, parking lots, pavilions, roadways, stewardship, restoration, ecological monitoring, carrying costs such as taxes and insurance. Ivan Steen & Ward McKenna; existing agreements with The Corporation of the Town of Aylmer, for use of the Ivan Steen Conservation Area and Ward McKenna Conservation Area for public park space and recreational amenities which is maintained by The Corporation of the Town of Aylmer .
Conservation Area Major Maintenance Mandatory in accordance to CA Act; Reg. 686/21 s.9 (2)	Major maintenance and capital improvements to support public access, safety and environmental protection such as pedestrian bridges, boardwalks, trails.
Inventory of Conservation Authority Lands Mandatory in accordance to CA Act;	The land inventory includes the following information: location as well as date, method and purpose of acquisition, land use. One -time project with updates as properties are acquired or disposed of.

CA Act 21.1(1) 0. Reg. 686/21 9 (3)	
Conservation Areas Strategy Mandatory in accordance to CA Act; 21.1(1) 0. 0Reg. 686/21 9 (1)	A strategy to guide the management and use of CA-owned or controlled properties including guiding principles, objectives, land use, natural heritage, classifications of lands, mapping, identification of programs and services on the lands, public consultation, publish on website. Updates of existing conservation area management plans.
Land Acquisition and Disposition Strategy Mandatory in accordance to CA Act; Reg. 686/21 s.9 (2) (5)	A policy to guide the acquisition and disposition of land in order to fulfill the objects of the authority is to be created before the end of the Transition Period.
Springwater Conservation Area	CCCA operates one campground and its associated facilities, generates our main revenue stream and offsets costs of mandated programs.
CCCA forests and management areas (not Conservation Areas)	Management and maintenance of CA owned lands (will all be listed in the Land Inventory) Includes forest management, signage, gates, passive recreation, stewardship, restoration, ecological monitoring, carrying costs such as taxes and insurance.
Conservation Lands Category 3: Other Programs and Services Budget 2024 - Funded by Self-Generated Revenue	
Land acquisition	Strategic acquisition of environmentally significant properties. Follow guidance from our land acquisition and disposal policy.
Private Land Stewardship Program/ Integrated	Work with property owners to implement Best Management Practices to mitigate flood and erosion hazards, improve and protect water quality, restore floodplains and river valleys, reduce nutrient contamination, restore and enhance wetlands to reduce flooding peaks and augment low flow, management of terrestrial non-native invasive species, protect groundwater, and improve aquatic species at risk habitat. Apply for and manage external funding, promote private land stewardship such as tree planting, wetlands and tall grass prairie plantings, outreach, provide technical advice and design assistance .
Tree Planting and Forestry Services	Site preparation, tree and shrub planting, and survival assessments, technical assistance, hazard tree abatement, link to funding programs to maintain form and function of watershed forest cover. CCCA Tree Planting

	Program allows property owners to purchase bare root native tree and shrub seedlings at a minimal cost. CCCA also provides full service tree planting to landowners. Administration of Malahide Roadside Tree Planting Program. Agreement with Town of Aylmer to manage Aylmer Woodlot.
Education Programming in Conjunction with Thames Valley Schoolboard	An annual Memorandum of Understanding is signed with Thames Valley District Schoolboard leasing a part of Springwater Forest to the Jaffa Outdoor Education Center for an outdoor classroom. The Maple Program, Marsh Quest and Forest Festival are all ran in conjunction with Thames Valley District Schoolboard staff.

ISSUES AND RISKS

Conservation Lands Program:

1. Complete Ecological Lands Classification (ELC) mapping and identify habitat of species at risk.

2. Funding for major trail improvements.

3. Aging infrastructure.

4. Signage updates required to address legislative and social needs.

5. Invasive species can outcompete native flora and fauna, disrupt ecosystem functions, and alter habitat structure and composition on conservation lands. Invasive plants, animals, and pathogens may spread rapidly, outpacing management efforts and threatening the integrity of native ecosystems.

6. Ecosystem enhancement and regeneration.

7. Engagement of volunteers to assist with Conservation Lands management.

8. Conservation lands often intersect with competing interests, such as agriculture, forestry, energy development, and indigenous rights. Conflicting land uses, resource extraction, and development pressures can lead to conflicts among stakeholders and challenges in achieving conservation goals while balancing socio-economic needs.

9. Wildlife diseases, such as pathogens, parasites, and emerging infectious diseases, can spread rapidly among populations on conservation lands, causing mortality, population declines, and ecosystem disruption. Disease outbreaks may be exacerbated by factors such as habitat degradation, climate change, and wildlife-human interactions.

10. Recreational activities, tourism, and infrastructure development on conservation lands can lead to human disturbance, habitat degradation, and wildlife displacement. Overuse of trails, off-road vehicles, and camping sites can degrade sensitive habitats, disturb nesting sites, and stress wildlife populations.

