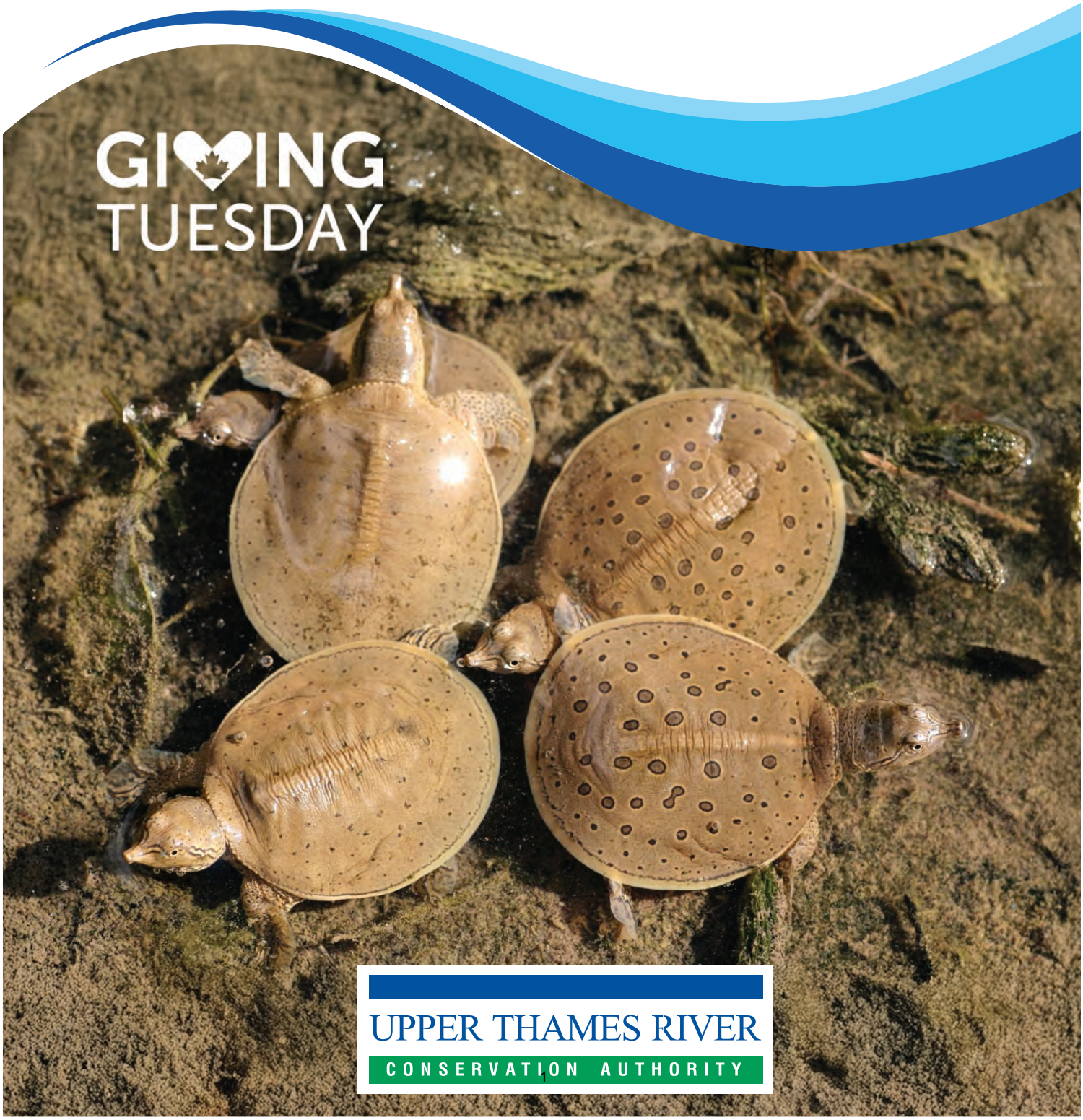
MEETING PACKAGE
DEC 2024

Board of Directors

Upper Thames River Conservation Authority



UPPER THAMES RIVER
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Upper Thames River Conservation Authority Board of Directors' Meeting Agenda – December 2024

Date: December 17, 2024
Time: 9:30am
Place: Watershed Conservation Centre Board Room, Fanshawe Conservation Area – 1424 Clarke Road, London, ON

1. Territorial Acknowledgement

2. Modifications to the Agenda

3. Declarations of Pecuniary Interest

4. Presentations/Delegations

5. Administrative Business

5.1. Approval of Minutes of Previous Meeting: November 26, 2024

5.2. Business Arising from Minutes

5.3. Correspondence

6. Reports – For Consideration

6.1. Strategic Plan Update – BoD-12-24-98

6.2. Watershed-Based Resource Management Strategy (Watershed Strategy) – BoD-12-24-99

6.3. Natural Hazards Infrastructure Asset Management Plan – BoD-12-24-100

6.4. Erosion Control Operational Plan – BoD-12-24-101

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6.5. Environmental Planning Policy Manual Update and Interim Response Mechanisms – BoD-12-24-102

7. Reports – In Camera

7.1. Litigation or Potential Litigation Including Matters Before Administrative Tribunals Affecting the Authority – BoD-12-24-103

8. Reports – For Information

8.1. Project Status Updates – BoD-12-24-104

8.2. Thames River Current – December Edition

9. Reports – Committee Updates

9.1. Finance and Audit Committee

9.2. Hearing Committee – November 26, 2024 Hearing Decision – BoD-12-24-105

10. Notices of Motion

11. Chair's Comments

12. Member's Comments

13. General Manager's Comments

14. Adjournment

Tracy Annett, General Manager

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Tracy Annett, Teresa Hollingsworth
Date: December 9, 2025
File Number: BoD-12-24-98
Agenda #: 6.1
Subject: Strategic Plan Update

Recommendation

That the results of the Strategic Plan Input Sessons be received and staff be directed to finalize the vision, mission and values to be incorporated into the Watershed Management Strategy.

Background

In September of 2023 the UTRCA Board of Directors directed staff to engage a consultant to develop an updated strategic plan to define the Authority's values and direction. The timing of the Strategic Plan aligns well and further supports the Watershed-based Resource Management Strategy. The Upper Thames River Conservation Authority obtained Platinum Leadership, London Ontario to develop an updated Strategic Plan to guide the organization from 2025 to 2029.

Discussion

To date, Platinum Leadership has undertaken:

- A review of strategic objectives, programs, and services within the current operating environment,
- The inclusion of input from all staff and Board members through a series of 6 staff input sessions and an input session with Board members and the senior management team.
- All input received was compiled and provided in a Discovery Report circulated to members before the workshop on November 21.
- Lead a November 26th Workship utilizing the Discovery Report to provide an updated vision and refinement of draft guiding principles / core values, and mission.

A presentation was provided at the November 26th board meeting highlighting the input received during the workshop resulting in draft vision, mission and values. An opportunity for further discussion and input from members was provided. Members received the presentation and referred the discussion to the December meeting. Staff circulated the Consultant's report along with the presentation provided following the meeting and asked if anything was missing. Alternatively, it is important to know if there is anything in the draft that you do not support.

Next Steps

Staff will use the information gathered to incorporate vision, mission, and values into the Watershed Management Strategy. The Draft Strategy will be provided at the next meeting of the Board.

Working with the members and staff of the Authority, the consultant will:

- Refine the internal and external challenges and opportunities that may impact future decision-making, through an environmental scan and a SWOT analysis to expand on work completed to date.
- Lead a comprehensive engagement effort designed to facilitate member, staff, and partner input. This work may include meetings, interviews, and surveys with UTRCA members and staff, member municipal councilors and staff, and members of other environmental and partner organizations.
- Prioritize strategic objectives and organizational goals, including long- and short-term goals and plans of action or approaches to meet these goals.
- Define metrics whereby the implementation of the plan can be evaluated.

Timeline

Phase 1 – October to December – Board and Employee engagement has occurred, Prior to the end of 2024 the focus will be on Organizational Governance and the identification of Vision, Mission, Values and Guiding Principles.

Phase 2 – January & February - Interest holder engagement and consultants Discovery Report to include recommendations to inform priorities and goals. Board member workshop to decide.

Phase 3 – March – Management Team develops operational planning of strategies, key actions, timelines, resources and project leads with staff.

Phase 4 – April – Board of Directors received Draft Strategic Plan

Summary

Platinum Leadership will continue to reach out to the Board of Directors and Municipal Partners through their comprehensive engagement efforts. Engagement is expected to include meetings, interviews, and surveys with UTRCA members and staff, municipal councilors and staff, and members of other environmental and partner organizations.

Recommended by:

Tracy Annett, General Manager
Teresa Hollingsworth, Manager of Community and Corporate Services

Attachment: Strategic Plan Presentation, November 26, 2024

Strategic Plan Update

Upper Thames River Conservation Authority

Board of Directors Meeting November 26, 2024

Overview

Timeline

Engagement Sessions

Vision, Mission, and Values

Next Steps

Timeline

Phase 1

October to December

- Board and employee engagement to identify Vision, Mission and Values
- Vision, Mission and Values are incorporated into Watershed Strategy

Phase 2

January & February

- Interest holder engagement
- Consultant preparation of Discovery Report #2 to inform Priorities and Goals
- Board member direction

Phase 3

March

- Management Team to develop operational plans of strategies, key actions, timelines, resources and project leads with staff

Phase 4

April

- Board of Directors receives Draft Strategic Plan

Staff Engagement Sessions

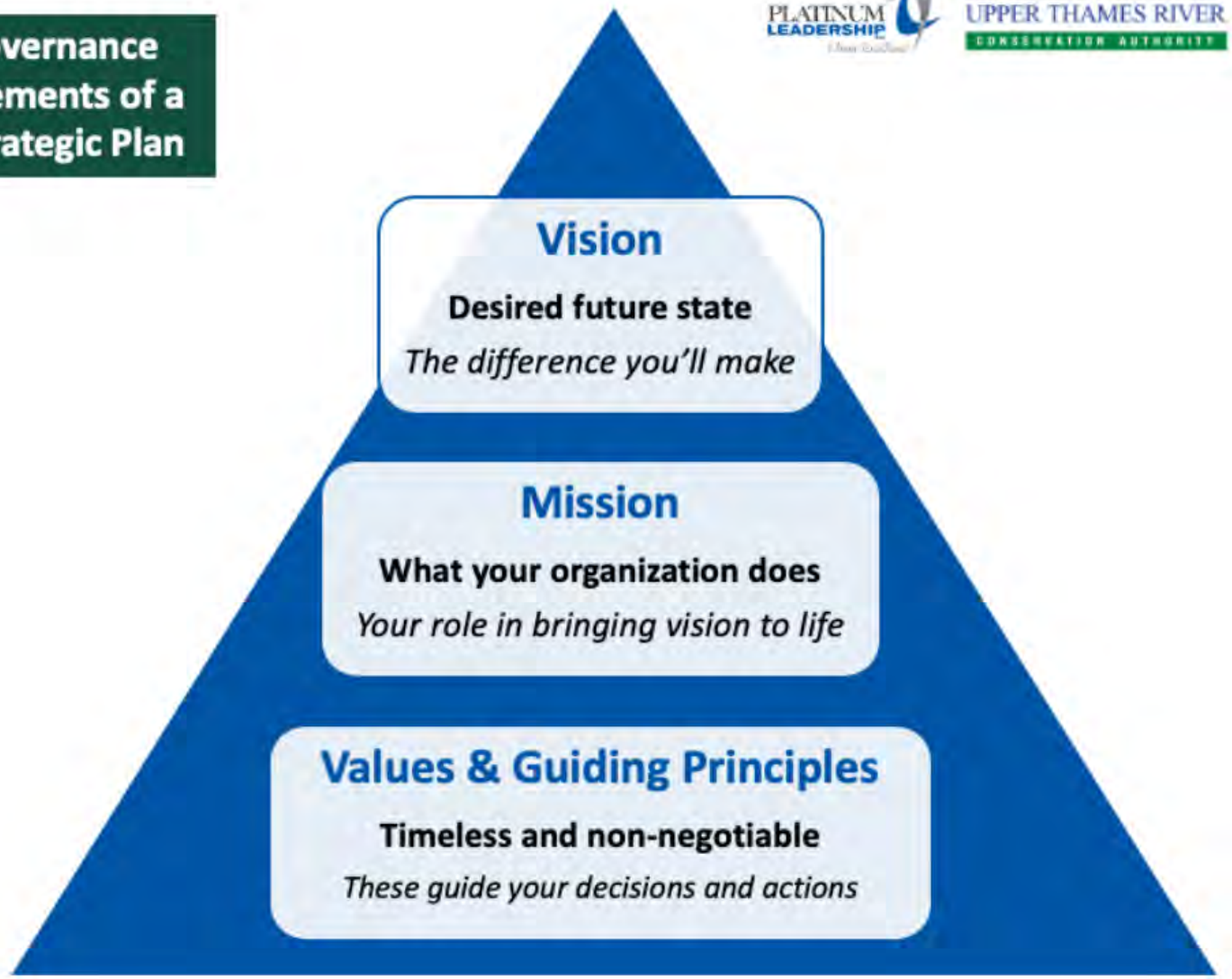
Six Sessions led by the Platinum Leadership

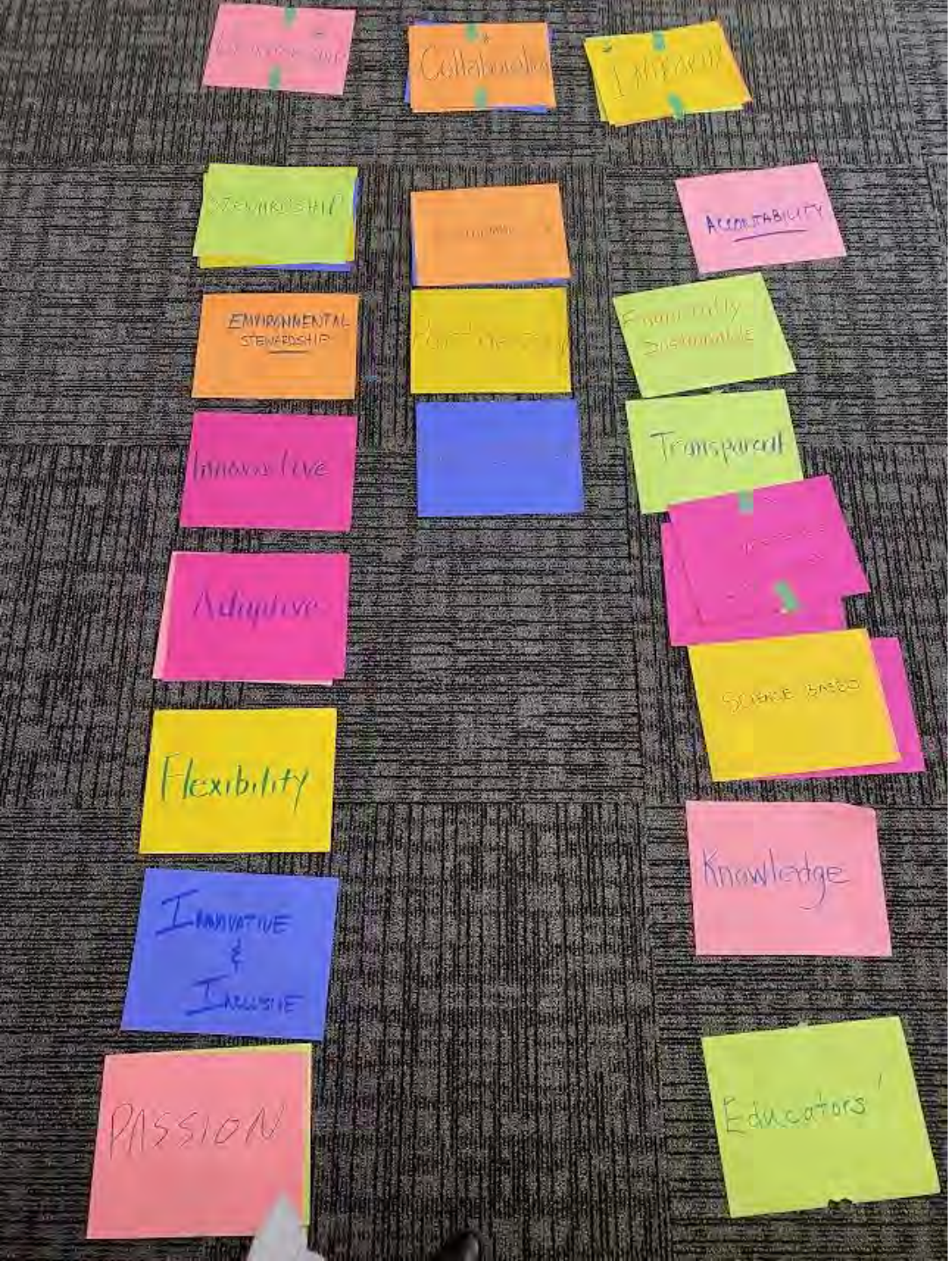
Staff

- Input opportunity for Watershed Strategy
- 110 Staff participated

Context for Vision, Mission, and Values

Governance Elements of a Strategic Plan





Board of Directors Engagement

- November 8th Engagement Session
- November 21st Workshop Review of results – Discovery report #1
- Development of Draft
  - Vision
  - Mission
  - Values
  - Preliminary Discussion on Guiding Principles
- Writing team – Teresa, Eleanor & Tracy

The Five Finger Model

Decision-making and Levels of Consensus

PLATINUM LEADERSHIP INC.
Choose Excellence

1 – No!	2 – Sort of …	3 – Neutral	4 – Sure	5 – Absolutely!
I disagree and feel the need to block this decision. Let's talk further	I don't fully agree with the decision. I need to register my view and discuss the issue more.	I trust the group's wisdom and can live with the decision. Let's move forward	The decision is acceptable, and I can support it. Let's move forward	An unqualified 'yes'. I'm satisfied the decision expresses the group's wisdom and support it. Let's move forward

Vision

- *If the UTRCA were to have the impact it desires, what would the watershed look like?*

Communities engaged in a healthy, resilient environment

Mission

- *What must the UTRCA do to make its vision a reality?*

To conserve the watershed through science, education, policy, action and experiences in nature

Values

- *What words describe our behaviours and attitudes when we do our best work?*

Leadership – We model and encourage sustainable, innovative stewardship of the watershed

Collaboration - We partner to protect and promote a healthy environment and resilient communities

Integrity – We act with transparency and accountability and root our work in science.

Strategic Plan

Vision

Communities engaged in a healthy, resilient environment

Mission

To conserve & protect the watershed through science, education, policy, action and experiences in nature

Values

Leadership – We model and encourage sustainable, innovative stewardship of the watershed

Collaboration - We partner to protect and promote a healthy environment and resilient communities

Integrity – We act with transparency and accountability and root our work in science.

Anything missing?

The Five Finger Model

Decision-making and Levels of Consensus

PLATINUM LEADERSHIP INC. Choose Excellence

1 – No!	2 – Sort of …	3 – Neutral	4 – Sure	5 – Absolutely!
I disagree and feel the need to block this decision. Let's talk further	I don't fully agree with the decision. I need to register my view and discuss the issue more.	I trust the group's wisdom and can live with the decision. Let's move forward	The decision is acceptable, and I can support it. Let's move forward	An unqualified 'yes'. I'm satisfied the decision expresses the group's wisdom and support it. Let's move forward

Next Steps

Refine Guiding Principles

External Consultation to inform priorities and goals

Management team and staff to develop operational plans

Finalization of Strategic Plan

Recommendation

That the results of the Strategic Plan Input Sessions be received and staff be directed to finalize updated vision and refinement of draft guiding principles / core values, and mission to be incorporated into the Watershed Management Strategy.

UPPER THAMES RIVER CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Tracy Annett
Date: December 09, 2024
File Number: BoD-12-24-99
Agenda #: 6.2
Subject: Watershed-Based Resource Management Strategy (Watershed Strategy)

Recommendation

THAT the UTRCA Board of Directors approve the attached Watershed-Based Resource Mangement Strategy (Watershed Strategy).

Background

The UTRCA has prepared the draft Watershed Strategy to meet the requirements for a Watershed–based Resource Management Strategy as set out under Section 21.1 of the Conservation Authorities Act (CA Act) and Ontario Regulation 686/21 (Mandatory Programs and Services). The goal of the Watershed Strategy is to ensure that the UTRCA's programs and services address watershed issues and priorities and reflect the organization's mandate under the CA Act.

The regulation outlines the mandatory programs and services that conservation authorities shall deliver, including:

- Risk of natural hazards
- Conservation and management of lands
- Participation in the provincial water quality monitoring network
- Participation in the provincial groundwater monitoring network
- Drinking water sources protection responsibilities

An overview presentation of the Watershed Strategy will be provided.

Legislative Requirements

Section 12 (4) of Ontario Regulation 686/21 specifies that a Watershed-Based Resource Management Strategy shall include the following components:

1. *Guiding principles and objectives that inform the design and delivery of the programs and services that the authority is required to provide under section 21.1 of the Act.*
2. *A summary of existing technical studies, monitoring programs and other information on the natural resources the 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 Act.*

3. *A review of the authority's programs and services provided under section 21.1 of the Act for the purposes of, i. determining if the programs and services comply with the regulations made under clause 40 (1) (b) of the Act, ii. identifying and analyzing issues and risks that limit the effectiveness of the delivery of these programs and services, and iii. identifying actions to address the issues and mitigate the risks identified by the review, and providing a cost estimate for the implementation of those actions.*
4. *A process for the periodic review and updating of the watershed-based resource management strategy by the authority that includes procedures to ensure stakeholders and the public are consulted during the review and update process.*

The regulation also stipulates that:

> *(5) Subject to subsections (6) and (7), a watershed-based resource management strategy may include programs and services provided by the authority under sections 21.1.1 and 21.1.2 of the Act.*
>
> *(6) If, in respect of programs and services the authority provides under subsection 21.1.1 (1) of the Act, a memorandum of understanding or other agreement is required, a watershed-based resource management strategy may not include those programs and services unless the memorandum of understanding or other agreement includes provisions that those programs and services be included in the strategy.*
>
> *(7) If, in respect of programs and services the authority provides under subsection 21.1.2 (1) of the Act, an agreement is required under subsection 21.1.2 (2), a watershed-based resource management strategy may not include those programs and services unless the agreement includes provisions that those programs and services be included in the strategy.*
>
> *(8) The authority shall ensure stakeholders and the public are consulted during the preparation of the watershed-based resource management strategy in a manner that the authority considers advisable.*
>
> *(9) The authority shall ensure that the watershed-based resource management strategy is made public on the authority's website, or by such other means as the authority considers advisable.*

Discussion

The strategy sets out the UTRCA's guiding principles and objectives and outlines the conservation authority's programs and services. In 2024, these programs and services were organized into the following three categories, to conform with new legislative requirements:

- Mandatory Programs and Services – Category 1,
- Municipal Programs and Services – Category 2,
- Other Programs and Services – Category 3.

The Watershed Strategy provides the context and rationale for the UTRCA's programs and identifies future directions. An on-line survey was conducted to provide input on the Challenges, Issues and Risks. Additional information has been added since the June Draft of the Document that includes the description of programs, mapping to identify monitoring, data

and property locations. The strategy also provides details on the engagement results and identifies recommended actions to address the challenges, issues and risks in the Upper Thames Watershed. An implementation plan will be developed after the Strategic Plan is finalised.

Summary

The draft Watershed Strategy meets the requirements for a Watershed–based Resource Management Strategy as set out under Section 21.1 of the Conservation Authorities Act (CA Act) and Ontario Regulation 686/21 (Mandatory Programs and Services). Once approved the Watershed Strategy will be posted on the UTRCA's website.

Recommended by:

Tracy Annett, General Manager

Tara Tchir, Watershed Science Coordinator

Attachment

UTRCA Watershed-based Resource Management Strategy

Upper Thames River Conservation Authority

Watershed Strategy

(Watershed-based Resource Management Strategy)

Draft, December 2024

UPPER THAMES RIVER
CONSERVATION AUTHORITY

Preface

The **Watershed Strategy** has been prepared by the Upper Thames River Conservation Authority (UTRCA) to meet the requirements for a Watershed-based Resource Management Strategy as set out under Section 21.1 of the Conservation Authorities Act (CA Act) and Ontario Regulation 686/21(Mandatory Programs and Services). The Watershed Strategy was developed following Conservation Ontario's Guidance on the Conservation Authority Mandatory Watershed-based Resource Management Strategy, the Conservation Authorities Act and its regulations, and draft content from other conservation authorities.

The Watershed and Traditional Territory

The Upper Thames River watershed is within the traditional territory of the Attawandaron, Anishinaabeg, Haudenosaunee, and Lunaapeewak peoples, who have longstanding relationships to the land, water, and region of southwestern Ontario. The local First Nation communities of this area include Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee Delaware Nation, and Delaware Nation at Moraviantown. In the region, there are 11 First Nation communities and a growing Indigenous urban population.

Acknowledgements

We value the significant historical and contemporary contributions of local and regional First Nations and all of the Original peoples of Turtle Island (North America). Municipal partners, Indigenous communities, UTRCA staff, and the UTRCA Board of Directors are sincerely appreciated for their valuable input and feedback during the development of the UTRCA Watershed Strategy.

Board Approval

The UTRCA Board of Directors provided final review and approval on December 17, 2024.

Citation

Upper Thames River Conservation Authority. 2024. Upper Thames River Conservation Authority Watershed Strategy (Watershed-based Resource Management Strategy).

Published by

Upper Thames River Conservation Authority, 1424 Clarke Road, London, Ontario, N5V 5B9 (phone 519-451-2800, email infoline@thamesriver.on.ca, website www.thamesriver.on.ca). For more information or for a copy of this guide in an alternative format, please contact the UTRCA at 519-451-2800 or infoline@thamesriver.on.ca.

Executive Summary

Section 12(1) Paragraph 3 of Ontario Regulation (O. Reg.) 686/21 requires all conservation authorities to develop a "Watershed-based Resource Management Strategy" (i.e., Watershed Strategy) by December 31, 2024, in accordance with Subsections 12(4)-(9), to carry out programs and services.

The purpose of the Watershed Strategy is to improve the efficiency and effectiveness of the conservation authority's mandatory programs and services under the Conservation Authorities (CA) Act (Province of Ontario 2023b) and, where the relevant agreements allow, its municipal and other programs and services in addressing watershed issues and priorities.

Through outreach with watershed municipalities, Indigenous communities, interest holders, and the public, the Upper Thames River Conservation Authority's (UTRCA) Watershed Strategy:

- Updates the inventory of UTRCA programs and services (UTRCA 2023), organized into seven strategic objectives, each of which has multiple program areas:
    - People and Talent,
    - Organizational Sustainability and Innovation,
    - Natural Hazards Management,
    - Drinking Water Source Protection,
    - Science and Stewardship,
    - Conservation Areas and Nature,
    - Empowerment and Engagement;
- Characterizes the watershed, including description of Indigenous communities with traditional territory in the watershed;
- Summarizes guiding and technical studies that directly inform and support the delivery of programs and services under Section 21.1 of the CA Act;
- Identifies and assesses nine watershed and seven corporate challenges, risks, and issues that impact the effective delivery of its mandatory and municipal programs and services;
- Identifies desirable future programs, services, and actions that could address the identified issues, challenges and risks and assist the UTRCA in delivering its mandatory and municipal programs and services in meeting its objectives and long-term goals if the opportunity arises and funding is available.

In addition, the UTRCA is undertaking a new strategic plan to identify priorities, goals and key performance indicators. Once those have been determined, operational plans with actions, timelines, and resources will be developed, with cost estimates and high-level work plan for their implementation. The work undertaken as part of the Watershed

Strategy will be incorporated into the development of these operational plans. The UTRCA will review the Watershed Strategy every four years to adapt its programs and priorities to evolving political and socio-economic matters and emerging environmental issues.

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1.0 Introduction

The Upper Thames River Conservation Authority (UTRCA) is a community-based environmental organization dedicated to achieving a healthy environment on behalf of the municipalities in the Upper Thames watershed. The formation of the UTRCA is described in the 1952 Upper Thames Valley Conservation Report (Department of Planning and Development, 1952). Established in 1947 at the request of its member watershed municipalities, the UTRCA was the sixth conservation authority formed under the Conservation Authorities Act (CA Act).

The UTRCA is one of 36 Conservation Authorities (CAs) in Ontario, governed by a Board of Directors (BOD). Representation on the BOD is outlined in an Order-in-Council and is based on the population of the municipalities within the UTRCA watershed. The UTRCA BOD is comprised of 15 members representing 17 participating municipalities, as shown in Table 1.

