2022 CLOCA Annual Report

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2022 Annual Report

Healthy Watersheds for Today and Tomorrow

Message from the Chair and CAO

On behalf of the Board of Directors and staff at Central Lake Ontario Conservation Authority we are pleased to present you with an overview of our accomplishments in 2022 through this Report.

The past year represented another dynamic period throughout all of our program and service areas. Within our hybrid model, delivery of our core business programs and services remained an example of efficiency and seamlessness with our traditional and virtual technology infrastructure. And we were excited—as were our watershed community residents—to welcome the return of in-person events and education programs once again.

Significant improvements were made to our Conservation Areas, and we continued to ensure development remained sustainable and not impacted by natural hazards. We improved and expanded our understanding of natural resources within our watershed; undertook several environmental restoration projects, and provided experiential opportunities across our watershed to raise awareness and create understanding that inspires action to lead to lasting changes.

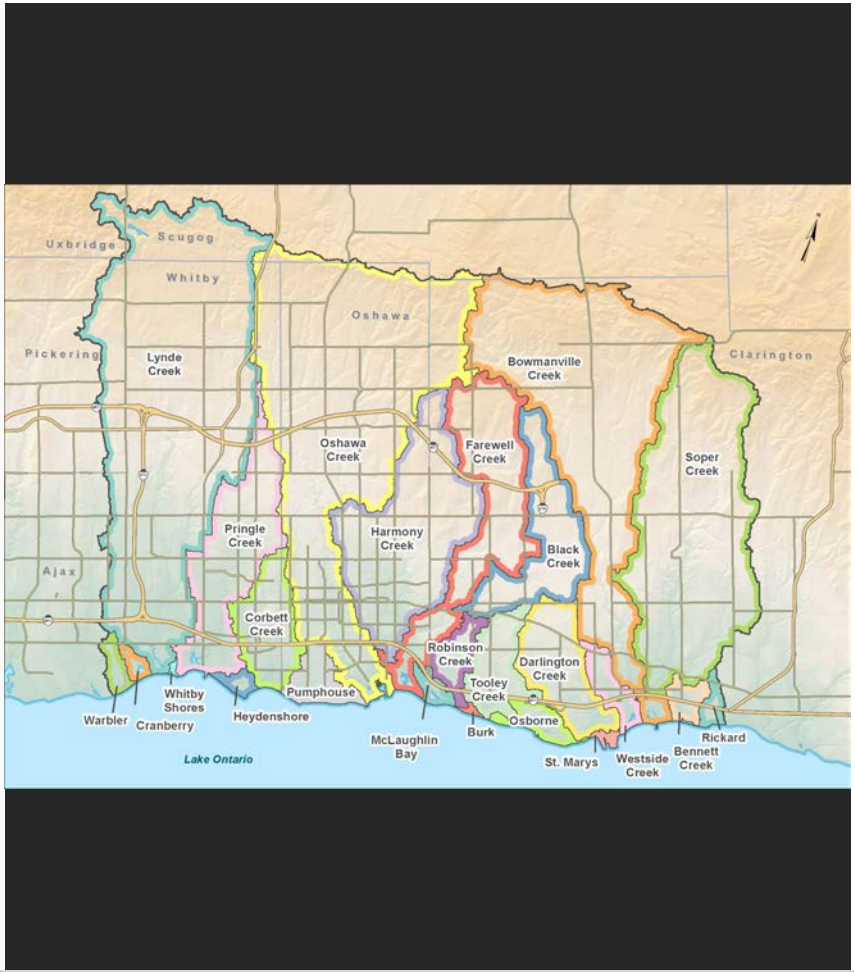
As we pivot from a pandemic-influence to a 'new normal', we recognize the tremendous efforts of our dedicated staff, volunteers and partners, who never waivered and transitioned with grace. Our collective accomplishments in 2022 are a clear reflection of our Mission, to advance watershed health through engagement, science, and conservation. These achievements and resulting successes, as reflected in this Annual Report, would not have been possible without the support of our member municipalities, partners, staff and volunteers.

> **A true conservationist knows that the world is not given by his fathers but borrowed from his children.**
>
> JOHN JAMES AUDOBON

An Introduction to Central Lake Ontario Conservation Authority

Central Lake Ontario Conservation (CLOCA) is a local, community-based, environmental organization and one of 36 Conservation Authorities responsible for managing watershed resources across Ontario. Established in 1958, CLOCA's jurisdiction is based on the watershed boundaries of 4 major watercourses and 24 minor watercourses draining an area of over 639 square km. Our watershed stretches from the municipal boundaries of Ajax/Pickering to Clarington, and north, from Lake Ontario to the crest of the Oak Ridges Moraine (see map below).

We provide a wide variety of science-based watershed management programs and services, delivered in partnership with our municipal partners, local landowners, environmental agencies and all levels of government. Our municipal partners include the Region of Durham, Cities of Oshawa and Pickering, Towns of Ajax and Whitby, Municipality of Clarington and Townships of Scugog and Uxbridge. So, welcome to a window of our world through this Annual Report, intended to provide you with a summary of accomplishments specific to the goals established in the Central Lake Ontario Conservation Authority Strategic Plan 2021-2025.



Conserve, restore and enhance natural resources through integrated watershed management

Integrated Watershed Monitoring Program, 2021 Update

As part of our strategic commitment to continuously advance watershed science and knowledge, CLOCA staff launched CLOCA's Integrated Watershed Monitoring Program (IWMP) in 2017 and annually monitors the health of three main ecosystems across the watershed—wetlands, forests, and streams. The IWMP indicates that in order to continue to build healthy and resilient watersheds capable of withstanding current and future pressures, we need to continue to understand the changing conditions within our watershed. From there, CLOCA can prioritize protection (including land securement and Conservation Area management), enhancement and restoration. As CLOCA does with many of their programs, these particular watershed programs work in tandem to build resilience in key areas so that our ecological communities are better prepared for large-scale impacts like climate change.

Each of these ecosystems is impacted by the local climate and groundwater systems, making it critical for us to also understand how seasonal and annual weather patterns relate to our results. Climate and groundwater data collected by CLOCA is an integral part of the IWMP, and this will only increase as climate change impacts become more severe and result in weather patterns that are more extreme and less predictable.