Enabling Services: Category 1 Mandatory Programs and Services
Budget 2024 – $143,635.60

Enabling Services Mandatory in accordance with CA Act, 21.1 (1) para 1. (iv)	Corporate Services are key services provided to all departments of the Conservation Authority, Board of Directors, member municipalities and the general public to enable LTC to operate in an accountable, transparent, efficient and effective manner. These general operating expenses and capital costs, permitted as Mandatory Program and Services under Part IV and Section 21.1 of the CA Act, are not directly related to the provision of a specific program or service that an authority provides (Ontario Regulation 402/22: Budget and Apportionment). Funding for these services are both municipally funded and self-generated. Administrative, human resources, operating and capital costs which are not directly related to the delivery of any specific program or service, but are the overhead and support costs of a conservation authority. Includes health and safety program, overseeing programs and policies.
Financial Services Mandatory in accordance to CA Act, 21.1(1) para 1. (iv)	Financial services ensures the wise use of funds and fiscal accountability. Ongoing vigilance is needed to ensure that the funding received from member municipalities, the provincial and federal governments, other partners, agencies and donors is used wisely for the betterment of the watershed region. It includes development of the annual budget, accounts payable and receivable, payroll, financial analysis, financial audit, administration of reserves and investments, asset management, financial reports for funding agencies, preparing and submitting reports to the Canada Revenue Agency, and administration of the benefits program. Also included under Financial Service is fundraising. As a non-profit registered charity, CCCA undertakes fundraising to support its conservation efforts. This includes: grant writing, direct requests to businesses and private donors, and fundraising campaigns. Annual budget, accounts payable and receivable, payroll, financial analysis, financial audit, administration of reserves and investments, financial reports for funding agencies, preparing and submitting reports to CRA, benefits program administration.
Legal Expenses Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	Costs related to agreements/ contracts , administrative by-law updates.
Governance Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	Governance is the overall framework for managing and decision making of the organization. Governance costs cover those required for operation and support of the Board of Directors, any associated Boards or Advisory Committees, and for the Office of Chief Administrative Officer/Secretary-Treasurer Supporting CA Boards, Advisory Committees, GM and Senior Management.

Communications and Outreach Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	Informing public of CCCA programs and projects through media, open houses, public meetings, website administration, responding to inquiries from the public, crisis communications .
Administration Building Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	Office buildings and workshop used to support CCCA staff, programs and services. Includes utilities, routine and major maintenance, property taxes.
Information Technology Management/ GIS Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	Data management, records retention. Development and use of systems to collect and store data and to provide spatial geographical representations of data.
Vehicle and Equipment Mandatory in accordance to CA Act, 21.1 (1) para 1. (iv)	A fleet of vehicles and equipment to support the work of the CCCA, including capital purchases, fuel, licenses, repairs and maintenance. Programs and projects are charged for the use of the vehicles and equipment .

ISSUES AND RISKS

Enabling Services:

1. Municipal funding required for capital costs.
2. Funding support for operational costs.
3. Self-generated funding is unpredictable.
4. Legal expenses are not consistent annually.
5. Future major maintenance or alterations to buildings and other equipment could result in increased costs.
6. Staff turnover, knowledge transfer.
7. Keeping current and acquiring technology to sustain program functions and to meet expectations.
8. E-Commerce/improved online customer service processes and tracking required.
9. Cyber security.

10. Public expectations for Open Data. 11. Enhanced mapping, data, and analytical tools to facilitate faster, sound decision making. 12. Funds for purchase of necessary data products (i.e. Orthophotography).

To review our complete inventory of Programs and Services please see https://www.catfishcreek.ca/wp-content/uploads/2022/02/CCCA-Programs-Services-Inventory.pdf.

10.0 RISK ASSESSMENT AND MITIGATION EFFORTS

The issues and risks documented in this strategy have been identified and mitigation measures are as described. In most cases, the amount of funding required to mitigate the risks is "To be Determined (TBD)" as the issue may not arise or be able to be addressed in the foreseeable future, and may be outside of the review period for this document.

Mandated Programs and Services		
Issues and Risk	**Mitigation**	**Cost**
Natural Hazard Management		
CCCA does not currently provide stormwater management review for water quality, due to the changes under the CA Act. Should direction change or clarification be provided by the Province, the Board may decide to reassess this decision to ensure that stormwater management is reviewed consistently across the watershed.	Monitor requirements. If stormwater Management review re-introduced for water quality, requirement to hire engineer or retain engineering consultant.	TBD
Conservation authorities are restricted by the Province. Monitor requirements. The costs could be from commenting on planning applications regarding natural heritage, as has been done under agreement with municipalities for several years. The health of natural heritage systems and features within the	Monitor requirements.	TBD

watershed could be negatively impacted without this regional, watershed based review.		
Climate change could result in more frequent flooding and low water events resulting in the need for more rain gauges and stream gauges, computer models for flood forecasting, and demand for more staff time and resources.	Ensure staff efficiencies, budget for increased staffing. Equipment is covered under the Capital Asset Management Plan. Apply for grants for climate change resiliency when available.	TBD
Major maintenance for Flood and Erosion Control works could be required when no provincial funding is available.	Continue to regulate development to lessen need for control works. Continue regular maintenance of existing projects to identify upcoming maintenance requirements. Municipal support for future maintenance requirements.	TBD
Plans and Technical Studies require considerable staff time and/or outside expertise. Municipal/provincial/federal funds and municipal agreements are needed to support completion of technical studies or mapping projects.	Contribute to Special Projects Reserve when funds are available. Costs for Project Management should be built into the project when available.	TBD
An increase in natural hazards enforcement and complaints results in an increased demand for staff time. The ability to hire new staff is paramount but limited by funding shortfalls.	Ensure staff efficiencies.	TBD
Provincial Water Quality and Quantity Monitoring		
Long-term access to wells on private lands (landowner turnover).	Maintain communications. Ensure agreements are in place. Move or close wells if required.	TBD