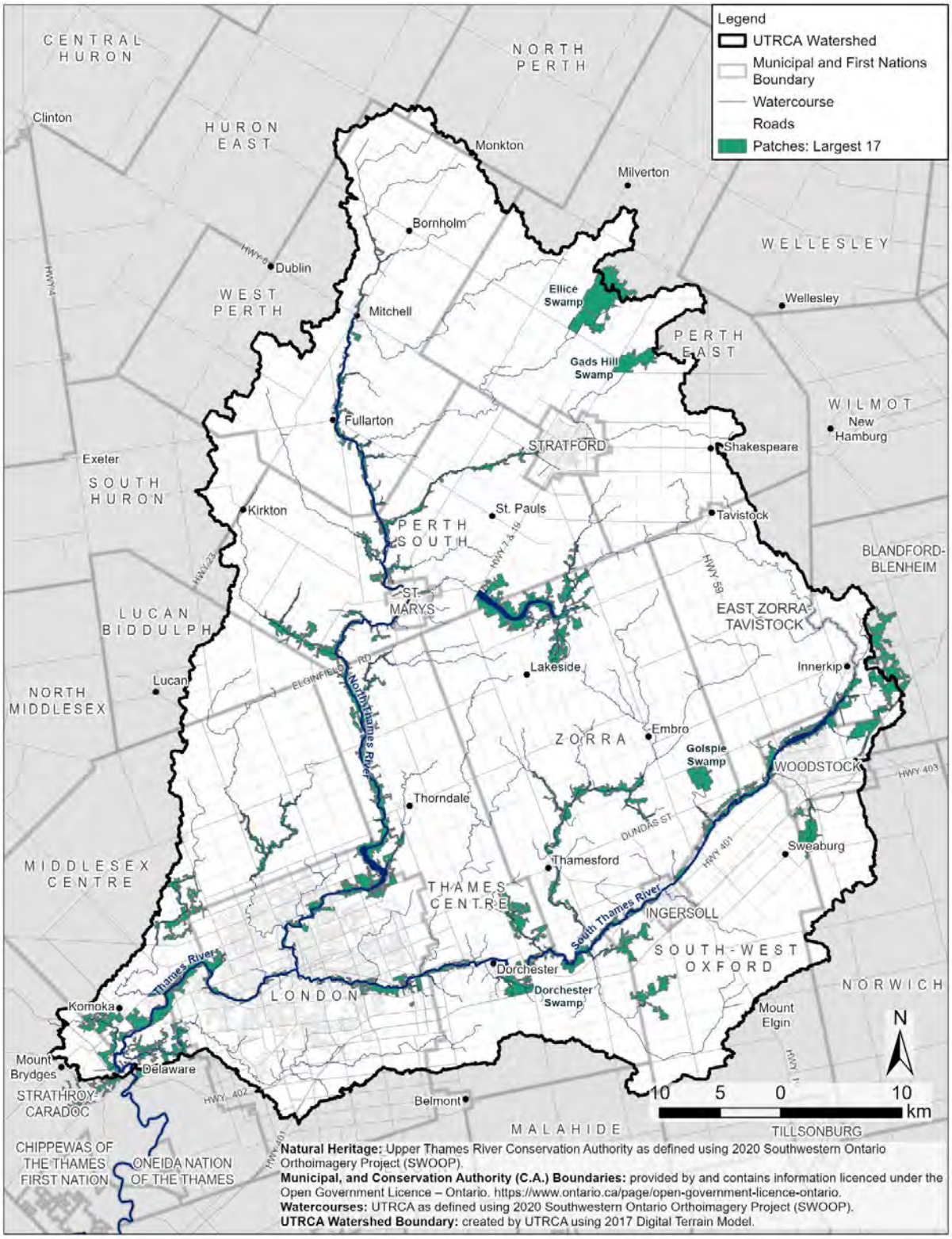
Table 1. Number of UTRCA Board Members by Municipality

Participating Municipality	Number of Members
City of London	4
Municipality of Middlesex Centre	1
Municipality of Thames Centre and Township of Lucan-Biddulph	1 (shared)
Township of Blandford-Blenheim and Township of East Zorra Tavistock	1 (shared)
Town of Ingersoll	1
Township of Norwich and Township of South-West Oxford	1 (shared)
City of Woodstock	1
Township of Zorra	1
Township of Perth East	1
Township of Perth South, Town of St. Marys, and Municipality of South Huron	1 (shared)
Municipality of West Perth	1
City of Stratford	1

UTRCA's BOD and staff work with a growing number of partners who share a concern for the future of the watershed's environment. These partners provide information, ideas, labour, and funding for UTRCA programs, services, and activities. The UTRCA administers its programs and services within a 3,430 square kilometre area, based on the upper watershed of the Thames River (Map 1) in southwestern Ontario.

The map shows the north and south branches of the Thames River that meet at the Forks of the Thames in the City of London. It also shows the 17 largest woodland/wetland areas including UTRCA owned sites Ellice Swamp and Gads Hill Swamp in Perth East, Golspie Swamp in Oxford County, and Dorchester Swamp in Thames Centre (Map 1).

Map 1. Upper Thames River watershed showing major watercourses and largest woodlands



1.1 Regulatory Framework / Legislative Background

The UTRCA has responsibilities under the Conservation Authorities Act.

1.1.1 Conservation Authorities Act

The CA Act of Ontario provides the mechanism for establishing and administering a conservation authority.

> The purpose of this 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 watersheds in Ontario.

Section 21.1 of the CA Act lists the Mandatory Programs and Services which must be delivered by all conservation authorities. They are described in more detail under Ontario Regulation (O. Reg.) 686/21.

Section 21.1.1 of the CA Act refers to the Municipal Programs and Services which conservation authorities are permitted to provide under agreement with its member municipalities.

Section 21.1.2 of the CA Act sets out the Other Programs and Services that conservation authorities are permitted to deliver.

The CA Act and accompanying regulations have been amended by the Province of Ontario since 2017. In 2022, the UTRCA developed an inventory of its programs and services and provided it to its municipal watershed partners and the Province.

In 2024, updates to the legislation (Province of Ontario 2023c) included Ontario Regulation 687/21 (Transition Plans and Agreements for Programs and Services under Section 21.1.2 of the Act), which introduced the concept of reorganizing the programs and services into the three categories shown below, with specific funding and budgetary restrictions, to conform to new legislative requirements.

- **Mandatory Programs and Services (Category 1)**: The UTRCA delivers mandatory programs and services as set out in the CA Act and Regulation 686/21. These programs and services are funded through provincial funding, municipal levy, and municipal special benefitting levies, with user fees for some services.
- **Municipal Programs and Services (Category 2):** UTRCA delivers some programs and services specifically on behalf of its member municipalities. Cost Apportioning Agreements have been established with the participating municipalities to fund those specific programs and services.

- **Other Programs and Services (Category 3):** UTRCA delivers other programs and services that are not considered mandatory or municipal. These programs are funded through municipal cost apportioning agreements and/or self-generated funds. They are part of a larger integrated watershed management model and directly support, contribute to, and enhance the delivery of mandatory and municipal programs and services, as well as influencing watershed health and contributing to UTRCA knowledge and expertise.

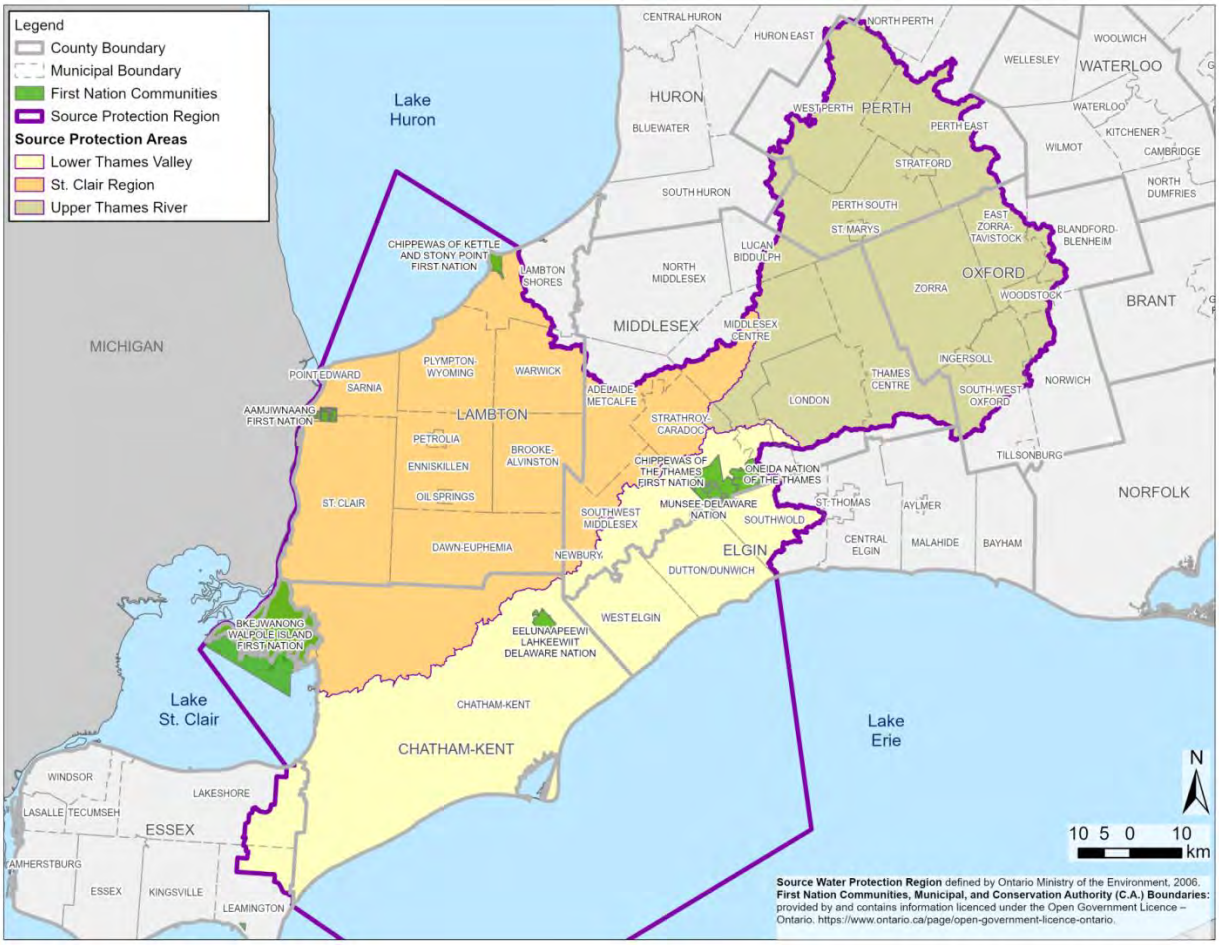
Furthermore, Section 12(1) Paragraph 3 of Ontario Regulation (O. Reg.) 686/21 requires all conservation authorities to develop a "Watershed-based Resource Management Strategy" (i.e., Watershed Strategy) by December 31, 2024, in accordance with Subsections 12(4)-(9) to carry out CA Programs and Services. The Watershed Strategy includes Mandatory Programs and Services provided by the CA. It may also include both Municipal Programs and Services and Other Programs and Services, where the relevant agreement permits the inclusion of these programs or services in the Watershed Strategy. Mandatory Programs and Services Regulation 686/21 identify two other pieces of provincial legislation with different areas of jurisdiction:

- Clean Water Act, 2006, and
- Planning Act.

1.1.1.1 Clean Water Act, 2006

The Clean Water Act (CWA) received Royal Assent in 2006 to ensure the protection of Ontario's existing and future municipal drinking water sources (Province of Ontario 2021). The CWA sets out a framework for drinking water source protection planning on a watershed basis. Under the Act, Source Protection Areas were established (Thames-Sydenham and Region Source Protection Committee 2011) based on the watershed boundaries of Ontario's 36 Conservation Authorities (LTVCA, SCCA, and UTRCA 2008). In this region, the Upper Thames River, Lower Thames Valley, and St. Clair Region Conservation Authorities entered a partnership, creating the 10,835 square kilometre Thames-Sydenham Source Protection Region (Map 2).

Map 2. Thames-Sydenham and Region Source Protection Region



1.1.1.2 Planning Act

As “public bodies,” conservation authorities are notified of policy documents and planning or development applications and use their local watershed expertise to provide input to provincial and municipal policy documents and applications submitted under the Planning Act (Province of Ontario 2023d). Furthermore, conservation authorities have provincially delegated responsibilities to represent provincial interests regarding natural hazards policy statements issued under Section 3 of the Planning Act, including the Provincial Planning Statement (Province of Ontario 2024a).

1.2 Purpose of Watershed Strategy

The Watershed Strategy sets out the UTRCA’s guiding principles and objectives and outlines the UTRCA’s mandatory programs and services as well as its municipal and other programs and services. The purpose of the Strategy is to improve the efficiency and effectiveness of the UTRCA’s mandatory programs and services and, where the relevant agreements allow, its municipal and other programs and services in addressing watershed issues and priorities, and to reflect the organization’s mandate under the CA Act.

Through outreach with watershed municipalities, Indigenous communities, interest holders, and the public, the UTRCA’s Watershed Strategy updates the inventory of UTRCA programs and services, assessing resource conditions, trends, risks, and issues that impact the effective delivery of its mandatory and municipal programs and services. It also identifies desirable future programs, services, and actions that will assist the UTRCA in delivering its mandatory and municipal programs and services and meet its objectives and long-term goals.

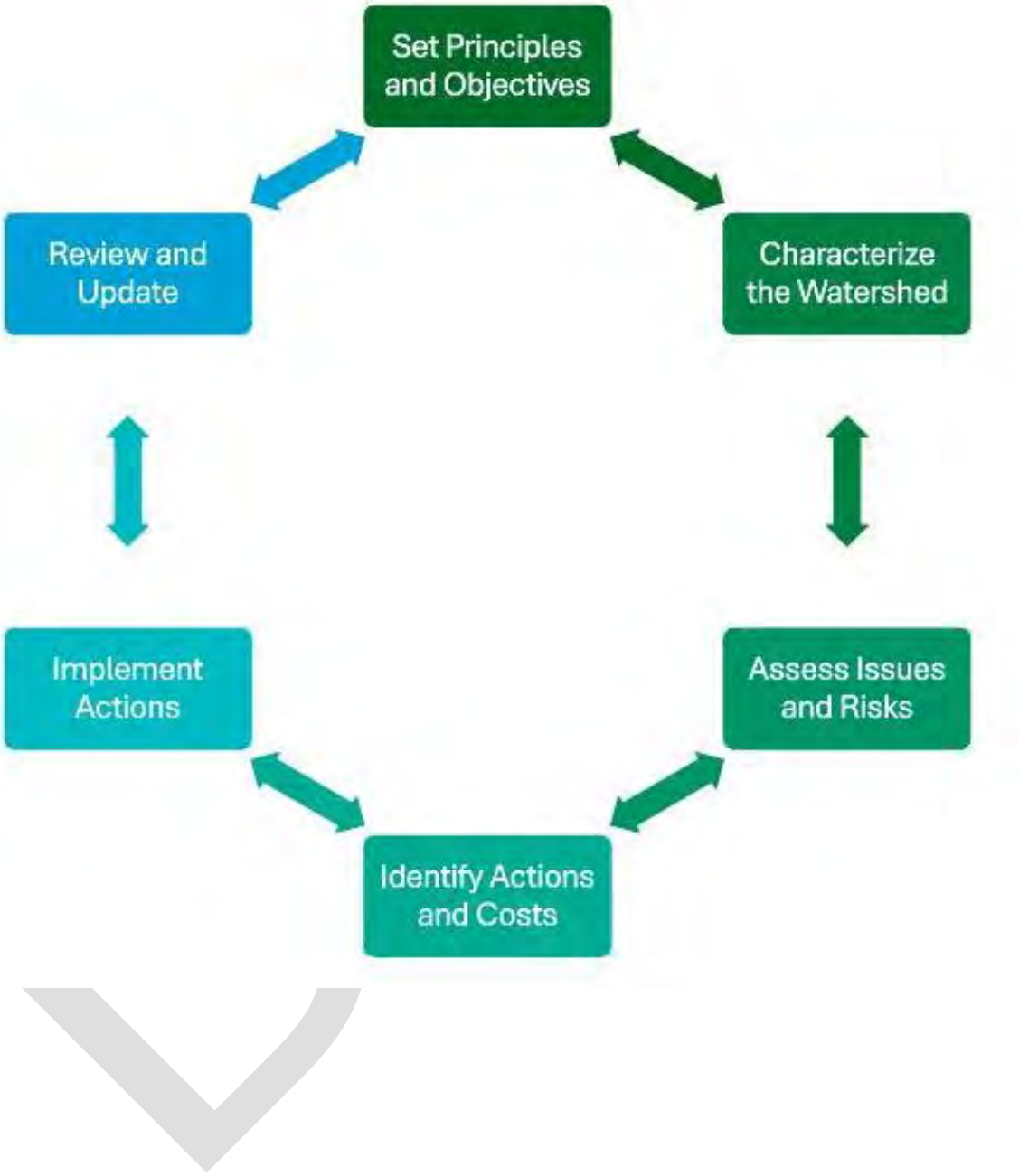
1.3 Development of the Watershed Strategy (Framework)

The Watershed Strategy is a collaborative approach that used a six step, data-based framework (Conservation Ontario 2023) to inform planned actions as shown in Figure 1 and described below.

- **Set principles and objectives.** The Strategy followed the mission, vision, and values (i.e., guiding principles and objectives) established as part of the update to the UTRCA Strategic Plan, which inform the design and delivery of the programs and services the authority is required to provide under Section 21.1 of the CA Act.
    - **Characterize watershed**. The Strategy characterized the watershed, including a summary of existing technical studies, monitoring programs, and other information on the natural resources the authority relies on within its area of jurisdiction or in specific watersheds that directly inform and support the delivery of programs and services under Section 21.1 of the Act.
    - **Assess issues and risks**. The Strategy reviewed the authority's programs and services provided under Section 21.1 of the Act for the purpose of determining if the programs and services comply with the regulations made under clause 40 (1) (b) of the Act, and to identify issues and risks that limit the effectiveness of the delivery of these programs and services.
    - **Identify actions and costs.** The Strategy identified actions to address the issues and mitigate the risks identified by the review. Cost estimates for the implementation of the actions will be determined through annual workplans and budget process. The strategy outlines the UTRCA's mandatory (Category 1) programs and services and identifies issues and risks that may impact their effective delivery, as well as gaps in addressing those risks (i.e., where additional programs and services may be needed). The strategy also identifies UTRCA's municipal (Category 2) and other (Category 3) programs and services, that are recommended to support the delivery of the mandatory programs and services.
- **Implement actions.** The Strategy will lead to the implementation of actions to address and mitigate the risks identified by the review.
- **Review and update**. The Strategy developed a process for its periodic review and update, which includes procedures to ensure interest holders and the public are consulted during the review and update process to support continuous improvement and/or maintenance of watershed health. These updates will become an ongoing part of the UTRCA programs and services.

The next sections describe these six steps in more detail.

Figure 1. Six Step Framework of the Watershed Strategy



Aerial view of a rural section of Medway Creek.

2.0 Strategic Direction – Set Principles and Objectives

The UTRCA has initiated a new Strategic Plan process. In December 2024, the Board of Directors approved the vision, mission, and values as the first phase of the process. Additional consultation to identify strategic priorities and operational planning will be completed in 2025. The 2024 / 2025 Draft Strategic Plan provides the UTRCA's vision, mission, and values.

2.1 Vision, Mission, and Values

Vision Statement
Communities engaged in a healthy, resilient environment.

Mission Statement
To conserve the watershed through science, education, policy, action, and experiences in nature.

Values
Leadership: We model and encourage sustainable, innovative stewardship of the watershed.

Collaboration: We partner to protect and promote a healthy environment and resilient communities.

Integrity: We act with transparency and accountability and root our work in science.

2.2 Guiding Principles

Guiding principles were established for the Watershed Strategy to guide the approach to UTRCA's decision-making and inform the design and delivery of its mandatory programs and services.

We believe:

- That sound development and resource management decisions are best made in an integrated watershed context to achieve a healthy and sustainable environment.
- That a healthy natural heritage system and water resource system provide the foundation of a sustainable and resilient community and provide nature-based solutions to challenges posed by climate change.
- In a collaborative approach that involves the community in our decision making and programs through direct community participation, successful partnerships, and effective communications and educational initiatives.

- In being accountable and transparent to all our interest holders for the decisions made, the effectiveness of our communications, and being fiscally responsible with the resources provided and the outcomes achieved.
- In offering valued programs, services, and experiences that respond to the needs and interests of the people served in a respectful and timely manner.
- That science-based decision making and adaptive management will allow us to ensure that our programs and services continue to protect people, property, and natural resources for generations to come.

2.3 Objectives and Program Areas

The programs and services offered by the UTRCA are organized to meet the current strategic objectives of the UTRCA (Figure 2). Seven objectives represent how the UTRCA achieves its mission, by informing the design and delivery of the UTRCA's mandatory programs and services, as well as the municipal and other programs and services that support the mandatory programs and services. Each objective has multiple program areas.

A brief description of the objective and the program area is provided below. The tables also identify the category of the program areas for each objective.

2.3.1 Objective: People and Talent

Providing and managing an efficient, adaptable, and trusted organization with a strong and skilled workforce and a culture of diversity, equity, and inclusion, contributing to responsive relationships, transparent decision making, and accountable results (Table 2).

Table 2. People and talent: program area and category

Program Area	Category of Programs and Services
Governance - Overall management, strategic planning, municipal and government relations, policy and program, development, issues management, partnership development and support for the Board of Directors	Mandatory (Category 1)
Corporate Services – Human resources employee recruitment, training, employee management, policy development and health and safety	Mandatory (Category 1)

2.3.2 Objective: Organizational Sustainability and Innovation

Implement organizational practices that are socially, environmentally, and economically sustainable, adaptive, and responsible (Table 3).

Table 3. Organizational sustainability and innovation: program area and category

Program Area	Category of Programs and Services
Asset and Risk Management - Asset management is the maintenance and control of operational assets and equipment (including software, systems, and services, as well as organization and people), to optimize the quality and utilization of these assets throughout their lifecycle, increase productivity, and reduce operational costs. Assets enable the delivery of programs and services.	Mandatory (Category 1)
Technology and Information Management - Data and information management and the creation and management of internal and public facing databases, geoportals, mapping and applications	Mandatory (Category 1)
Financial Management - Financial services include 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. As a non-profit registered charity, UTRCA undertakes fundraising to support its conservation efforts.	Mandatory (Category 1)

2.3.3 Objective: Natural Hazards Management

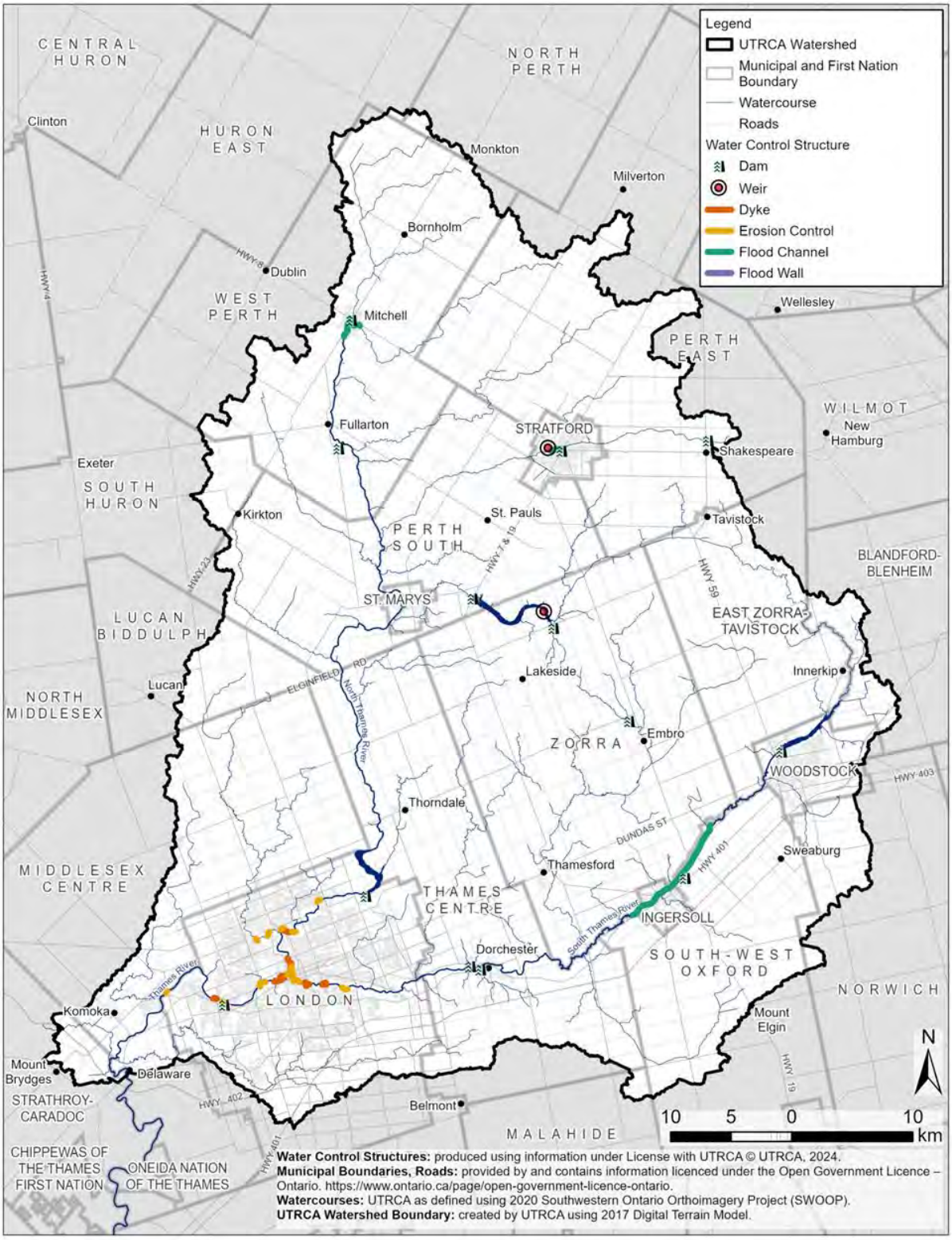
Protect people, property, and natural resources while supporting safe development that is in balance with the natural environment (Table 4).

Table 4. Natural hazards management: program area and category

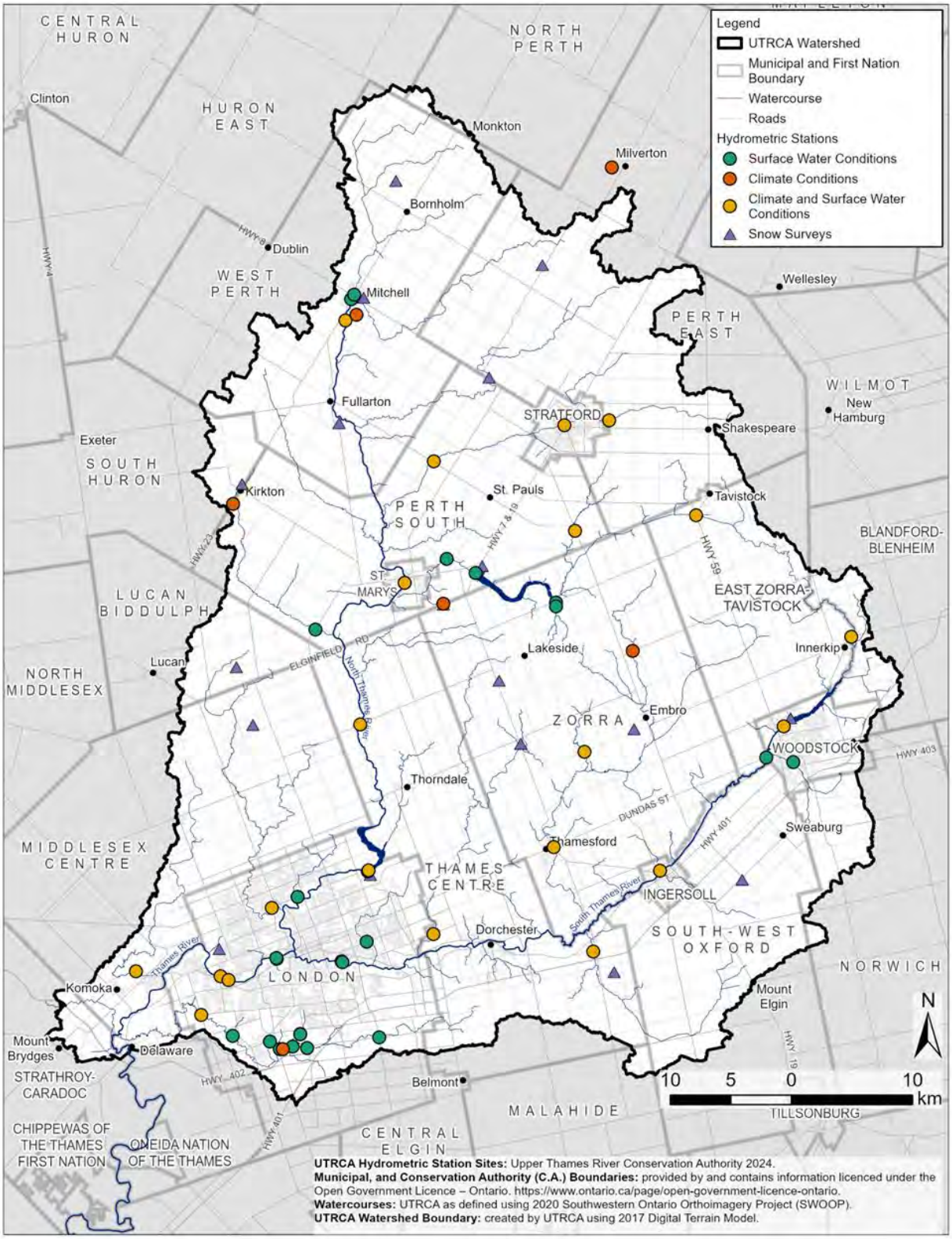
Program Area	Category of Programs and Services
Flood and Erosion Control Infrastructure – Operate and maintain flood control, flow augmentation and erosion control structures to help protect communities from natural hazards. Locations of flood and erosion control infrastructure are shown on Map 3.	Mandatory (Category 1)
Natural Hazard Mapping – Hydrologic and hydraulic models and analysis to develop flood hazard and erosion hazard mapping to help with natural hazards regulation, flood mitigation planning, flood forecasting, and low water occurrence. The modelling and mapping tools developed through the hazard and mapping program provide valuable information that can be used to further mitigate flood risks and lead to more flood resilient communities.	Mandatory (Category 1)
Flood Forecasting and Warning and Low Water Response – Collect, analyze and disseminate climate, snow and streamflow data to monitor high and low water conditions across the watershed Issue flood and drought advisories and warnings to municipalities, partners and the public. Location of UTRCA Hydrometric Stations are shown on Map 4.	Mandatory (Category 1)
Environmental Planning – CAs review municipal policy documents and development applications under the Planning Act and ensure they are consistent with the natural hazard policies of the Provincial Planning Statement (PPS). In this delegated role, conservation authorities represent the “Provincial Interest” in planning exercises with respect to natural hazards. The UTRCA provides technical information and advice to municipalities on circulated municipal land use planning applications (Official Plan and Zoning Bylaw Amendments, Subdivisions, Consents, Minor Variances, and Site Plan Agreements) and input on municipal land use planning documents (OP, Comprehensive Zoning By-Law).	Mandatory (Category 1)

Program Area	Category of Programs and Services
Environmental Regulations – Under the Conservation Authorities Act, the UTRCA administers O.Reg. 41/24 Prohibited Activities, Exemptions and Permits (Province of Ontario 2024). UTRCA staff conduct site inspections and review permit applications and associated technical reports, for development activities within or adjacent to watercourses, floodplains, unstable slopes, wetlands, and other hazardous sites. Regulated Areas maps are available on the UTRCA website.	Mandatory (Category 1)

Map 3. UTRCA Water Control Structures



Map 4. Location of UTRCA Hydrometric Stations



2.3.4 Objective: Drinking Water Source Protection

Protect municipal drinking water sources from contamination and overuse (Table 5).