Climate

Central Lake Ontario Conservation Authority collects precipitation, air temperature, wind speed and direction, and barometric pressure data to track and understand climate trends in their jurisdiction. The average daily temperature in CLOCA during 2021 was above historical normals, indicating it was a hotter than average year. This is consistent with Durham Region Climate modeling. Snow surveys found most of the year to be under historical averages until February, when levels became consistent with historical levels. Overall, precipitation in 2021 (884 mm) was very close to historical average (872 mm).

Forest Health

Forest health is measured through three ecological attributes: breeding bird community, tree health and dead wood, and plant communities. This update focuses on the breeding bird community results. Conditions had decreased slightly from previous years and were below the long-term average. It was found that, on average, sites within protected areas had a breeding bird score higher than non-protected areas. This underlines the importance of continued protection and management of these protected lands including CLOCA Conservation Areas. It also highlights the valuable role that community education can play in explaining how the limited natural areas in the more disturbed parts of CLOCA's jurisdiction, like urban forests and riparian areas, can still be valuable areas for sensitive breeding birds and other wildlife, and that there is significant room to improve conditions for species within those important habitats with community support.

Stream Health

Stream Health is measured through three ecological attributes, including fish and invertebrate communities, and water quality. This update focuses on the water quality results. Conditions showed slight positive increases from 2020 sampling and were the highest scores to date. Although these scores meet the Watershed Plan goals, several parameters, including Chloride, Aluminum, Iron, Zinc, and Total Phosphorus, had averages across the jurisdiction above Provincial Guidelines (i.e., not a positive result). Targeted efforts will be required to reduce the impacts of these water quality parameters. E.coli monitoring discovered that 30 per cent of the samples were above the Provincial Guidelines for safe fecal bacteria levels for natural systems. Protected areas play a very important role in protecting and conserving critical stream habitat areas. This includes headwaters where the small streams are increasingly vulnerable to alterations. These areas are critical spots for the interaction between surface water and groundwater and will be critical to the long-term sustainability of coldwater streams. Protected areas also play a role in safeguarding habitat that is critical for certain life stages of aquatic species. More sensitive species, such as Brook Trout and Redside Dace, require very particular habitat conditions in areas where they spawn. Protected areas can help conserve these unique and important habitats.

Wetland Health

Coastal Wetland health is monitored through the Durham Region Coastal Wetland Monitoring Program (DRCWMP). Most of the sampling continues to find the coastal wetlands to be in poor to fair health and below the watershed plan goals for these ecologically important ecosystems. Because they are located at the lower end of the watersheds, they experience the largest cumulative impact from changes in our watershed's land use. This has led to numerous challenges in their community composition and health. This coastal environment has experienced a lot of change because of the climate. The role of Protected Areas on Coastal Wetlands is complex. Despite this challenge and the related importance of watershed management for the health of the wetland, local influences of protected lands are still very important. Protection of the surrounding uplands and riparian areas, coupled with smart management and restoration all improve wetland health at the local level. The added bonus is that these Protected Areas also allow for recreational viewing opportunities. Cranberry Marsh, part of Lynde Shores Conservation Area, is one example of a coastal wetland that has thrived through protection and management efforts. This area has become increasingly important for wildlife and nature appreciation opportunities and will continue to through its protected status.

For more information on the CLOCA IWMP and for up-to-date results, please visit the CLOCA IWMP Story Map.

Wildlife Corridor Protection and Enhancement Plan, 2nd edition

Wildlife moving between habitats is not unlike people moving between communities; it's an important part of life. Unfortunately, when these movement pathways intersect, they can result in harm to wildlife or people, or both. Central Lake Ontario Conservation Authority's (CLOCA) updated version of the *Wildlife Corridor Protection and Enhancement Plan* assists to resolve this conflict through conscientious land use planning and restoration.

In 2015, CLOCA completed *A Wildlife Corridor Protection and Enhancement Plan*. This Plan sought to define the wildlife habitat network in each of the watersheds and to identify barriers to habitat connectivity. It also provided recommended actions to improve wildlife movement opportunities in each of the watersheds. Over the past five years, CLOCA staff have used the Plan as a guidance tool for development and infrastructure planning, and as a basis for protecting important wildlife habitat features. There are now numerous examples of improved culverts and restored wildlife movement corridors throughout the watersheds. The updated Plan includes changes in land use, new infrastructure, wildlife crossing improvements, new science, and the goals and objectives from the Watershed Plans, as well as the inclusion and evaluation of the numerous crossings that were constructed as part of the development of highways 407, 418, and 412.

The updated Plan also presents a new crossing structure evaluation system, and analysis of wildlife corridor cover and movement potential in each watershed that will benefit CLOCA's development and transportation planning partners to remove movement barriers where they exist and encourage proactive planning and support for stewardship efforts.

Oak Ridges Moraine Groundwater Program

The Oak Ridges Moraine Groundwater Program (ORMGP) continues to improve upon our understanding of groundwater resources on and around the Oak Ridges Moraine, a regional glacial feature and source of drinking water for over 200,000 people in the Greater Toronto Area.

Across south-central Ontario, a coalition of 15 government agencies, and 20 local consulting companies, are working collaboratively to better understand and manage water resources. With the Oak Ridges Moraine as a central landscape feature, the program's database and interpretations stretch from the Hamilton area and Nottawasaga watersheds in the west to the Trent River in the east and reach from the shores of Lake Ontario northwards to beyond Lake Simcoe and the Kawartha Lakes.

With rigorous data management as a core foundation, the program provides a multi-agency, collaborative approach to collecting, analyzing, and disseminating water resource knowledge as a basis for effective decision making and stewardship of water resources in this part of Ontario. Central Lake Ontario Conservation Authority, like other agencies, look to the program to provide the regional geological and hydrogeological context for their ongoing technical studies and management initiatives.