Interpretation and usefulness of PGMN data to support CCCA programs (e.g. low water program, watershed report card).	Seek assistance from Province with interpretation. Move or close wells if required.	TBD
Drinking Water Source Protection		
Discontinuation or diminished provincial funding.	Lobby for continued provincial funding. The Province has an alternate funding mechanism proposed through regulation that could download the financial responsibility to the municipalities.	TBD
Keeping the science current (updated technical studies needed including issues identification, water budgets, wellhead protection areas, intake protection zones and vulnerability).	Lobby for provincial support for updated technical studies and the associated funding.	TBD
Protection of non-municipal systems (communal and private).	Lobby for provincial support and funding.	TBD
Challenges with implementation of the Source Protection Plan.	Encourage Source Protection Committee to review policy effectiveness. Increase focus for Education and Outreach.	TBD
Delivery of an effective education and outreach program.	Seek additional funding/staffing for new tools and increased outreach. Track effectiveness/of education campaigns through surveys, etc.	TBD
Program Coordinator has no supervisory role over local Source Protection Authority staff within regional staffing structure.	Program Coordinator involvement in the development of local work plan targets with local Source Protection Authority managers.	TBD

Increased development impacting vulnerable areas and the number of potential threats.	Increase education for municipal leaders and staff to understand the significance of unsafe development. Update vulnerability studies.	TBD
Conservation Lands		
Complete Ecological Lands Classification (ELC) mapping and identify habitat of species at risk.	Budget staffing to undertake work.	TBD
Funding for major trail improvements.	Capital Asset Management Plan in place to anticipate and cover capital costs.	TBD
Aging Infrastructure.	Capital Asset Management Plan in place to anticipate and cover capital costs.	TBD
Signage updates required to address legislative and social needs.	Budget for work.	TBD
Invasive species inventory and management.	Budget staffing to undertake work. Grant proposals.	TBD
Ecosystem enhancement and regeneration.	Partnerships with municipalities Grant proposals Budget staff time.	TBD
Engagement of volunteers to assist with Conservation Lands management.	Implement an organized approach to a volunteer program.	TBD
Population growth and increased outdoor activity resulting in increased stresses on the Conservation Area and potential for visitor conflicts.	Budget for increased maintenance/repairs (Asset Management Plan). Increased staff presence on CA Lands.	TBD
Enabling Services		
Municipal funding required for capital costs.	Capital Asset Management Plan required to anticipate and cover capital costs.	TBD

Funding support for operational costs.	Regular budgeting process and implementation of a Board member budget sub-committee.	TBD
Self-generated funding is unpredictable.	Plan and budget on more reliable funding sources.	TBD
Legal expenses are not consistent annually.	The legal reserve fund increased to cover increasing legal action. Allocated when surplus funds are available.	TBD
Future major maintenance or alterations to buildings and other equipment could result in increased costs.	Capital Asset Management Plan in place to anticipate and cover capital costs, to be reviewed every 5 years.	TBD
Staff turnover, knowledge transfer.	Offer competitive salaries and benefits in a positive work environment. Maintain good records. Develop/maintain policies and procedures/ documents.	TBD
Keeping current and acquiring technology to sustain program functions and to meet expectations.	Ensure sufficient annual budget. Information Technology and Operations (IT and Ops) Review recommendations to assist in prioritizing technology upgrades and apply to budget cycle.	TBD
E-Commerce/improved online customer service processes and tracking required.	Include in future Business Plan/Budget.	TBD
Cyber security.	Cyber insurance. Budget for external Information Technology provider and staff training, as recommended in the IT and Ops Review.	TBD
Public expectations for Open Data.	Ensure staff time to develop platform.	TBD

Enhanced mapping, data, and analytical tools to facilitate faster, sound decision making.	T and Ops Review recommendations for dedicated GIS position.	TBD
Funds for purchase of necessary data products (i.e. orthophotography).	Capital Asset Management Plan in place to anticipate and cover costs.	TBD

11.0 REVIEW AND ASSESSMENT OF CCCA PROGRAMS AND SERVICES

The Strategy must be prepared on or before December 31, 2024. The Strategy is made available to the public on the Authority's website, or by other means the CA considers advisable, by December 31, 2024.

As a best practice, CCCA will post this on the established CA Governance Webpage (where certain other documents are required to be posted pursuant to O. Reg. 400/22). Once the Strategy is complete, the CCCA will notify the organizations and individuals who were engaged in the consultation process of the availability of the final Strategy. There is no legislative requirement to submit to the Province a confirmation of completion of the Strategy.

The Strategy will be reviewed every five (5) years or as required to enter into new Category 1,2, and 3 Programs and Services or to re-evaluate Category 1,2, or 3 Programs and Services the CCCA offers to its member municipalities.

12.0 INFORMATION SUPPORTING CCCA PROGRAMS

Ontario Regulation 686/21 requires this Strategy include a summary of existing technical studies, monitoring programs, and other information about the natural resources the Conservation Authority relies on within its area of jurisdiction or in specific watersheds that directly informs and supports the delivery of programs and services under section 21.1 of the CA Act.