Table 5. Drinking water source protection: program area and category

Program Area	Category of Programs and Services
Drinking Water Source Protection (DWSP) Source Protection Authority – Under the *Clean Water Act* the UTRCA is the lead Source Protection Authority for the Thames-Sydenham Source Protection Region. The UTRCA supports the Source Protection Committee and fulfills legislative requirements including Section 34, 35 and 51 amendments and Section 36 reviews of the Source Protection Plan (Thames-Sydenham and Region Source Protection Committee 2015) and Assessment Reports. The Upper Thames River Source Protection Area is shown on Map 2.	Mandatory (Category 1)
DWSP Risk Management Services – Carry out Part IV duties of the *Clean Water Act* on behalf of some municipalities through service agreements.	Municipal (Category 2)

2.3.5 Objective: Science and Stewardship

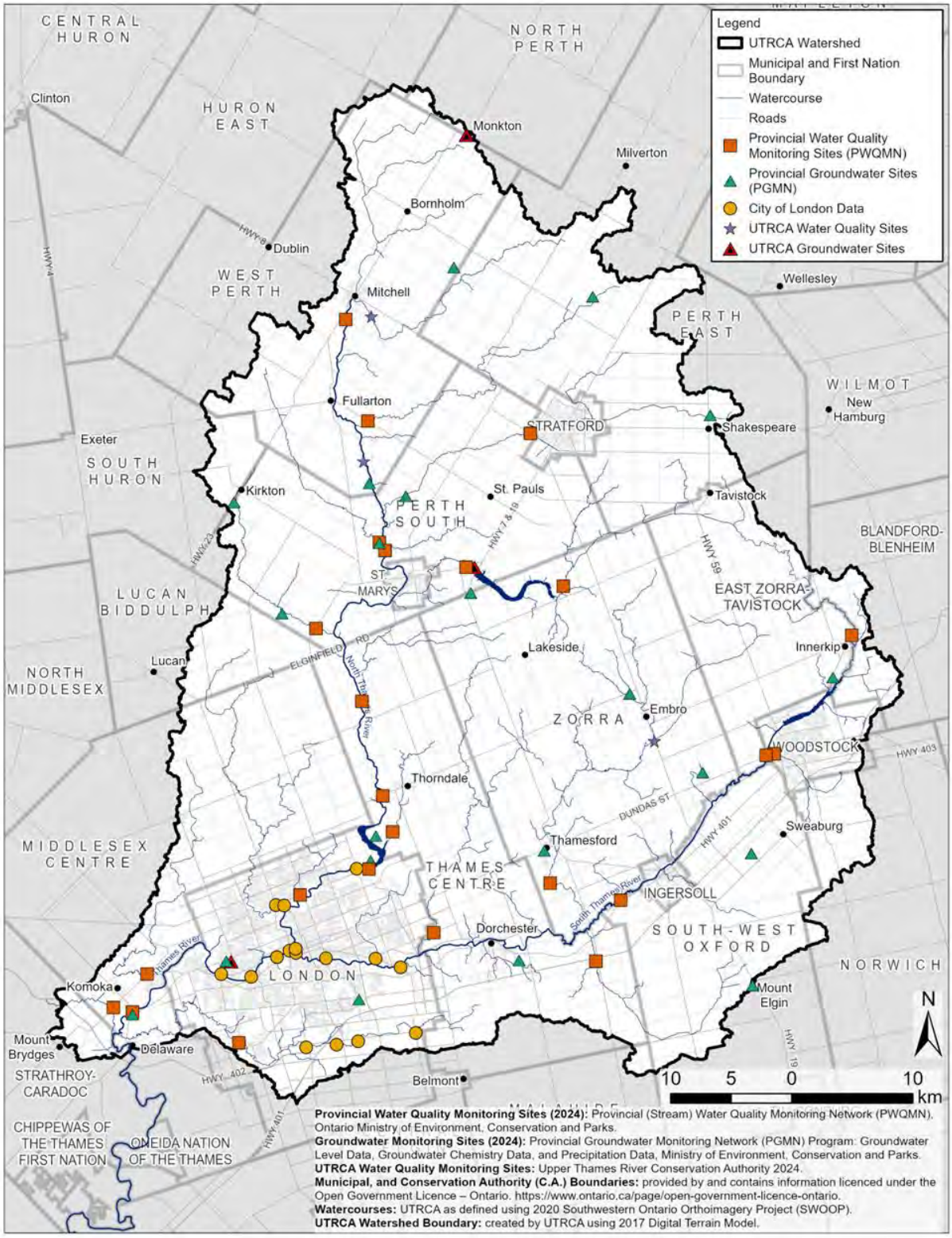
Use environmental science, collaborative research, and data to inform stewardship and restoration activities that protect ecosystem integrity and resilience (Table 6).

Table 6. Science and stewardship: program area and category

Program Area	Category of Programs and Services
Monitoring - Provincial Water Quality Monitoring – Supports the provincial stream monitoring program through data collection, analysis and reporting to create an understanding of water quality concerns. Locations of water quality monitoring stations are shown on Map 5.	Mandatory (Category 1)
Monitoring - Provincial Groundwater Monitoring - Support the provincial groundwater monitoring program through data collection, analysis and reporting to create a conceptual understanding of hydrogeological conditions. Locations of water quality monitoring stations are shown on Map 5.	Mandatory (Category 1)

Program Area	Category of Programs and Services
Monitoring - Municipal Subwatersheds – Under agreement, collect monitoring data, and provide analysis and reporting. Locations of water quality monitoring stations are shown on Map 5.	Municipal (Category 2)
Afforestation, Restoration, and Enhancement – Provide technical expertise, services, and cost-share opportunities for landowners across the watershed to facilitate the creation, enhancement, or restoration of natural areas. Additionally, the Forestry and Restoration Program supports in-stream restoration, wetland creation and restoration, prescribed prairie, meadow, and pollinator plantings, and controlled burning.	Other (Category 3)
Agricultural Stewardship – Work directly with watershed landowners providing technical resources, site visits, advice, and financial assistance. The UTRCA also delivers specially funded stewardship programs as opportunities arise and connects landowners to stewardship programs delivered by other organizations. This program supports efforts within the Forest and Restoration Program but also extends to soil conservation and nutrient management projects across the watershed.	Other (Category 3)
Monitoring – Other Programs – Support the provincial stream monitoring program through data collection, analysis and reporting to create an understanding of water quality concerns. Includes watershed wide water quality and ecological monitoring programs to report on watershed health for each of the 28 subwatersheds in the UTRCA. The data is used to evaluate and report on existing conditions within the watershed, establish priorities for protection and rehabilitation activities, and prioritize watershed projects. Sustained monitoring is important to assess long-term changes in washed health. Locations of water quality monitoring stations are shown on Map 5.	Other (Category 3)
Inventories and Research - Participate in collaborative research initiated by external partners such as universities, research associations, and municipalities where the UTRCA may provide land or field staff. Some of these research topics include: vegetative SAR research (e.g., Emerald Ash Borer, Oak Wilt, Spongy Moth, Wood Poppy, Butternut, American Chestnut, etc.), assisted tree migration, natural heritage systems studies, and natural cover analysis.	Other (Category 3)

Map 5. Location of Water Quality Monitoring Stations



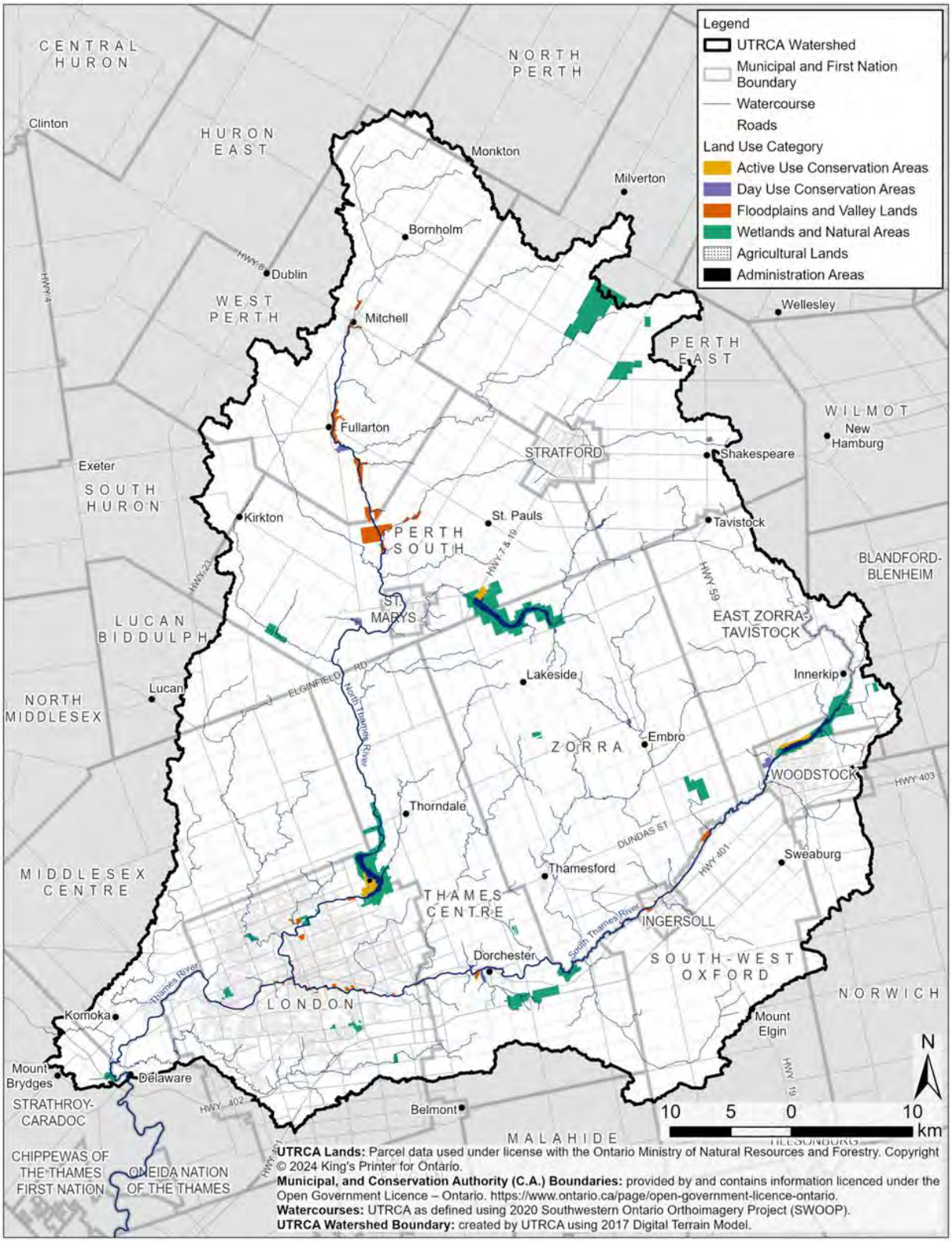
2.3.6 Objective: Conservation Areas and Nature

Enhance and maintain our network of parks and green spaces to protect the watershed's ecological integrity, promote a connected natural heritage system, and provide experiences that connect people with nature (Table 7).

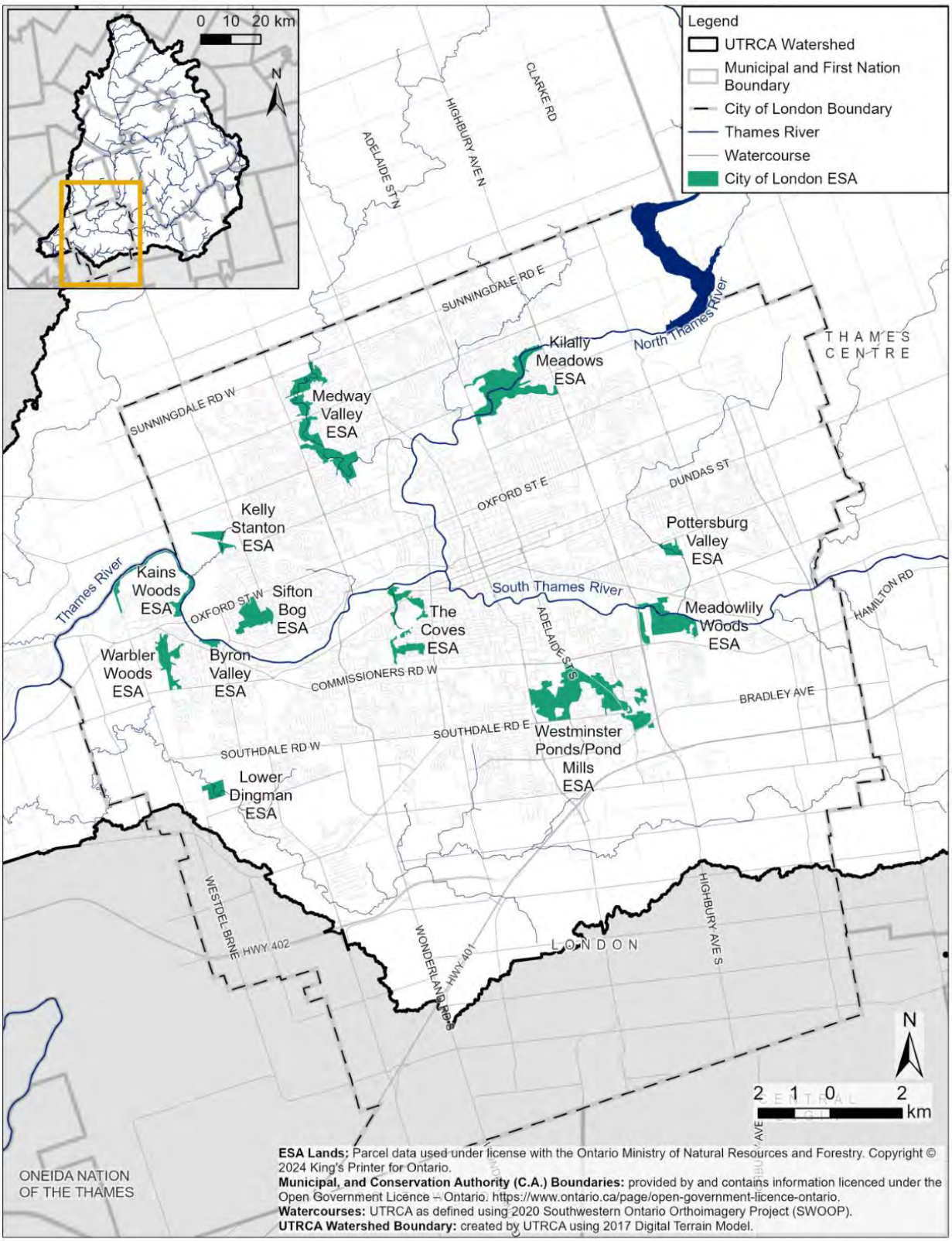
Table 7. Conservation areas and nature: program area and category

Program Area	Category of Programs and Services
Conservation Authority Lands – Manage, maintain, and enhance properties for public access for passive recreation. Manage and maintain lands to protect and promote natural heritage. UTRCA lands (as of March 2024) are shown on Map 6.	Mandatory (Category 1)
Municipal Lands Management – Manage, maintain, and enhance 12 Environmentally Significant Areas (ESAs) under contract with the City of London. ESA lands management locations are shown on Map 7.	Municipal (Category 2)
Conservation Areas - Manage and maintain Fanshawe, Wildwood and Pittock campgrounds and day-use areas that provide active outdoor recreation and tourism opportunities. These active conservation areas have programs and services for management, major maintenance, enforcement and compliance. UTRCA lands (as of March 2024) are shown on Map 6.	Other (Category 3)

Map 6. UTRCA Lands (as of March 2024)



Map 7. Location of Environmentally Significant Areas in the City of London



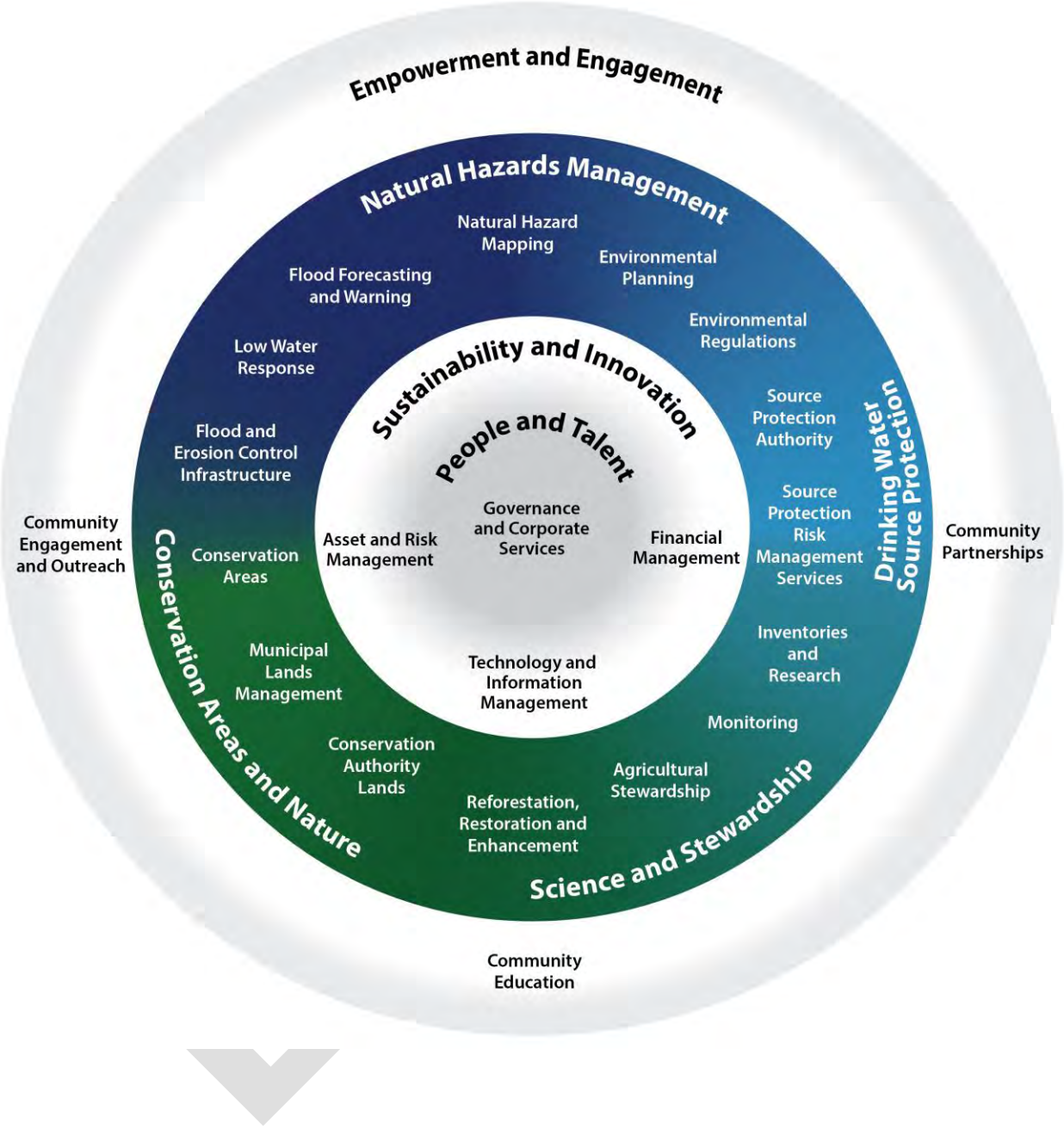
2.3.7 Objective: Empowerment and Engagement

Inspire action by fostering an appreciation of our environment through leading edge educational programming, outreach opportunities, and outdoor experiences (Table 8).

Table 8. Empowerment and engagement: program area and category

Program Area	Category of Programs and Services
Community Engagement and Outreach - Municipal and public outreach, engagement, and education programs inform the Board of Directors, municipalities, staff, watershed residents, partners, and the public about UTRCA programs, services and activities including governance, policies, and conservation lands.	Mandatory and Other (Category 1 and 3)
Community Education – Youth education programs have been developed for all grades to build awareness of and relationships with the local environment and watershed. These programs are delivered in a variety of ways, including virtually. While some of the youth education programs are included in UTRCA's Mandatory Programs and Services (e.g., natural hazards) and municipal programs (e.g., drinking water source protection), supplementary programs are offered centered on watershed and natural environment curriculums, to promote environmental awareness in youth and the watershed's future land stewards.	Other (Category 3)
Community Partnerships - Partnership building and external relationships with community organizations, federal, provincial, and municipal agencies, corporations, educational institutions, and volunteer organizations whose goals are aligned with the UTRCA are important services that provide resources that reach across all the UTRCA's programs and services.	Mandatory and Other (Category 1 and 3)

Figure 2. UTRCA Objectives and Program Areas



Aerial view of the Thames River in west London.

3.0 The Upper Thames River (Deshkan Ziibi) - Watershed Characterization

The Upper Thames River watershed covers approximately 3,423 sq. km, stretching from Monkton (North Perth) in the north to Delaware (southwest of London in Middlesex Centre) in the south, and east of Mount Brydges (Middlesex Centre) in the west to east of Shakespeare (Perth East) and of Innerkip (Blandford-Blenheim) in the east (Map 1).

3.1 Indigenous Communities

The following is what we understand to be a very general overview of the First Nations in the entire Thames River watershed. This understanding is not necessarily comprehensive or definitive.

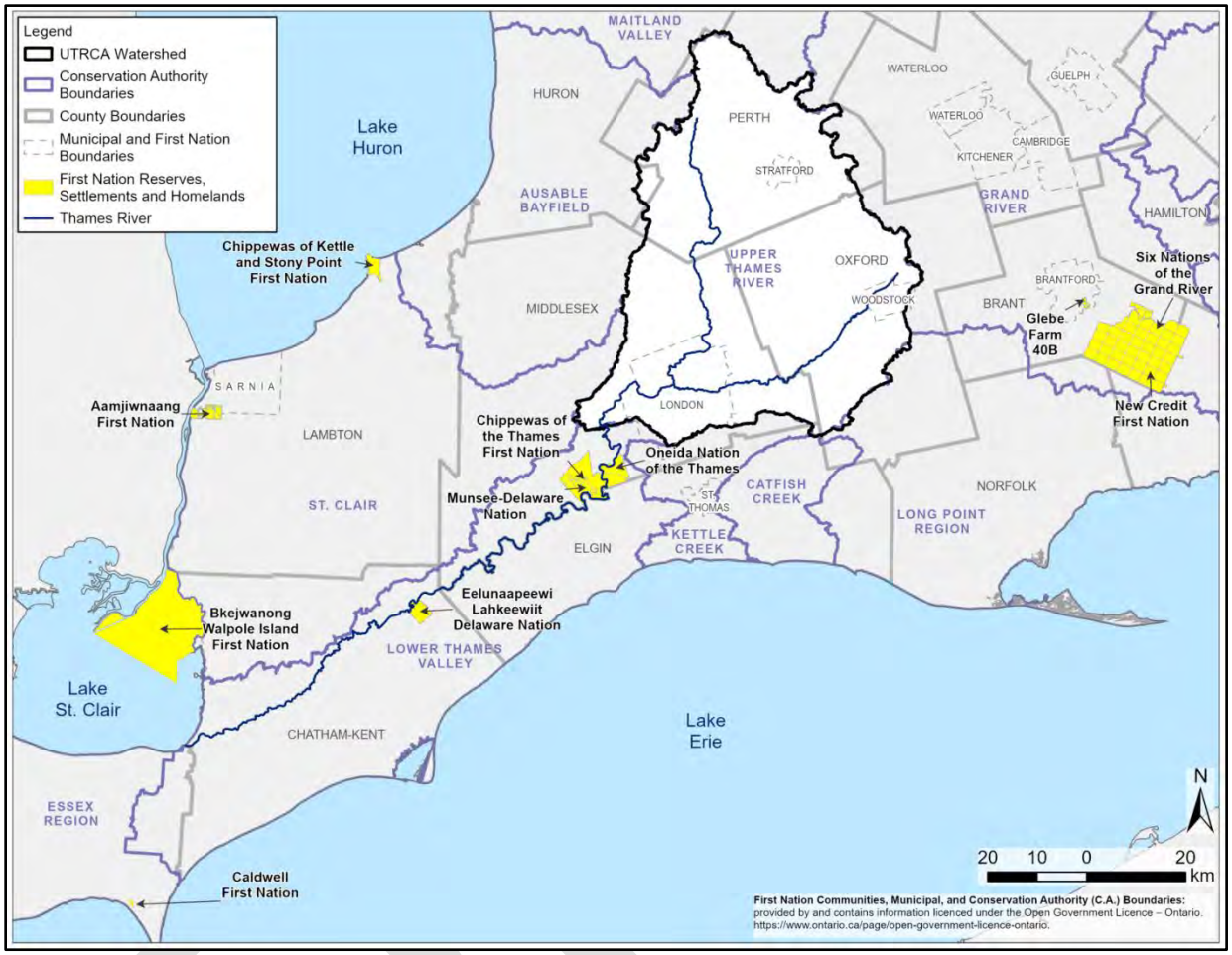
3.1.1 First Nations and Traditional Territories

In the region there are 11 First Nation Reserves, Settlements, and Homelands (Map 8), and a growing Indigenous urban population. Many of the nations in these Reserves, Settlements, and Homelands are also signatories to the treaties covering the watershed (Section 3.1.2). The 11 Nations (in alphabetical order) are:

- Aamjiwnaang First Nation,
- Bkejwanong Walpole Island First Nation,
- Caldwell First Nation,
- Chippewas of Kettle and Stony Point First Nation,
- Chippewas of the Thames First Nation,
- Eelünaapéewi Lahkéewiit (Delaware Nation at Moraviantown),
- Glebe Farm,
- Mississaugas of the Credit First Nation (reserve is known as New Credit),
- Munsee-Delaware First Nation,
- Oneida Nation of the Thames, and
- Six Nations of the Grand River.

Note: Glebe Farm and Six Nations of the Grand River are shared reserves that include all six Haudenosaunee nations (Mohawk, Cayuga, Onondaga, Oneida, Seneca, and Tuscarora). Lenape (Lunaapeew) People (also known as Delaware) live on these reserves as well.

Map 8. First Nation Reserves, Settlements, and Homelands near the Upper Thames River Watershed



The following First Nation Peoples have lived in this region since before the Europeans arrived:

- the Anishinaabek (Aamjiwnaang First Nation, Bkejwanong Walpole Island First Nation, Chippewas of the Thames First Nation, Chippewas of Kettle and Stony Point First Nation, Caldwell First Nation, and Mississaugas of the Credit First Nation), and
- the Haudenosaunee (Oneida Nation of the Thames as well as Mohawk, Cayuga, Onondaga, Oneida, Seneca, and Tuscarora Nations now at Glebe Farm 40B and Six Nations of the Grand River).

Chippewas of the Thames First Nation, the Oneida Nation of the Thames, the Eelünaapéewi Lahkéewiit (Delaware Nation at Moraviantown), and Munsee-Delaware Nation, settled permanently along the banks of the Thames between the 1780s and 1840s (Map 8). Munsee-Delaware Nation and Delaware Nation at Moraviantown are

both settlements of the Lenape (Lunaapeew) People. All four First Nation communities have maintained a strong Indigenous presence along the river.

The Anishinaabek People refer to the Thames River as Deshkan Ziibi (Antler River in Ojibwe / Anishnaabemowin language). The river has also been called Askunessippi (Antlered River) by the Neutrals and La Tranchée (later La Tranche, which means the Trench) by early French explorers, settlers, and fur traders. In 1793, Lieutenant Governor John Graves Simcoe named the river the Thames River after the River Thames in England.

First Nations have a strong cultural and spiritual connection to water (Swain, Louttit, and Hrudey 2006). With this relationship come responsibilities that are described in the Water Declaration of the Anishinaabek, Mushkegowuk, and Onkwehonwe (Chiefs of Ontario 2008), which was written to support First Nation communities in protecting the waters from contamination.

3.1.2 Treaties

The Upper Thames Rive watershed is covered by the following Upper Canada Treaties (Map 9):

- Treaty 2, 1790: The McKee Purchase, signed with various First Nations,
- Treaty 3, 1792: The Between the Lakes Purchase and Collins Purchase, signed with Mississauga peoples,
- Treaty 6, 1796: The Chenail Écarté Treaty and the London Township Purchase, signed with Anishinaabe peoples,
- Treaty 21, 1819: The Long Woods Purchase, signed with Anishinaabe peoples, and
- Treaty 29, 1827: The Huron Tract Purchase, signed with Anishinaabe peoples.

It is important to note that Caldwell First Nation was not present when the treaties were being signed because they already had a verbal agreement in place.