In 2022 there was the addition of many new features on the ORMGP website. These include:

• a 'Clip & Ship' tool that allows users to download any of three packages (Geology, Hydrogeology, Hydrology) of data and interpretive layers;

• the estimated stream discharge from the regional numerical model was added to the Surface Water Theme Map;

• a new Particle Tracking Tool was made available that allows users to see the forward and backwards travel paths for groundwater from their sites of interest;

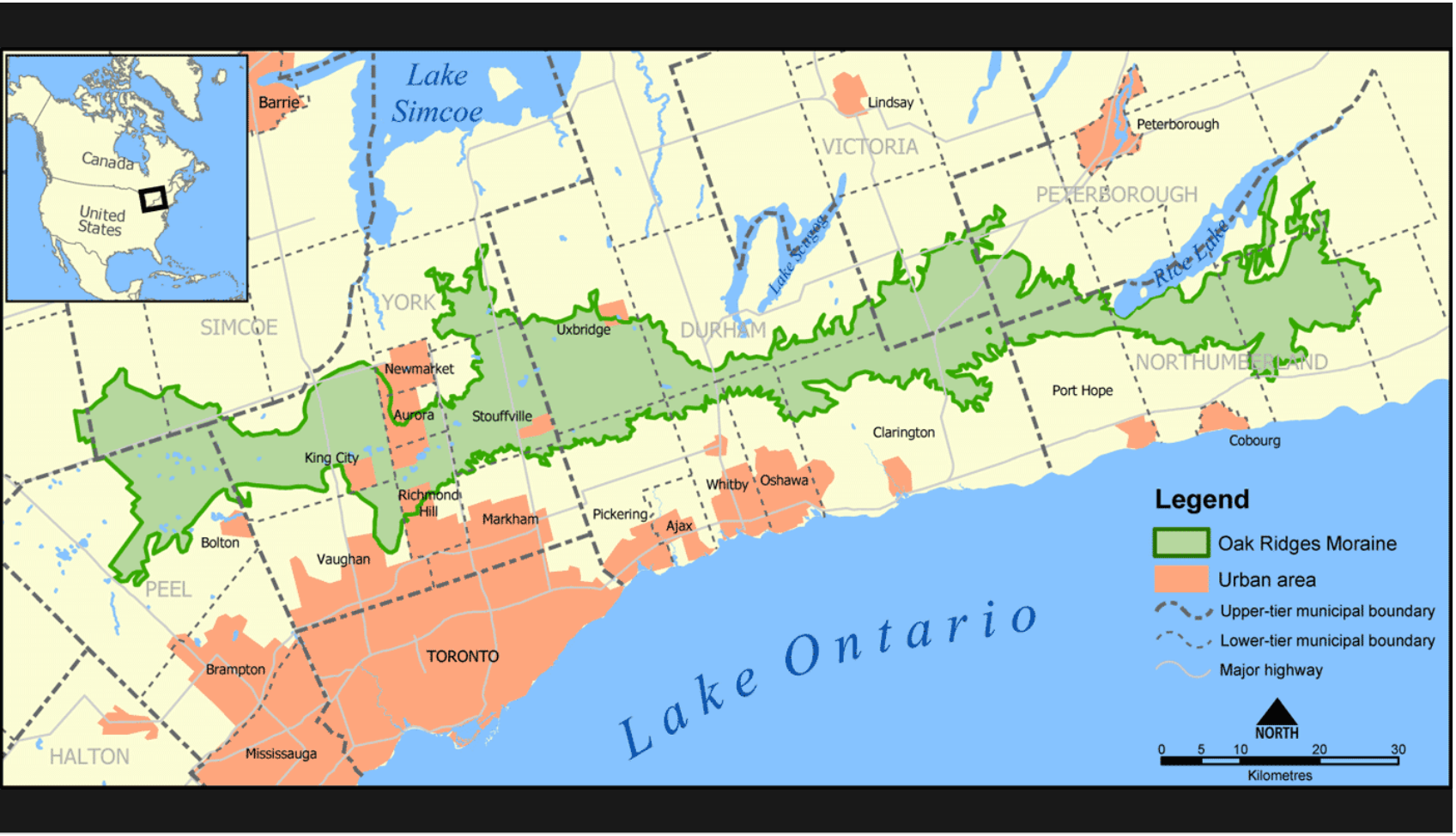
• Geological Picks from the database have been added to the Geology Theme Map;

• a new tool to track upwards and downwards flow along stream reaches was added;

• a new tool to delineate the drainage area to any point location in the study area has been added; and

• a new tool to show the long term climate data at any location in the study area has been added.

For more information on the ORMGP, a full annual report will be accessible on the website in early February at www.oakridgeswater.ca