CCCA's monitoring programs are described elsewhere in this document. Water level monitoring is accomplished through the flood forecasting and warning, low water response, and base flow monitoring programs and the Provincial Groundwater Monitoring Network. Water quality is monitored through the Provincial Water Quality Monitoring Network and local programs (benthic macroinvertebrate monitoring and local surface water quality monitoring programs).

In addition to its monitoring programs, CCCA relies on a range of technical resources to inform decision making. Some of these have been completed in-house and others have been contracted to consultants. The documents, computer models and mapping products need updated from time to time to address and respond to changes in land use, watershed conditions, the regulatory framework, and emerging issues. These resources are described in Appendix 2.

13.0 FUTURE INITIATIVES

Opportunities for growth, new programs, services and projects that benefit the watershed and its municipal partners can materialize at any time; these could be long-term or short-term initiatives. These

special projects may update existing studies and mapping, help address current and emerging issues, and/or assist with delivery of programs. Not only are there benefits to the health of the watershed, but the Conservation Authority benefits from heightened expertise, new resources, enhanced partnerships and use of the completed products. The program, services and projects could fall into any of the three categories permitted under the CA Act: mandatory, municipal or other (Category 1, 2 or 3, respectively). In addition, the projects could fall under any of the programs and services described in this Strategy, or be new initiatives

13.1 Watershed and Sub-Watershed Plans

Watershed and watershed plans take a holistic view of the entire hydrological system, considering the interconnectedness of land, water, and ecosystems within a defined geographic area. This integrated approach allows for more comprehensive and effective management of natural resources. By assessing the characteristics and vulnerabilities of watersheds and sub-watersheds, these plans can identify areas at risk of erosion, flooding, habitat degradation, pollution, and other environmental hazards. Understanding these vulnerabilities is essential for implementing targeted mitigation and adaptation measures. Watershed and sub-watershed plans help to reduce risks associated with natural hazards such as floods, droughts, and wildfires. By implementing measures such as green infrastructure, land use planning, and erosion control, these plans can enhance the resilience of communities and ecosystems to extreme events. They play a critical role in protecting water quality by identifying sources of pollution, implementing best management practices, and promoting sustainable land use practices. These efforts are essential for safeguarding drinking water supplies, supporting aquatic habitats, and preserving recreational opportunities. Watershed and sub-watershed plans provide a framework for long-term planning and management of natural resources. By setting goals, objectives, and action plans, these plans guide decision-making and resource allocation over multiple years and across different jurisdictional boundaries. Healthy watersheds and sub-watersheds provide a wide range of economic benefits, including clean water supplies, recreational opportunities, tourism revenue, and ecosystem services such as flood control and carbon sequestration. By investing in watershed planning and management, communities can protect these valuable resources and support sustainable economic development.

13.1.2 Updates to Mapping and Technical Projects

Accurate floodplain maps allow communities to assess the extent and severity of flood risks in a given area. By identifying flood-prone zones and vulnerable infrastructure, updated mapping enables better-informed decision-making for land use planning, emergency preparedness, and infrastructure development. Access to up-to-date flood hazard data helps residents, businesses, and local authorities understand areas at risk of flooding. This information allows communities to take proactive measures to protect lives and property, such as implementing building codes, evacuation plans, and floodplain zoning regulations.

Insurance companies rely on floodplain maps to assess flood risks and determine insurance premiums. Accurate mapping ensures that insurance rates reflect the actual level of risk, which can incentivize property owners to invest in flood mitigation measures and reduce financial losses from flooding events. Engineers and urban planners use floodplain maps to design and locate infrastructure such as roads, bridges, utilities, and drainage systems. Updated mapping allows for more precise engineering designs that consider flood risks, minimize exposure to hazards, and enhance the resilience of critical

infrastructure. Floodplain mapping helps identify environmentally sensitive areas, such as wetlands and riparian zones, which provide important habitat for wildlife and contribute to ecosystem health. Incorporating environmental considerations into floodplain management supports conservation efforts and promotes sustainable land use practices.

Up-to-date floodplain mapping is essential for risk assessment, community safety, insurance, infrastructure planning, environmental protection, regulatory compliance, climate change adaptation, and public awareness. Investing in accurate and reliable mapping data is critical for building resilient and sustainable communities that are better equipped to withstand and recover from flood disasters.

13.1.3 Public Engagement/ Consultation

As outlined in the regulation, all CAs are required to ensure stakeholders and the public are consulted during the preparation of the WBRMS in "a manner that the authority considers advisable". Further, CAs must ensure stakeholders and the public are consulted during the periodic review and update process for the strategy. The CCCA released the Strategy for our member municipalities, public and First Nations from June 17, 2024 to July 26, 2024. Letters will be provided to our participating municipalities, Indigenous Communities, and the public advising them of the consultation period.

14.0 BIBLIOGRAPHY

Vitousek, P. M., H. A. Mooney, J. Lubchenco, and J. Melillo. (1997a). Human Domination of Earth's Ecosystems. Science 277:494-499.

(Karr, J. R. and D. R. Dudley. 1981. Ecological perspectives on water quality goals. Environmental Management 5: 55-68)

Norris, R. H. and Norris, K. R. (1995). The Need for Biological Assessment of Water Quality, Australian Journal of Ecology 20(1): 1-6.

Palmer, M. A., Ambrose, R. F. and Poff, N. L.. Ecological Theory and Community Restoration Ecology. 1997, Restoration Ecology 5(4): 291-300.

