



Report to Council

Department: Infrastructure Services
Division: Drainage
Date: April 22, 2025
Prepared by: Lindsay Dean, Drainage Superintendent
Report Number: Drainage-2025-02
Subject: Richmond Drain Overview
Number of Pages: 9

Recommendation(s)

That Drainage-2025-02 entitled Richmond Drain Overview prepared by Lindsay Dean, Drainage Superintendent dated April 22, 2025 be received-

Purpose

On December 2, 2024 Council passed the following resolution by Notice of Motion:

R24-12-549

That Council direct Administration to present a report to Council that addresses the following with regards to the Richmond Drain:

1. Review the drain and assess for blockages that would hinder the flow of stormwater;
2. Review and identify any trouble spots that impede the flow of stormwater;
3. Potential consequences attributed to intensification in and around the Harrow Centre; and

4. Identify and report on potential actions that the Town could take to improve the Richmond Drain and the costs associated with them.

Moved By Councillor Hammond

Seconded By Councillor McGuire-Blais

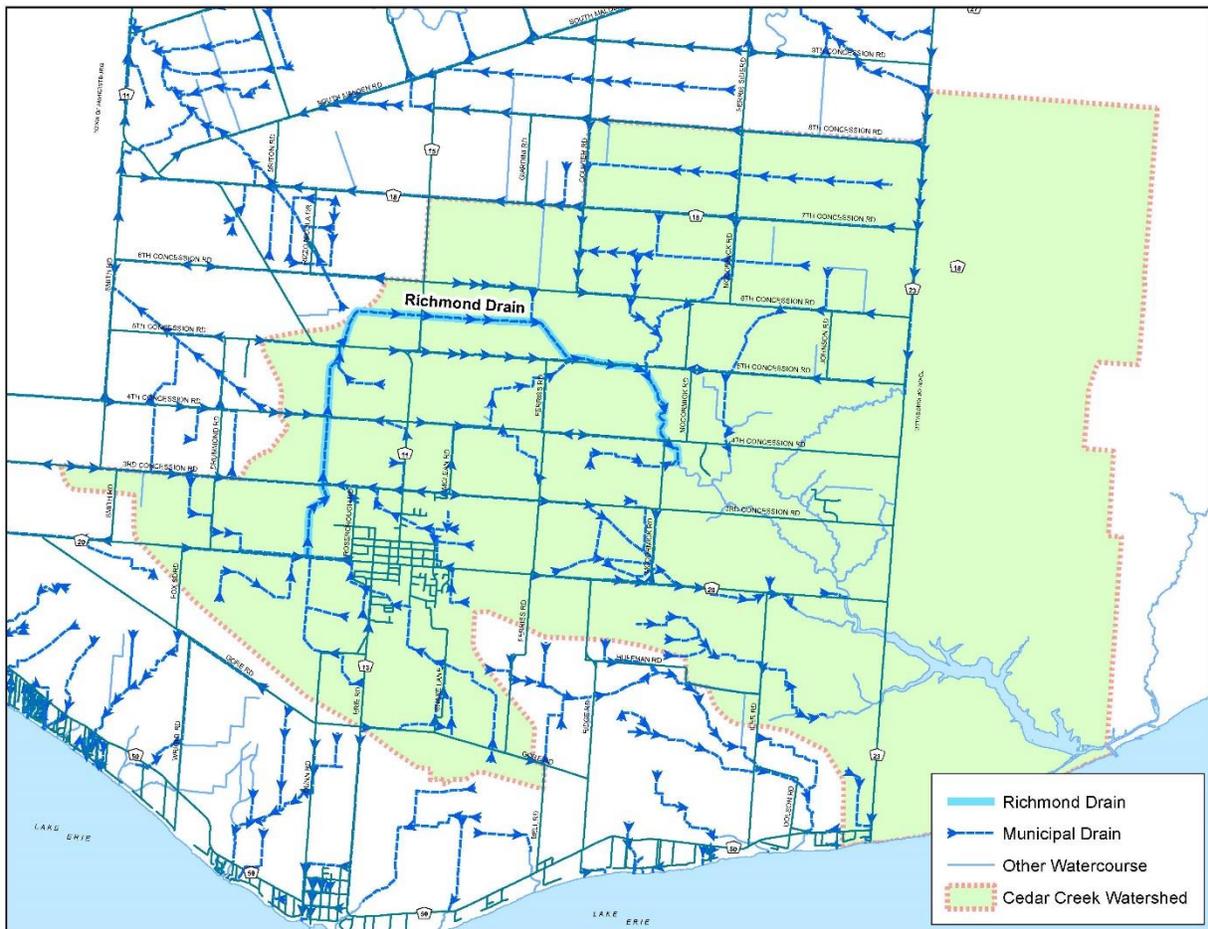
This report was prepared in accordance with this resolution.