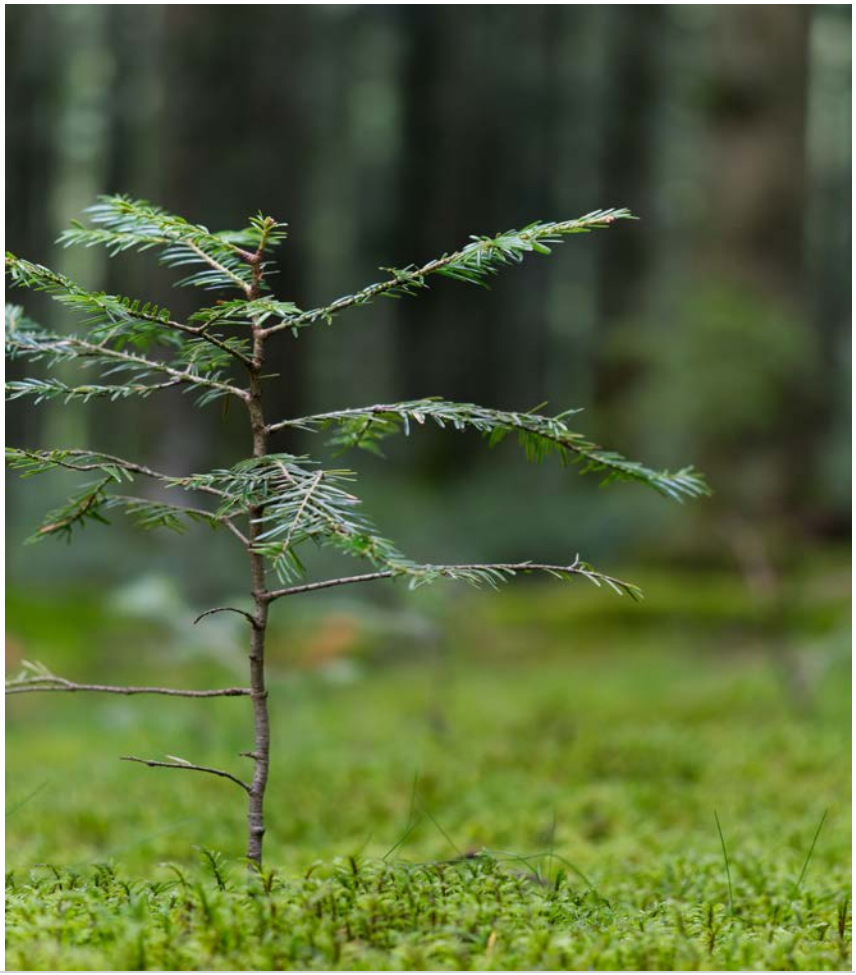

Lake Simcoe
Barrie
Lindsay
Peterborough
VICTORIA
PETERBOROUGH
Lake Scugog
Rice Lake
YORK
SIMCOE
Uxbridge
DURHAM
NORTHUMBERLAND
Newmarket
Aurora
Stouffville
Port Hope
Clarington
Cobourg
King City
Richmond Hill
Markham
Whitby
Oshawa
Pickering
Ajax
Bolton
Vaughan
PEEL
TORONTO
Brampton
Mississauga
HALTON
Lake Ontario
Canada
United States
Legend
Oak Ridges Moraine
Urban area
Upper-tier municipal boundary
Lower-tier municipal boundary
Major highway
NORTH
0 5 10 20 30
Kilometres

Durham TREES Program

The Region of Durham partnered with its five local Conservation Authorities —Central Lake Ontario, Ganaraska Region, Kawartha, Lake Simcoe Region, and Toronto and Region— to form **Durham TREES**, a new subsidized tree-planting program for private landowners willing to plant at least two acres of land with a minimum of 500 native trees.

Communication staff from CLOCA provided the creative branding services for several printed and electronic promotional products, including a website, education programs, targeted print and online advertising, and direct marketing. Members of the steering committee are the same staff that will be on the ground delivering the program and bring a wealth of knowledge and experience to ensure successful uptake. Tree-planting targets align with each individual authority and their priority areas for increasing forest cover.

The program provides free site visits from Conservation Authority experts and offer landowners a cost share arrangement to help with the costs of supplying and planting the trees. If a landowner does not qualify or is not interested in this program, landowners are still encouraged to contact their local Conservation Authority to learn about other education and stewardship programs that may be of interest to them with the goal to building long-term relationships with landowners, offering technical expertise and incentives to meet their objectives for their property and increase forest cover in our watersheds.



Environmental Restoration Project

Central Lake Ontario Conservation Authority staff have extensive knowledge about the natural features, functions, and conditions of its watersheds, and works continuously to monitor, assess, and report on watershed conditions; this information informs other core CLOCA programs and is regularly shared with municipalities and the broader watershed community. This data and knowledge underpin much of CLOCA's watershed management programming, which is focused on protecting, preserving, and enhancing our watersheds for future generations.

In 2019, Durham Region approved support for the Environmental Restoration Project and committed funding for a new Restoration Coordinator position and project implementation. Implementation of this Environmental Restoration Project is now fulfilling several key strategic plan objectives, helping CLOCA advance goals and objectives established in our Watershed Plans, and will ultimately result in future improvements in watershed health.

The following is a brief overview of the main accomplishments made through 2022:

• *Continued to develop the CLOCA Private Landowner Stewardship Program.*

• *Acted as a Planting Delivery Agent with Forests Ontario and helped to implement its 50 Million Tree Program in Durham Region.*

• *Completed private landowner outreach and stewardship project planning services across the jurisdiction.*

• *Coordinated the planting, tending, and monitoring of 26,750 tree seedlings on private lands through the 50 Million Tree Program in partnership with Forest Ontario and The Highway of Heroes.*

• *Completed three Managed Forest Plans for private landowners under CLOCA's new Managed Forest Planning service to help private landowners apply to the Provincial Managed Forest Tax Incentive Program (MFTIP) and better manage their forest resources.*

• *Monitored and actively managed a number of invasive species in CLOCA's conservation lands including Dog-Strangling Vine, Common Buckthorn, Phragmites, and Autumn Olive.*

• *Worked in partnership with Ducks Unlimited Canada to fund, design, and implement a control structure removal and naturalization project on a provincially significant wetland within the Rogers Tract.*

• *Prepared terrestrial detailed designs for phase two of the restoration/planting at Lynde Shores and Heber Down Conservation Areas.*

• *Secured funding from the Natural Resource Canada's 2 Billion Tree Program in partnership with Tree for Life to plant phase two of the restoration work around the new Halls Road entrance at Lynde Shores Conservation Area. Over 3,500 trees were planted in July through this phase two initiative, with a total of 7,000 installed on this site in two years.*

• *Established a partnership with One Tree Planted and received funding support for every tree planted by CLOCA in 2022.*

• *Secured additional funding contributions for tree planting initiatives from TD Bank (TD Tree Days), Tree Canada, and others for Conservation Area work and select community projects.*

• *Assisted with the implementation of the Municipality of Clarington's Trees for*

Support healthy communities, and the protection of people and property from flooding and erosion

Planning and Regulation

Central Lake Ontario Conservation's Authority's Planning and Regulation responsibilities focus on protecting people and property from natural hazards of flooding and erosion. This department directs new development away from natural hazards and protect wetlands, watercourses, woodlands, fish habitat and other key natural features.

In 2022, staff provided environmental planning advice on numerous remote pre-application consultation meetings with landowners, developers, and municipal planning department staff, and issued over **250** permits for various development activities, under *Ontario Regulation 42/06*. Over **560** different technical submissions from municipalities, consultants and landowners were reviewed, and entered over **7,830** documents into CLOCA's electronic records management system for efficient retrieval and archiving. Additionally, over **160** pre-application consultation meetings were held with development proponents to help them understand requirements and submit future applications.