Kelly, J. R. and Harwell, M. A. (1990). Indicators of ecosystem recovery. Environmental Management 14(5): 527-545.

15.0 REFERENCES

Schwab G. et. al., Soil and Water Conservation Engineering, Third edition, pg. 25, John Wiley & Sons, Inc., 1981.

American Society of Agriculture Engineers, Hydrologic Modeling of Small Watersheds, pg. 3, 1982.

Springwater Reservoir Sediment Control Structure Study, MacLaren Engineers, 1989.

Paragon Engineering Limited, Catfish Creek Master Drainage Plan - Main Report, January 1991.

Ontario Ministry of Natural Resources, Manual of Instructions - Aquatic Habitat Inventory Surveys.

Government of Ontario, Conservation Ontario, Upper Thames River Conservation Authority and Rideau Valley Conservation Authority, Innovations in Watershed Stewardship - Watershed Reporting: Improving Public Access to Information, May 2003.

S. M. Willis, Operating Plan for Springwater Forest and the Jaffa Tract for the Period 1 April, 1978 to 31 March, 1988, December 1979

Department of Planning and Development, Catfish Creek Conservation Report – Ground water Forestry, 1951.

Ontario Department of Mines and Northern Affairs, Map 2225 – Physiography of the Southwestern Portion of Southern Ontario, 1972.

Ontario Ministry of Agriculture and Food, The soils of Elgin County – Volume 1, 1992.

Ontario Ministry of Agriculture and Food, The soils of Elgin County – Volume 2, 1992.

2nd Australian Stream Management Conference Proceedings (1999) Eds Rutherfurd I, Bartley, R. Urban stream rehabilitation through a decision-making framework to identify degrading processes and prioritize management actions.
Christopher J. Walsh and Peter F. Breen1

Palmer, M. A., Ambrose, R. F. and Poff, N. L.. Ecological Theory and Community Restoration Ecology. 1997, Restoration Ecology 5(4): 291-300.
Brookes, A. (1994). "River Channel Change." chapter, in: The Rivers Handbook. Vol. 2 . Blackwell Scientific Publications, Oxford. pp.55-75.
Hey, R. D. (1994). "Environmentally sensitive river engineering." chapter, in: The Rivers Handbook. Vol. 2. Blackwell Scientific Publications, Oxford. pp.55-75.

Kelly, J. R. and Harwell, M. A. (1990). Indicators of ecosystem recovery. Environmental Management 14(5): 527-545.

Norris, R. H. and Norris, K. R. (1995). The Need for Biological Assessment of Water Quality. Australian Journal of Ecology 20(1): 1-6.

Biological Indicators Last updated on Monday, September 15th, 2003
http://www.epa.gov/bioindicators/

Riparian Areas, Oregon State University, Corvallis, OR 97331-4501 541-737-1000, Copyright © 2003 Oregon State University, http://www.cropinfo.net/ripiarian.htm

Department of Chemistry, Ontario Agriculture College, Guelph, (1929) Soil Map County of Elgin. The Department of Militia and Defense, Ottawa. (soil map 3)

Ontario Centre for Soil Resources Evaluation (cartographic data collected on-site in 1982-1983 and 1987-1989). Soils of Elgin County Central Townships Ontario Sheet 2, Soil Survey Report No. 63. Ontario Ministry of Agriculture and Foods. (Soil map 2)

Ontario Centre for Soil Resources Evaluation (cartographic data collected on-site in 1982-1983 and 1987-1989). Soils of Elgin County Central Townships Ontario Sheet 3, Soil Survey Report No. 63. Ontario Ministry of Agriculture and Foods. (soil map 1)

Ontario Department of Mines and Northern Affairs, Ontario Research Foundation. (1984). Map 2225, Physiography of the Southwestern Portion of Southern Ontario. Ontario Department of Mines and Northern Affairs. (physiography map)

Gleick, P.H. 2000. The World's Water 2000-2001. The Biennial Report on Freshwater Resources. Island Press, Washington, D.C. 215 pp.

Hatfield, J.L. and B.A. Steward. 1998. Animal Waste Utilization: Effective use of Manure. Ann Arbor Press, Chelsea, MI.

Postel, S.L.1999. Pillars of Sand: Can the irrigation miracle last? W.W. Norton, New York.

Matson, P. A., W. J. Parton, A. G. Power, and M. J. Swift. 1997. Agricultural Intensification and Ecosystem Properties. Science 277:504-509.

Asner, G. P., T. R. Seastedt, and A. R. Townsend. (1997). The Decoupling of Terrestrial Carbon and Nitrogen Cycles. BioScience 47:226-234.

Vitousek, P. M., H. A. Mooney, J. Lubchenco, and J. Melillo. (1997a). Human Domination of Earth's Ecosystems. Science 277:494-499.

Vitousek, P. M., J. D. Aber, R. W. Howarth, G. E. Likens, P. A. Matson, D. W. Schindler, W. J. N. Pretty, J. Thompson, and F. Hinchcliff. (1997b). Human Alterations of the Global Nitrogen Cycle: Sources and Consequences. Ecological Applications.

Catfish Creek Master Drainage Plan - Main Report, Paragon Engineering Limited, January 1991.

