

### Item for the Information of the Regional Watershed Alliance

**TO:** Chair and Members of the Regional Watershed Alliance  
Wednesday, November 20, 2024 Meeting

**FROM:** Anil Wijesooriya, Director, Restoration and Infrastructure

**RE:** **2024 EROSION RISK MANAGEMENT PROGRAM UPDATE**

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#### **KEY ISSUE**

An information report summarizing Toronto and Region Conservation Authority (TRCA) activities under the Erosion Risk Management Program and strategic updates from the Erosion Risk Management business unit.

#### **RECOMMENDATION:**

**THAT the 2024 Erosion Risk Management Program update, be received.**

#### **BACKGROUND**

Managing the risk associated with the natural hazards of flooding and erosion is one of the primary roles of conservation authorities under the Conservation Authorities Act (O.Reg.686/21). TRCA fulfills this role through the delivery of multiple natural resource management programs and services, including the Erosion Risk Management Program (ERMP). The ERMP focuses on the identification and remediation of shoreline and valley land erosion hazards throughout TRCA's jurisdiction and encourages proactive prevention, protection, and management of erosion issues on public and private property. The primary goal of the ERMP is to manage TRCA's existing network of erosion control systems (assets) built to protect essential infrastructure and public safety. However, information gathered in support of this goal is used to influence capital planning within our jurisdiction by offering programs and services to our municipal partners.

Under the ERMP, erosion hazards across TRCA's jurisdiction are identified and prioritized based on applicable programming. ERM staff regularly conduct site visits throughout the year to assess and reprioritize erosion hazards in response to significant storm events. In general, the ERMP is capital funded through TRCA's partners at the City of Toronto, Region of Peel, and York Region. Enhanced funding and fee-for-service work with

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municipal partners has greatly contributed to opportunities to enhance the ERMP.

### **RATIONALE**

The following sections provide a brief overview of the various portfolios and major programs operated under the ERMP that may be of interest to the Regional Watershed Alliance (RWA). An ArcGIS StoryMap has been developed to provide additional information about the ERMP and highlight some visuals. We encourage RWA members to view the [StoryMap](#) on TRCA's website.

#### **Toronto Ravine Major Maintenance**

The Toronto Ravine Major Maintenance portfolio focuses on the maintenance and repair of TRCA's permanent erosion control assets within the City of Toronto. These structures are found along valley corridors, streambanks, and natural slopes.

#### **Toronto Waterfront Major Maintenance**

The Toronto Waterfront Major Maintenance portfolio handles the repair and maintenance of TRCA's network of permanent shoreline erosion control assets along the City of Toronto waterfront. These structures are designed to provide protection of the essential infrastructure and public safety along the north shore of Lake Ontario (e.g. *adjacent tablelands, public amenities, and municipal infrastructure*).

#### **Valley Erosion Hazards (City of Toronto)**

The Valley Erosion Hazards portfolio addresses erosion hazards and slope instability issues impacting public and private property throughout the ravine systems in the City of Toronto. The July 8, 2013 storm event was the catalyst for a funding increase to this portfolio, prompting TRCA to extend assistance to private properties where homes have been deemed at risk by erosion hazards or slope instability. The goal of each project is to provide a cost-effective solution to protect essential infrastructure, such as residential dwellings and municipal assets. Projects are implemented on a priority basis to the limit of available funding each year.

### **Streambank Infrastructure Erosion Control Management Program (York Region)**

The York Region Streambank Infrastructure Erosion Control Management Program (SIECMP) provides long-term erosion hazard management for York Public Works' water and wastewater infrastructure assets along ravines and watercourses. The portfolio includes the monitoring, study, design, implementation, and maintenance of erosion control works for the protection of essential infrastructure from erosion hazards within TRCA's jurisdiction of York Region.

### **TRCA Maintenance & Other Hazards (York Region)**

The TRCA Maintenance & Other Hazards (York Region) portfolio is established for maintaining TRCA's existing permanent erosion control assets and developing new erosion control assets on TRCA lands within York Region. These assets are found along ravine and valley corridors or along natural slopes.

### **Region of Peel Erosion Control & Infrastructure Protection**

The Region of Peel Erosion Control & Infrastructure Protection portfolio monitors the risk to TRCA owned erosion control assets, Region of Peel infrastructure hazard monitoring sites, and other sites where erosion hazards impact public and private land. This portfolio includes the monitoring, study, design, implementation, and maintenance of erosion control works for the protection of essential infrastructure from erosion hazards within TRCA's jurisdiction of Peel Region.