Lake Ontario Shoreline Damage Centres Risk Assessment Study

The Lake Ontario Shoreline Hazard Management Plan (Zuzek, 2020) completed by Central Lake Ontario Conservation Authority provided updated flood and erosion hazard mapping for CLOCA's 30-kilometer-long shoreline. Seven shoreline communities were identified where one or more residential buildings fall within lands susceptible to natural hazards. These areas are referred to as Shoreline Damage Centres.

To better understand and quantify the risks associated with these hazards and to identify potential mitigation solutions to eliminate or reduce the risks, CLOCA retained SJL Engineering to complete a *Lake Ontario Shoreline Hazard Summary, Risk Assessment and Management Plan* for each of these seven communities.

The project identified all applicable hazards, assessed the risks associated with these hazards, and developed a risk management plan for each shoreline community. The final document was completed in September 2022 and is available on CLOCA's website, along with the final maps of the seven Shoreline Damage Centres.

Region of Durham Road Vulnerability to Flooding

In partnership with the Region of Durham, CLOCA completed an assessment of road crossings within the CLOCA watershed to determine vulnerability to flooding and potential impacts to transportation and emergency services. The objective of this project was to assess the vulnerability and criticality of road segments and watercourse crossings under future climate scenarios, in addition to the existing climate conditions.

The assessment generated three types of geodatabases:

1. A crossing geodatabase that is used to compare the hydraulic performance of watercourse crossings to Ministry of Transportation (MTO) design flood criteria for current and future climate scenarios.

2. A flood vulnerable 'road segment' geodatabase that characterizes the degree of disruption to traffic caused by flooding. (For the purpose of this study, a road segment was described as each instance where the regulatory floodplain limit overlays the road.)

3. A criticality ranking geodatabase that considers the relative importance of road segments based on various criticality factors independent of the flood hazard.

The study results will be released early in 2023.

Protection, management and safety of Conservation Areas

Conservation Areas' Update

Land management activities throughout the summer months included general land management such as grass cutting, trimming, tree planting, trail inspections, trail construction work, bush hog work, hazard tree removal, and much more.

Derecho, the May 21st high-wind event, impacted Purple Woods Conservation Area (PWCA) and the Long Sault Conservation Area (LSCA) with significant tree damage. Within approximately two to three weeks of the event, the vast majority of CLOCA infrastructure (i.e., trails, entrance laneways, parking lots, buildings, fences, etc.) were rough cleared, deemed safe and re-opened for regular use. Land management staff continued to respond to significant numbers of tree-related hazards and issues throughout the summer and fall months. Portions of the PWCA and LSCA were hit extremely hard and in a few locations pine plantations were almost completely downed, and some trails within LSCA were covered with masses of tangled and broken trees. Work has continued with a focus on removing downed timber/hazard trees from the trails and plantations, and salvaging wind-damaged timber. Approximately 50 mature sugar maples were felled, laying on the ground within the sugar bush. Severe damage in the sugar maple woodlot at PWCA required replacement of the sap line infrastructure and will reduce the number of trees available for future tapping. Some pine plantations were significantly damaged and will result in reduced revenue from future timber harvests.

While the loss of so many mature trees is significant and will likely result in near-term ecological changes in the hardest hit forest patches, the impact to these core wildlife habitats areas will hopefully be cushioned by the fact that these large, forested areas are more resilient against this event because of the size, and higher species and ecosystem diversity. Generally, the forest damage will open the forest floor to sunlight and allow for regrowth of younger trees that are already present in the understory, while fallen trees will provide nutrients to the forest soils, and broken trees will become habitat features for birds and other wildlife. We will be actively monitoring some of these forests through its Integrated Watershed Monitoring Program where the damage coincides with permanent forest monitoring stations. This monitoring may help to shed some light on the long-term ecological impact from this and other extreme weather events over time.

Long Sault Conservation Area trail damage.

Lynde Shores Conservation Area Halls Road Entrance

The Lynde Shores Conservation Area (LySCA) receives an estimated 100,000 visits per year, with a consistent increase in public use. This 380-hectare property on the shore of Lake Ontario, on the west edge of the Town of Whitby, protects two provincially significant coastal wetlands, Lake Ontario shoreline, forests, and meadows. Residents of Durham Region enjoy healthy, outdoor experiences and nature appreciation while walking the nature trails, feeding song birds, or passing through on the Great Lakes Waterfront Trail. Mood Walks are held at LySCA, in partnership with the Canadian Mental Health Association, confirming the value of this natural area for not only physical, but also our mental well-being. Rated for years as Trip Advisor's number one "thing to do" in Whitby, LySCA provides an inexpensive, healthy, educational, and interesting outing for people of all ages and abilities.

Historically, a 40-car parking lot adjacent to Victoria Street provided visitor parking for LySCA. The parking lot was regularly full, and we received complaints from Annual Pass holders who were turned away from this Area because of the lack of parking, and from visitors, Eastbourne residents, and the municipality regarding congestion and traffic issues at the entrance and on Victoria Street.

Reconstruction of Victoria Street to a four-lane road was completed by the Region of Durham in 2019 in response to increased traffic demand.

Central Lake Ontario Conservation Authority staff have worked closely with Region of Durham staff during the planning, design, and construction of the Victoria Street widening through the Lynde Shores area. Not only was the road designed to mitigate impacts to wildlife, but also the road widening impacts on the wetlands are compensated with the creation of a wetland habitat within the Conservation Area. While the priority for this constructed wetland was to contribute high-quality wetland habitat to the area, it is also expected to be a valuable interpretive feature given its proximity to of the new Hall's Road entrance and trail loop.

In addition to the constructed wetland, public use infrastructure has been constructed to provide a new entrance for the Lynde Shores Conservation Area from Hall's Road. The completed work includes a 100-car parking lot with stormwater treatment system, a 500-metre-long nature trail loop, a paved trail connection to the Waterfront Trail, and extensive tree planting and restoration. The parking lot opened to the public in September after CLOCA completed the installation of electrical services, entrance kiosk and pay-and-display system.

These public-use infrastructure improvements will address the growing demand for public use at this Conservation Area and be consistent with CLOCA's Strategic Plan priority action to enhance the enjoyment and safety of Conservation Areas.