Clean Up Rural Beaches (CURB) Plan, For Catfish Creek and Kettle Creek Watersheds. Kettle Creek and Catfish Creek Conservation Authorities, for The Ontario Ministry of Environment and Energy ISBN 0-7778-4406-0, March 1994.

Soils of Elgin County Central Townships Ontario Sheets 2 and 3, Soil Survey Report No. 63.,

Grand River Conservation Authority, August 2008, Pilot Study: Requirements for Recommending Level III in Whitemans Creek Phase II.

Catfish Creek Conservation Authority, March 2007, Catfish Creek Fish Habitat Management Report.

Lake Erie Source Protection Region, January 2008, Catfish Creek Watershed Characterization Report, DRAFT, Lake Erie Source Protection Region Technical Team.

Grand River Conservation Authority, September 2005, Water Use in the Catfish Creek Watershed Draft, Amanda Wong, Samuel Bellamy.

UN Environment-DHI, UN Environment and IUCN 2018. Nature-Based Solutions for Water Management: A Primer.

16.0 APPENDIX 2- INFORMATION SUPPORTING CCCA PROGRAMS

1) Richardson, A.H. (1951). "Catfish Creek Conservation Report 1951"

2) MacLAREN, J. (1976). "Report to the Catfish Creek Conservation Authority on Rural Fill Line Mapping".

3) MOE (1978). "Catfish Creek Drainage Basin Study Surface Water Hydrology, Qulaity, Biology and Waste Loading Guidelines".

4) CCL (1982). "Authority Telemark Correlation Study Port Bruce Ontario".

5) Cumming Cockburn Ltd. ("CCL", now "IBI Group") (1982). "Port Bruce Flood-line Mapping Study".

6) MNR (1982) "Springwater Study, Floristics, Community Patterns and Regeneration Transects".

7) Johnson, M. (1982). "Catfish Creek Conservation Authority Wetland Inventory, Evaluation nd Management Strategy".

8) Berry, B. DeMoor, M. Snowsell, M (1983). "A Valleylands Study of Catfish Creek and its Tributairies".

9) CCCA Staff (1983). "Catfish Creek Conservation Authority Environmentally Significant Area Report".

10) CCCA Staff (1983). "Catfish Creek Conservation Authority Drainage Report".

11) CCCA Staff (1983). "Catfish Creek Conservation Authority Watershed Plan".

12) CCCA Staff (1984). "Burnt Mill Creek Stream Study".

13) CCL (1984). "Port Bruce Flood Damage Reduction Study".

14) MNR (1984). "Silver Creek Valleylands Study 1984".

15) CCL (1985). "Port Bruce Flood of February 13-14, 1984".

16) CCL (1985). "Yarmouth Township and Springfield Floodplain Mapping Study".

17) CCCA Staff (1985). "Bradley Creek Conservation Area Forest/ Wildlife Inventory Survey".

18) MacLaren Engineers (1986). "Catfish Creek Conservation Authority Floodline Mapping Study Town of Aylmer".

19) Kaiser, J. MNR (1988). "A Life Science Inventory of the Catfish Creek Slope and Floodplain Forest, Elgin County".

20) MNR (1989). "Great Lakes System Flood Levels and Water Related Hazards

21) Philpott Associates Coastal Engineers (1991). Shorleine Management Plan Catfish Creek Conservation Authority

22) Mereu, T. Paragon Engineering Limited (1991). "Bradley Creek Master Drainage Plan".

23) CCCA Staff (1992). "Silver creek Water Quality Inventory".

24) Gillard, D. (1993). "Hydraulic Tuning Survey".

25) Annett, T. Ministry of the Environment (1993). "Sediment/ Fill Report".

26) Atria Engineering Hydraulics Inc. (1994). "Overview of Computer Software Addressing Wave Uprush, Wave Overtopping Slope Stability".

27) MNR (1994). "Geotechnical Principles for Stable Slope Great Lakes- St Lawrence River Shoreline Policy".

28) Triton Engineering Services Limited and Hall Coastal Canada Limited (April 1994). "Port Bruce Harbor Hydrological Study".

29) Crook, P. (1997). "Catfish Creek Conservation Authority Port Bruce Harbour Flood Control Project".

30) Riggs Engineering Ltd. (June, 2001). "Assessment of Catfish Creek Streamlining, Village of Port Bruce".

31) CCCA Staff (2007). "Catfish Creek Fish Habitat Management Report".

32) MNR (2010). "Natural Heritage Reference Manual".

33) Riggs Engineering Ltd. (2012). "Port Bruce Sedimentation Study, Port Bruce, Ontario".

34) Environment Canada (2013). "How Much Habitat is Enough".

35) Lake Erie Region Source Protection Committee (2014). "Catfish Creek Source Protection Area APPROVED ASSESSMENT REPORT".

36) Baird (2015). "Elgin County Shoreline Management Plan".

37) MNRF (2019). "Protecting People and Property: Ontario's Flooding Strategy".

38) CCCA Staff (2023). "Catfish Creek Conservation Authority Strategic Plan".

39) Dragunas, P. Water Resources Technician (2024). "CCCA Flood Forecasting and Warning".

40) Dragunas, P. Water Resources Technician (2024). "Flood Forecasting and Warning Manual".

41) Dragunas, P. Water Resources Technician (2024). "CCCA Ice Management Plan".