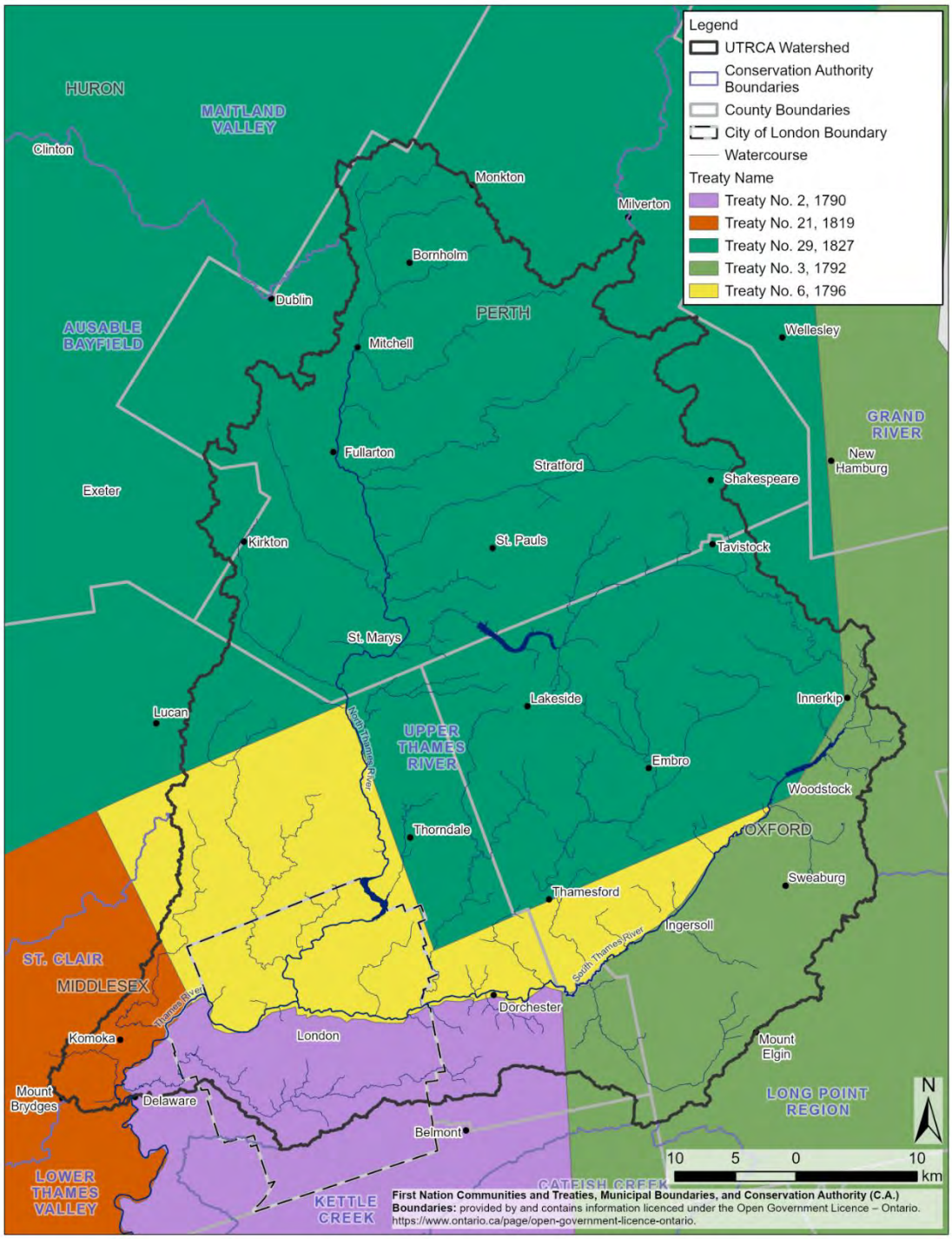
Other important treaties include:

- 1794 Treaty of Amity, Commerce and Navigation, or Jay Treaty, between Britain and the United States, which allows Indigenous people from Canada to live and work freely in the United States; and
- 1701 Nanfan Treaty or Fort Albany Treaty, which gave the Iroquois permanent hunting rights in southwest Ontario.

3.1.3 Other Indigenous Communities

While there are no Métis or Inuit settlements in or near the UTRCA watershed, the conservation authority has engaged with local members of the Métis community, where appropriate, as opportunities are presented.

Map 9. Southwestern Ontario Treaties and the Upper Thames River Watershed



3.2 Watershed Characterization

The Upper Thames River watershed is situated in a highly agricultural part of southern Ontario, with several urban areas scattered throughout the watershed (Map 1). The water and forests in this region face ongoing pressure from urban and rural land uses. Despite these pressures, the Thames remains one of the most biologically diverse rivers in Canada, and the Upper Thames River watershed is home to 80 species of fish, 30 freshwater mussel species, and many species at risk. The entire Thames River system, including tributaries, is designated a Canadian Heritage River.

There has been growing interest from watershed residents, municipalities, and agencies in understanding the health of the watersheds in which they live, and in the upper Thames River watershed. There is an ongoing need for clear environmental information to support our understanding of the issues and inform decision-making.

3.2.1 Major Watershed Reports and Plans

The upper Thames River watershed has been studied extensively over many decades, including technical studies, monitoring programs, and other natural resources information that directly inform and support the UTRCA's program and service delivery (Appendix 1). Some of the major watershed reports and plans include the following:

3.2.1.1 The Thames Valley (Above the City of London) Report 1946

The first survey of the watershed was undertaken prior to the formation of the UTRCA as The Thames Valley (Above the City of London) Report 1946. The report was prepared by A.H. Richardson (Department of Planning and Development 1946) and "covered the subjects of Land Use, Hydraulics, Wildlife, and Recreation".

In 1950, the watershed was resurveyed in accordance with the improved methods adopted by the Conservation Branch of the Province (Department of Planning and Development 1952 a, 1952b).

3.2.1.2 Upper Thames Valley Conservation Report 1952

The Upper Thames Valley Conservation Report 1952 (Department of Planning and Development 1952 a, 1952b) is a comprehensive resource survey of the Upper Thames River watershed. The report assessed land use, forestry, water, wildlife, and recreation. Recommendations included major flood control and stream regulation works, wetland acquisition, reforestation, promotion of soil conservation measures on agricultural land, and recreational and educational facilities.

3.2.1.3 Twenty-five Years of Conservation on the Upper Thames Watershed (1947 – 1973)

The UTRCA published a summary of conservation efforts in the organization's first 25 years (UTRCA 1973). The book includes chapters on why and how the UTRCA was formed, presence of natural hazards resulting from water and flood plain regulations, forestry and land use, recreational opportunities including the development of conservation areas and the Pioneer Village, importance of certain species of wildlife, importance of communication including education and outreach, and future projects.

3.2.1.4 Water Management Study for the Thames River Basin (1975)

The 1975 Water Management Study for the Thames River Basin, undertaken jointly by the Ontario ministries of the Environment and of Natural Resources (MOE and MNR 1975), was initiated in response to growing concern over existing problems relating to water quality, flooding, and erosion in the watershed, and potential problems anticipated due to future population growth and economic development. The objective of this study was to develop guidelines for management of the basin's water resources to ensure that adequate quantities of water of satisfactory quality are available for the recognized uses at the lowest possible cost, and that erosion and flood control are provided consistently.

The study assessed the availability and quality of surface water and groundwater, inventoried water uses and related land uses and evaluated existing and potential water resource problems in the basin. This information was used to select and evaluate water management alternatives on which recommended water management guidelines are based.

3.2.1.5 The Thames River Watershed: A Background Study for Nomination under the Canadian Heritage Rivers System (1988)

The Thames River Watershed Background Study (UTRCA 1998) describes the river from the time of its formation to early settlement periods to modern day recreational uses. The report describes the natural heritage of the river including the hydrology, physiography, river morphology, flora, fauna, aquatic ecosystems, and landscapes; as well as the cultural heritage including harvesting, transportation, human settlements, hydraulic power generation, recreation, historic events, and environmental regulations.

3.2.1.6 The Thames-Sydenham and Region Watershed Characterization Summary Report (2008)

The Thames-Sydenham and Region Watershed Characterization Report (LTVCA, SCCA and UTRCA 2008) summarizes information on the physical, social, and economic characteristics of the Thames watershed and region. The Thames watershed and region includes the Thames River drainage basin and several smaller watercourses

that drain directly to Lake Erie or Lake St. Clair. The report also reviews water quality and summarizes known issues and concerns pertaining to drinking water sources. The report is one of the first steps in the development of Source Protection Plans, as recommended by Justice O'Connor following the Walkerton Inquiry. The inquiry investigated the May 2000 bacterial contamination of the Town of Walkerton's water supply, which resulted in seven deaths.

3.2.1.7 The Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity (2019)

The Shared Waters Approach (TRCWR 2019) is a 20-year plan that provides broad and strategic guidance for water quality and quantity. The Shared Waters Approach for Deshkan Ziibi developed many goals and recommendations for water quality and quantity that incorporate both Indigenous and Western scientific ways of knowing wherever possible, and includes descriptions of global, First Nations, Canadian, and local perspectives towards water, climate considerations, and geomorphology of the Thames River.

3.2.1.8 Upper Thames River Watershed Report Cards (published every 5 years since 2001)

Every five years since 2001, the UTRCA has produced watershed report cards (UTRCA 2022) to report on local environmental conditions in each of the 28 subwatersheds within the Upper Thames watershed. These reports summarize extensive environmental information, with the goal of guiding local environmental action and tracking environmental change. Each report card grades surface water quality and forest conditions, summarizes watershed features, provides recommended actions for improvement, and highlights progress made over five years. Initiated by the UTRCA in 2001, the grading was later updated and standardized through a collaborative process under Conservation Ontario in 2011 for use by all conservation authorities.

3.2.2 Information Supporting UTRCA Programs and Services

Ontario Regulation 686/21 requires that the Watershed 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, that directly inform and support the delivery of programs and services under Section 21.1 of the Conservation Authorities Act. Additional technical studies, monitoring programs, and other information on natural resources are found in Appendix 1 and on the UTRCA website.

Aerial view of the Thames River in Ingersoll.

4.0 Assess Challenges, Issues, and Risks

The Draft Watershed Strategy (June 2024) identified nine watershed and seven corporate challenges, issues, and risks that may influence program priorities and services and/or impact the effective delivery of mandatory programs and services. Through the consultation process, both the watershed and corporate challenges, issues, and risk were prioritized, based on feedback received. An in-depth analysis of all programs and services that could address each challenge, issue, or risk, along with rationale, was conducted for the priorities.

Recommended actions were ranked as **high priority** based on staff and public input to address watershed challenges, issues, or risks were:

- Land cover, land use change, and increased development pressure,
- Water quality (phosphorus and other contaminants),
- Watercourse and wetland alteration,
- Severe weather,
- Invasive species management and environmental pests and pathogens.

4.1 Prioritization of Watershed Challenges, Issues, and Risks

Twenty-one in-person staff meetings and a public survey of watershed residents identified and prioritized nine watershed challenges, issues, and risks.

4.1.1 Staff Consultation

Staff consultation included 12 unit meetings, three full staff meeting presentations, and six staff engagement sessions to ensure that all staff had input into the Watershed Strategy, including the inventory of programs and services, the identification of gaps, and the identification and prioritization of challenges, issues, and risks.

4.1.2 Public Engagement

There were 757 visits to the challenges, issues, and risks survey page (**Appendix 2**), of which 637 were unique visitors. A total of 86 individuals contributed to the survey (11% engagement rate) and of those, 72 explained their rationale for ranking the challenges, issues, and risks. This indicates that the people responding to the survey were quite engaged and interested in the work of the UTRCA. A total of 71% of the contributors were from the general public and 53 individuals downloaded the draft strategy. Most of

the contributors have interacted with the UTRCA through conservation areas or through community education and partnerships.

Additional consultation and interest holder engagement will also be undertaken in 2025 as part of the UTRCA's Strategic Plan process and refines the Watershed Strategy.

4.1.3 Prioritization of Watershed Challenges, Issues, and Risks

Recommended actions were ranked as **high priority** based on staff and public input to address watershed challenges. Issues are described below.

Land Cover, Land Use Change, and Increased Development Pressure

The housing crisis and an increasing population in larger municipalities, towns, and villages in the watershed is increasing development pressure, which has the potential to have a negative impact on the environment. Urban development pressures include urban expansion, and intensification, as well as expansion of roads and salt use.

Farmland and forested lands are being lost to urban growth, aggregate extraction, logging activities, large factories, landfills, and so on. There are changes in agriculture as well, with the loss of family farms to large landholdings by companies and/or corporations, increased tile drainage, loss of windbreaks and shelterbelts, etc.

The loss of vegetation, increased drainage, and paving of the landscape have reduced the land's natural water absorption and retention abilities and decreased biological diversity impacting land and water resources. Many of these impacts are cumulative and can have far-reaching consequences (e.g., downstream effects).

Water Quality

Healthy river ecosystems rely on clean water. The average water quality in a river tends to change slowly. Water quality is generally good or excellent in undeveloped areas where native plants, trees, and soils purify the water before it reaches the river. Urban landscapes, industrial and sewage effluents, farm runoff, and atmospheric deposition of chemicals can all affect water quality. How people develop and use the surrounding land impacts how quickly water quality changes. Fertilizers, pesticides, and manure from livestock used to help crops grow can wash into nearby rivers or seep into groundwater, impacting water quality in those areas. Removing trees and other vegetation, which slow the flow of surface water into rivers, may increase run-off of nutrients and contaminants into rivers. The channelization of watercourses also negatively impacts their functioning and ability to support aquatic life.

Phosphorus and Harmful Algal Blooms

The Thames River has experienced excess levels of nutrients for decades, resulting in nutrient enrichment in the river system and contributing to algal blooms in Lakes Erie and St. Clair, and in the Thames River and tributaries (Shared Waters Approach 2019). Phosphorus is the primary nutrient that promotes excess growth of aquatic plants and algae and is correlated to sediment transport. Therefore, sediment transport and erosion are also of concern in several subwatersheds. In recent years, phosphorus has promoted the growth of blooms including cyanobacteria species such as Microcystis, which can produce a toxin that impairs drinking water, aquatic life, and recreational uses.

Contaminants of Emerging Concern

Contaminants of Emerging Concern (CECs) in groundwater and surface water include synthetic sweeteners, pharmaceutical and personal care products, pesticides, stimulants, and per- and polyfluoroalkyl substances. A number of CECs have proven to be persistent, bioaccumulative, and toxic, raising significant environmental and health concerns (Environment and Climate Change Canada and Health Canada, 2023). CECs have been detected in urban surface waters and in sediment, and these compound mixtures become increasingly complex downstream. Stormwater could be an important source of CECs, either from agricultural or urban areas. Agricultural runoff has been reported to include several active use pesticides associated with crop applications in the region as well as veterinary medicines associated with animal husbandry. The human and ecological health consequences of environmental exposure to persistent CECs, particularly as complex mixtures, is not well understood.

Watercourse and Wetland Alteration

Ecologically important aspects of a river's flow (e.g., high flows, pulses, flooding, low flow, etc.) can be altered due to in-stream human activities such as drain cleanouts and vegetation removal, infilling, enclosures, channelization, wetland removal, and watercourse barriers. Drainage intensification (increase in tile and open drains and channelization) and lack of sufficient watercourse buffers contribute to accelerated streambank erosion and increased sediment loads entering watercourses, while certain tillage and cropping practices contribute to erosion and sediment delivery to watercourses.

Wetlands are an important part of the landscape of the watershed. Wetlands play a vital role in supporting biodiversity as they provide important habitat to an array of plants, birds, insects, amphibians, fish, and other animals, including many species at risk. Wetlands also provide watershed residents with a variety of essential ecosystem services such as clean and abundant water, flood and erosion mitigation, climate

moderation, recreational opportunities, and other important social, cultural, and spiritual benefits.

Approximately three-quarters of the wetlands once present in the UTRCA watershed are now gone. Currently, very small wetlands (those under two hectares) are disappearing from the landscape at a disproportionately faster rate than large wetlands. These small wetlands play an essential role in delivering ecosystem services. They increase ecological connectivity by acting as stepping-stones for species moving between larger wetlands, provide critical habitat for amphibians, water birds, and rare plants, and have an important role in landscape hydrology and biogeochemical cycling. Small wetlands are most likely to be lost on land used for urban development and resource extraction (Birch et al. 2022).

Severe Weather

Changes in weather patterns and weather extremes are significant environmental challenges, complicating the prediction of future risks and the long-term impacts of decisions made today. Changes in occurrence and extent of severe weather have had many impacts on the natural and built environment, the most notable of which are due to changes in precipitation, temperature, and wind patterns, resulting in rising temperatures, more frequent and intense precipitation events, and more extreme storm events.

Invasive Species, Pests, and Pathogens

Non-native invasive species, diseases, and pathogens are on the rise in the watershed due to the loss of vegetation and the increase in disturbances, as well as from introduction into the watershed from international trade and exchange of plant material. Invasive species, both terrestrial and aquatic, compete with and displace native species, impacting the diversity of native species and the health of local ecosystems. Ultimately, invasive species change the services and benefits that natural areas provide by affecting the intricate linkages that make ecosystems strong and resilient. The increased management (e.g., project planning and monitoring) and operational costs to control invasive species can result in major economic impacts on individual landowners and municipalities.

Table 9 provided below provides potential recommended actions to address the priority watershed challenges, issues, and risks.

Table 9. Recommended actions to address priority watershed challenges, issues and risks

Priority Watershed Challenges	Recommended actions to address challenges, issues, and risks
Land cover, land use change, and increased development pressure	Incorporate natural assets and green infrastructure into UTRCA's asset management plan and support municipalities and other partners as appropriate. Recognizing that the integration of activities such as restoring wetlands or upland forests, and other forms of green infrastructure can be used to manage river flooding and erosion in a way that is cost effective and provides benefits for both people and nature. Continued education and knowledge sharing through planning and permitting processes with member municipalities, industry, partners and the public to ensure roles and responsibilities related to natural hazards are understood. Consider a range of tools to mitigate urban development and loss of vegetation impacts on the natural environment including promotion of all forms of green infrastructure including tree planting, management of woodlots, establishment of prairies and wetlands, invasive species control, etc. Continue to communicate the impacts of development on the environment and alternative, environmentally friendly practices, through UTRCA outreach and education materials and programs and partnerships. Develop subwatershed plans to reflect the goals and objectives of the watershed strategy. Subwatershed plans involve the local community and are to be tailored to the needs to address local issues requiring higher level of details while supporting the effective delivery of programs related to the risk of natural hazards and ensuring cumulative influences and effects are understood. Work with Indigenous, federal, provincial, municipal, industrial and community partners to exchange knowledge and / or resources with regards to vegetation loss and increased development.
Watercourse and wetland alteration	Ensure mitigation and prevention measures for alterations to watercourses and wetlands are considered in watershed planning. Support aquatic health and water quality monitoring programs to understand impacts of alterations to watercourses and removal of

	wetlands and communicate this information. Mitigate impacts from alterations to watercourses and wetlands using nature-based solutions (e.g., naturalizing watercourses, creating or enhancing wetlands, improving connectivity between adjacent natural features, etc.) on UTRCA lands, municipal lands and with participating watershed landowners. Support aquatic health and water quality monitoring programs to understand impacts of alterations to watercourses and removal of wetlands and communicate this information. Work with Indigenous, federal, provincial, municipal, industrial and community partners to exchange knowledge and / or resources to address alterations to watercourses and wetlands.
Severe weather	Develop a Climate Change Adaptation Strategy to review potential impacts of a changing climate on watershed function and recommend changes to UTRCA programs and services to ensure they remain effective at protecting the watershed in the future. Improve understanding of variability in flows from severe weather and incorporate it into hydrologic, hydraulic, flood and erosion modelling and mapping. Floodplain mapping needs to be updated accordingly or, in some cases, assessed for the first time. Involve watershed residents in the implementation of actions that improve the resiliency of watershed natural resources to the impacts of severe weather. Investigate opportunities for the UTRCA to sell carbon credits to an industry that needs to purchase carbon credits, allowances or permits to legally emit a certain amount of carbon dioxide or other greenhouse gases (GHGs). Work with Indigenous, federal, provincial, municipal, industrial and community partners to exchange knowledge and / or resources with regards to severe weather.
Water quality (phosphorus and other contaminants)	Support aquatic health and water quality monitoring programs and communicate water quality information while continuing to develop education programs focused on water quality issues and solutions. Implement the recommendations of the Shared Waters Approach. Work with Indigenous, federal, provincial, municipal, industrial and community partners to exchange knowledge and / or resources with

	regards to water quality.
Invasive Species Management and Environmental Pests and Pathogens	Develop a business case to deliver an invasive species management program with partnering municipalities. Communicate the importance of invasive species control, the hazards associated with invasive species and their locations in the watershed. Develop a community science program to involve watershed residents in programs to identify, remove and monitor invasive species. Consider mitigation for increases in invasive species resulting from trails, recreation, management and operations on UTRCA owned and managed lands. Work with Indigenous, federal, provincial, municipal, industrial and community partners to exchange knowledge and / or resources to address invasive species.

4.1.4 Prioritization of Corporate Challenges, Issues, and Risks

Recommended actions that were ranked as **high priority** based on staff and public input to address corporate challenges, issues, or risks are described below.

Legislative / Regulatory Changes

The conservation authority must respond to provincial legislative and regulatory changes. These changes can occur with very little notice or consultation and can include changes to powers and financial tools conservation authorities use to oversee and protect watersheds, leading to increased risks to life and property. These changes can limit the financial and staffing resources that conservation authorities can devote to services that support but are outside of mandatory programs and services. Sometimes regulatory changes are accompanied by budget cuts, which can leave unexpected budget shortages that result in a restructuring of finances or delivery of programs.

Sustainable Funding

Conservation authority programs and services help all levels of government to address environmental challenges and priorities such as severe weather impacts, healthy Great Lakes, urbanization and growth, healthy people, and a sustainable economy. Many of these programs and activities require long-term funding to ensure quality programming and retention of staff expertise. Many of these activities are controlled by short-term contractual relationships that affect the ability to adequately carry out these activities.

Furthermore, there has been a shift from core funding to project funding, setting up a culture of competition for resources, as well as an audit and surveillance culture, that can challenge the ability to address the environmental challenges.

For example, the provincial allocation to support provincially mandated flood management responsibilities had not increased since the mid-1990s and was further reduced by half in 2019. The ability for conservation authorities to levy municipalities and charge fees is specified in regulations. Inflation has significantly increased the costs of programs and services. This situation presents a challenge to continuing project activities and sustaining project outcomes after the initial or primary grant (funding) expires.

Staff Retention, Expertise, and Capacity

For the long-term success of the organization and its employees, it is important to consider both how to support younger staff to develop their technical and interpersonal skills at the outset of their career, and how to continue to support staff to grow their skills as they move into leadership roles. Although budgets are limited, the UTRCA needs to identify and support professional development opportunities for staff, to the benefit of both the individuals and the organization. New staff may require additional training and time to understand their roles and responsibilities as well as those of other staff, and to become subject matter experts. This means resources for training and recruiting efforts have increased.

Sustainable Long-term Monitoring

Long-term historic datasets of climatological data, hydrological data, and water chemistry and nutrient data (surface water and groundwater) are needed throughout the watershed to establish subwatershed baseline conditions and to engage citizen scientists and the public in supporting science and conservation programs. Sustained funding and expertise for long-term and large-scale monitoring programs are needed to ensure that robust monitoring programs can be established and maintained to monitor environmental management actions and responses to them. Ecological monitoring and research support all three categories of programs and services.

Table 10 provides potential recommended actions to address the priority corporate challenges, issues, and risks.

Table 10. Recommended actions to address priority corporate challenges, issues and risks

Priority Corporate Challenges	Recommended Actions to address challenges, issues, and risks
Legislative/regulatory changes	Develop a UTRCA Communication Strategy and ensure the strategy shares project results to attract support from a range of stakeholders and donors. Communicating with the community is the key to having long term impacts from any project, as it gives the community some ownership of the project, which increases the likelihood that they will continue to support the work long term. Advocate for updated technical guidance to implement natural hazard regulations from the Province through UTRCA and Conservation Ontario communications.
Sustainable funding	Advocate to the province to increase funding for Section 39 program and increases to the Water and Erosion Control Infrastructure program. Adhere to the UTRCA Budgetary and Reserves Policies. Advocate to the Province for regulatory fines to be directed to the conservation authority responsible for enforcement. Develop a UTRCA Communication Strategy and ensure the strategy shares project results to attract support from a range of stakeholders and donors. Education and awareness create value for both the environment and the work of the Conservation Authority. Communicating with the community provides the community with a sense of ownership of the project, which increases the likelihood that they will continue to support the work in the long term.

Priority Corporate Challenges	Recommended Actions to address challenges, issues, and risks
Staff retention, expertise and capacity	Develop a Human Resources Strategy that ensures employment opportunities, compensation, safety, support and expectations are well communicated, equitable, and competitive compared to other similar organizations to achieve staff retention. The Strategy would also standardize and improve staff orientation, knowledge storage and retrieval procedures and practices, as well as explore opportunities to learn/share with other conservation authorities. Develop an Engagement Strategy that includes sensitivity training of Indigenous and colonial history to improve engagement and collaboration with, and leadership by, Indigenous peoples.
Sustainable long-term monitoring	Develop a comprehensive monitoring program that communicates results to increase awareness of watershed health trends and can be used to inform decision-making.

The remaining corporate challenges, issues or risks were not identified as high priority based on the input received. The UTRCA will continue to monitor all 16 watershed and corporate challenges, issues and risks and incorporate this information into the Strategic Plan.

5.0 Future Opportunities and Initiatives – Identify Actions and Costs

The UTRCA is undertaking a new Strategic Plan to identify priorities, goals, and key performance indicators. Once those have been determined, staff will develop operational plans with actions, timelines, and resources in 2025. Cost estimates and high-level work plans for the implementation of operational plans will be developed as part of the strategic planning exercise. The work undertaken as part of this Watershed Strategy in identifying programs and services, as well as challenges, issues, and risks, will be incorporated into the development of these operational plans. The Watershed Strategy will be updated accordingly following this exercise.

Aerial view of a rural area in Perth County.

6.0 Consultation, Implementation, and Review - Strategy Implementation Plan and Review

6.1 Consultation

The Watershed Strategy is an integrated process that needs to consider the perspectives, priorities, and needs of people and groups that could be impacted by the watershed plan. These groups include territorial, indigenous, federal, provincial, and municipal governments, as well as local organizations and non-governmental organizations.

Preliminary consultation for the Watershed Strategy with First Nations, federal and provincial government agencies, municipalities, and conservation authorities was conducted during the development of the Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity (Thames River Clearwater Revival 2019). As mentioned in Section 3.2.1.7, the Shared Waters Approach is a collaborative 20-year plan that provides broad and strategic guidance for water quality and quantity. The goals and recommendations in the Shared Waters Approach were incorporated into the Watershed Strategy.

The next step to be completed in 2025 will be to develop a draft, distinct nations-based approach for engaging with Indigenous peoples for all watershed initiatives, including the Watershed Strategy implementation. Engagement with Indigenous partners will be an on-going process.

Additional outreach with UTRCA staff and public interest holders focused on understanding the challenges, issues, and risks in the watershed that limit the effectiveness of the delivery of the mandatory programs and services, and the identification of gaps in programs and activities to address these issues and risks. This additional outreach included:

- Notifying watershed municipalities, Indigenous communities, and interest groups of the online public engagement website to generate effective community input,
- Initiating a corporate strategic planning exercise that will include municipal, public, Indigenous and interest group engagement and consultation, and
- Using social media and traditional news media to highlight the strategy and encourage feedback.

A consultation record will be developed to track all consultation activities.

6.2 Implementation

Once the operational plans with actions, timelines, and resources are developed by staff as part of the Strategic Plan in 2025, they will be implemented. These plans will be reviewed annually to ensure that:

- They meet the goals and key performance indicators of each priority action,
- They comply with the regulations made under the CA Act, and
- Challenges, issues, and / or risks that limit the effectiveness of mandatory programs and services are addressed.

6.3 Review

The Watershed Strategy will be reviewed to coincide with the UTRCA's Strategic Plan update, to ensure consistency with the Authority's direction and focus. Both documents allow the UTRCA to adapt its programs and priorities to evolving political and socio-economic matters and emerging environmental issues. Public engagement will occur during the periodic reviews, in a manner that aligns with the degree of revisions and meets any regulatory requirements.

Updates to the approved document that do not alter its overall intent (e.g., modifications that remain consistent with provincial legislation and requirements) will be presented to the Board of Directors and included in the public meeting notice. These amendments will not require public consultation. Public engagement will occur when significant changes are made to the Watershed Strategy.

Aerial view of the Thames River and Pittock Reservoir in north Woodstock.

References

Conservation Ontario. 2023. Guidance on the Conservation Authority Mandatory Watershed-based Resource Management Strategy.

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Ministry of the Environment and Ministry of Natural Resources. 1975. Water Management Study of the Thames River Basin. 131 pp.

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Province of Ontario. 2023c. Conservation Authorities Act: Ontario Regulation 687/21: Transition Plans and Agreements for Programs and Services under Section 21.1.2 of the Act.

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Thames-Sydenham and Region Source Protection Committee. 2011. Upper Thames River Source Protection Area. Assessment Report.

Thames-Sydenham and Region Source Protection Committee. 2015. Source Protection Plan.

Upper Thames River Conservation Authority. 1973. Twenty-Five Years of Conservation on the Upper Thames Watershed. 122 pp.

Upper Thames River Conservation Authority. 1998. The Thames River Watershed: A Background Study for Nomination under the Canadian Heritage Rivers System.

Upper Thames River Conservation Authority. 2023. Inventory of Programs and Services.

Upper Thames River Conservation Authority. 2022. Watershed Report Cards. ISBN 978-1-894329-17-0.

Upper Thames River Conservation Authority. 2024. Natural Hazard Infrastructure, Asset Management Plan.

Upper Thames River Conservation Authority. 2024. Upper Thames River Conservation Authority, Conservation Areas and Lands Strategy (2024-2033).

Appendix 1. Foundational Documents Supporting UTRCA Programs and Services

Contents

1.1 Historical

- 1947 – 1973 Twenty-five Years of Conservation on the Upper Thames Watershed
- 1948 Conservation in South central Ontario
- 1949 A Brief from Middlesex County to the Select Committee on Conservation Authorities
- 1951 Avon Valley Report – Forestry Section
- 1952 Touring Ontario with the Conservation Authorities
- 1952 – 1961 Our Valley: Report to the People of the Conservation Authorities in Ontario
- 1963 – 1994 UTRCA Annual Reports
- 1965 A Brief from UTRCA to the Select Committee on Conservation Authorities
- 1967 Report of the Select Committee on Conservation Authorities
- 1972 Report of the Conservation Authorities Task Force
- 1973 – 1983 Innovation in Conservation
- 1974. Conservation by the People: the History of the Conservation Movement in Ontario to 1970
- 19776 and 1977 Inventory of UTRCA Educational and Recreational Resources
- 1987 A Review of the Conservation Authorities Program
- 1993 Report by Conservation Authorities of Ontario: Restructuruing Resource Management in Ontario
- 1995 A watershed divided. One River – Two Conservation Authorities The Thames Valley and the Ontario Conservation Movement (1937 – 1947)
- 1998 The Thames River Watershed: A Background Study for Nomination Under the Canadian Heritage Rivers System
- 1998 Thames River Watershed: A Background Study for Nomination under the Canadian Heritage Rivers System
- 2000 The Thames Strategy: Managing the Thames as a Canadian Heritage River
- 2000 – 2012 Thames River, Ontario: Canadian Heritage Rivers System 10 Year Monitoring Report
- 2003 State of the Thames River Workshop Proceedings

1.2 Watershed Strategies and Plans

- 1952 Upper Thames Valley Conservation Report (Department of Planning and Development)

- 1975 Thames River Basin Water Management Study and Summary report (Ministry of the Environment)
- 1983 Upper Thames River Conservation Authority Interim Watershed Plan
- 2001 – 2003 Water Resources Information Project (WRIP)
- 2003 A Framework for Local Decision-making on a watershed Basis
- 2010 UTRCA Strategic Plan
- 2016 UTRCA Environmental Targets: Strategic Plan
- 2001, 2007, 2012, 2017, and 2022 Watershed Report Cards
- 2019 Thames River (Deshkan Ziibi) Shared Waters Approach to Water Quality and Quantity
- 2024 – 2027 UTRCA Business Plan.