Conservation Area Parking Improvements

Central Lake Ontario Conservation Authority's Conservation Areas have seen significant increases in attendance in recent years, and the ability to accommodate visitors is often limited by the capacity of the Area parking lots. In recent years CLOCA has experienced full parking lots and overflow of vehicles onto nearby roadways. Central Lake Ontario Conservation Authority was successful in receiving a grant from the Ontario Trillium Foundation Community Building Fund – Capital Stream. This program supports the repair, renovation or retrofitting of existing community sport and recreation facilities. With this grant funding CLOCA was able to improve parking facilities. The work provides an additional benefit with the construction of bioswales to receive and filter stormwater runoff from the parking lots.

Land Acquisition – Stephen's Gulch Conservation Area

Central Lake Ontario Conservation Authority's Conservation Areas are important and valued natural and community assets. They underpin the regional greenspace system and provide valuable ecological goods and services that contribute to the maintenance of both watershed and public health. Public access to CLOCA's Conservation Areas continues to grow at significant rates. Additional land acquisition to CLOCA's existing Conservation Areas is required to ensure that they can sustainably accommodate public assess, while still supporting ecological function.

In 2022, CLOCA finalized the purchase of an ecologically important 102-acre parcel of land as an additional land holding to the Stephen's Gulch Conservation Area. Stephen's Gulch Conservation Area, located north of Bowmanville, borders a significant portion of the Soper Creek. This Conservation Area protects a large area of deciduous forest and coniferous forest/swamp that help maintain both water quantity (through seeps and springs) and water temperature along this section of the Soper Creek. This same area is considered a core wildlife habitat area and is part of the Iroquois Beach Regional Wildlife Habitat Corridor (as outlined in the CLOCA *Wildlife Corridor Protection and Enhancement Plan*). Stephen's Gulch Conservation Area and the subject property also include significant portions of the provincially significant Soper Valley Area of Natural and Scientific Interest (ANSI). The acquisition of this parcel increases the overall size of Stephen's Gulch Conservation Area to 456 acres and ultimately makes it more sustainable for public access.

Create a more knowledgeable and connected watershed community through engagement and education

Conservation Area Trail Stewards

The Conservation Area Trail Stewards (CATS) program was successfully launched in the fall of 2021 where volunteers were recruited and trained to support CLOCA Areas' staff in addressing the littering within the eight Conservation Areas managed by CLOCA. The trained volunteers' responsibilities include basic trail maintenance, informal educational engagement with the public, reporting of user and infrastructure needs, and some invasive species management.

With the generous funding from 2022 UnSmoke Canada, staff engaged an additional 43 volunteers bringing the total number of active volunteers to 70. Since January 2022, CLOCA has received 500 reports on various issues such as graffiti, downed trees, foraging, household dumping, injured or dead animals, fire pits, motorized vehicles, paid and unpaid parking, trail conditions, or that there was nothing to report. The CATS reported 1,676 interactions with the public with various kinds of feedback, both positive and negative where typical messaging was regarding wildlife feeding, off-trail use, providing directions, dogs off leash, CATS program opportunities, ticks, garbage cans, and for the most part, visitors were very thankful for the CATS cleaning up the garbage left by other users. CATS volunteers submitted 135 photos and collected over 200 bags of garbage.

Moccasins Across the Watershed

Central Lake Ontario Conservation Authority has been awarded a grant of $50,000 from the Central Counties Tourism Relief Fund for a project that will provide unique awareness, geared to local cultural and natural heritage. Inspired by the Moccasin Identifier Program developed by Carolyn King in partnership with the Mississaugas of the Credit First Nation and The Greenbelt Foundation, CLOCA's Moccasins Across the Watershed program will focus on local Indigenous art installations, outreach events and interactive technology to enrich the visitor experience at CLOCA's Conservation Areas and the CLOCA website.

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Never doubt that a small group of thoughtful, committed citizens can change the world; indeed, it is the only thing that ever has.

MARGARET MEAD

SMART Watersheds

The community science project, SMART Watersheds, is designed to create a technology ecosystem, enhancing our environmental monitoring activities with more frequent data collection, analysis, and advanced data management. In addition to the technology, the SMART Watersheds project engages community volunteers, the general public, elementary, high school and post-secondary students in using this new technology in their local watershed.

The *Weather Watch* component of this project is complete and live data from CLOCA's weather stations, set-up in CLOCA's watershed, is viewable on CLOCA's website. The *Water Watch* component is currently in the process of being readied for public participation. The water analysing equipment has been calibrated, and information sheets on the use and calibration of water and soil testing equipment has been prepared. Agreements with the Municipality of Clarington and the City of Oshawa have been completed, allowing for CLOCA to install posts as station markers at the various monitoring locations.

Conservation Education promoted this project at the *Safety Week Open House* event at the Durham District School Board Education Centre on October 29, 2022. The project will be completed by the end of February 2023. At that time, backpacks containing monitoring equipment will be available at local libraries for signing out and use at CLOCA's monitoring stations. Data collected will be published on CLOCA's website.

Ontario Tech University Environmental Symposium for Teacher Candidates

In January, CLOCA delivered a virtual presentation to an estimated 20 future teachers, introducing them to the Moccasin Identifier program. The program is designed for teachers to deliver in the classroom and is comprised of a variety of lessons with various resources. The Moccasin Identifier education kit includes a large stencil of a First Nations moccasin that's, in turn, used by students to paint this image on interior and exterior spaces to further connect to local Indigenous heritage for their school, school yard and community. The goal of the program, with funding from the Greenbelt Foundation, is to promote public awareness of significant cultural historic sites and the ancestral presence of Indigenous Communities and watershed management across the Greenbelt.

This program is currently being delivered in CLOCA's watershed in partnership with community organizations, municipalities, and school boards, Indigenous groups and social service agencies. It is CLOCA's intention to support the United Nations Declaration on the Rights of Indigenous Peoples, and Call to Action 63 under the Truth and Reconciliation Commission of Canada to "provide leadership in education in Canada to always work on improving education about Aboriginal peoples and cultures."