42) TRUE Consulting (2024). "Port Bruce Riverine and Coastal Floodplain Mapping".

General Managers Report to The Full Authority **DATE: August 2024**

Completed draft Watershed Strategy, sought approval and held public consultation until July 26, 2024.

Attended an online meeting with the City of St Thomas and the Ministry of Economic Development, Job Creation and Trade in regard to environmental retribution and how we may able to assist in the process. Conservation Authorities are excellent partners to assist in fulfilling D-permit - habitat creation and enhancement.

Continual work on the draft Conservation Areas Strategy to seek approval for September Full Authority Meeting to release to public for consultation and comment.

Attended Conservation Ontario Council meeting with Chairperson Buchner virtually, details were provided in Report FA/ 2024.

Attended a two-day General Managers meeting at the Kingbridge Conference Center.

Prepared and hosted a Flood Mapping workshop to explain why we updated the Flood Mapping for the Village of Port Bruce our most prone area. Dr. Pat Prodanovic gave an excellent presentation on the processes taken and why we create flood mapping.

Met with Mr. Ian Begg, donor of the Tisdale Conservation Area. A small ceremony will be planned for September to highlight the donation etc., more details will follow but it is tentatively planned for October 1, 2024 at the Cairn on Tisdale Line.

Completed the required paperwork to receive our Section 39 Transfer Payment with MNR.

Registered Gerrit Kremers to obtain his Train the Trainor Certificate through Workplace Safety North so we can take the lead on the chainsaw portion of ELP. Mr Kremers will also be certified to assist in municipal training for park, public works and roads departments, and any other interested candidates.

Attended a CA Briefing on Recent Changes to the Class Environmental Assessment for Remedial Flood and Erosion Control Projects. On February 16, 2024, the Ministry of the Environment, Conservation and Parks amended the Class Environmental Assessment for Remedial Flood and Erosion Control Projects (commonly referred to as the "CO Class EA"). These amendments were made to facilitate the transition to a "project list approach" for comprehensive ("individual") EAs in Ontario, as well as to increase consistency with other Class EA processes.

Attended a LEAP (Lake Erie Action Plan) meeting. The meeting featured three LEAP IT partner presentations on watershed management plans (Conservation Ontario and Grand River CA) and the Greenhouse Vegetable Agriculture's Leadership in Environmental and Economic Sustainability (OGVG). It was an opportunity for the team to hear more about how partners are supporting the LEAP.

Completed the final reporting package for the Community Services Recovery Fund grant.

Provided staff support where required.

Catfish Creek Conservation Authority
Correspondence Register – June 1 – July 31, 2024

Date	Type	Agency	Topic
June 2, 2024	Email/ Response	United Way	Silent Auction
June 2, 2024	Email/ Response	Fanshawe Career & Employment Services	Placement Inquiry
June 3, 2024	Email/ Response	CO	Local Leadership for Climate Adaptation Funding Launched
June 4, 2024	Email/ Response	CO	Ecological Corridors Funding
June 4, 2024	Email/ Response	Parks Canada	RE: Ecological Corridor Submission Package
June 5, 2024	Email/ Response	MNRF	RE: 2024-2025 Year Start S.39
June 5, 2024	Email	CO	Tree Program FCM Just Launched
June 5, 2024	Email	CO	FW: CA Act Webinar: Ontario Regulation 41/24: Prohibited Activities, Exemptions, Permits
June 5, 2024	Email/ Response	City of St Thomas	CCCA Items for discussion in Yarmouth Yards Industrial Park
June 5, 2024	Email/ Response	MECP	Great Lakes Local Action Fund
June 5, 2024	Email/ Response	CO	FW: Welcoming applications to the Great Lakes Local Action Fund
June 5, 2024	Email/ Response	City of St Thomas	RE: CCCA Items for discussion in Yarmouth Yards Industrial Park
June 5, 2024	Email	CO	REMINDER: CA Communications: O. Reg. 41/24 Exceptions - SURVEY
June 6, 2024	Email/ Response	CO	CA Briefing on Recent Amendments to the Class EA for Remedial Flood and Erosion Control Projects Confirmation

June 6, 2024	Email	Stats Can	Celebrate with Statistics – Canadian Environment Week /
June 7, 2024	Email/ Response	Species at Risk Program	Posting of the Management Plan for Northern Sunfish
June 7, 2024	Email/ Response	CO	Kristin invites you to complete: June 25th/26th General Managers' Meeting Attendance Survey
June 10, 2024	Email/ Response	GRCA	For information: draft TPA summary
June 10, 2024	Email	Aird & Berlis LLP via CO	FW: Municipal Law Bulletin - Bill 185, Cutting Red Tape to Build More Homes Act, 2024 Receives Royal Assent
June 11, 2024	Email	MNRF	LEAP Evaluation & Update Report - Red-flag Review (June 25/24)
June 12, 2024	Email/ Response	CO	Notice of Proposed MZO: City of St. Thomas
June 12, 2024	Email	CO	Webinar Recording Available: Amendments to the CO Class EA
June 12, 2024	Email/ Response	CO	June General Managers' Meeting Agenda
June 13, 2024	Email/ Response	DFO	RE: Next phase of engagement to discuss fish and fish habitat restoration objectives and actions for Lake Erie watershed
June 13, 2024	Email/ Response	TRUE Engineering	Re: Presentation
June 14, 2024	Email/ Response	CO	Conservation Ontario Council Meeting Agenda - June 24, 2024
June 14, 2024	Email/ Response	DFO	Upcoming Publication of Proposed Recovery Strategy and Action Plan for Silver Chub on the Species at Risk Public Registry
June 14, 2024	Email/ Response	LERMC	New SPC Chair Appointment