Background and Discussion

As shown in the figure below, the Richmond Drain is predominantly located on private property and is approximately 11km in length. This drain provides an outlet for over 500 rural properties and the entire urban area of Harrow. The drain runs from County Road 20 west of Harrow travelling northerly until it makes a bend easterly midway between the 5th and 6th Concession Roads. The drain then starts travelling in a southerly direction back towards the 5th Concession Road with its eventual outlet into the Cedar Creek south of the 4th Concession Road. The Cedar Creek (natural watercourse) carries water into Kingsville and eventually out to Lake Erie.

The Richmond Drain has gone through various improvement projects over the years with the last major improvement conducted in 1978 from County Road 20 to just south of the 5th Concession Road. Other improvements have included bank stabilizations near the 5th Concession Road in 1995, 2020 and 2024. The documented maintenance activities completed over the last 25 years include beaver control, bank repairs, blockage removals, brushing and ditching of portions of the drain.

Municipal drains have generally been designed to handle a 1:2 year storm event. It would be anticipated that this would have been the level of service provided through the latest improvement project. It is important to note that this system is draining into a natural watercourse, which is not managed by any specific organization or person. Any works in the Richmond Drain must take into consideration what the downstream channel can handle in terms of flow to prevent damage or flooding to downstream lands/roads.



From 2021 to 2022, the Town completed hydrologic and hydraulic modelling for the Harrow Storm Sewer System to help support future development and identify flood prone areas of the urban centre. In terms of future development within the Harrow area and the impact to the Richmond Drain, developments will be required to implement stormwater management plans for quality and quantity controls in accordance with applicable standards. These plans will include restriction of release rates from their sites to the system at a predevelopment rate as to not cause further strain on the watershed.

The flood event of August 2023 was determined to be over a 1:100 storm event and the Richmond Drain was surcharged for many days following that event especially given the large

area that the downstream Cedar Creek watershed serves. Flooding was experienced throughout the watershed during this event. It was observed that areas within the upstream watershed limits experienced flooding for approximately 2 days following the event. During this storm the Richmond Drain performed well under its current conditions and design, the only downfall which was mentioned above is that this drainage area is restricted by a natural water course at the outlet, which played a big role in the performance of drainage within the Harrow urban and rural areas. When the outlet of the Richmond Drain surcharged it caused the Richmond Drain to slow down and raise water levels until the lower drainage areas had time to subside.

In terms of current condition, the drain is currently heavily vegetated and difficult to access considering it is located within private property going through predominantly agricultural, residential and bushed properties. A condition assessment of the entire drain would primarily need to be completed by walking as the drain is not accessible with a vehicle. The photos below show a sample of the condition of the drain in various road crossing locations.





To address concerns with the condition or level of service of the Richmond Drain, Council could take the following actions:

Option 1: Master Drainage Study

Council could appoint an engineering firm to complete a master drainage study on the Richmond Drain, which would provide information about the condition, current level of service and provide recommendations on how improvements could be made. A study of this nature would need to be fully funded by the Town of Essex at an approximate cost of \$250,000-\$300,000. If Council decided to move forward with any of the options of the study, a Section 78 appointment would be required under the Drainage Act and a drainage engineer to proceed with any improvements through a drainage report. These improvements would then be paid by the watershed as a whole with any lands or roads using the drain being responsible to pay their fair share.

Advantages:

- Receive a full review of the drain capacity.
- The study would provide options to proceed with improvements, although they could be financially unfeasible.