1.3 Stewardship

- 1982 Strategy for Soil and Water Management in the Thames River Basin – A final report of the Thames River Implementation Committee (TRIC)
- 1984 Stratford – Avon River Environmental Management Project
- 1984 Clean Up Rural Beaches (CURB) Plan for the Fanshawe, Pittock and Wildwood Reservoirs
- 1985 Pittock Watershed: Manure Management and Water quality Sub-basin study

1.4 Land Management

- 1946 The Thames Valley (above the City of London) Report (Department of Planning and Development)
- 1952 Avon Valley Plan
- 1975 London Valley Lands Study
- 1982 and 1994 Conservation Area Master Plans for: Fanshawe, Wildwood and Pittock CAs
- 1997 Dorchester Swamp Management Strategy (UTRCA and Members of the Dorchester Swamp Local Advisory Group)
- 2004 Ellice Swamp & Gads Hill Swamp: Guiding Document
- 2005 Westminster Ponds / Pond Mills Environmentally Significant Area Master Plan Update (UTRCA and City of London)
- 2009 Sifton Bog Environmentally Significant Area Conservation Master Plan 2009 – 2019, A Living Museum (City of London and UTRCA)
- 2009 Property Assessment Project (GIS study of UTRCA lands)
- 2012 Pittock Area Land Management Study
- 2014 Glengowan Lands Assessment Project

- 2014 – 2024 Burgess and Standard Tube Parks Master Plan, 2014-2024 (UTRCA in partnership with City of Woodstock)
- 2018-2028 Cade Tract Management Plan

1.5 Erosion and Hydrology

- 1954 - 1959 Flood Control Brief(s) for the Upper Thames Watershed
- 1973 Thames River Flood Damage by Acres
- 1979 Glengown Environmental Assessment Report
- 1983 Background report to the Glengowan Environmental Assessment Report. Hydrological and Flood Damage study
- 1986, 1987, 1988, 1989 Report(s) on Structural Erosion Control Projects
- 2014 Botanical Inventory of the Thames River Dykes of London Ontario

1.6 Drinking Water Source Protection

All background documents, Assessment reports, plans, agendas and minutes are posted on-line for the Thames - Sydenham and Region Source Protection Region https://www.sourcewaterprotection.on.ca/#

1.7 Forest Management

- 1986 Plan of Management for the Upper Thames River Conservation Authority Forest Lands
- 2007-2017 Managed Forest Tax Incentive Program (MFTIP) Forest Management Plan for UTRCA lands

1.8 Science Reports

- 1957 Creel census and Lake Survey of Fanshawe Lake
- 1961 Fish Studies on Fanshawe lake
- 1982 Summary of Conditions During Spring Runoff Sampling at Rural Demonstration Sites
- 1996 A Bioassessment of Macroinvertebrate Communities at Selected Sites in the Upper Thames River Watershed
- 1997 UTRCA Benthic Water Quality Monitoring
- 1998 Benthic Water Quality Monitoring Program
- 2003 Conservation Ontario discussion Paper: recommendations for Monitoring Ontario’s Water Quality

- 2009 An evaluation of Water Resource Monitoring Efforts in Support of Agricultural Stewardship in Watersheds of the Great Lakes Basin
- 2015 Water Quality Assessment in the Thames River Watershed – Nutrient and Sediment Sources
- 2018 Nutrient reduction Project catalogue

1.9 Governance

- 1947 Order in Council establishing the Upper Thames River Conservation Authority
- 1993 Order in Council establishing current board membership
- Category 2 and 3 Municipal Agreements and quarterly progress reports
- Administrative By-Law (updated annually)
- UTRCA Board of Directors – Meeting Agendas and Minutes 1947-Present
- Board of Directors Subcommittees – Meeting Agenda and Minutes 1947-Present
- Province of Ontario. 2022. Conservation Authorities Act: Ontario Regulation 402/22: Budget and Apportionment.

1.10 Finance

All approved budgets and audited financial statements are posted online at https://thamesriver.on.ca/about-us/boardofdirectors/

1.11 Natural Heritage Plans

- 2007 Thames Valley Corridor Plan
- 2012 Huron Natural Heritage Study
- 2014 Middlesex Natural Heritage Study
- 2016 Oxford Natural Heritage Systems Study
- 2018 Perth Natural Heritage Systems Study

1.12 Communications

- 1999 Community Survey to assess awareness of and attitude towards UTRCA
- Thames River Current Newsletter

1.13 Culture

- 1988 The Thames River Watershed: A background Study for nomination under the Canadian Heritage Rivers System
- 2009 The Thames River Watershed: A Heritage Landscape Guide

Appendix 2. Watershed Strategy Online Survey

Watershed Strategy at engage.thamesriver.on.ca

Now it's Your Turn - Take the Short Survey!

Your feedback is important and will be considered as we write the final draft of the Watershed Strategy, which will be available online this fall.

Survey

01. How have you interacted with the UTRCA? Required

Select all program areas that apply to your previous and/or current interactions with the UTRCA.

Select all that apply
☐ Community Partnerships
☐ Community Education and Outreach
☐ Hazard Mapping, Flood Forecasting and Warning, and Low Water Response
☐ Flood and Erosion Control Infrastructure
☐ Environmental Planning and Regulations
☐ Drinking Water Source Protection
☐ Conservation Areas and Conservation Authority Lands
☐ Municipal Lands Management (includes London's Environmentally Significant Areas)
☐ Reforestation, Restoration, and Enhancement
☐ Agricultural Stewardship
☐ Environmental Monitoring and Research
☐ Not Applicable
☐ Other

02. Rank these issues in order of their impact on the effective delivery of UTRCA programs and services. Required

How to use: drag and drop items from the left section to the right section in the order of your choosing. The issue with the greatest impact should be at the top of your list.

Select one answer only	
☐	Alteration of watercourses and wetlands (e.g., vegetation removal, channelization, watercourse barriers)
☐	Climate variability and change
☐	Disconnection to nature (i.e., limited opportunities to connect with nature)
☐	Environmental injustice
☐	Invasive species and forest pests/pathogens
☐	Loss of natural vegetation cover (e.g., forests) and increased development pressure
☐	Overuse and overcrowding of UTRCA natural areas and parks
☐	Water quality - Phosphorus and harmful algal blooms
☐	Water quality - Other concerns (e.g., contaminants, temperature, salt pollution)

03. Please use this space to explain your ranking.

For instance, why will the issues at the top of your list have the greatest impact on our ability to deliver UTRCA programs and services?

Maximum of 250 characters

04. Did we miss any issues that could impact the effective delivery of our programs and services?

Please list any additional issues or barriers.

Maximum of 250 characters

05. How can we improve our programs and services?

Maximum of 400 characters

06. How can we help you learn more about the UTRCA and our program and services?

Maximum of 250 characters

07. Which describes you best? Required

Select one answer only
◯ General public
◯ Municipal councillor or staff
◯ UTRCA staff member
◯ UTRCA partner (e.g., community group, non-profit, First Nation, government agency, land lessee, etc.)

08. Win a 2025 Season Pass!

Provide your email address if you would like to be entered into a draw for a free 2025 Season Pass to Fanshawe, Wildwood, and Pittock Conservation Areas!

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Chris Tasker
Date: December 9, 2024
File Number: BoD-12-24-100
Agenda #: 6.3
Subject: Natural Hazards Infrastructure Asset Management Plan

Recommendation

That the Board approves the attached Natural Hazards Infrastructure Asset Management Plan (AMP) recognizing that staff will continue to review and improve this AMP as it is being implemented and as asset management practices evolve and processes mature within the organization.

Background

An update was provided to the board in September which outlined the overall asset management process and described how the Natural Hazards Infrastructure AMP is intended to not only satisfy the requirement under the Mandatory Programs and Services but build on the Asset Managment Policy Approved by the board in January 2024.

O. Reg. 686/21: Mandatory Program and Services Regulation requires that an authority provide programs and services that support the operation, maintenance, repair and decommissioning of the following types of infrastructure the authority owns or manages:

- 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.
- Any erosion control infrastructure.

These Programs or services shall include the development and implementation of an asset management plan on or before December 31, 2024. An authority may update the plan.

The development of this asset management plan has required significant staff time and effort, involving cross-departmental collaboration, to collect data, and perform a comprehensive analysis. Team members dedicated themselves to identifying and describing existing assets, assessing current conditions, lifecycle analysis and forecasting future financial requirements. This effort reflects a commitment to optimizing resources, improving efficiency, and ensuring the longevity of these critical assets.

This is a technical document that not only resulted in an AMP for these subclasses of assets but also familiarized staff with asset management concepts, demonstrating how these principles would align with the broader vision and mission of the organization, as well as aligning with the daily operations of the assets. It will provide staff with a framework that can be developed to ensure that assets are properly managed to meet operational, financial, and regulatory objectives.

The plan details the activities for inventory management, condition assessments, level of service, life cycle deliveries, risk management, and financial strategies. By adopting this comprehensive approach, the organization aims to improve decision-making, increase asset longevity, and achieve greater operational efficiency, all while adhering to regulatory requirements and industry best practices.

Discussion

This AMP was developed specifically for Natural Hazard Infrastructure, to satisfy the regulatory requirements related to that class. The described subclasses of assets included in this AMP serve flood control, flow augmentation or erosion control purposes.

Asset Management Plans are living documents that should be regularly reviewed and updated as additional asset data becomes available. This allows the UTRCA to continuously re-evaluate the state of infrastructure and identify how the organization's assets are managed, and adapting to evolving needs, ensuring continued success in asset management principles. The plan has provided fifteen recommendations for staff to strategically implement into their operations.

As asset maturity grows within the organization, it is expected that specific asset management plans will be produced for assets defined with the subclasses. This includes individual AMP larger assets such as flood control and flow augmentation dams, and groupings such as Dykes, Floodwalls, Channels and Erosion Structures. AMP's will also be developed for the smaller recreational dams as a sub-class of assets.

This is only the first of many asset management plans to be developed for the UTRCA, all of which will align with an overall Strategic AMP once developed. As such it will continue to evolve as the asset management program at the UTRCA matures. While the regulation does not require this plan to be approved by the board, in the absence of an over-arching Strategic AMP, it is recommended that the board approve this AMP.

Recommended by:

Mike Knox, Asset Management Specialist
Chris Tasker, Manager, Water and Information Management

Attachment: Natural Hazards Infrastructure Asset Management Plan

Upper Thames River Conservation Authority

Natural Hazard Infrastructure Asset Management Plan

December 2024

UPPER THAMES RIVER
CONSERVATION AUTHORITY

Preface

The Natural Hazard Infrastructure Asset Management Plan has been prepared by the Upper Thames River Conservation Authority (UTRCA) to meet the requirements to complete an asset management plan for flood control, flow augmentation, and erosion control infrastructure as set out under Section 5 of Ontario Regulation 686/21, Mandatory Programs and Services under the Conservation Authorities Act R.S.O. 1990, c. C.27.

The Watershed and Traditional Territory

The Upper Thames River watershed is within the traditional territory of the Attawandaron, Anishinaabeg, Haudenosaunee, and Lunaapeewak peoples, who have longstanding relationships to the land, water, and region of southwestern Ontario.

The local First Nation communities of this area include Chippewas of the Thames First Nation, Oneida Nation of the Thames, Munsee Delaware Nation, and Delaware Nation at Moraviantown. In the region, there are 11 First Nation communities and a growing Indigenous urban population.

We value the significant historical and contemporary contributions of local and regional First Nations and all of the Original peoples of Turtle Island (North America).

Executive Summary

This asset management plan outlines the approach of the Upper Thames River Conservation Authority (UTRCA) in managing, maintaining, and optimizing its natural hazard infrastructure to ensure long-term sustainability, operational efficiency, and value. This plan aims to align asset management practices with the organization's overall goals, ensuring that assets are effectively utilized and maintained throughout their lifecycle. Key objectives include improving asset reliability and optimizing performance, while enhancing service delivery to interest holders and adhering to regulatory requirements and industry best practices.

The Natural Hazards Infrastructure Asset Management Plan details the activities of inventory management, condition assessment, level of service, lifecycle maintenance strategies, and risk management programs. The plan categorizes the natural hazard infrastructure assets into four subclasses, encompassing 27 assets with a total of 171 components. The overall condition rating of these components is fair to good and the current level of service for these assets has been met.

Staff should continue to focus on areas where this plan has identified management strategies to ensure the assets perform as intended and do not require premature replacement. A key output of the lifecycle strategy is a long-term funding strategy that considers both operational costs and capital costs. Maintaining adequate reserves is an important part of this financial strategy.

Asset knowledge is a critical component of asset management. Not only is it important to maintain an accurate asset inventory and condition assessment but also to maintain a level of understanding of asset management principles within the staff tasked with maintaining the assets.

Asset management plans are living documents that should be regularly reviewed and updated as additional asset data becomes available. This approach will allow the UTRCA to continuously evaluate the state of its infrastructure and adapt to evolving needs, ensuring continued success in asset management.

Table 1 lists all the recommendations found within this asset management plan.

Table 1. List of Recommendations

Section	Recommendation
3. Asset Inventory and Description	• R3.1 - Implement software to track inventory, including systems and processes that support asset registries, thereby enhancing the reliability and accuracy of the data. • R3.2 - Engage consultant to provide current value assessment of the assets.
4. Asset Condition	• R4.1 – Develop a more qualitative assessment of the overall condition of all the natural hazard infrastructure assets, by further breaking down each asset into components, similar to the methodology applied to the dams. • R4.2 – Update the condition assessment for the dykes, which is based on older condition assessments, to ensure it is comparable to the other condition assessments in this asset management plan.
5. Level of Service	• R5.1 - Continue to define the level of service for each asset subclass. • R5.2 – Consider identifying service objectives that provide quantifiable metrics to measure the performance of the assets.
6. Lifecycle Delivery	• R6.1 - Continue to collect data and develop improved data management and analysis tools to better identify the life expectancy and rehabilitation and replacement costs of major components of the assets.
7. Risk Management	• R7.1 - Develop a UTRCA Risk Management Policy. • R7.2 - Conduct a risk tolerance analysis to assess the risk exposure associated with each asset, class, or subclass. • R7.3 - Develop a risk register that is monitored and updated at a pre-determined frequency and identify staff responsible for the risk register. • R7.4 - Manage risks, threats, and opportunities within regular planning scenarios.
8. Financial Strategy	• R8.1 - Extend planning and budgeting for infrastructure repair and maintenance projects to complete 10-year plans with improved estimates and inflationary factors built-in. Explore disassociating capital planning cycle from operating budget cycle to reduce cross-year difficulties in planning and budgeting. • R8.2 - Complete a comprehensive analysis of infrastructure risks to guide the operating and monitoring activities for each structure and to assist in setting reserve targets for subclasses of hazard infrastructure and/or individual structures. • R8.3 - Ensure a contingent amount is incorporated into costs and to levy requirements. • R8.4 - Establish long-term funding mechanisms with member municipalities for projected costs.
9. Asset Knowledge	• R9.1 - Many of the general concepts developed in this first AMP should be refined and incorporated into broader AMP and strategies as they are developed. This AMP may then be revised to refer to those more mature practices, once available. • R9.2 - Continue to develop UTRCA talent management processes to ensure the continuity of leadership, retain critical knowledge and skills, and effectively prepare for future talent needs, thereby safeguarding the organization's long-term success and sustainability.

Acronyms

AMP – Asset Management Plan

DSR - Dam Safety Review

EA – Environmental Assessment

EPP – Emergency Preparedness Plan

ERP – Emergency Response Plan

LOS – Level of Service

MNR – Ministry of Natural Resources

OP – Operational Plan

OMS – Operation, Maintenance and Surveillance

PSA – Public Safety Assessment

PSP – Public Safety Plan

UTRCA – Upper Thames River Conservation Authority

WECI – Water and Erosion Control Infrastructure Program

Table of Contents

1 Organizational Information

1.1 Introduction

The Upper Thames River Conservation Authority is one of 36 Conservation Authorities in the Province of Ontario, Canada. Our area of jurisdiction, the upper watershed of the Thames River, covers 3,430 square kilometres in southwestern Ontario and is home to approximately 593,700 people.

The 17 municipalities within the upper Thames watershed appoint representatives to the UTRCA's Board of Directors. The directors represent the local urban and rural communities, deciding policies and programs that will lead to a healthy watershed. The UTRCA's programs and services focus on five key areas:

- protecting people and property and supporting safe development,
- delivering landowner stewardship,
- providing natural spaces and recreational opportunities,
- making science-based decisions,
- empowering communities and youth.

1.2 UTRCA Strategic Plan

The UTRCA initiated work on an updated Strategic Plan in 2024. This strategic Plan will establish new Vision, Mission, Values and Guiding Principles to guide the work of the UTRCA for years to come. This section will be updated following the completion of the Strategic Plan.

1.3 Watershed-Based Resource Management Strategy

The Watershed Strategy is established to improve the efficiency and effectiveness of the mandatory programs and services of the UTRCA and, where relevant agreements allow, the municipal and other programs and services. This strategy has identified specific objectives, each with multiple program areas aimed to direct or achieve the organization's mission.

1.4 Conservation Areas and Lands Strategy

The UTRCA prepared the Conservation Areas and Lands Strategy to meet the requirements for a strategy for Conservation Authority owned or managed lands, as set out in the Conservation Authorities Act and Ontario Regulation 686/21 (Mandatory Programs and Services). The UTRCA also prepared two other mandatory documents tied to the Lands Strategy, namely a Land Inventory and a Land Acquisition and Disposition Policy.

The Lands Strategy provides the UTRCA's guiding principles, goals, and objectives for UTRCA owned or managed lands, which include conservation areas as well as other categories of lands. It builds on an internal Lands Strategy Implementation Plan (UTRCA 2024 draft). The Implementation Plan provides details on the UTRCA Land Inventory and will guide implementation for the next 10 years and contains recommendations at the property type level (e.g., rural conservation areas, wetlands, large conservation areas, etc.).

1.5 Interest Holder

Many community partners, groups, and interested parties have been identified as providing various levels of support to the assets outlined in this plan. Federal, provincial, municipal, and First Nation governments representing their residents are major partners affected by and contributing to the operations of the natural hazard infrastructure.

The term “stakeholder” is well defined within the frameworks of asset management. The UTRCA will use the term “interest holder” instead, unless referencing specific legislation or other relevant media.

1.6 Indigenous Engagement Strategy

The UTRCA is developing an Indigenous Engagement Strategy as a long-term cooperative and collaborative framework through which Indigenous Nations, Communities, and Peoples become active partners, where appropriate, in planning and implementing watershed management initiatives and future resource actives at appropriate milestones in the lifecycle of assets.

2 Asset Management Program

2.1 Asset Management Policy

The UTRCA's Board approved an Asset Management Policy in January 2024. The purpose of the policy is to establish an organization-wide asset management framework that directs and enables coordinated and sustainable asset management practices. It ensures that the UTRCA effectively manages its assets to support its mission.

This policy applies to all assets owned, leased, or otherwise controlled by the organization. Within the policy the UTRCA will manage assets to:

- Support UTRCA's strategic objectives;
- Be consistent with all applicable legislation, policies, regulations, memorandums of understanding and agreements;
- Continually improve its asset management approach, by driving innovation in the development of tools, practices, and solutions;
- Demonstrate transparency and accountability;
- Define and articulate desired service, maintenance and replacement levels and outcomes;
- Optimize the total lifecycle and the associated costs of assets;
- Identify and address risk associated with assets;
- Integrate financial, technical and business planning;
- Facilitate collaboration with interest holders and other interested parties, where appropriate;
- Seek opportunities to demonstrate and incorporate the benefits of green infrastructure or technologies such as increasing asset resilience to climate change;
- Maintain high quality levels of client and customer service.

2.2 Strategic Asset Management Plan

The Asset Management Policy will include the development of a Strategic Asset Management Plan that will guide the development, implementation, and maintenance of individual Asset Management Plans. Specifically, this plan will:

- Define UTRCA responsibilities related to asset management;
- Outline long term goals, processes and steps UTRCA will take to deliver optimized lifecycle costing and priority setting for assets;
- Establish a work plan and schedule for implementation;
- The preparation of and updates to asset management plans, performance of assets and work related to asset management.

The UTRCA will complete the Strategic Asset Management Plan, currently planned for development in 2025 to align asset management with the organizational priorities.

2.3 Corporate Asset Management Plan

The UTRCA is committed to maximizing the value and longevity of its assets through efficient, sustainable, and responsible management practices. Our approach is centered on optimizing asset performance, minimizing risks, and ensuring compliance with environmental, regulatory, and financial standards. We aim to align our asset management strategies with our organizational goals, enhancing operational efficiency while contributing to long-term sustainability. By prioritizing regular maintenance, strategic investments, and data-driven decision-making, we strive to deliver value to interest holders and uphold our commitment to responsible stewardship.

2.4 Natural Hazard Infrastructure – Asset Management Plan

Ontario Regulation 686/21, Mandatory Programs and Services under the Conservation Authorities Act R.S.O. 1990, c. C.27, directs Conservation Authorities to complete an asset management plans for flood control, flow augmentation, and erosion control infrastructure. With the development and implementation of this AMP, the UTRCA has met the requirements of section 5 of Ontario Regulation 686/21.

The UTRCA's Asset Management Plan for Natural Hazards Infrastructure encompasses activities defined in its Asset Management Policy and future Strategic Asset Management Plan, as they are executed through the organization's Asset Management Program. This integrated approach emphasizes a lifecycle perspective, enabling the UTRCA to effectively manage risks associated with natural hazards while delivering satisfactory levels of service. By adopting this comprehensive strategy, the UTRCA ensures that asset management practices are sustainable and environmentally responsible.

The AMP identifies the resource requirements needed to achieve the defined level of service and includes the following content:

- Asset inventory,
- Asset condition,
- Level of service,
- Lifecycle strategies, and
- Financial strategies.

This framework supports the maintenance and enhancement of critical infrastructure and promotes long-term resilience and public safety, aligning with the organization's goals and regulatory requirements. This AMP involves the efforts of staff throughout the organization who are involved in managing these assets, including planning, finance, and technical staff as well as staff that operates and maintains the infrastructure on a daily basis.

The UTRCA acknowledges that the objectives of this plan can be strategic, tactical, or operational. This plan is developed using an interactive process, applying the organization's best available information to develop a comprehensive long-term plan for the assets identified in the AMP. This leverages staff input as the driver of the asset management

program. The plan is intended to be a tool for staff to use during various decision-making processes, which is a main objective when developing asset management plans.

This approach ensures that the systems in place are coordinated to effectively and efficiently manage the assets through their specific lifecycle. The natural hazard infrastructure assets are complex and all parts of the organization must be aligned and working together to ensure optimal performance.

2.5 Asset Class Information

The Natural Hazards Infrastructure asset class is one of several classes within a hierarchy of assets identified as critical under the UTRCA's asset management program. As a result, they are included in the asset register, ensuring that they receive appropriate attention in terms of maintenance, monitoring, and financial planning.

2.6 Responsibility

The Manager, Water and Information Management, is responsible for the overall financial plans and controls for this class of assets as well as the development of the Natural Hazard Infrastructure AMP. The Engineering Coordinator, Water and Erosion Control Structures, oversees the operation and maintenance programs for this class of assets while implementing processes for the asset subclasses. This staff person is supported by the other program staff in carrying out the operation and maintenance activities.

3 Asset Inventory and Description

The Natural Hazard Infrastructure Asset Management Plan (AMP) categorizes assets into specific subclasses to align with the UTRCA's strategic priorities and comply with Ontario Regulation 686/21. This structured approach enhances asset management by ensuring that each subclass is documented, tracked, and managed effectively within the UTRCA asset register.

The four asset subclasses are:

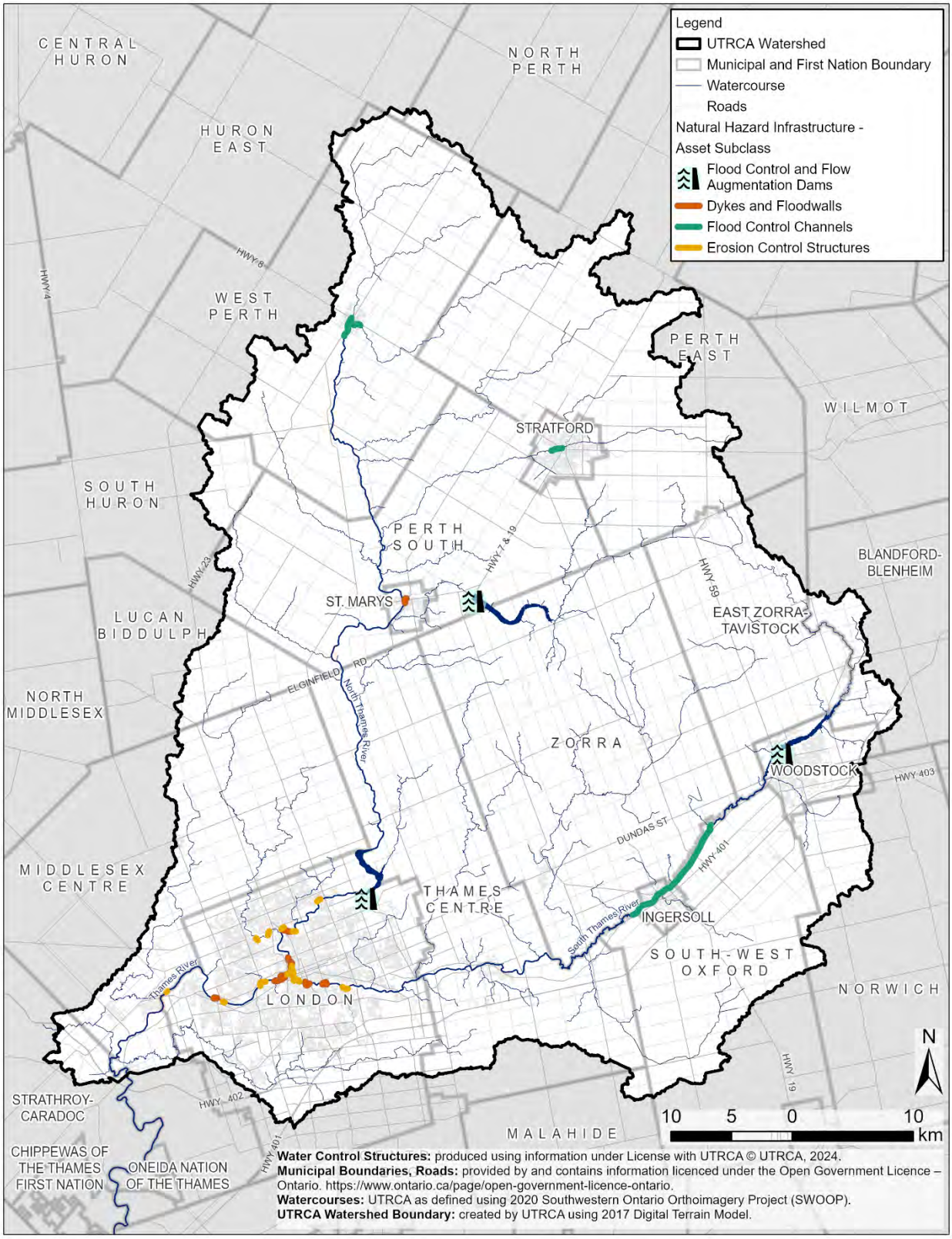
- Flood control and flow augmentation dams,
- Dykes and floodwalls,
- Flood control channels, and
- Erosion control structures.

Each of these subclasses will be supported by its own set of asset management plans as asset management planning matures, allowing for tailored strategies that address the unique requirements and challenges of each type of asset in the subclass. Completing an AMP framework for the natural hazard infrastructure facilitates compliance with regulatory requirements and improves operational efficiency, risk management, and long-term sustainability of the infrastructure in the short term while more detailed plans are developed.

This detailed roadmap enables more sophisticated and diversified asset registers and will ensure greater accuracy in calculating life-cycle costs and effectively benchmarking levels of service for each asset or group of assets as data is collected and monitored over time. It also improves the UTRCA's ability to manage risks associated with natural hazards, ultimately contributing to the safety and resilience of the communities served.

Figure 1 shows the location of the UTRCA’s natural hazard infrastructure, identified by asset subclass. The descriptions and tables that follow provide information on each type of asset.

Figure 1. UTRCA Natural Hazard Infrastructure



3.1 Dams

Table 2 provides an overview of the three flood control and flow augmentation dams in the UTRCA's natural hazard infrastructure inventory.

Table 2. Flood Control and Flow Augmentation Dams: Location and Description

Asset Name	Location	Asset Description
Fanshawe Dam	1424 Clarke Road, London	Flood control dam Gravity type earth filled structure 6 sluice gates
Pittock Dam	601 Rivercrest Drive, Woodstock	Flood control and flow augmentation dam Concrete and earth filled structure 5 sluice gates
Wildwood Dam	2613 Highway 7, Township of Perth South	Flood control and flow augmentation dam Concrete and earth filled structure 4 sluice gates

3.1.1 Fanshawe Dam

The primary purpose of Fanshawe Dam and Reservoir is to assist in flood control efforts to reduce flood damage in the City of London. The structure is located on the North Thames River on the upstream, northeast edge of London. Additional details on this asset may be found in the Fanshawe Dam Operational Plan.

3.1.2 Flow Augmentation and Flood Control Dams

The UTRCA stores water in Wildwood (upstream and east of St. Marys on Trout Creek) and Pittock (in the north part of Woodstock on the South branch of the Thames River) reservoirs for flow augmentation. The Wildwood and Pittock dams are operated in a coordinated manner with the reservoir at Fanshawe (London). This optimizes flood control and low flow augmentation efforts for the Thames River watershed in general.

Seasonal fluctuations in reservoir storage levels at Wildwood and Pittock provide year-round flood control capability to protect downstream communities without endangering the safe operation of the dam, and benefit water quality downstream during dry summer conditions when water is released from the reservoir to augment downstream flows. Additional details on Wildwood and Pittock dams may be found in their respective Operational Plans.

3.2 Dykes and Floodwalls

Table 3 provides an overview of the seven dykes and one floodwall in the UTRCA's natural hazard infrastructure inventory.