June 14, 2024	Email/ Response	CO	RE: Next phase of engagement to discuss fish and fish habitat restoration objectives and actions for Lake Erie watershed
June 14, 2024	Email/ Response	CO	Annual Statistical Survey - Reminder
June 15, 2024	Email/ Response	Ian Begg	Tisdale Conservation Area
June 17, 2024	Email/ Response	Malahide	Flood Study Consultation
June 17, 2024	Email/ Response	MECP	LEAP IT presentations & Red-flag Review (due June 25/24)
June 17, 2024	Email	CO	RE: Next phase of engagement to discuss fish and fish habitat restoration objectives and actions for Lake Erie watershed
June 17, 2024	Email/ Response	CO	New Ministry Names and Acronyms
June 18, 2024	Email/ Response	DFO	Publication of Proposed Recovery Strategy and Action Plan for Silver Chub on the Species at Risk Public Registry
June 18, 2024	Email/ Response	CO	Pitch to Species Conservation Action Agency: Desire to fund Conservation Authorities
June 18, 2024	Email/ Response		Next week, June 25th and 26th we're live at Kingbridge! Can't wait for you to join us!
June 18, 2024	Email/ Response	Elgin County	Re: Flood Study Consultation
June 20, 2024	Email	DFO	Lake Erie Restoration Goals and Actions Workshop – Follow-up
June 21, 2024	Email/ Response	Ian Begg	Tisdale CA
June 21, 2024	Email/ Response	CO	[CAUTION] FW: Ontario Protecting Environment from Harmful Invasive Species

June 21, 2024	Email	CO	Updated Section 29 Short Form Wording + Set Fines
June 21, 2024	Email/ Response	Halton	Conservation Halton Announces Chandra Sharma as Incoming President & Chief Executive Officer
June 25, 2024	Email/ Response	RALP	Application for infilling trees at Howe Farms
June 26, 2024	Email	Tourism Growth	Application to the Federal Economic Development Agency for Southern Ontario
June 26, 2024	Email	MEDJCT	St.Thomas - introduction of CA's to MEDJCT
June 2, 2024	Email/ Response	Ontario Financial Services	Separate Remittance Advice: paper document number - 4146913
June 27, 2024	Email/ Response	MEDJCT	RE: St.Thomas - introduction of CA's to MEDJCT
June 28, 2024	Email/ Response	Conservation Halton	Conservation Authority Get Together - September 28, 2024 @ Conservation Halton
July 2, 2024	Email/ Response	City of St Thomas	RE: St. Thomas d-permit - habitat creation and enhancement
July 2, 2024	Email/ Response	Canadian Chestnut Council	Delivery
July 2, 2024	Email/ Response	CO	ERO #019-8369, Decision
July 2, 2024	Email/ Response	CO	FW: Exploring Planting Opportunities for This Fall and Beyond
July 2, 2024	Email/ Response	Elgin County	Flood Mapping info session
July 2, 2024	Email/ Response	MEDJCT	RE: St. Thomas d-permit - habitat creation and enhancement
July 2, 2024	Email/ Response	Camis	Re: Quote
July 3, 2024	Email/ Response	MEDJCT	RE: St. Thomas d-permit - habitat creation and enhancement
July 3, 2024	Email/ Response	Malahide	RE: Council Question Responses

July 3, 2024	Email/ Response	Elite Agri Solutions	Howe Wood lot Maintenance Letter of Support
July 3, 2024	Email/ Response	Peter Dutchak	RE: Flood Workshop
July 4, 2024	Email/ Response	PBRA	Info Session Notice
July 6, 2024	Email/ Response	Barb Vaele	2024 CaBAL Reunion Invitation - September 28, 2024
July 8, 2024	Email/ Response	Workplace Safety North	Participant Information
July 8, 2024	Email/ Response	Pat Prodanovic	Re: Flood Mapping Workshop
July 8, 2024	Email/ Response	Elgin County	Drowning Prevention Weeks
July 9, 2024	Email/ Response	Malahide Township	RE: Flood Mapping Open House
July 10, 2024	Email/ Response	Steve Timmermans	Question for Pat Prodanovic
July 10, 2024	Email/ Response	CO	2024 Flood Hazard Identification and Mapping Program Update and Survey
July 10, 2024	Email/ Response	Elgin County	3D Map
July 11, 2024	Email/ Response	MNR	CCCA 2024-25 Section 39 Provincial Grant Transfer Payment Agreement – Due July 26th
July 12, 2024	Email/ Response	RALP	Kevin Howe Woodlot RALP Letter of Support
July 16, 2024	Email/ Response	Canadian Chestnut Council	Tree storage and watering
July 16, 2024	Email/ Response	ECCC	RE: ON22-041 - Port Bruce Riverine and Coastal Floodplain Mapping (Catfish Creek CA)
July 19, 2024	Email/ Response	OSCIA	[CAUTION] Nature Smart Climate
July 22, 2024	Email/ Response	CO	September CO Council Meeting