Sap-to-Syrup Virtual School Program

This past spring (March and April), CLOCA offered a virtual Sap-to-Syrup program for primary Grades to three school boards, with 168 classes in total participating in each of the three 40-minute programs. In partnership with Ontario Power Generation and their Virtual Power Kids program, this program reached an additional 500 classes in a separate virtual Sap-to-Syrup program to families, students and the general public. The program provided an overview of the history of maple syrup production, including references to the past with Indigenous speakers sharing their tradition of maple sap collection and production. Live and pre-recorded videos were provided to illustrate past and present production methods, along with a live question-and-answer session so the students could interact with the speakers and CLOCA staff.

Sap-to-Syrup In-person Public Event

A pre-registered, self-guided hike through the Purple Woods Conservation Area sugarbush was offered on weekends in March and April 2022, engaging a total of 2,693 people over nine days (six days on weekends and three days during March Break). Attendance was modest compared to what would typically be expected at past Maple Syrup Festivals of around 8,000 people. There was value in engaging less people with a more meaningful experience. Sharing our knowledge about the Conservation Area, maple syrup production, the unique ecology of a sugarbush on the Oak Ridges Moraine, and CLOCA's role as watershed managers was appreciated by staff and visitors alike. Many of our participants were new Canadians and indicated that this was their first visit to the site and pledged to return in 2023 to get the whole experience.

Plans are in development for the 2023 Purple Woods Maple Syrup Festival. The maple syrup production component of the Festival may be modified due to impacts from the May 21, 2022 high-wind event that devastated many woodlots across the Moraine. It is estimated that approximately 30 per cent of the sugar maples at Purple Woods Conservation Area have sustained some form of damage due to the storm. Approximately 50 per cent of the sap collection tubing had been damaged due to falling limbs/trees. It is CLOCA's hope to return to the traditional in-person Festival for the general public and education bookings in 2023.

Watershed Wilderness Nature Hikes - Summer Solstice Firefly Hike

On Friday, June 24, 2022 from 8:30 p.m.-10 p.m., CLOCA staff hosted one of the favourite yearly events—the annual Summer Solstice Firefly Hike. This free event engaged 55 participants in a presentation on creatures of the night by special guest Chris Ketola, a sweet treat and then a night hike down into the sugar bush where participants had the opportunity to listen to bats using their echolocation to find insect prey.

StoryWalks, in Partnership with Clarington Public Library

Central Lake Ontario Conservation Authority staff continued to install StoryWalks® along trails in Conservation Areas located in Clarington. A StoryWalk is where pages of a book are posted on large yard signs stationed around a trail. This is a fun and educational activity that pairs literacy with physical activity, and encourages families to get outside. From September 2021 to June 2022, four StoryWalks were installed. The stories typically relate to the seasons and nature, giving young hikers a chance to read and get a physical and learning experience in the outdoors.

Christmas Bird Count for Kids

An annual Christmas Bird Count for Kids, registered with Birds Canada, was organized and held at Enniskillen Conservation Area on November 26, 2022 by CLOCA Education staff. This Bird Count was inspired by the original annual Christmas Bird Count started in 1900, which is North America's longest running community science event.

The event was a success! Forty people registered and 24 participated in the Count. Following a brief introduction to the Count and a winter bird identification activity, the group was divided into two smaller groups (smaller group size helps in greater bird sightings as groups are quieter on approach). Each group had two leaders: CLOCA's Education Instructor Cathy Grant and CLOCA's Wildlife Biologist Jackie Scott lead one group and CLOCA's Education Coordinator Cara Gregory and North Durham Nature volunteer Lynda Kamstra lead the other. Participants practiced using their binoculars on birds landing on the bird feeder by the Enniskillen Education Centre building and became more familiar with their bird checklist, before heading out on a bird-watching hike.

Collectively, 10 different species of birds and a total number of 90 birds were counted. Sightings included: Black-capped Chickadee, Red and White-breasted Nuthatch, Blue Jay, American Crow, Red-bellied Woodpecker, Hairy Woodpecker, Dark-eyed Junco, American Goldfinch, and American Robin. The hike was wrapped up with a sharing of results followed with beverages and snacks. Count results were submitted to the Birds Canada website to aid in bird conservation through community science.

Hemlock Woolly Adelgid Awareness and Engagement Workshop

With support from the Invasive Species Centre through their Invasive Species Microgrant, CLOCA was able to raise public awareness of an invasive insect threatening Ontario's forests—the Hemlock Woolly Adelgid. The workshop included an informational presentation on the Hemlock Woolly Adelgid insect, as well as a live demonstration of a commonly used sampling technique. The event was held at the Enniskillen Education Centre and delivered in collaboration between CLOCA's Conservation Education and Natural Heritage departments.

The presentation covered the life cycle of the Hemlock Woolly Adelgid, its host trees, distribution, signs of infestation, detection methods, impacts, and management. Participants were then taken through the steps to create their own ball sampling kit which includes a slingshot, and a Velcro-covered racquet ball. The presentation continued outside to test out the ball sampling technique by shooting the ball up into the tree canopy of a Hemlock to capture evidence of the insect. The participants left the workshop with the knowledge of how to identify the species, sample for it themselves, and where to report any findings.

When it comes to invasive species, early detection and action is incredibly important. It is through workshops such as these that CLOCA is able to share information with the public and engage communities in the detection and management of invasive species within CLOCA's watershed.

Forest Therapy Hikes

Forest Therapy Hikes were held at Enniskillen Conservation Area, led by Randi Micklewright, a certified forest therapy guide and a CATS (Conservation Area Trail Stewards) volunteer. Forest therapy, also known as forest bathing, Shinrin Yoku, green therapy, and eco-therapy, operates on the premise that we feel better both physically and mentally after spending time in natural settings. The forest therapy hikes were each three hours in length, and groups were kept small. The hikes were held on September 18, 23 and October 30, 2022. A total of 28 people attended the hikes. Participants spent intentional time in the forest and took part in invitations that brought a mindful and deep connection with our natural environment.

Teacher Tour – Specialist High Skills Major, Outdoor and Experiential Learning

A teacher tour of CLOCA's watershed, in coordination with the Ganaraska Region Conservation Authority (GRCA), took place on December 1, 2022. This event is a part of delivering the *Ontario Great Lakes Strategy* with the goal of engaging and empowering communities to take action on protecting our Great Lakes. Specifically, the Strategy includes a specific goal to building awareness as a focus for Ontario's future actions.