Disadvantages:

- Very expensive option (\$250,000 - \$300,000).
- Would still require a further drainage report to implement the recommendations and would impose costs on private landowners that may not desire these improvements.

Option 2: Section 76 – New Maintenance Schedule

Council could appoint an engineer under Section 76 of the Drainage Act to provide an updated maintenance schedule on the Richmond Drain. This would be necessary to complete

maintenance works especially on the very downstream end of the drain as there is not a current schedule on file for this section of drain south of the 5th Concession.

Advantages:

- Least expensive option.
- Allows the Town to complete maintenance works on the downstream end (will need to happen at some point anyway).

Disadvantages:

- No review of the drain capacity or options for improving the drain.
- Under drain maintenance, the drain can only be restored to original design as per the original drainage report.
- This drain is considered 'sensitive' in nature, and since the original report is from the 1940s, it would be difficult and it is very likely there are components of the drain that can no longer be restored to the original design because of years of erosion and natural widening of the channel.
- The cost to prepare this report would not be grantable by the Ontario Ministry of Agriculture, Food and Agribusiness.
- Maintenance works are not eligible for debentures.

It is Administrations opinion that this option is not feasible as the disadvantages of this approach greatly outweigh the advantages.

Option 3: Section 78 – Improvement Project

Council could appoint an engineer under Section 78 of the Drainage Act to review and make improvements to the Richmond Drain. This could be completed either by requesting a preliminary report which provides options for possible improvements or through a standard report whereby the engineer would author a report with their recommended improvement.

Advantages:

- The drainage engineer would consult with agencies and everyone in the watershed to ensure that the needs of the watershed are met before proceeding with the improvement. This could vary from doing nothing to completing capacity improvements.
- An updated maintenance schedule for future works would be inherent with this process alleviating any additional costs affiliated with obtaining this information.
- This process would also allow the construction cost to be debentured allowing landowners to finance the cost of these works, which would not be available if the works were completed through maintenance.

Disadvantages:

- The engineering cost to complete this evaluation will be more than undertaking only a maintenance schedule, however, the benefits of this option provide necessary information to complete this project and outweigh the added costs.
- Would impose significant cost onto all the lands and roads in the watershed.

Of all the options, this would be the recommended option to proceed with reviewing the Richmond Drain.

Works on municipal drains are typically initiated upon request by a landowner or road authority within the watershed, however, this is not a mandatory requirement. The review of the options above suggest that a Section 78 report would be the most appropriate next step to address the Richmond Drain.

If Council would like to move forward with a project on the Richmond Drain, Council may choose to direct administration to prepare a report to appoint an engineer to review the Richmond Drain. Alternatively, if Council wishes to not proceed with any of the options at this time, it will be likely that a project would be initiated upon the request of a landowner and would result in the initiation of a Section 78 appointment through Council. It is the

recommendation of Administration that Council allow this project to be initiated by a assessed landowner as the cost to complete a Section 78 will be borne by all benefitting land and road owners, the drain appears to be functioning as designed, and the Town has not received any formal complaints regarding the condition of the Richmond Drain.

Financial Impact

There is no financial impact to this report as this report is providing information only.

Link to Strategic Priorities

- Embrace asset management best practices to build, maintain, and continuously improve our municipally owned infrastructure.
- Leverage our Town's competitive advantages to promote jobs and economic investment.
- Take care of our natural environment and strengthen the sense of belonging to everyone who makes Essex "home".
- Deliver friendly customer service in an efficient, effective, and transparent manner while providing an exceptional working environment for our employees.
- Build corporate-level and community-level climate resilience through community engagement and partnership and corporate objectives.

Report Approval Details

Document Title:	Richmond Drain Review .docx
Attachments:	
Final Approval Date:	Apr 14, 2025

This report and all of its attachments were approved and signed as outlined below:

Norm Nussio, Manager, Operations and Drainage - Apr 14, 2025 - 10:16 AM



Kevin Girard, Director, Infrastructure Services - Apr 14, 2025 - 11:49 AM



Doug Sweet, Chief Administrative Officer - Apr 14, 2025 - 11:54 AM