

## Report to Planning and Environment Committee

**To:** Chair and Members  
Planning & Environment Committee

**From:** Scott Mathers, MPA, P. Eng.,  
Deputy City Manager, Planning and Economic  
Development

**Subject:** Upper Thames River Conservation Authority Service  
Level Review and Thames River Draft Floodplain Update –  
Status Update

**Date:** December 3, 2024

## Recommendation

That, on the recommendation of the Director, Planning and Development and the Director, Water, Wastewater and Stormwater, the update on the Upper Thames River Conservation Authority Service Level Review and Thames River Draft Floodplain Update – Status Update **BE RECEIVED** for information.

## Executive Summary

The purpose of this report to Committee and Council is to provide an update following the initial report presented to the Planning and Environment Committee on April 30, 2024.

The scope of the Service Level Review within the Upper Thames River Conservation Authority departments has not changed but the approach and timing has been adjusted. The intent of the Service Level Review is to complete an analysis of the efficiency and applicability of comments during the development review process and introduce recommendations on how to streamline their review process to enable more timely development approvals while protecting the natural environment. In addition, the City had identified the need to review the UTRCA's efficiency in conducting in-house floodplain modelling.

Further to this, the UTRCA presented a draft update to the Thames River regulatory floodplain on September 17, 2024 to the City. Staff have completed a preliminary review of the regulatory floodplain initiative to understand how this impacts land within the City.

## Linkage to the Corporate Strategic Plan

This recommendation will contribute to the advancement of Municipal Council's 2023-2027 Strategic Plan in the following ways:

**Housing and Homelessness** by advancing projects that support a well-planned and growing community; faster/streamlined approvals; and increasing the supply of housing with a focus on achieving intensification targets.

**Climate Action and Sustainable Growth** by being bold and forward thinking as we maintain the balance between the natural and built environment; and making sure London's infrastructure is designed, operated, and maintained to support our community and residents long term needs.

**Well Run City** by advancing initiatives that ensure Londoners experience good stewardship, exceptional and valued service.

# Analysis

## 1.0 Background Information

### 1.1 Previous Reports Related to this Matter

Planning and Environment Committee, June 21, 2021, Agenda Item 2.2, Memorandum of Understanding for Development, and/or *Planning Act* Application Review Between the City of London and UTRCA

Planning and Environment Committee, October 23, 2023. Agenda Item 2.3, Conservation Authority Cost Apportioning Agreements

Planning and Environment Committee, April 30, 2024, Agenda Item 4.1, Upper Thames River Conservation Authority Service Level Review

### 1.2 Background and Purpose

As previously reported to the Planning and Environment Committee, on April 30, 2024, the City and Upper Thames River Conservation Authority (UTRCA) first entered into a Memorandum of Understanding (MOU) in 1997 and were working towards a revised MOU in 2021. This would create clear expectations for commenting staff to minimize duplication during development application reviews, with an objective of creating a more efficient review process.

As a result of the legislative changes to the *Planning Act*, specifically Bill 109 and Bill 23 and further changes to the Conservation Authority Act and changes under O.Reg. 41/24, Staff have been revisiting the DMOU approach and instead have been collaborating with the UTRCA to complete a Service Level Review within their Environmental Planning and Regulations Department and their Water and Information Management Department. With the scope of comments required by Conservation Authorities and shorter timelines regulated by new legislation, a Service Level Review (SLR) will provide the City and the UTRCA the ability to recognize service level improvements.

On September 17, 2024, the UTRCA presented a draft update to the regulatory floodplain of the Thames River to the City and later issued letters to London residents impacted by the changes. Since this initial update, City Staff have been reviewing how these changes could impact residents and development within the City.

## 2.0 Discussion

As part of this collaborative effort for a Service Level Review within the UTRCA's Environmental Planning and Regulations Department and Information Management Department, City Staff recognize the benefit of having UTRCA complete this review and the impact this can have on expediting approvals to accelerate more housing units. As such, both the City and the UTRCA have set aside \$100,000 each towards this SLR. This review is an important step forward to streamline approval processes as we work towards the City's housing target of 47,000 units by 2031.

In addition, the floodplain modelling is a critical component of how land in the City can develop. The City has completed a preliminary review of the draft update for the Thames River and from Staff's review the proposed updated regulatory floodplain is 0.8 to 1.5 metres higher than the current floodplain, leading to an **additional 406 buildings** (equates to 474 addresses which may include multiple residential units) and 145 hectares being included in the floodplain. Half of these buildings (213 of 406) are in the Beaufort/Irwin/Gunn/Saunby (BIGS) neighbourhood.

City staff conducted a preliminary review, with the objectives to ensure the floodplain limits meet provincial guidelines and regulations while balancing flood protection, uncertainty, and level of service within the City limits.

From the current draft, City staff believe that the flow rates may exceed the provincial 250-year storm event standard for the Thames River identified in Ontario Regulation 41/24. This report details the potential impacts of increased floodplain limits in the City of London and highlights key comments to be provided to UTRCA.

## **2.1 Service Level Review Items**

The Service Level Review (SLR) will assess the efficiency of current review processes by evaluating numbers of applications, staffing resources, applicability of comments for development, building permits, and section 28 processes within the UTRCA for development and City initiated projects. The review will also include a value-for-money review of UTRCA's regulatory floodplain mapping services. Since Staff's initial report to Planning and Environment Committee on April 30, 2024, the SLR timing and phasing approach has been adjusted as detailed below.