Secondary school teachers from the four school boards CLOCA and GRCA service—Durham, Kawartha Pineridge, Peterborough Victoria Northumberland Clarington Catholic and Algonquin and Lakeshore Catholic District—were invited to participate in a guided tour of CLOCA's watershed that would highlight for them, and their school boards, authentic experiential learning opportunities that teachers can access through Conservation Authorities in their school communities, using the Great Lakes and its watersheds as a context for teaching and learning through conservation education. It also provided them with an opportunity to explore how the Great Lakes can anchor the curriculum in engaging and impactful lessons. The invitation was focused on teachers with Specialist High Skills Major, Outdoor Education and Experiential Learning classes.

Twelve teachers participated in the tour. Teachers participated in four education stations led by CLOCA staff, in four Conservation Areas.

Demonstrate business excellence through effective customer service, engaged employees and innovation

Legislative and Regulatory Changes Under the *Conservation Authorities' Act*

Throughout 2022, staff continued to respond to proposed and approved changes to the *Conservation Authorities Act*. The majority of the changes were intended to improve transparency and consistency in Conservation Authorities' operations, strengthen municipal and provincial oversight, and streamline Conservation Authorities' roles in relation to land use planning and development. Programs and Service provide by Conservation Authorities are not divided into three categories:

Category 1: *Mandatory programs and services as identified in Ontario Regulation 686/21. These programs will be funded through municipal levy.*

Category 2: *Municipal programs and services that are provided at the request of the municipality. These programs can be funded through self-generated revenue, government and other agency grants and/or municipal funding under a memorandum of understanding (MOU) or agreement with the municipality.*

Category 3: *Other programs and services that a Conservation Authority (Board) determines are advisable.*

Transition Plans have been prepared for the purpose of ensuring funding agreements are in place with our funding municipal partners.

Amendments to Central Lake Ontario Conservation Authority's Administrative and Meeting Procedural By-law 2018-1

Recent amendments to the *Conservation Authorities Act (CA Act)* include a number of amendments related to governance as part of the province's commitment to modernizing accountability and transparency of Conservation Authorities (CAs). Central Lake Ontario Conservation Authority has been demonstrating and communicating their commitment to accountability and transparency over the past several years and will continue to do so. On February 2nd, 2021, a number of governance-related clauses were proclaimed in the *CA Act*, including some amendments which were included in Schedule 6 of Bill 229, the *Protect, Support and Recover from COVID-19 Act* (Budget Measures). The updated By-Law 2018-1: Central Lake Ontario Conservation Authority Administrative and Meeting Procedural By-Law is available on CLOCA's website.

GIS, Information Technology and Data Management

Technology continues to inspire CLOCA to create mapping products and web applications for internal and external use, as well as dashboards for the public to access data and actively participate in programs like SMART Watersheds. In 2022, CLOCA staff collaborated across departments to develop a Flood Watch Dashboard and mobile app to be leveraged by staff during a flood event. The app will navigate staff to stream gauges and other flood-prone locations. Information from the site is then entered into the app and provides real-time information to the flood duty officer via the dashboard.

In 2022 CLOCA staff commenced work on updating the Conservation Area trail maps. To date, two of the eight Conservation Areas have been completed (Long Sault and Lynde Shores Conservation Areas). In addition to the kiosk maps, a version of the maps were completed for the Avenza app. The Avenza application helps users stay on the trail using offline mobile maps and GPS on their smartphones. The maps were also featured on the Avenza website.

Central Lake Ontario Conservation Authority continues to provide technical assistance to the content management system (CACMS) used by several Conservation Authorities that CLOCA services. This year saw the addition of another partner, Conservation Halton, which required importing a legacy database and implementing reporting capabilities. In addition, CLOCA staff worked with Kawartha Conservation to implement a feature that allows them to import their online permit application submissions into CACMS—a feature that may see use by other Conservation Authorities in 2023. These shared services foster collaboration and lead to efficiencies in workflows and reporting across agencies.

As part of ongoing support and maintenance for the Oak Ridges Moraine Groundwater Program (ORMGP) partners' website CLOCA staff revamped their report library and cross-section tools and are currently working on a new tool for importing files from their well water dataloggers into their database.

Work continued on the migration of CLOCA's telemetry data into the Water Information Systems platform. The migration led to the revamp of CLOCA's open data portal and real-time gauging site to leverage the Water Information System for data downloads and visualization.

Accounting and Administration

Central Lake Ontario Conservation Authority staff continue to take the initiative to improve processes to support working remotely and efficiently for internal and external accounting and administration services; adaptation to new technologies to facilitate telephone communication, mail distribution, electronic cheque clearing and revenue collection.

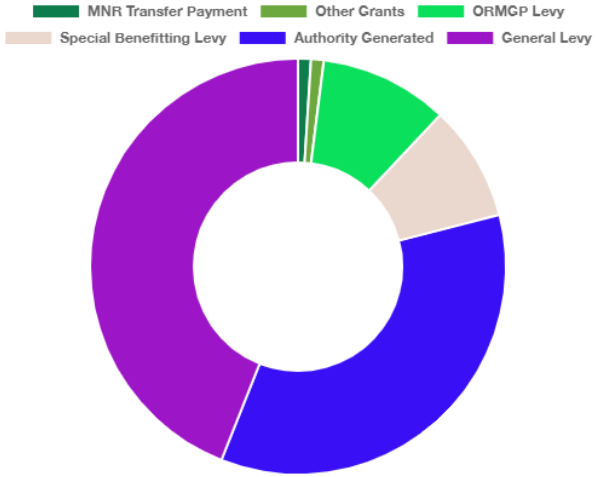
Efforts continue to optimize accounts receivable through their CACore Information Management System has resulted in efficiencies and is now 100 per cent electronic. The goal is now to have all records for accounts payable and receivable electronic with only personnel files maintained in hardcopy formats.

Budget

The approved 2022 budget reflects an allocation of resources to support CLOCA's planned programs and service. This budget allowed us to continue our efforts in support of our mission to advance watershed health through engagement, science and conservation.

EXPENDITURES: Total Expenditures $9,680,240

REVENUE: Total Revenue $9,680,240



Board of Directors, 2022

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