Table 3. Dykes and Floodwalls: Location and Description

Asset Name	Location	Asset Description
Ada-Jacqueline Dyke (London)	Starting on Jacqueline Street, just west of Terrace Street, ending just west of Ada Street.	Earthen embankment 557m in length
Broughdale Dyke (London)	Starting at the north end of Meadowdown Drive and ending at Richmond Street Bridge.	Earthen embankment 804 m in length
Byron Dyke (London)	From east end of Halls Mill Place to west end of Old Bridge Road.	Earthen embankment 324 m in length
Coves Dyke (London)	Starting from the corner of Greenside Avenue and Greenway Pollution Control Plant entry, spanning eastwards.	Earthen embankment 350 m in length with backflow gate to restrict Thames levels from backing up into the coves
Nelson-Clarence Dyke (London)	East end at Wellington Street Bridge, ending at Hill Street.	Earthen embankment 618 m in length
Riverview-Evergreen Dyke (London)	East end is located about 60 metres west of Obrien Street, ending about 26 m north of the CN railway tracks.	Earthen embankment 600 m in length
St Marys Floodwall (St. Marys)	East end is located at Wellington Street Bridge, ending just north of Elgin Street East.	Gabion and armour stone-faced dyke, concrete floodwall over clay cutoff wall and earthen embankment 500 m in length
West London Dyke (London)	Starting just north of Oxford Street West, spanning along the river, ending within Cavendish Park.	Recently reconstructed concrete block-faced reinforced earth floodwall and historical concrete-faced earthen embankments and earthen embankments, total length approximately 2300 m

Dykes and floodwalls work in conjunction with other flood control assets to reduce the likelihood of damage from flood events, thus reducing flood risk within the flood damage centres. The dykes and floodwalls help to protect people and properties in areas that would otherwise be at significant risk of flooding. While these dykes and floodwalls significantly reduce the risk of flooding in these areas, they do not prevent flooding, nor remove the area from the regulatory floodplain,

Although ownership of the dykes remains with the municipality, the UTRCA has historically been involved with maintenance of the structures and has undertaken major studies and

rehabilitation primarily from 1983 onwards. The St Marys Floodwall was a project of the UTRCA and continues to be operated and maintained by the UTRCA.

Additional details on the dykes and floodwall may be found in the Operational Plan for the Flood Control Dykes and Floodwall.

3.3 Flood Control Channels

Table 4 provides an overview of the three flood control channels in the UTRCA's natural hazard infrastructure inventory.

Table 4. Flood Control Channels: Location and Description

Asset Name	Location	Asset Description
Ingersoll Channel	South Thames River from Beachville downstream (west) through Ingersoll	Straightened trapezoidal channel
Stratford Channel	Avon River from R Thomas Orr Dam downstream (west) past Huron and St. Vincent Street to John Street	Armour stone walled channel and stop log weir
Mitchell Channel	Channelized sections of North Thames River from Mitchell Dam downstream past Whirl Creek, and the lower reaches of Whirl Creek to its confluence with the North Thames	Channel improvements including gabion walled channel section

3.3.1 Ingersoll Channel

The first major undertaking of the UTRCA was construction of the Ingersoll Channel. The plan was to transform a natural meandering section of the South Thames River into a straighter, shorter reach. It involved a new channel from the bridge in Beachville to a point 2 miles downstream of Ingersoll. The constructed channel is 32,725 feet long compared to the 39,640 foot length of the natural river. The shorter, relatively straight channel with higher banks allows larger flood flows to be passed through the channel before overflowing its banks, reducing flood risks.

The channel was built to provide immediate flood protection to the Town of Ingersoll and the industrial plants and quarries located in the river valley upstream of Ingersoll. The channel was designed to carry 8,000 cubic feet/second (cfs) and safely pass 11,750 cfs peak flow, but the Thames Street bridge capacity limited discharge to 8,650 cfs, which is significantly less than the estimated peak flow during the 1937 Flood. It was felt, however, that the channel would provide sufficient flood protection for most years and, together with two planned flood control reservoirs, should provide capacity for the hypothetical flood referred to in the "1952 Upper Thames Valley Conservation Report" (Department of Planning and Development, 1952), which was one third more than the 1937 Flood on the South branch. Ultimately, only one of the two proposed reservoirs was constructed. While the Ingersoll

Channel significantly reduces flood risk to more frequent flood events, the current regulatory flood does overtop the banks resulting in a floodplain in which development is regulated.

The Ingersoll Channel was constructed from 1949-1950 at a cost of approximately $1,000,000. The province funded 75% of the project and the UTRCA share of 25% was levied to municipalities, to be paid by the companies operating the limestone quarries along the river. The UTRCA share was split between the municipalities in the following amounts: North Oxford 75.25%, West Oxford 17.25%, Ingersoll 5%. With the formation of the regional government for Oxford County, levy for the local share of operation and maintenance of the channel shifted to the County.

3.3.2 Mitchell Channel Improvements

The “1952 Upper Thames Valley Conservation Report” (Department of Planning and Development, 1952) assessed flooding challenges in Mitchell and concluded that a dam with adequate storage to reduce flood risk was not feasible upstream. It considered both channel improvements and diverting Whirl Creek around the town and recommended the first option.

Construction of the channel and a new recreational dam were undertaken as part of the same project, which also included the purchase and removal of two buildings subject to regular flooding. The channels along the North Thames River and Whirl Creek in Mitchell significantly reduce the frequency and severity of flooding in Mitchell.

3.3.3 Stratford Channel Improvements

As early as 1950, Stratford asked that steps be taken to alleviate flooding along the Avon River. The Stratford Flood Control Channel was constructed as part of a larger project, which included replacing the dam upstream (east) of Huron Street with a recreational dam, now called the R Thomas Orr Dam, and dredging the reservoir known locally as Lake Victoria.

The channel construction required a new bridge at St Vincent Street although the funding for the new bridge was not part of the project costs. The cost of the bridge was shared between the Ontario Department of Highways and the City of Stratford. Senior government also declined to support the costs of channel construction downstream of John Street, resulting in the downstream extent of the channel ending at John Street. A five-foot-high stop log weir was included in the construction of the channel and provides backwater to the base of the dam.

The project was funded 75% by the province. The UTRCA’s 25% share was funded by Stratford, as the local beneficiary of the project. The channel reduces flood risk to the homes along its length.

3.4 Erosion Control Structures

Table 5 provides an overview of the 13 erosion control (EC) structures in the UTRCA's natural hazard infrastructure inventory.

Table 5. Erosion Control Structures: Location and Description

Asset Name	Location	Asset Description
Becker Street EC (London)	West bank of the south branch of the Thames River at the Forks	often considered as part of the Ridout Street EC
Benson Crescent EC (London)	North Thames River, downstream (west) of Highbury St, along Benson Cres.	Rip-rap (325 m)
Corley Drive EC (London)	North bank of a tributary to the North Thames River along Corley Dr in the Medway Valley Heritage Forest	Rip-rap, vegetated earth (410 m)
Greenway Park EC (London)	South bank of the Thames River upstream of Wonderland Rd N in Greenway Park	Rip-rap, vegetated earth (770 m)
Harris Park EC (London)	East bank extending from the Forks along the North Thames River from York St to Blackfriars	Gabion baskets, vegetated earth, rip-rap (975 m) Currently being rehabilitated by City of London
Mount St Joseph EC (London)	North bank of the North Thames River immediately east of Richmond St adjacent to Mount St Joseph	Gabions (120 m)
North Bank (London)	North bank of the Thames River west of the Forks, between Dundas St and Wharncliffe Rd	Gabions, vegetated earth (475 m) To be replaced as part of ongoing West London Dyke reconstruction
Pond Mills EC (London)	South bank of the south branch of the Thames River, upstream (east) of Egerton Rd along Pond Mills Rd	Grout filled mattress, concrete rip-rap (483 m)
Ridout Street EC (London)	- South bank of the South Thames River from 200 m upstream of Ridout St to about 100 m downstream of Ridout St. - West bank of the South Thames River from south of Horton St to the railway tracks south of York St, and again along the west bank from York St to the Forks (often referred to as Becker St EC). - North bank, becoming east bank of the South Thames River from Ridout St to York St.	Vegetated earth, armour stone, gabion, concrete revetment, sheet pile wall (1365 m). Parts may have been affected by recent construction associated with Ridout St bridge replacement.
River Road EC (Middlesex Centre)	North bank of the Thames River upstream of Oxford St W on Old River Road	Rip-rap (275m) Currently being reconstructed by Middlesex Centre

Asset Name	Location	Asset Description
Springbank EC (London)	South bank of the Thames River in Springbank Park downstream of Springbank Dam, upstream of Boler Rd	Grout filled mattress and rip-rap Currently being naturalized and part of Springbank Dam decommissioned by City of London
St Peter's EC (London)	South bank of the North Thames River north of Epworth Ave and Waterloo St	Gabion basket groins, vegetated earth (200m)
Wychwood EC (London)	West bank of a tributary of the North Thames River from Wychwood Place within the Medway Valley Heritage Forest	Rip-rap, vegetated earth (180m)

Although ownership of the erosion control structures remains with the municipality, UTRCA has been involved with the maintenance of the structures and has undertaken major studies and rehabilitation. Some of the structures were built by the UTRCA with funding from the province and the City. Maintenance of these structures is undertaken in a cooperative manner as guided by a memorandum of understanding (2017). This agreement allows the UTRCA to apply for operation and maintenance funding from the Ministry of Natural Resources.

Table 6 provides general information about the assets within this asset management plan.

3.5 Recommendations

- R3.1 - Implement software to track inventory, including systems and processes that support asset registries, thereby enhancing the reliability and accuracy of the data.
- R3.2 - Engage a consultant to provide current value assessment of the assets.

Table 6. Asset Ownership, Age, and Cost

Asset Category	Asset Name	Ownership	In-Service Date	Age in Years	Predicted Life in Years	Original Cost
Flood Control and Flow Augmentation Dams	Fanshawe Dam	UTRCA	1953	71	100	$4,496,179
	Pittock Dam	UTRCA	1967	57	100	$4,130,000
	Wildwood Dam	UTRCA	1965	59	100	$3,118,949
Dykes and Floodwalls	Ada-Jacqueline Dyke	City of London	Repair work in 1985	N/A*	TBD**	$170,000***
	Broughdale Dyke	City of London	After 1937 1991 (Ross Park)	34-85	TBD	$150,000***
	Byron Dyke	City of London	N/A	N/A	TBD	N/A
	Coves Dyke	City of London	1937	87	TBD	N/A
	Nelson-Clarence Dyke	City of London	1937	87	TBD	N/A
	Riverview Dyke	City of London	1937	87	TBD	N/A
	West London Dyke	City of London	1881-2028	varies	75	>$30,000,000
	St. Marys Floodwall	UTRCA	1990	34	TBD	$800,000
Flood Control Channels	Ingersoll	UTRCA	1950	74	50	$1,000,000***
	Mitchell	UTRCA	1959-1964	60	TBD	$327,000
	Stratford	UTRCA	1967	57	TBD	$883,000 (dam, channel and dredging lake)
Erosion Control Structures	Becker Street	City of London	2001	23	25-50	$350,000
	Benson Crescent	City of London	1979	45	25-50	$275,000***
	Corley Drive	City of London	1975	49	25-50	$150,000
	Greenway Park	City of London	N/A	N/A	25-50	N/A
	Harris Park	City of London	2024	0	TBD	N/A

Asset Category	Asset Name	Ownership	In-Service Date	Age in Years	Predicted Life in Years	Original Cost
	Mount St. Joseph	City of London	1978	46	25-50	$100,000***
	North Bank	City of London	N/A	N/A	25-50	N/A
	Pond Mills	City of London	1980***	44	25-50	$1,000,000***
	Ridout Street	City of London	1975	49	25-50	$100,000***
	River Road	Municipality of Middlesex Centre	1980	44	25-50	$70,000***
	Springbank	City of London	1975***	49	End of Life	N/A
	St. Peter's	City of London	1971	63	25-50	$100,000***
	Wychwood	City of London	1978	46	25-50	$75,000***

*N/A – Information not available

**TBD – to be determined

***Best estimation from current data

4 Asset Condition

A condition assessment is an essential evaluation tool that provides an objective snapshot of an asset's physical state at a specific moment. By systematically tracking relevant information, the UTRCA can evaluate the asset’s overall condition and compliance with regulatory standards and target financial costs for lifecycle investment decisions. This information enables:

- Operational efficiency,
- Risk management,
- Performance optimization,
- Regulatory compliance,
- Resource allocation, and
- Investment decisions.

Ultimately, a condition assessment serves as a foundational element for decision-making regarding operations and maintenance activities, helping to preserve the asset's value and extend its useful life. By recognizing potential issues early, solutions may be implemented to mitigate and prevent further risk. This proactive approach ensures that necessary work is prioritized, and resources are allocated effectively, promoting sustainability and efficiency.

The condition assessment typically encompasses a review to identify deficiencies and areas of non-compliance that may affect the asset's performance and longevity. These findings inform the asset management plan, which outlines current conditions and necessary steps to address issues.

The condition assessment can take input from multiple sources, each tailored to specific needs and serving different purposes, for insight into asset health. Some forms include visual inspections, non-destructive testing, and performance testing. It is essential for staff to be well-versed in these techniques and to determine which is most effective for coordinating operation and maintenance plans.

4.1 Natural Hazard Infrastructure Condition Assessment

UTRCA has gathered current information available on the assets and assigned condition ratings. This assessment is based on various factors, including third-party dam safety reviews, other engineering reports and assessments, internal inspections, maintenance, and staff's working knowledge of the assets. The methodology used aligns with the Canadian Infrastructure Report Card. The condition report is only valid at the specific point in time when the assessment was completed.

All the components of each asset are assessed on a 5-point scale and rated from Very Good (5) to Very Poor (1) (Table 7).

Tables 8 - 11 provide the condition assessment for the assets within each subclass. The tables indicate the number of components assessed and the condition rating of those

components. The average score for all the components determines the overall rating for that asset.

Table 12 provides a summary of the total number of components within each subclass and their overall rating. Overall, the UTRCA's natural hazard infrastructure assets are in fair to good condition (3.6). The assets are at varying stages of their lifecycle. Failure to maintain a state of good repair is likely to lead to increased reactive maintenance, inefficient replacements, and reduction in service levels.

Table 7. Condition Rating

Condition	Scale	Description
Very Good	5	The infrastructure in the system or network is generally in very good condition, typically new or recently rehabilitated. A few elements show general signs of deterioration that require attention.
Good	4	The infrastructure in the system or network is in good condition; some elements show general signs of deterioration that require attention. A few elements exhibit significant deficiencies.
Fair	3	The infrastructure in the system or networks is in fair condition; it shows general signs of deterioration and requires attention. Some elements exhibit significant deficiencies.
Poor	2	The infrastructure in the system or network is in poor condition and mostly below standard, with many elements approaching the end of their service life. A large portion of the system exhibits significant deterioration.
Very Poor	1	The infrastructure in the system or network is in unacceptable condition with widespread signs of advanced deterioration. Many components in the system exhibit signs of imminent failure, which is affecting service.
No Current Rating	-	There is no current rating available, as the condition of the asset has not yet been assessed or assigned a rating.

Table 8. Flood Control and Flow Augmentation Dams Condition Assessment

Asset	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Fanshawe Dam		1	11	39		51 components rated	3.7
Pittock Dam		1	6	33		40 components rated	3.8
Wildwood Dam		2	18	25		45 components rated	3.5
Total		**4**	**35**	**97**		**136 components rated**	**3.7**

Table 9. Dykes and Floodwalls Condition Assessment

Asset	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Ada-Jacqueline Dyke			1	2		3 components rated	3.6
Broughdale Dyke (Ross Park to Raymond Ave)				1		1 component rated Constructed in 1991	4
Broughdale Dyke (Raymond Ave to Meadowdown Dr)		1				1 component rated	2
Byron Dyke			1			1 component rated	3
Coves Dyke				1		1 component rated Dyke in well maintained parkland and flap gates recently rehabilitated	4
Nelson-Clarence Dyke		1	1			2 components rated	2.5
Riverview Dyke		1	1			2 components rated	2.5
St Marys Floodwall				1		1 component rated	4
West London Dyke (Oxford to Forks)					1	1 component rated Recently reconstructed	5
West London Dyke (Forks to Cavendish)		1				1 component rated Reconstruction being designed	2
Total	**-**	**4**	**4**	**5**	**1**	**14 components rated**	**3.2**

Table 10. Flood Control Channels Condition Assessment

Asset	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Ingersoll Channel				1		1 component rated	4
Mitchell Channel			1			1 component rated Original gabion basket at or beyond service life	3
Stratford Channel				1		1 component rated	4
Total	**-**	**-**	**1**	**2**	**-**	**3 components rated**	**3.7**

Table 11. Erosion Control Structures Condition Assessment

Asset	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Becker Street EC			1			1 component rated	3
Benson Crescent EC				1		1 component rated	4
Corley Drive EC				1		1 component rated	4
Greenway Park EC				1		1 component rated	4
Harris Park EC		1				1 component rated	2
Mount St Joseph EC				1		1 component rated	4
North Bank EC				1		1 component rated	4
Pond Mills EC				1		1 component rated	
Ridout Street EC		2	2	3		7 components rated Parts may be affected by recent replacement of Ridout St bridge	3.7
River Road EC				1		1 component rated	4
Springbank EC						Asset currently being naturalized	
St Peter's EC				1		1 component rated	4

Asset	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Wychwood EC			1			1 component rated	3
Total	**-**	**3**	**4**	**11**	**-**	**18 components rated**	**3.4**

Table 12. Natural Hazard Infrastructure Condition Summary

Subclass	Number of Components					Comments	Overall Rating
	Very Poor (1)	Poor (2)	Fair (3)	Good (4)	Very Good (5)		
Dams		4	35	97		136 components rated	3.7
Dykes and Floodwalls		4	4	5	1	14 components rated	3.3
Flood Control Channels			1	2		3 components rated	3.7
Erosion Control		3	4	11		18 components rated	3.4
Total Number of Components Rated	**-**	**11**	**44**	**115**	**1**	**171 Components**	
Total Points	**-**	**22**	**132**	**460**	**5**	**619 Points**	**3.6**

Further analysis of condition assessments can be found within safety reviews, management plans, surveys, and reports. By regularly updating asset condition assessments, the UTRCA can enhance decision-making processes and maximize the return on investment for these assets.

Table 13 lists the information sources utilized for the condition assessment.

Table 13. Asset Condition Assessment Information Sources

Asset Subclass	Internal	External
Flood Control and Flow Augmentation Dams	• Routine inspections • Maintenance programs	• Engineering inspections • Dam safety review • Structural design report • Generic inspections and investigations (underwater, concrete, geotechnical, etc.)
Dykes and Floodwalls	• Routine inspections • Maintenance programs • Vegetation management plan	• Dyke monitoring program • Conditions update study • Geotechnical review • Stability alternatives assessment • Municipal class environmental assessment • Recent design/construction
Flood Control Channels	• Routine inspections • Maintenance programs • Reports • Vegetation management plan	• Slope stability study • Geomorphology study
Erosion Control Structures	• Routine Inspection	• Engineering inspections • Generic inspections and investigations

4.2 Recommendations

- R4.1 – Develop a more qualitative assessment of the overall condition of all the natural hazard infrastructure assets, by further breaking down each asset into components, similar to the methodology applied to the dams.
- R4.2 – Update the condition assessment for the dykes, which is based on older condition assessments, to ensure it is comparable to the other condition assessments in this asset management plan.

5 Level of Service

In the context of asset management, levels of service (LOS) set out the specific outputs or objectives that an organisation intends its assets to deliver, thus providing a basis for asset management decisions. The LOS links asset performance to the UTRCA's strategic plans, financial plans, and other relevant policies and reports.

The assets in this AMP have the primary purpose to protect people and property from natural hazards, namely flooding, erosion and low flow. The following performance measures are considered in Table 14 to assess the LOS of each asset subclass.

5.1 Capacity / Demand

- Flood Risk Reduction - This performance measure considers whether the asset subclass reduces flood risk by comparing against its design capacity. It assesses whether the asset is still able to provide a similar or better capacity. Assets, within a subclass, were built with different design capacities. Some may have been limited by physical constraints while others may have been limited by financial constraints at the time of construction. Each is assessed against the same design capacity of the asset and not a comparison against other assets.
  As an example, the St Marys Floodwall was intended to protect up to a 100-year return, while the West London Dyke is being rebuilt to protect to a 250-year design storm. As long as both assets continue to deliver the intended design capacity, they will both meet this level of service criterion. Where the asset class is not intended to meet a purpose, it is indicated as not applicable(N/A), e.g., flood risk reduction is not applicable to erosion control assets.
- Erosion Risk Reduction – This performance measure is met if the asset is reducing the erosion risk to the structures or features which the asset was designed to protect. This purpose only applies to erosion control assets.
- Flow Augmentation - The asset meets this performance measure if it is still able to provide the designed level of flow augmentation under normal conditions. This purpose only applies to specific dams; for all other asset classes this would be not applicable (N/A).
- Recreation – This performance measure relates to whether the asset provides for recreational amenities. This purpose applies specifically to dams and some of the other flood control assets. Campground, day use, boating, hiking, and fishing are examples of recreational uses. Some of the dykes have recreational pathways built into the asset.

5.2 Compliance

- This performance measure indicates whether an asset complies with legislative requirements, guidelines and standards and meets worker and public safety expectations.

- Also included in this component is whether the service level meets the intentions of agreements where the asset is operated/maintained under agreement with municipalities. Generally, this measure is met through working cooperatively with municipalities to maintain flood or erosion control structures, thus ensuring they serve their intended purposes.

5.3 Service Standard

- To meet its intended level of service, natural hazard infrastructure must be maintained to an appropriate condition. Poor and very poor condition, as defined in Table 7, are nearing or reaching their service life and showing significant deterioration, imminent failure, or affecting service. This performance measure is assessed by the approximate percent of assets in the subclass with a condition rated fair or better.
- In this asset management plan, the target is fair or better.

Table 14. Level of Service Performance Measures

Subclass	Flood Risk Reduction	Erosion Risk Reduction	Flow Augmen-tation	Recreation	Meeting Compliance	Component Condition (% Fair or Better)	Currently meets Expected LOS
Flood Control and Flow Augmentation Dams	Yes	N/A*	Yes	Yes	Yes	97%	Yes
Dykes and Floodwalls	Yes	N/A	N/A	Yes, for certain assets, N/A for others.	N/A	71%	Yes
Flood Control Channels	Yes	N/A	N/A	N/A	N/A	100%	Yes
Erosion Control Structures	N/A	Yes	N/A	N/A	N/A	83%	Yes

*N/A - not applicable

Based on the evaluation criteria above, these assets meet their expected level of service. The assessment indicates that the assets are performing within the anticipated standards, and their functionality aligns with the required specifications.

5.4 Recommendations

- R5.1 - Continue to define the level of service for each asset subclass.
- R5.2 – Consider identifying service objectives that provide quantifiable metrics to measure the performance of the assets.

6 Lifecycle Delivery

6.1 Lifecycle Management Strategy

The lifecycle strategy UTRCA applies is dynamic and not fixed. Specific activities are chosen, reviewed, and adjusted based on evolving legislation, industry standards, reports, information, and recommendations from staff and/or consultants. To ensure that the UTRCA assets are performing as expected, it is important to establish a lifecycle management strategy to proactively manage asset deterioration. The asset lifecycle should be managed in a cost-effective manner by addressing key aspects of the asset's performance.

6.2 Decision Making Process

The lifecycle management strategy identifies the recommended decision-making processes or activities required to achieve the identified levels of service. They also provide data for accurate condition assessments, and feed into financial strategies.

Within the context of this asset management plan, lifecycle activities are actions that can be undertaken to ensure an asset is performing at an appropriate level and/or to extend its service life. These actions can be carried out through various activities but do not provide physical repairs to the assets, but rather are actions; reports or studies which provide data or information that are used to extend the life of the asset. This includes regular inspections, condition assessments and reports which identify deficiencies and recommended maintenance activities. These elements assist the organization to determine when it is more cost effective to repair/rehabilitate or replace an asset over time. This plan has identified and defined them within the lifecycle management strategies.

6.3 Supporting Information

6.3.1 Dam Safety Review

Completed by third parties, a dam safety review (DSR) is a comprehensive evaluation conducted to assess the safety and integrity of a dam structure. This review is carried out by qualified engineers with expertise in dam safety and design. The review is aimed at identifying potential risks or issues that could compromise the dam's performance and safety.

The primary purpose of a DSR is to ensure that the dam is structurally sound, that it operates safely under both normal and extreme conditions, and that it complies with relevant safety standards and regulations. A DSR typically includes a detailed assessment of the dam's design, construction, maintenance, operational and surveillance practices. The UTRCA completes DSR on a 10-year cycle as industry best practices. The Canadian Dam Association publish best management practices to guide how DSR's are completed. Ministry of Natural Resources through the Lakes and Rivers Improvement Act regulate dam construction in Ontario and publish technical bulletins and best management practices which guide dam safety reviews.

While DSR are specific to dams, the concept may apply in varying degrees to dykes. Embankment dams share many attributes with earthen dykes although there are some significant differences. Although there are no standards for dyke safety review in Ontario there are standards in other jurisdictions. The Canadian Dam Association is considering whether they may be positioned to develop Canadian standards for design and safety of dykes and levees.

An important aspect of DSRs is to identify capital project recommendations.

6.3.2 Scheduled Inspections

Scheduled internal and external inspections are a critical component of this AMP and play a key role in maintaining the performance, safety, and longevity of our assets. These inspections are carried out on a regular basis to identify any potential issues, ensure compliance with relevant regulations, and proactively address maintenance needs before they escalate into costly failures. These inspections assess the current physical condition and service life of the assets or components of the asset to provide baseline data, benchmarks, and metrics. This information enables staff to efficiently plan and manage the assets cost-effectively.

When available the Operations, Maintenance and Surveillance Manual outline when inspections are required and the staff who can perform the specific inspection. For dams external inspections are undertaken every 10 years, between DSRs so that an external inspection is undertaken approximately every 5 years. For the infrastructure not subject to DSR, external inspections should be carried out at least every 10 years or as indicated in OMS manuals where available.

Internal inspections occur more frequently and are considered as part of the routine operations. For high-risk infrastructures such as large dams and some dykes annual or more frequent inspections may be identified in OMS manuals. Inspection following significant events, such as floods or seismic activity may be advisable.

6.3.3 Operational Plans

Operational Plans (OP) outline the key operational objectives and goals for the assets. They provide some background information, describe the structure’s operations, and support and summarize the Operation, Maintenance, and Surveillance manuals. These OPs were created to satisfy a legislated requirement through a document which provided an appropriate level of information to be made available to the public.

6.3.4 Public Safety Assessment (PSA) and Public Safety Plans (PSP)

The Ministry of Natural Resources (MNR) has provided public safety guidelines for dam owners. These guidelines describe how a Public Safety Assessment (PSA) should outline hazards created by dam operations and design. A Public Safety Plan (PSP) is developed when a PSA identifies hazards. The PSA should be reviewed and updated every 10 years if a PSP is not required.

The PSP identifies measures to mitigate exposure to identified hazards. Fencing, safety equipment, and signs are examples of common measures identified in a PSP. The plan also includes the inspection and maintenance of measures identified, and the PSP review period.

More information on PSA and PSP can be found within the provincial guidelines.

6.3.5 Other Studies, Investigations, and Assessments

The inspections and assessments identified above are undertaken routinely and may identify work required. It is often necessary to undertake additional assessments, investigations, or studies to identify appropriate work or action needed. While the specific subject or frequency of these assessments will depend on the issue being considered, it is an important aspect of the lifecycle management strategy.

6.3.6 Vegetation Management Plans

An important aspect of managing flood and erosion control infrastructure is the management of vegetation that may grow on the structures. While the vegetation may be important to the local ecology, it is often detrimental to the stability, function, and service life of the structure. Vegetation may restrict the capacity of a flood control channel, affect the stability of a dyke or dam, or impact the effectiveness of erosion control structures. Developing and implementing an effective vegetation management plan is an important aspect of the lifecycle management of this infrastructure.

6.4 Studies Cost Assessment

As discussed, various studies and assessments are required to be completed on a regular basis to ensure that assets perform as desired. The following tables identify the studies, assessments, and reports as well as their typical cost and frequency. This data should be incorporated in the total annual lifecycle costs as an integral part of the asset lifecycle. Tables 15-18 outline the studies and reports for each subclass of asset.

Table 15. Recurring Studies and Reports: Dams

Recurring Studies and Reports	Frequency	Average Cost	Comment
Dam Safety Reviews (DSR)	10 year	$160,000	Often requires additional assessments not included in costs of DSR
Public Safety Assessment/ Public Safety Plan	10 year	$7000	Cost assumes completed internally Frequency determined in the Public Safety Plan if completed
External Engineering Inspection	10 year	$20,000	Completed between DSRs Cost per structure but assumes all assets in subclass inspected together
Other Studies, Investigations and Assessments	As required	Varies	Dependent on the nature of the issue being considered

Recurring Studies and Reports	Frequency	Average Cost	Comment
Vegetation Management Plan	As required	$3500	Assumes prepared internally
Emergency Preparedness Plan/ Emergency Response Plan	10 year	$5000	Reviewed as part of DSR Assumes each plan prepared internally
Operations, Maintenance, and Surveillance Manuals	10 year	$5000	Assumes prepared internally Requires ongoing maintenance

Table 16. Recurring Studies and Reports: Dykes and Floodwalls

Recurring Studies and Reports	Frequency	Average Cost	Comments
Public Safety Assessment/ Public Safety Plan	10 years	$5,000	Assumes prepared internally
External Engineering Inspection	10 years	$10,000	Cost per structure but assumes all assets in subclass inspected together
Stability Assessment	As required	varies	Highly dependent on the structure
Vegetation Management Plan	As required	$4000	Prepared internally
Emergency Preparedness Plan/ Emergency Response Plan	10 Year	$5000	Assumes prepared internally
Operations, Maintenance, and Surveillance Manuals	10 Year	$5000	Assumes prepared internally

Table 17. Recurring Studies and Reports: Flood Control Channels

Recurring Studies and Reports	Frequency	Average Cost	Comments
External Engineering Inspection	10 year	$10000	Cost per structure but assumes multiple assets in subclass inspected together
Vegetation Management Plan	As required	$5000	Assumes prepared internally
Fluvial Geomorphology Assessment	As required	$35000	

Table 18. Recurring Studies and Reports: Erosion Control Structures

Recurring Studies and Reports	Frequency	Average Cost	Comments
External Engineering Inspection	10 year	$15000	Cost is per structure, but assumes all assets in subclass inspected together
Geotechnical Stability	As required	varies	Dependent on structure

Recurring Studies and Reports	Frequency	Average Cost	Comments
Assessment			
Fluvial Geomorphology Assessment	As required	$30000	Dependent on structure
Vegetation Management Plan	As required	$4000	Assumes repaired internally

6.5 Operation and Maintenance Programs

Asset management subjects are all-inclusive, while the maintenance management framework is meant to “zoom in” on activities. The operations and maintenance activities incorporate information from specific reviews, surveys, or reports and crucial to the dam safety management system and are identified below.