### **Toronto Water Monitoring**

In 2010, the City of Toronto and TRCA developed a long-term monitoring partnership to assess the erosion risks to Toronto Water infrastructure in ravine and valley systems. This program currently aims to inspect Toronto Water infrastructure (*watermains, sanitary lines and maintenance holes*) within the City of Toronto's ravines, valleys, and along the shoreline of Lake Ontario. The purpose of monitoring approximately 2500 Toronto Water assets annually (*between May and November*) is to identify infrastructure at risk of damage, or damaged, by erosion, before a complete failure occurs. The program reduces environmental and public health and safety risks and allows Toronto Water staff to plan, prioritize, and budget for their infrastructure asset maintenance, repair, replacement, and protection effectively and efficiently. The current service letter agreement was ratified in 2022 and extends until March 31, 2027.

### **City of Brampton Agreement for Erosion Monitoring and Remediation Services**

The objective of the service letter agreement is to reinspect, monitor, and remediate priority erosion hazard sites and structures that were previously assessed within TRCA's jurisdiction of the City as part of the City-wide Watercourse Erosion Assessment Study, completed in 2018. Supported by the results of the monitoring and assessments, TRCA will undertake erosion hazard remediation for the City through the study, design, and implementation of erosion control assets, along with infrastructure maintenance. In addition, TRCA will maintain and restore priority watercourse segments identified by the City within TRCA's jurisdiction. The current service letter agreement was ratified in 2023 and extends until December 31, 2025.

### **Environmental Assessments**

Certain remediation projects under the portfolios described above are subject to requirements under federal or provincial environmental assessments (EAs). These projects can vary in scope and size, but the EA process ensures that critical environmental impacts are evaluated in addition to specifying minimum public consultation requirements.

Erosion Risk Management (ERM) staff oversee multiple EA projects each year depending on site specific and legislative requirements. Two significant EAs currently being planned in accordance with Conservation Ontario's Class Environmental Assessment for Remedial Flood and Erosion Control Projects are described below:

- ***Toronto Island Park Flood and Erosion Mitigation Project***  
The Class EA started with a Notice of Intent in fall 2021. The project has gone through two Public Information Centres. The Environmental Study Report was filed with the MECP in the Fall of 2024 and the project completion of the Class EA is anticipated for the end of 2024.
- ***Ajax Waterfront Erosion Mitigation Project.***  
The Class EA started with a Notice of Intent in fall 2022. The project has gone through two Community Liaison Committee meetings as well as two Public Information Centres. The Environmental Study Report was filed with the MECP in the summer of 2024 and the project completion of the Class EA is anticipated for the end of 2024.

### ERMP – Strategic updates

In addition to the capital and recoverable projects & programs described above, ERM staff continue working on some key updates to the ERMP to improve operational efficiency. A brief overview of these initiatives has been provided below.

- In 2024, Erosion Hazard Monitoring staff began utilizing Eos Arrow Gold high accuracy global navigation satellite system (GNSS) receivers and the ArcGIS Field Maps application to geospatially delineate all TRCA assets and erosion hazards, at a sub-30 cm level accuracy. The geospatial delineation of erosion hazards and erosion control asset deficiencies provides an opportunity for automated and accurate assessments of erosion risk to essential infrastructure and public safety in almost real-time. ERM's portfolio managers and project management staff can make the best state of good repair recommendations for forecasted remedial works to TRCA's municipal partners.
- In 2024, ERM's Senior Engineer began work with the Erosion Studies and Analyses team. This work will characterize erosion across TRCA's jurisdiction using terrain change (*using recently acquired jurisdiction-wide LiDAR data and its analytical products*), fluvial products (*extracted from existing flood risk models at TRCA*), and geomorphologic data collection and analysis (*combination of field and desktop analyses*). The work will culminate in erosion hazard mapping across the jurisdiction, strongly supporting TRCA's core mandate under O.Reg. 686/21 – the understanding and management of erosion as a natural hazard.
- ERM continues its use of the Remotely Piloted Aircraft System (RPAS) for the purpose of monitoring and assessing erosion hazards. While fostering RPAS data collection capabilities across the organization, ERM's recent efforts have focused on developing terrain data products and 3D models of the terrain where erosion occurs to quantify the rate of loss (e.g. *Scarborough Bluffs feature*). ERM also supports the team's recent exploration of hand-held, ground-based LiDAR & underwater terrain data collection systems.

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### **Next Steps**

TRCA staff will continue working with our municipal partners with existing agreements to apprise them of the value of the above noted services and to maintain and grow these programs through municipal budget processes. However, there are a number of municipalities in the region where opportunities exist to expand our ERMP service offerings. Going forward, TRCA staff will also continue to inform municipalities that do not have such service agreements or MOUs in place related to erosion hazard inspection and monitoring of the potential value of this work in protecting public assets and protecting the natural environment. TRCA staff will also continue to meet with interested individuals or political and agency representatives to assess erosion hazards of concern.

### **Relationship to TRCA's 2023-2034 Strategic Plan**

This report supports the following Pillar and Outcome set forth in TRCA's 2023-2034 Strategic Plan:

#### **Pillar 1 Environmental Protection and Hazard Management:**

- 1.1 Deliver provincially mandated services pertaining to flood and erosion hazards

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**Date: November 20, 2024**