6.5.1 Operation, Maintenance, and Surveillance Manuals

Operation, Maintenance, and Surveillance (OMS) manuals (Table 19) are an important part of the infrastructure safety management system. These manuals provide staff with the information to support the safe operation of the asset. They define the principal equipment, standard operations and maintenance, and special operations (risk fault/failures) programs. OMS manuals also identify routine and preventative maintenance and often refer to more detailed manuals for specific equipment.

OMS manuals describe staff roles and responsibilities and detail how to perform specific operations and maintenance activities. They are intended to aid the operator who may be called upon for operations during normal conditions as well as emergencies scenarios.

OMS manuals are produced on a regular, 10-year schedule, but are reviewed annually and updated as equipment or procedures change. The Engineering Coordinator, Water and Erosion Control Structures, is responsible for the regular review and update of the OMS manuals and directing the work of the staff responsible for undertaking the maintenance activities. Operation of the flood control and flow augmentation dams is directed by the Senior Water Resources Engineer.

Agencies and associations such as the Ministry of Natural Resources and the Canadian Dam Association provide recommendations and guidance on the information to be included in an OMS manual. These guidelines comprise a large component of the operations and maintenance program.

By identifying potential problems early on and documenting information, staff can take measures to address and prevent failures or inflated costs during operations and maintenance activities within the lifecycle. This information offers valuable data for the efficient and effective management of assets throughout their lifecycle, enabling staff to monitor the financial information being entered into the asset.

Table 19. Operation, Maintenance and Surveillance Manuals

Asset	Description	Operation, Maintenance, and Surveillance Manual
Flood Control and Flow Augmentation Dams	Fanshawe Dam	Yes
	Wildwood Dam	Yes
	Pittock Dam	Yes
Dykes and Floodwalls	Ada-Jacqueline Dyke	Yes
	Broughdale Dyke	Yes
	Byron Dyke	Yes
	Coves Dyke	Yes
	Nelson-Clarence Dyke	Yes
	Riverview Dyke	Yes
	St Marys Floodwall	Yes
	West London Dyke	Yes
Flood Control Channels	Ingersoll Channel	No
	Stratford Channel	No
	Mitchell Channel	No
Erosion Control Structures	All assets	Not required

6.5.2 Standard Operating Procedure

A Standard Operating Procedure (SOP) is a set of written instructions that outlines how to perform specific tasks or processes safely, consistently, and effectively. SOPs ensure uniformity, enhance quality control, and promote compliance with regulatory requirements. These procedures need to be reviewed annually and updated accordingly.

The SOP should be easily accessible to staff and stored in a location familiar to those who need to access to the document. This responsibility falls to the Engineering Coordinator, Water and Erosion Control Structures. The procedures are required to be reviewed and approved from the UTRCA Health and Safety Committee. A full list of procedures can be found in the Operations, Maintenance, and Surveillance Manual.

6.5.3 Equipment Operating Procedure

An Equipment Operating Procedure (EOP) is a documented set of steps and guidelines for the proper operation, maintenance, and safety of specific equipment. It ensures consistent usage, reduces risks, and promotes efficiency by outlining best practices and compliance with relevant standards. Further information may be found within the owner's or operator's manual.

The EOP should be easily accessible to staff and stored in a location familiar to those who need to access to the document. This responsibility falls to the Engineering Coordinator, Water and Erosion Control Structures. These procedures are to be reviewed annually and updated accordingly. The procedures are required to be reviewed and approved from the

UTRCA Health and Safety Committee. A full list of procedures can be found in the Operations, Maintenance, and Surveillance Manual.

6.5.4 Operation, Maintenance and Surveillance Records

Documentation is an important aspect of undertaking operation and maintenance activities. This serves as a record of what was undertaken, when it was undertaken, and any observations that require further action.

Many of the structures in this class of assets have surveillance requirements. Some of this may involve instrumentation, which is polled and collected automatically, while others require manual collection of data or reading of instrumentation, and documentation of results. It is important that those involved in the surveillance program understand the importance and implications of the surveillance activities and the information collected, and any actions required as a result of the observations.

6.6 Maintenance Program Summary and Tactics

The implementation of this asset management plan within the organization leverages the existing strength of a skilled technical workforce. This team focuses on developing processes and templates, which are then applied to the relevant asset classes. This approach ensures a smooth integration of the maintenance programs or tactics while making use of the expertise already in place.

Additional operation and maintenance programs can be found within the specific OMS for each asset. There is no “one size fits all” approach and the correct approach is dependent on the knowledge status or awareness of maintenance strategies that currently exist. Whether or not a component is replaced or rehabilitated is dependent on if it has a well-defined lifecycle that ends at the last lifecycle activity identified. Staff have identified several methodologies that are currently being implemented. These methods are dependent on the complexities of the component in correlation to level or service, risk (criticality), lifecycle, etc. They include:

- Run-to-failure maintenance (reactive),
- Preventative maintenance (scheduled),
- Predictive maintenance, and
- Risk-based inspection.

Standardized scheduled maintenance forms are available for specific assets. These forms consist of a general information sheet along with detailed condition data for each element or component of the asset. All completed inspection forms should be completed and stored electronically and made accessible for review and analysis by staff.

Staff should continue to perform and monitor maintenance programs to better predict when maintenance should be performed. By monitoring asset condition through data analysis, the UTRCA can schedule maintenance proactively, reducing downtime and costs.

6.7 Lifecycle

6.7.1 Procurement and Purchasing

Procurement guidelines have been prepared to adhere to the UTRCA's Board-approved Policy on Procurement. This ensures that the UTRCA engages in acquisition practices for which it receives best value, and that procurement is appropriately authorized. This financial framework, along with the inclusion of asset management, encourages accountability and transparency in the use of all funds while protecting the best interest of the organization.

The UTRCA uses Purchasing Regulations (September 2018) to align with the Policy on Procurement and implement best practices to receive best value for the organization.

6.7.2 Rehabilitate or Replace

The UTRCA uses analyses and inspections to identify both rehabilitation and replacement methods to manage the subclasses of assets. Whether a component is rehabilitated or replaced can depend on whether it has a well-defined lifecycle that ends at the last lifecycle activity identified. Rehabilitation typically involves repairing or upgrading an existing asset to extend its life and improve performance, while replacement entails removing and substituting an asset with a new one when the existing one is beyond repair or inefficient. Many factors are included into the decision-making process, including the asset's condition, cost-effectiveness, and long-term performance goals.

6.7.3 Decommissioning

Funding constraints can significantly impact the long-term management of the natural hazard infrastructure, potentially leading to the consideration of decommissioning as an operational strategy. Decommissioning may also be considered when the asset or component no longer meets its intended purpose. Decommissioning involves safely dismantling or shutting down an asset. While it can be a more cost-effective solution in certain situations, this decision requires careful evaluation of the environmental, social, and economic impacts, as well as the long-term costs of removing or repurposing the infrastructure. Part of this assessment may include the costs of alternative service delivery mechanisms. For many of the assets in this class, the assessment is undertaken through an Environmental Assessment (EA), often the Conservation Ontario Class EA. For many of the assets in this class, decommissioning may not be a feasible alternative without alternative service delivery mechanisms, as the service provided by the asset is still needed.

6.8 Service Agreements

Service agreements define the terms and conditions under which external service providers or internal teams deliver maintenance, repair, and other asset-related services. These agreements ensure that all parties involved understand their roles, responsibilities, performance expectations, and legal obligations in managing the organization's assets. Well-structured service agreements help to optimize asset performance, minimize downtime, and maintain cost-effectiveness.

Service agreements are crucial for ensuring that assets are maintained and operated at optimal levels throughout their lifecycle. They define expectations, service levels, and responsibilities, providing a clear framework for collaboration between internal teams and external service providers. By establishing transparent and well-structured service agreements, the organization can better manage its assets, reduce risks, control costs, and ultimately extend the value of the asset investments.

6.9 Climate Change

Climate change may have an impact on the ability of the natural hazard infrastructure to meet its expected level of service within the asset's lifecycle. It may also place additional operational pressures on the operation and maintenance of the infrastructure. In making infrastructure management decisions it is important to consider the likely range of climate change impacts on the infrastructure, its operation, and maintenance.

6.10 Recommendations

- R6.1 - Continue to collect data and develop improved data management and analysis tools to better identify the life expectancy and rehabilitation and replacement costs of major components of the assets.

7 Risk Management

Effective risk management is fundamental to the successful implementation of the AMP. The goal is to ensure that potential risks associated with the performance, condition, and lifecycle of assets are identified, assessed, and mitigated to minimize their impact on service delivery, operational efficiency, and financial performance.

Risk management must be a robust, continuous process that involves the following key steps:

- Communication and consultation,
- Establishing a context,
- Identify the risks,
- Analyse the risks,
- Evaluates the risks,
- Risk mitigation and treatment, and
- Monitor and review.

Through these steps, the UTRCA will ensure that asset management decisions are made with a full understanding of potential risks, thus safeguarding the long-term sustainability and performance of its assets.

In order to effectively manage risk related to asset management, it is critical to consider both the likelihood (probability) of the risk and the consequences of the risk. While these terms suggest a quantitative assessment, a more qualitative assessment is likely appropriate for many of the risks to be managed.

A more formal risk management program should be developed as part of ongoing asset management planning. This program should define criteria that align with the organization's risk tolerance. As the UTRCA further enhances its risk management program, it must build a robust risk analysis through monitoring, reviews, and audits as required. This will assist staff in assessing the risk related to the asset, given their environment and resources. This tool will not make decisions for staff but will aid in developing a risk profile and identifying risk management implications.

7.1 Emergency Preparedness Plan and Emergency Response Plan

Emergency Preparedness Plans (EPPs) and Emergency Response Plans (ERPs) are being developed for the three large dams as part of UTRCA’s dam safety program. The Dam Safety Review (DSR) provides an assessment of the incremental consequences of failure of a dam under both normal and flood conditions. For the large flood control and flow augmentation dams, which store significant volumes of water in their reservoirs, the consequences of failure are significant. This is reflected not only in the design standards that they are assessed against but also in the operation and maintenance programs.

Recent municipal emergency planning exercises have focused on emergencies related to Fanshawe Dam. Woodstock is also considering emergencies related to Pittock Dam. While these joint exercises focus on emergencies related to dam failure, UTRCA's ERPs need to consider broader types of emergency situations.

While the DSR provides a mechanism to develop EPPs for the large dams, the risk associated with the larger dykes and floodwalls also warrants this type of emergency planning.

Previous EPPs relied heavily on the UTRCA's Flood Contingency Plan to communicate dam emergencies through municipal Flood Coordinators and engage municipal Emergency Plans. Contemporary EPPs will focus more on dam-specific emergencies.

7.2 Recommendations

- R7.1 - Develop a UTRCA Risk Management Policy.
- R7.2 - Conduct a risk tolerance analysis to assess the risk exposure associated with each asset, class, or subclass.
- R7.3 - Develop a risk register that is monitored and updated at a pre-determined frequency and identify staff responsible for the risk register.
- R7.4 - Manage risks, threats, and opportunities within regular planning scenarios.

8 Financial Strategy

The financial strategy outlines how the UTRCA will fund the lifecycle costs of its natural hazard infrastructure assets. It is crucial that the UTRCA's financial resources are allocated efficiently to meet its strategic goals. It is expected that the natural hazard infrastructure asset class will consume the majority of UTRCA capital resources; therefore, the financial strategy for this class is a critical component of overall UTRCA financial planning.

Member municipalities are responsible for 100% of operating and capital costs for natural hazard infrastructure assets. This fact is the basis of the financial strategy for ensuring the lifecycle costs of this class of assets is maintained.

The strategy will be reviewed and reassessed regularly but particularly during the annual budgeting process. It will be a two-pronged strategy that covers the expected annual operating costs for regular monitoring, preventative, and routine maintenance, and allowance for surveys and reports to be conducted on their recurring cycle, as well as any capital projects that have been identified as priorities.

8.1 Annual Infrastructure Operations Planning and Budgeting

Throughout the year, UTRCA staff review engineering studies, dam safety reviews, and condition assessments to identify outstanding deficiencies in infrastructure assets that need to be corrected through regular operations and maintenance work plans. Those reviews are incorporated in annual operating budgets for each structure to ensure adequate operating resources are available to this class, as a group.

Budgets for this kind of activity aim to outline the necessary maintenance and operating costs for a given period, typically a fiscal year, ensuring this alignment between the UTRCA's objectives and its financial resources. The primary benefitting municipality is levied annually for hazard infrastructure operating costs which are not otherwise allotted from Ministry of Natural Resources (MNR) grants.

Annual operating costs are made stable, as best as possible, to provide some predictability to the municipality that is funding those costs.

8.2 Capital Project Spending Plans

As UTRCA staff review engineering studies, DSRs, and condition assessments, they also identify necessary capital projects. Capital projects are then prioritized and assigned to specific years in a 10-year capital forecast. Project prioritization is based on a combination of recommended repair timelines, procurement limitations, workload, concurrent project conflicts, and funding availability while simultaneously trying to smooth demands on member municipalities.

The Water and Erosion Control Infrastructure (WECI) program is an MNR capital cost share program with municipalities which provides matched funding to conservation authorities for major maintenance or related studies of water or erosion control structures that are either

owned or maintained by CAs. This program contributes to public safety and natural hazard prevention at the local watershed level and meets the MNR financial accountability of capital expenses and efficiency of grants.

The WECI funding program is designed to ensure that major maintenance projects are undertaken on aging infrastructure. Most of the identified assets outlined in the AMP require major maintenance projects or studies. These could be in the form of system renewal projects, strategic capital projects, or mandated projects identified from third party safety reviews or reports. The existence of the WECI program and, from time-to-time, federal grant programs, allows for reduced levies to member municipalities for capital projects. WECI project funding is limited, and funding demand is competitive. The UTRCA assets in this class have a wide range of priority within the scoring of WECI structures and, as such, not all projects are successful in receiving grants under the program, which leaves the municipal partners responsible for the entire project cost.

In 2024, MNR called for applications for two years of WECI funding concurrently. This allowed for the application of phased projects and early approval of the second year projects so that planning can begin earlier than with the previous annual application and approval cycle. It is not clear whether this application cycle will continue but, if it does, it allows some degree of advanced notice of levies for capital project spending to be provided to member municipalities. Levies for capital spending will be made for costs which are not funded by WECI. Levies will generally be made in full, in the year of the project completion, or the following year.

8.3 Long-term Funding

The Natural Hazard Infrastructure Asset Management Plan should naturally translate into long-term financial planning. The development of a comprehensive financial plan will allow the UTRCA to identify the resources required for sustainable asset management, based on the existing condition of assets in this class and desired level of service.

There are several additional considerations which merit review with respect to this class of assets:

- Timelines are longer than other classes of assets: The lifecycle for this class of assets is generally longer compared to other asset classes. These assets are more commonly rehabilitated rather than replaced so that a targeted end-of-life is not actually envisioned. Instead of undergoing complete replacement, dams often receive upgrades, repairs, and ongoing maintenance to extend their service life. This approach requires a long-term budgeting perspective, as rehabilitation projects can span many years, making the process more gradual. In contrast, other asset components may be replaced or upgraded more frequently, resulting in shorter timelines for their lifecycle management.

- Total spent in dollars are larger than other classes of spending: The costs of the operation and major maintenance of natural hazard infrastructure can involve complex financial strategies and more often require larger financial commitments than other UTRCA asset classes. Asset component replacement values and major maintenance capital projects are difficult to estimate, making total capital spending costs subject to extreme variation. For this reason, the funding mechanisms UTRCA relies on for capital project spending must be flexible.
- UTRCA, or member municipalities, may need to borrow to fund major maintenance: For extremely expensive capital projects in this class of infrastructure, municipal funding constraints may require a staged funding approach. This, in turn, may require borrowing or effective deferral of funding, while costs are incurred. This practice increases total repair costs and must be understood to be a last resort to ensure the service level is maintained on this critical infrastructure. This kind of funding constraint may also lead to other operational strategies such as decommissioning, if it is deemed possible.

A further implication of extremely expensive capital projects is the likelihood that funding constraints impact the prioritization of projects in terms of timing. While this cannot always be accommodated due to the criticality of this class and high levels of expected service, it is sometimes possible.

8.4 Reserves

In asset management planning, reserves are typically created to ensure stability, manage risks, or address unforeseen circumstances. They act as a financial safety net and are important in ensuring stable operations without sudden unexpected disruptions to the organization.

The availability of reserves for natural hazard infrastructure must allow for both specific future needs and unexpected events. Reserves, therefore, must serve as a pool of value for contingencies and as a source of levy smoothing.

The UTRCA's recently approved Budgeting and Reserves Policies, together with specific asset management plans for individual structures, will help define required levels of reserves for future spending needs and risk management for this critical class of asset.

Table 20 forecasts long-term operational costs over the next two years. The average annual operational budget requirement is $1,895,173 and represents the amount per year that the UTRCA should allocate towards funding operations and maintenance programs. Table 21 forecasts the long-term capital requirements.

Table 20. Operational Cost Data

Asset	Total Operating Costs (8 year average 2017-2024)	Capital Amortization (8 year average)	Total Operating Costs (3 year average 2022-2024)	Forecast 2025	Forecast 2026
Fanshawe Dam	$569,155	$308,766	$672,059	$842,486	$851,457
Pittock Dam	217,678	61,037	253,277	346,129	339,760
Wildwood Dam	227,512	55,992	351,971	447,509	461,848
London Dykes	38,885	0	49,871	80,002	82,585
St. Marys Floodwall	37,014	30,884	55,419	105,884	101,365
Ingersoll Channel	28,085	0	71,713	36,629	37,955
Mitchell Channel	0	0	0	0	0
Stratford Channel	$6,822	$0	5,019	26,883	27,338
Erosion Control Structures (all)			$1,200	1,219	1,297
Total				**$1,886,741**	**$1,903,605**

Table 21. Capital Cost Data

	Actual Capital Spending	Forecast Capital Spending Totals			
Asset	**2020-2024**	**2025**	**2026**	**2027-2028 (Questica)**	**2023-2043 (20 year plan at June 2023**
Fanshawe Dam	$1,224,359	$55,000	$345,000	$3,740,000	$14,200,000
Pittock Dam	608,683	0	1,280,540	770,000	3,872,500
Wildwood Dam	473,131	925,000	320,000	530,000	4,268,000
London Dykes	8,568,531	10,307,500	3,919,500	1,190,000	25,714,411
St. Marys Floodwall	25,735	0	50,000	55,000	725,000
Ingersoll Channel	0	0	140,000	0	375,000
Mitchell Channel	0	0	0	0	0
Stratford Channel	21,612	0	60,000	280,000	620,500
Erosion Control Structures	0	0	0	0	2,520,000
Total	**$10,912,051**	**$11,287,500**	**$6,115,040**	**$6,565,000**	**$52,295,411**

8.5 Recommendations

- R8.1 - Extend planning and budgeting for infrastructure repair and maintenance projects to complete 10-year plans with improved estimates and inflationary factors built-in. Explore disassociating capital planning cycle from operating budget cycle to reduce cross-year difficulties in planning and budgeting.
- R8.2 - Complete a comprehensive analysis of infrastructure risks to guide the operating and monitoring activities for each structure and to assist in setting reserve targets for subclasses of hazard infrastructure and/or individual structures.
- R8.3 - Ensure a contingent amount is incorporated into costs and to levy requirements.
- R8.4 - Establish long-term funding mechanisms with member municipalities for projected costs.

9 Asset Knowledge Management

The UTRCA has a multitude of systems for data gathering, information analysis and reporting that support the Asset Management Program; these systems and associated data and are outlined in the sections below. A defined management program will combine strategy, capability and culture for a proactive program.

9.1 Asset Information Management

Information Management (IM) plays a critical role in modern asset management, providing the systems, tools, and infrastructure necessary to efficiently manage assets throughout their lifecycle. For these assets, Information Technology (IT) can further enhance the IM by facilitating efficient collection, analysis, and utilization of data, enabling organizations to monitor asset performance, optimize maintenance strategies, enhance decision-making, and ensure compliance with regulations. IT is the backbone of asset management, facilitating real-time communication, data integration, and automation across various asset management functions. This includes:

- Asset data management (centralized asset data repositories, data integration),
- Asset management software,
- Automation and process optimization (preventative maintenance and IT integration, automation workflows),
- Real-time monitoring and reporting,
- Interoperability,
- Security and data integrity,
- Scalability and futureproofing (scalable infrastructure, emerging technologies).

IT enables the efficient management of assets, enhances decision-making through data analysis, and supports the automation of key asset management functions. By leveraging IT tools, staff can streamline data collection, analysis, and reporting. From data management and predictive maintenance to system integration and real-time monitoring, IT is the backbone of modern asset management practices, enabling organizations to extract maximum value from their assets while minimizing risks and costs.

9.2 Health and Safety

The UTRCA Health and Safety Program adheres to the Ontario Occupational Health and Safety Act, RSO 1990 (OHSA) and other applicable regulations and legislation. The Health and Safety Policy outlines the UTRCA’s commitment to creating a healthy and safe workplace that is free of harassment, workplace violence, discrimination and accessible to staff.

The UTRCA’s health and safety procedures, in relation to this class of assets, is included in this plan. Participation in the WSIB Health and Safety Excellence Program demonstrates the organization’s consistency in the developing policies and procedures. A successful health and safety program is built on three key components:

- Leadership's commitment to a safe working environment which sets the tone for the program and demonstrates accountability;
- Worker participation in the program ensuring that the Internal Responsibility System is understood, practiced and valued; and
- The design and implementation of a hazard management program in which identifies, assesses and controls hazards and mitigating risk.

Worker health and safety and asset performance are interconnected. When a safety culture is properly developed and introduced in the organization, employee productivity increases, operations and maintenance costs decrease, and employees maintain a safe and efficient work.

9.3 Talent Management

Within asset management, Human Resources play a critical role in attracting, hiring, training, engaging, and developing staff to maintain organizational assets. The UTRCA outlines the goals and actions required to achieve the organization's vision and mandate. Human Resources (HR) initiatives align with this mission. Through various policies, procedures, and programs; human resources contribute to the sustainable growth and effectiveness of the organization. This includes a comprehensive onboarding, orientation, and training process to ensure staff understands their roles and responsibilities and ensures they have the tools and resources required to be successful. Furthermore, talent management strategies focus on staff development using mentorship, learning opportunities, and skills training. This strategy builds our capacity and competency in asset management and other skill sets so UTRCA has a strong succession plan in place when people transition out of the organization.

9.4 Department Interoperability

In the context of asset management, achieving interoperability means that the organization's asset management system can integrate with all systems, allowing for streamlined data sharing, coordinated decision-making, and optimized asset performance. This is crucial for improving operational efficiency, minimizing downtime, reducing errors, and ensuring that asset performance data is accurate and actionable. This ensures that the different parts of an asset management framework—whether they involve software tools, physical assets, personnel, or external service providers—can communicate, exchange data, and collaborate efficiently. The ability of different systems, processes, technologies, and interest holders to work together seamlessly ensures that information, data, and operational activities can flow smoothly across the various components involved in asset management.

Collaboration across departments will help contribute to the effective and efficient management of assets. Whether this involves the utilization of specific skills within the Water Management unit in managing other classes of assets, or the application of specialized skill such as vegetation management expertise to the management of natural hazards assets, this cross-unit collaboration will aid in the effective and efficient management of all classes of

assets. Planning asset management activities well in advance will be important to facilitate this cross-department interoperability. As units and departments work together toward common asset management goals across different asset classes, this collaborative approach should continue to evolve.

Whether through integrating software systems, enabling collaboration across departments, or facilitating information exchange across departments or units or the sharing of skills and knowledge, interoperability helps improve asset performance, reduce costs, and support data-driven decision-making.

9.5 Communication

Effective communication in asset management is crucial for ensuring that all interest holders, including asset managers, and operational teams, are aligned with the organization's goals and strategies. Clear communication fosters transparency, enabling informed decision-making, managing risks, and optimizing asset performance. It also ensures that critical information, such as asset conditions, are shared in a timely manner, promoting collaboration and accountability. This ensures that the UTRCA's asset management processes are efficient, adaptable, and responsive to both internal and external changes.

9.6 Leadership

The UTRCA is in the very early stages of asset management concepts and practices. Continued strong leadership should be maintained to segue from managing assets to implementing a solid asset management program. Implementing continuous capability improvements into the organization will allow the organization to focus on asset management objectives and is a foundational aspect that enables organizations to optimize their asset management practices and adapt to evolving technologies and operational demands.

This leadership need to be fostered at various levels including Asset Management as a corporate service and within the organizational units responsible for the management of each asset class.

9.7 Recommendations

- R9.1 - Many of the general concepts developed in this first AMP should be refined and incorporated into broader AMP and strategies as they are developed. This AMP may then be revised to refer to those more mature practices, once available.
- R9.2 - Continue to develop UTRCA talent management processes to ensure the continuity of leadership, retain critical knowledge and skills, and effectively prepare for future talent needs, thereby safeguarding the organization's long-term success and sustainability.

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Chris Tasker
Date: December 06, 2024
File Number: BoD-12-24-101
Agenda #: 6.4
Subject: Erosion Control Operational Plan

Recommendation

That the Board of Directors receive the attached Erosion Control Operational Plan, and that staff proceed to post on our website.

Background

Further to the report provided at the November meeting, staff have prepared the attached Erosion Control Operational Plan to satisfy the requirements under the new Conservation Authorities Act, specifically O.Reg 686/21. This regulation requires that CAs develop and implement Operational Plans for Flood, Flow Augmentation and Erosion Control Structures.

Discussion

Attached is the Operational Plan for Erosion Control Structures. This document satisfies our requirements under the regulation. This plan was not ready when the plans were presented at the last meeting. As with the other operational plans, this plan will be updated through additional text edits and additional graphics to better support the information included in the plans. As such, the versions attached still include a draft wordmark. Following remaining edits, the UTRCA website will be updated to include the operational plans.

Recommended by:

Chris Tasker, Manager, Water and Information Management

Upper Thames River Conservation Authority
Erosion Control Structures
Operational Plan

2024-12-06

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1. Purpose of Operational Plan

Ontario Regulation 686/21 requires that a Conservation Authority (CA) provide programs and services that support the operation, maintenance, repair, and decommissioning of the following types of infrastructure the CA owns or manages:

- 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.
- Any erosion control infrastructure.

Programs and services provided shall include the development and implementation of an operational plan on or before December 31, 2024.

Many erosion control structures in the Upper Thames River Conservation Authority (UTRCA) watershed are not owned by the UTRCA but are managed through an agreement with the owner. These structures also require Operational Plans.

2. Purpose of Structure

The erosion control structures (ECS) included in this plan were built by the UTRCA or municipalities for the purpose of reducing the risk from erosion along riverbanks. Many of these structures reduce erosion risk to important infrastructure.

Many ECS were constructed through UTRCA projects funded by the province, with the local share provided by municipal levies from the benefiting local municipality. Conservation Authorities were able to access provincial funding for construction of flood and erosion control measures until the mid-1990s. The UTRCA utilized this funding to further the development of erosion structures in or near the City of London. With limited funding available for the operation and maintenance of flood and erosion control structures, it is important to work collaboratively with the benefitting local municipality to ensure that maintenance is undertaken in an efficient and effective manner.

The UTRCA has been involved with the construction or maintenance of the structures listed in Table 1.

Table 1. Erosion control structures with UTRCA involvement in construction, operation, or maintenance

Name (municipality)	Location	Description
Becker Street EC (London)	West bank of the South Thames River at the Forks	Often considered as part of the Ridout Street EC
Benson Crescent EC (London)	North Thames River, downstream (west) of Highbury St, along Benson Cres.	Rip-rap (325 m)
Corley Drive EC (London)	North bank of a tributary to the North Thames River along Corley Dr in the Medway Valley Heritage Forest Environmentally Significant Area	Rip-rap, vegetated earth (410 m)
Greenway Park EC (London)	South bank of the Thames River upstream of Wonderland Rd N in Greenway Park	Rip-rap, vegetated earth (770 m)
Harris Park EC (London)	East bank extending from the Forks along the North Thames River from York St to Blackfriars	Gabion baskets, vegetated earth, rip-rap (975 m) Currently being rehabilitated by City of London
Mount St Joseph EC (London)	North bank of the North Thames River immediately east of Richmond St and south of Windermere, adjacent to the former Mount St Joseph	Gabions (120 m)
North Bank (London)	North bank of the Thames River west of the Forks, between Dundas St and Wharncliffe Rd	Gabions, vegetated earth (475 m) To be replaced as part of ongoing West London Dyke reconstruction
Pond Mills EC (London)	South bank of the South Thames River, upstream (east) of Egerton Rd along Pond Mills Rd	Grout filled mattress, concrete rip-rap (483 m)
Ridout Street EC (London)	- South bank of the South Thames River from 200 m upstream of Ridout St to about 100 m downstream of Ridout St. - West bank of the South Thames River from south of Horton St to the railway tracks south of York St, and again along the west bank from York St to the Forks (often referred to as Becker St EC). - North bank, becoming east bank of the South Thames River from Ridout St to York St.	Vegetated earth, armour stone, gabion, concrete revetment, sheet pile wall (1365 m). Parts may have been affected by recent construction associated with Ridout St bridge replacement.

Name (municipality)	Location	Description
River Road EC (Middlesex Centre)	North bank of the Thames River upstream of Oxford St W on Old River Road	Rip-rap (275 m) Currently being reconstructed by Municipality of Middlesex Centre
Springbank EC (London)	South bank of the Thames River in Springbank Park downstream of Springbank Dam, upstream of Boler Rd	Grout filled mattress and rip-rap Currently being naturalized and part of Springbank Dam decommissioned by City of London
St Peter's EC (London)	South bank of the North Thames River north of Epworth Ave and Waterloo St	Gabion basket groins, vegetated earth (200 m)
Wychwood EC (London)	West bank of a tributary of the North Thames River from Wychwood Place within the Medway Valley Heritage Forest Environmentally Significant Area	Rip-rap, vegetated earth (180 m)

3. Level of Service

Level of Service (LOS) refers to the ability of an asset or its components to perform the role for which it was designed and to the level or quantity of use for which it was intended. The amount of attention to, and funding for, operation and maintenance must be reflective of the importance of this asset.

For ECS, the performance measures informing the LOS are rather limited. LOS focuses on whether the ECS is able to reduce the risk from erosion to the infrastructure or amenities that the ECS was intended to protect. There are very few standards to which they may be assessed other than whether they still perform their intended function. A large part of being able to perform their intended function is whether the structure is maintained to a level to be operationally reliable. To meet this objective, its condition should be fair or better.

Table 2 provides the preliminary level of service for the erosion control structures.

Table 2. Preliminary Level of Service

Name (municipality)	Erosion Risk Reduction?	Condition Fair or Better?	Preliminary Level of Service	Comments
Becker Street EC (London)	Yes	Yes	Moderate	Assessed as part of Ridout St EC below
Benson Crescent EC (London)	Yes	Yes	Moderate	Protecting residential development
Corley Drive EC (London)	Yes	Yes	Moderate	Protecting residential development
Greenway Park EC (London)	Yes	Yes	Low	Protecting parkland
Harris Park EC (London)	Yes	No	Low	Protecting parkland
Mount St Joseph EC (London)	Yes	Yes	Moderate	Steep slope with institutional use at top
North Bank (London)	Yes	Yes	Moderate	Toe protection for dyke, may get replaced with dyke upgrades
Pond Mills EC (London)	Yes	Yes	Moderate	Steep, tall slope with road at top
Ridout Street EC (London)	Yes	3 sections Yes 4 sections No	Moderate	Multiple sections protecting various infrastructure
River Road EC (Middlesex Centre)	Yes	Yes	Moderate	Protecting roadway, being rehabilitated as part of roadway improvements
Springbank EC (London)	Yes	N/A	Low	Being naturalized as part of Springbank Dam decommissioning
St Peter's EC (London)	Yes	Yes	Moderate	Steep slope with institutional use at top
Wychwood EC (London)	Yes	No	Moderate	Protecting residential development

LOS will be further considered through Asset Management Planning, and this section will be updated to reflect that ongoing work.

3.1. Service Life

The service life of ECS, such as these, is difficult to estimate and will depend, among other things, on the type of erosion control structure. The Ministry of Natural Resources

Technical Guide River & Stream Systems: Erosion Hazard Limit suggests a typical design life of 25 to 50 years due, in part, to the natural processes and their interaction with the structures. Many of these structures were constructed in the period from 1970-2000 and, as such, may be nearing their service life.

Regular inspection will be important to assess the state of each erosion control structure, identify maintenance needed, and further assess service life. Internal inspections have been carried out by UTRCA and external inspections have been undertaken by either the UTRCA or the City of London.

Service life will be further assessed through Asset Management Planning and this section will be updated to reflect that ongoing work.

4. Stakeholders and Beneficiaries

Each of the ECS provides erosion risk reduction to those structures or infrastructure that are protected by the ECS. As such, the primary beneficiaries are the landowners, residents, and businesses with property protected by the structure or the municipality whose infrastructure is protected. While these ECS provide erosion risk reduction for the properties behind them, they do not remove those properties from the erosion hazard and, as such, those properties may be regulated.

These structures are owned by the local municipality. UTRCA operating and maintenance costs, not funded from provincial sources, are levied against the municipalities in which they are located (benefit-based).

4.1. Communication with Stakeholders

It is important that erosion control structure maintenance be coordinated between the UTRCA and municipalities that own them.

5. Operations

Erosion control structures are not actively operated.

6. Routine Maintenance

Routine inspection and maintenance are important to ensure the erosion control structures are able to meet their purposes. Routine inspections are generally undertaken by UTRCA engineering staff. Every five to 10 years, an external engineering inspection should be undertaken.

Surveillance following significant flood events is also important.

7. Emergency Planning

Emergency planning is not generally applicable to this type of structure.

8. Roles and Responsibilities

The ownership of ECS built by the UTRCA rests with the municipality. Through a memorandum of understanding with the City of London, UTRCA shares responsibilities related to the maintenance of London ECS.

Erosion control structures operated or maintained by the UTRCA through agreement with the municipality that owns the structure are eligible for provincial funding (such as section 39 operations and maintenance funding and Water and Erosion Control Infrastructure (WECI) funding for major maintenance). Operating funding is very limited given the reduction in grant amounts and steadily increasing costs. Also, these structures rank poorly in the WECI major maintenance funding program.

As passive structures there are generally no physical operations required for ECS. Operational costs are limited to inspections and maintenance.

In June 2017, a Memorandum of Understanding (MOU) was signed between London and UTRCA which outlines the shared responsibilities related to the operation and maintenance of the ECS. This agreement was intended to facilitate and define the cooperative efforts, consider infrastructure owned by the City, document responsibilities, operationalize the other agreements and contracts, document the intent to add other structures, and provide administrative procedures. The MOU documents background and supporting information to ensure that both parties have a shared understanding. This agreement allows the City and UTRCA to best utilize funding available for the continued operation and maintenance of the structures. It identifies that operation and routine maintenance are managed and planned by the UTRCA and maximizes the use of both UTRCA and City resources. It specifies a level of cooperation when it comes to major/capital maintenance.

London is responsible for the local share of these operation and maintenance costs, though the UTRCA benefit-based levy.

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Joe Gordon, Regulations Coordinator
Christie Kent, Planning Coordinator
Date: December 5, 2024
File Number: BoD-12-24-102
Agenda #: 6.5
Subject: Environmental Planning Policy Manual Update and Interim Response Mechanisms

Recommendation

THAT the Board of Directors receive the report with attached Discussion Paper 1 – Overview and Discussion Paper 2 – Wetland Management Policies for information;

THAT the Board of Directors authorize the Administrative Review Officers to exercise discretionary decision-making regarding policies within the Environmental Planning Policy Manual (Revised 2017) associated specifically with Key Policy Issues, on an interim basis; and,

THAT staff report back to the Board of Directors no later than March 31, 2025 summarizing the instances and outcomes associated with the Administrative Review Officers' use of interim authority, and that the report indicate how these outcomes will be reflected within the updated Environmental Planning Policy Manual.

Background

The Environmental Planning and Regulations Unit is in need of an interim response mechanism to support enhanced service standards while the Environmental Planning Policy Manual is being reviewed and updated. All updates to the existing manual will form the basis of a new policy document. The interim response mechanism being requested is that the Board of Directors delegate authority to the Administrative Review Officers to exercise discretionary decision-making on existing policies under review and relating to Key Policy Issues, as outlined below. Staff recommend that any discretionary decision-making consider the recommended policies and criteria outlined within Conservation Ontario's *Interim Guidelines to Support Conservation Authority Administration of Ontario Regulation 41/24.* The Conservation Ontario guideline has been developed for consideration of a consistent policy approach across the province resulting from recent changes to the *Conservation Authorities Act* and Ontario Regulation 41/24. Overall, this interim approach would enable effective communication of the Authority's position in areas of existing prohibitive policies or the lack of an associated policy, where staff support the proposed development. This approach would also reduce the current need to defer decision-making due to inconsistency with the existing policy direction in consideration of prospective changes, and/or avoid the need to schedule multiple hearings.

Discussion Paper 1 – Overview of Discussion Papers
Reflection on key policy issues has been fundamental to the Environmental Planning Policy Manual review and update process. Five central topics warranting further exploration and consideration have been identified:

Policies Guiding Practice
Policy Issue 1: Wetland Management
Policy Issue 2: Floodplain Management

Policies Regarding Responsibilities
Policy Issue 3: Legislative and Regulatory Changes
Policy Issue 4: Natural Hazards

To provide a better understanding of these policy issues with each topic, a series of Discussion Papers have been prepared. Each Discussion Paper summarizes reflections on the current policy context, key considerations, and offers options for short-term action and long-term policy response. The discussion papers will further be used as a communications tool for consultation purposes and policy development.

Refer to Discussion Paper 1 – Overview for further background on the Discussion Paper series.

Discussion Paper 2 – Wetland Management Policies (Policy Issue #1)
The review of the existing Policy Manual and updated policy document will provide wetland management and offsetting policies, as well as evaluation tools. The current prohibitive policy framework does not permit development within a wetland nor considers offsetting or any permissive criteria-based evaluation. It has become increasingly difficult for the Upper Thames River Conservation Authority's Planning and Regulations Staff to apply a consistent approach to the wetland policies of the Environmental Planning Policy Manual in both municipal plan review and the Section 28 review and permitting processes. Several recent applications have identified wetlands through technical studies that have not previously been identified or mapped as regulated features primarily due to their size (ie. less than 0.5ha). These unmapped wetland features are typically deemed to not be significant, and/or have a low risk of having an impact upon the control of flooding or erosion.

Refer to Discussion Paper 2 – Wetland Management for further background on this policy issue.

The remaining Key Policy Issues will be explored through subsequent Discussion Papers provided to the Board of Directors in January / February 2025.

Recommendations

Interim Delegated Authority
Staff are recommending that the Board of Directors delegate decision-making relating to Key Policy Issues to the Administrative Review Officers on an interim basis and effective immediately until a new policy document is developed and approved. This delegation of

authority would enable the Administrative Review Officers to exercise discretionary decision-making contrary to the policies contained within the Environmental Planning Policy Manual, if deemed advisable, until an updated policy framework is in place. The Administrative Review Officers would consider the policies and criteria outlined within Conservation Ontario's Interim Guidelines as part of the decision-making process.

Reporting

Staff further recommend that, in the absence of a consultation process, the use of interim delegated authority is tracked with a report back to the Board of Directors on how the interim delegated authority was operationalized as an interim response mechanism. This reporting requirement would include an outline of the instances of where discretion was exercised and the evaluation criteria considered in the decision-making process. The collection of this information would also be used to characterize the nature of the policy issues and implementation challenges across the watershed and test the appropriateness of evaluation criteria. These key considerations will help inform a responsive and effective policy framework within the revised Environmental Planning Policy Manual.

Recommended by:

Joe Gordon, Regulations Coordinator
Christie Kent, Planning Coordinator
Jenna Allain, Manager of Environmental Planning and Regulations

DISCUSSION PAPER 1

OVERVIEW OF DISCUSSION PAPERS

Environmental Planning Policy Manual Update

The Upper Thames River Conservation Authority (UTRCA) is undertaking a review of the Environmental Planning Policy Manual (ENVP Policy Manual). This review will form the basis for a new policy document. Originally authored in 2006, with limited updates in 2017, the ENVP Policy Manual is intended to be a positional policy document, approved by the UTRCA Board of Directors, and implemented through the work of the Environmental Planning and Regulations Unit as part of the delivery of mandatory Category 1 programs. The ENVP Policy Manual consolidates the policy direction of the UTRCA relating to plan review and permitting programs under the *Conservation Authorities Act,* as amended, and through associated Ontario Regulations. Consistent with Board direction from March, 2024, where discrepancies exist between the text of the legislation or regulation and the policies contained in the existing ENVP Policy Manual, the text of the legislation and regulation will prevail.

Purpose

In a time of legislative and regulatory change across the Province of Ontario, and local adaptation across each of the member municipalities within the UTRCA's watershed, it is imperative to reflect on the issues and opportunities associated with the current ENVP Policy Manual. Recognizing the shifts in provincial and local priorities, and focused legislative responsibilities for Conservation Authorities, the ENVP Policy Manual review and update process will result in a contemporary and streamlined resource document.

This refreshed policy tool will reflect the UTRCA's mandate and values while providing clear and responsive guidance for ENVP Policy Manual users, including the UTRCA Board of Directors and Staff, member municipalities, the development community, and the general public.

The 2025 ENVP Policy Manual Discussion Papers

The 2025 ENVP Policy Manual is the main policy tool that governs planning and permitting program delivery by UTRCA Administration. The ENVP Policy Manual distills directional guidance from the province and provides positional policy statements reflective of local considerations from the UTRCA's watershed.

Policy review and development is a dynamic process intended to be both responsive and iterative. The review and update process currently underway has been advanced through a solutions-oriented lens. UTRCA staff has undertaken reflection on key policy issues and topics warranting further understanding, consideration, and response.

Each Discussion Paper is a brief and informational, yet topical, summary of a particularly complex and/or interconnected policy problems or issues.

DISCUSSION PAPER 1

OVERVIEW OF DISCUSSION PAPERS

Guiding Frameworks

The ENVP Policy Manual review was primarily driven by recent legislative and regulatory reforms that have impacted the roles and responsibilities of Conservation Authorities in Ontario. The guiding legislative and regulatory frameworks reflected within the ENVP Policy Manual pertain to both planning and permitting program areas, as required by the *Conservation Authorities Act*.

The UTRCA is empowered to deliver a mandatory planning program through delegated responsibility and statutory roles under the *Planning Act*, as amended, and the 2024 Provincial Planning Statement (previously 2020 Provincial Policy Statement). The UTRCA also collaborates and supports planning authorities with the provision of comments on policy and development proposals, as well as identification and management of natural hazards.

Part IV of the *Conservation Authorities Act* outlines the jurisdictional authority of the UTRCA as it pertains to regulated areas and permitting frameworks. Permitting and mandatory programs and services frameworks are further described in implementing Ontario Regulations (O. Reg. 41/24 and O. Reg. 686/21).

These provincial-level guiding frameworks, reflected collectively, provide the base for the UTRCA's ENVP Policy Manual.

Key Policy Issues

Each Discussion Paper disseminates the Key Policy Issues, challenges, and opportunities associated with implementing the current policy direction of the ENVP Policy Manual.

Policies Guiding Practice

- ☑ Wetland Management
- ☑ Floodplain Management

Policies Guiding Responsibilities

- ☑ Legislative and Regulatory Changes
- ☑ Natural Hazard Focus

From this assessment, each Discussion Paper summarizes reflections on the existing policy context, key considerations, and offers suggestions for policy direction and/ or response.

Structure of Discussion Papers

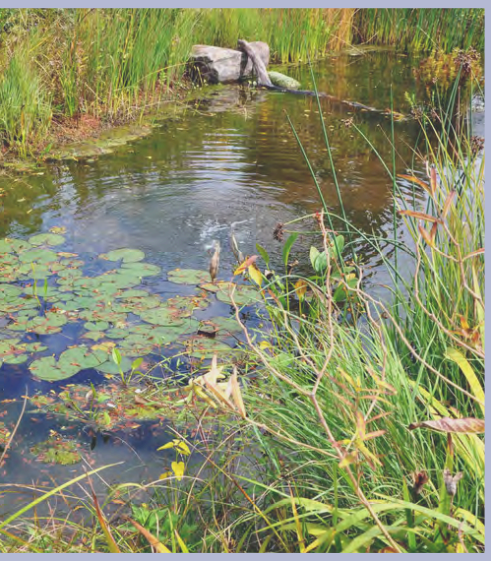
The Discussion Paper for each topic is uniformly structured based on the following outline:

- Why is the Topic Important
- Existing Policy Context
- Key Considerations
- Options and Recommendations

The Discussion Papers will help facilitate understanding of each topic and encourage collaboration on responsive and forward-thinking mechanisms and approaches from within the UTRCA and with stakeholders.

DISCUSSION PAPER 2

WETLAND MANAGEMENT



Why is the Topic Important?

Wetlands are one of the most productive and biologically diverse habitats in the world.

Wetlands play a role in:

- Providing flood storage and attenuation;
- Maintaining and improving water quality;
- Protecting shorelines from erosion;
- Providing important habitat for a wide variety of plant, fish, and wildlife species;
- Controlling and storing surface water;
- Support the recharge and discharge of ground water;
- Providing corridors for wildlife movement; and,
- Providing for educational and research opportunities.

Existing Policy Context

The Upper Thames River Conservation Authority's (UTRCA) wetland policies guide commenting on Planning Act applications and subsequent decision-making on permit issuance. These wetland policies are generally prohibitive, with no new development and site alteration permitted within the wetland and limited development and site alteration permitted within the area of interference surrounding the wetland. The current wetland policies of the Environmental Planning Policy Manual in both municipal plan review and the Section 28 review and permitting processes do not directly contemplate wetland removal, offsetting or compensation.

Level of Control

- ◉ **Prohibitive Controls: Certain activities are outright prohibited within regulated areas unless exceptional circumstances apply.**
- ○ **Mitigative Controls:** Allowance for activities contingent upon implementation of mitigation measures.
- ○ **Conditional Controls:** Development may proceed if all criteria are met and approved via a permitting process.

Policy Structure

- ◉ **Regulatory Policies: Legally binding policies that specify mandatory requirements for activities.**
- ○ **Criteria-based Policies**: Policies that use specific criteria or thresholds to evaluate and regulate activities.
- ○ **Offsetting and Compensation Policies:** Policies that address situations where impacts are permitted or unavoidable.
- ○ **Adaptive Policies:** Flexible policies that evolve in response to new information or changing conditions.

DISCUSSION PAPER 2

WETLAND MANAGEMENT

Key Policy Considerations

- Prohibitive policy direction that regulates all wetland features, regardless of size, functional characteristics and/or municipal policy framework.
- Policy context limits support for development proposals that presuppose the achievability of a Section 28 permit for wetland removal or modification.
- Maintaining a prohibitive policy position is resulting in internal processing delays and external tensions with the municipal partners and the development community due to inconsistent policy frameworks and application.
- Certain municipalities within the watershed have a more permissive local policy framework within their Official Plans regarding wetland management. These permissive policies suggest that non-significant wetland removal and offsetting or compensation could be supported with appropriate technical investigation by qualified professionals.
- Wetlands are not specifically contemplated in the 2024 Provincial Planning Statement as a natural hazard. Wetland-related policies are contained in the natural heritage provisions and related mainly to significant wetland features. Wetlands are identified as an area of jurisdiction under the Conservation Authorities Act.
- Unevaluated wetlands with an area of less than 0.5ha are generally unmapped by the UTRCA. Through technical studies and other site-specific investigations, unevaluated wetlands have been identified, and both regulatory jurisdiction and prohibitive policies are typically applied. Wetlands of this size are generally not significant and typically have minimal impact on flood control and/or erosion.
- Uniform application of a prohibitive policy framework does not consider the specific function and characteristics of wetland features. Opportunities to consolidate and enhance wetland features are not supportable under the existing policy framework.

Recommended Approach

- ○ Maintain Current Policies
- ○ Adapt Current Policies
- ◉ **Rethink Policy Approach**
- ◉ **Develop Responsive Policies**

DISCUSSION PAPER 2

WETLAND MANAGEMENT

Best Practices

Conservation Authorities across Ontario offer a range of policy approaches to wetland management. Policy alternatives include scalable levels of control based on wetland size and status, and assessment of hydrogeologic function of the wetland as evaluation criteria.

Conservation Ontario's Interim Guidelines to Support Conservation Authority Administration of Ontario Regulation 41/24 - Assessment Criteria

- Changes to the hydrologic function e.g., quantity or depth of water based on the existing hydrology and hydroperiod, retention of water; water regime maintaining the wetland (e.g., surface or groundwater, water balance, recharge and/or discharge);
- Water quality during or after the activity will not result in filling the wetland or "other areas" with sediment etc. or affect the hydrophytic vegetation;
- Impacts to the hydroperiod (seasonally);
- Impact to the hydric soils or vegetation (e.g., removal); and,
- The potential for damage to a wetland or a watercourse associated with the wetland on an adjacent property.

Policy Response

Short-Term Actions

As an interim response mechanism, it is recommended that decision-making authority on the current application of this Key Policy Issue is delegated to the Administrative Review Officers. The purpose of this recommendation is to temporarily mitigate the operational challenges associated with the prohibitive policies and provide Planning and Regulations staff, supported by Administrative Review Officers, a mechanism for advancing decision-making during municipal plan review and commenting, as well as Section 28 permitting.

Longer Term Policy Response

Wetland management policies have been a critical focus of the Environmental Planning and Regulations team within the ENVP Policy Manual review and update process. The draft policies resulting from the ENVP Policy Manual review and update will include a framework for more permissible wetland management policies when deemed to have no impact upon the control of flooding, erosion, or unstable soils.

UPPER THAMES RIVER CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Tracy Annett
Date: December 10, 2024
File Number: BoD-12-24-104
Agenda #: 8.1
Subject: Project Status Updates

Recommendation

THAT the Board of Directors receive the report for information.

Background

To assist the Board with previously discussed items the following status updates are provided. This report is updated and included at each meeting to identify project timelines and expected future reports.

Discussion

The table below provides progress and timelines associated with UTRCA projects and the strategies required to fulfil the requirements of O.Reg 686/21, Mandatory Programs and Services Regulation. Planned reports and updates at board meetings may change.

Many of the items provided below are directed by legislative changes, either directly through O.Reg 686/21 or through updated regulations that impact our projects / policy direction (e.g., Section 28 regulations under the Conservation Authorities Act (CAA). These projects will continue throughout 2024, regular updates will be provided.

Report Back Items	Planned report or update	Project lead(s)	Status
2024 Draft Budget and discussion items (October 2023 meeting Draft Budget provided)	January, provide update on Municipal Feedback February AGM – 2024 Budget Consideration	Teresa Brad Christine Tracy	Complete – Municipal Communications Ongoing - Status of contract discussions with Environment and Climate Change Canada Provided updated numbers in October for the proposed Category 1 deficit and the proposed category 3 levy / cost apportionment. Complete – Communications plan
WCC Building Update	January Will be marked complete in next report	Brent & Mike	Complete - Board Request. To provide an overview of the building now that we have used the space for 10 years, building performance.

Report Back Items	Planned report or update	Project lead(s)	Status
Review of S28 Violations	February Will be marked complete in next report	Jenna	Complete - Review of the 2023 violations at the February 2024 Board of Directors meeting
UTRCA Cash Management & Investment Policy	August - complete	Christine and Tracy	Complete – Report to F&A Committee in June, and report to the Board to follow at the August meeting.
Strategic Plan, (June, October and November 2024)	November and to be reviewed in December	Tracy Teresa	In progress – Consultant engaged. Report included with October Agenda, Vision, Mission and Values provided in November to align with Watershed Strategy. Update provided and ongoing
Hydro Plant (April 2024, October report to BOD)	In 2025, Next Phase	Chris and Brent	In Progress - Consultant to be engaged to determine potential issues and estimates to resolve the issues. Staff change has delayed the RFP process. Update to be provided in next phases
Reserves Policy (April 2024 and May 2024 report to F&A in September)	Complete	Tracy Christine	Complete - Report to F&A – After the 2023 Audit the policy will be shared with the Finance and Audit committee for further discussion at the May meeting. Following F&A discussion, staff directed to prepare the Reserves Policy and Report approved in October.
Cyber Security	October – Postponed to January	Tracy Christine Chris	In Progress Report to F&A – Staff to prepare a report on the current state of cyber security for the organization and any recommendations to improve to be presented to the Finance and Audit Committee at the April meeting, in-camera. Directed staff for future updates. Report to the Board to follow.
Children's Safety Village (June 2023, February 2024)	October - Postponed to January	Teresa & Brent	Overdue – Internal Discussions on-going, business plan for use as education / visitors centre and campground registration. Update to be provided to BOD in the fall.
Retention Policy	August – Postponed to January	Tracy & Michelle	Overdue – updated retention policy to be prepared based on a collaborative CA draft. The CA draft has been legally reviewed. Aligning retention policies with integration of Microsoft 365 (file structure, naming conventions, etc.)
Wetland	Postponed	Jenna	In progress - Draft Wetland

Report Back Items	Planned report or update	Project lead(s)	Status
Compensation Policy (March 2023 meeting and August 2023)	aligning with Section 28 Policies as outlined below	and Sarah	Compensation Policies initiated. Changes to the CAA and CA roles in commenting on natural heritage features have required further examination. Report to be provided at December Meeting with Wetland Management Discussion Paper
Section 28 Regulation Policies and Mapping (March 2024, September 2024)	December 2024	Jenna	In Progress - Release of new Regulations on Friday February 16th, effective April 1, 2024. May Meeting included Technical Checklists and S28 Compliance Procedures Staff will continue to: develop policies and procedures, and undertake consultation with municipalities, partners, and development groups., etc. In Progress - Hazard Mapping Consultation – Report at September Meeting and Presentation in October October – Administrative Review Policy and report back in November December - Environmental Policy Manual Updates and Interim Response Mechanisms: Discussion Papers 1) Overview and Discussion 2) Wetland Management Policies (Administrative Review Report in no later than March 31, 2025)
Land Tenant Program Update (March 2022 meeting, November 2023, March 2024, August 2024, October 2024, Novemeber 2024)	As required	Brent	In Progress – Ongoing status of land tenant program, in-camera. Report provided. Update provided in October. Verbal in-camera update in November. Future update as arequired
Land Options	Q1 - 2025	Brent & Tracy	In progress - As requested at the October meeting, report back in the first quarter of 2025 with a report on options for parcels identified in closed session.
Advocacy for Fee Freeze to be lifted (September, 2024)	Complete	Tracy & Brian	Complete – Letter circulated to Municipalities. Discussion with Minister Smith suggested that he wanted data to support. Brian to lead Municipal support request. Tracy to explore other data

Report Back Items	Planned report or update	Project lead(s)	Status
			options with CA's, particularly those in High growth areas. Final letter sent to Minister and provided as Correspondence at October meeting
Draft 2025 Budget & Communications Plan (Preliminary Draft – August and F&A review in September)	Completed	Tracy, Teresa, and Christine	Completed – Circulate budget communications to F&A committee for feedback in July, to finalize materials to include at August Meeting (was based on advocacy required to support for City of London business case. Now preliminary budget shown are within City of London multi-year budget amounts). Summary Communications to be distributed at October meeting

Legislative Requirements	Planned report or update	Project lead(s)	Status
Land Management Strategy (February 2024, May, 2024)	October	Brent Brandon Cathy	Completed – To be completed by December 31, 2024 Inventory and acquisition and disposition policy are linked to this initiative. To be completed December 31, 202 Final Document provided in October
Land Inventory (August 2023, February 2024 and September)	October	Brandon, Phil, Cathy & Brent	Completed – Inventory update was provided in August. To be included with Lands Strategy and a legislative requirement. To be completed December 31, 202 The Lands Inventory will inform the Lands Strategy and acquisition and disposition strategy. Final Inventory provided in October
Land Acquisition and Disposition Strategy (February 2024 and September, 2024)	October	Brent & Brandon	Completed - Complements the Lands Strategy and Land Inventory. To be completed December 31, 2024. Final Document provided in October
Operations Plans and Ice Management Plan (November 2023 meeting, September)	November	Chris	Complete - Compiling background information. To be completed December 31, 2024 Final Documents to be provided in November
Watershed-Based	December	Tara	In Progress – Complements the Strategic

Legislative Requirements	Planned report or update	Project lead(s)	Status
Resource Management Strategy (September 2023, February 2024, and June)			Plan. To be completed December 31, 2024. To Align with UTRCA Strategic Plan Item included in June Agenda, final report after consultation will be brought back in December
Asset Management Plans related to natural hazard infrastructure (September, 2024)	December	Chris	In progress – One component of overall group of assets within the UTRCA's Asset Management Plan. To be completed December 31, 2024. Final Document to be provided in December
UTRCA Asset Management Plan (January 2024 Policy approved, and September Update)	January 2025	Brent & Christine	In progress - May breakdown into Groups of Assets e.g., Natural Hazard Infrastructure, Fleet, Facilities etc. Regular progress reports to support the above Group of Assets as our first priority. (as below)

Definitions

Progress	Timeline
Not started	indicate project initiation date
In progress	anticipate completion date
Complete	date completed
Overdue	expected completion date and reasons for the delay
On Hold	other circumstances

Summary

The summary provided is intended to help track items requesting report updates to the Board and project updates to meet our legislative requirements. The number of projects underway in 2024 is significant. Items may be shifted to accommodate the number of agenda items and board meeting schedules.

Recommended by:

Tracy Annett, General Manager

UPPER THAMES RIVER
CONSERVATION AUTHORITY

MEMO

To: UTRCA Board of Directors
From: Michelle Viglianti, Administrative Assistant
Date: June 25, 2024
File Number: BoD-12-24-105
Agenda #: 9.2
Subject: Hearing Committee – November 26, 2024 Decision

Recommendation

THAT the Board of Directors receive the report for information.

Background

The Hearing Committee met on November 26, 2024 to consider one application. The full Hearing Committee meeting package can be found on the Upper Thames River Conservation Authority Website.

Hearing Committee Decision from November 26, 2024 – Application #153-24

The following is the decision regarding a request to permit development within a riverine flood hazard associated with a river or stream valley and within an area regulated by the Upper Thames River Conservation Authority at 1310 Adelaide Street North and 795 Windermere Road in the City of London, Ontario.

THAT Application #153-24 for the proposed development activity within a riverine flooding hazard regulated by the UTRCA at 1310 Adelaide Street North and 795 Windermere Road, City of London be refused for the following reasons:

1. The development is an intensification of the property as a whole, contrary to UTRCA Replacement Structures in the Floodway Policy 4.2.2.6 c) iii);

2. The development is located within a high risk floodway:
   a) that would be rendered inaccessible to people and vehicles (ie. Safe Access) during times of flooding hazards, contrary to UTRCA Floodway and Riverine Flooding Hazard Policies 3.2.3.1(4) & 4.2.1(a) & 4.2.2(e) and PPS policy 3.1.2 c);
   b) that results in an area of inundation that contains high points of land not subject to flooding, contrary to UTRCA Floodway Policy 3.2.3.1(2) and PPS policy 3.1.2 d);

3. The development includes activities that rely upon lands owned by the UTRCA and managed by the City of London under agreement (Flood Plain Acquisition Program). UTRCA land management staff do not support such proposed activities upon its lands for the purpose of facilitating private development on abutting properties,

4. The prior City of London Official Plan and Zoning Bylaw amendment (OZ-8709) to permit the proposed land uses was not supported by UTRCA; and

5. Therefore, the development activity will likely create conditions or circumstance that, in the event of a natural hazard, might jeopardize the health or safety of persons or result in the damage or destruction of property.

Prepared and Recommended by:

Michelle Viglianti, Administrative Assistant