### **2.1.1 Phase 1 - Identification of redundant Services & approval process framework best practices**

Phase 1 of the review will include an inventory of existing staff and staff time dedicated to building permits, development applications, and Section 28 reviews. One of the objectives will be to identify areas of overlap in services that UTRCA is providing, recognizing the City of London have staff within the stormwater engineering, hydrogeology, and ecology service areas. Redundant review comments from both groups could be leading to delays within the approval process.

In addition, the SLR will also include a process framework best practice and a comparable Conservation Authority analysis. This review will be valuable to the approval process, as it will create and establish clear expectations for residents and applicants. Further to this, this analysis and priority item will assist to establish the continuous improvement culture within UTRCA.

### **2.1.2 Phase 2- Floodplain modelling and mapping value for money audit**

Following the completion of the Phase 1 scope, the Phase 2 scope will include a review of floodplain modelling and mapping with a value-for-money audit.

Floodplain mapping is essential to maintaining public safety and providing orderly development. UTRCA has been undertaking floodplain mapping work primarily relying on in-house staff to complete the modelling and mapping. The most critical modelling relates to the Central Thames watershed that includes the north, south, and main branches of the Thames River.

Many large Conservation Authorities (e.g., Toronto and Region Conservation Authority, Credit Valley Conservation Authority, Grand River Conservation Authority, Conservation Hamilton) have engaged external consultants to expedite floodplain modelling and mapping. This approach may improve UTRCA's ability to complete this critical mapping.

Given the funding provided to date and the number of years it has taken to finalize modelling and mapping work; it is recommended that a value-for-money audit be undertaken. This review will allow the City and UTRCA to understand if the current approach, relying primarily on in-house staff, can be improved.

### **2.1.3 Service level review status update**

The Service Level Review is a priority for the City and UTRCA. Initially, Staff thought this review could be complete by Q3 2025, but the phasing the project will result in longer timelines. Staff are anticipating that both Phase 1 and Phase 2 can be completed before the end of 2026.

One of the reasons to separate the project into two phases is the project includes a review by two different teams within the UTRCA, which includes the Environmental

Planning and Regulations Department and the Water and Information Management Department. Currently, the Water and Information Management Department is completing the Thames River floodplain update which would take their focus away from a SLR if the two were completed concurrently.

As part of this SLR there will still be quick initiatives that can be implemented as part of this analysis to improve the approvals process. This project will be tracked closely by the City and will require quarterly project updates following the successful appointment of a consultant and a final presentation on project findings to the Planning and Environment Committee. UTRCA is close to posting the request for proposal for consultants to bid on this project.

## **2.2 UTRCA Thames River Floodplain Update**

In May 2024, the UTRCA provided draft linework of the Regulatory floodplain limits of the Thames River to the City. On September 17, 2024, the UTRCA presented the methodology that generated the draft Upper Thames River Regulatory Floodplain to City staff.

As a result of the impacts to City properties and infrastructure implications, the City requested to review UTRCA's methodology reports as well as the peer review that had been completed by three professionals of varying backgrounds (i.e. from academia, another CA, and an engineering consultant).

### **2.2.1 City's preliminary review**

There are two conservation authorities responsible for managing flood risk in the Thames River: Upper Thames River Conservation Authority (UTRCA) and Lower Thames River Conservation Authority (LTRCA). The divide between the two conservation authorities (CA) occurs roughly at Delaware.

In April 2024, the province released Ontario Regulation 41/24 which describes the regulatory storm events for UTRCA and LTRCA as "equivalent to the combination of events that caused the flood event on the Thames River in April of 1937...estimated to be equivalent to a 1 in 250-year return flood." Further, O.Reg. 41/24 identifies a "flow rate of 1,540 cubic metres per second (cms) commencing at Delaware."

Overall, City staff do not object to the UTRCA's approach to the floodplain update and support the selection of professionals to conduct the peer review. However, there are indications that the results exceed the provincial standard of the 250-year regulatory storm event identified by the province O.Reg. 41/24.

It is Staff's opinion that there may be two predominant factors increasing the water levels that require further consideration, related to the stream gauge statistical analysis and the concept of applying a freeboard to consider climate change.

#### ***2.2.1.1 Statistical analysis of water stream gauges***

The UTRCA's regulatory flow estimates for a 250-year event were generated using historical flow gauge data collected by the Water Survey of Canada across the watershed. To verify the statistical analysis, City staff followed the methodology described in the UTRCA's hydrology report at the Byron Gauge. The City's analysis generated a lower flow rate of 1578 cms, and Staff could not replicate the UTRCA's 250-year flow of 1810 cms, representing a change in water level of 0.5m.

As a second reference point, the 250-year flow rate identified in O.Reg. 41/24 at the dividing line between UTRCA and LTRCA at Delaware is 1540 cms. The UTRCA's updated analysis indicates a flow rate of approximately 1987 cms at Delaware, representing a 25% increase over the current provincial standard at the CA's boundary.

### **2.2.1.2 Consideration of climate change**

The province directs that climate change should be considered in floodplain updates but has not provided specific guidance to address climate change impacts. In 2017, technical guidelines from major CAs in Ontario (e.g. Toronto Region Conservation Authority, Credit Valey Conservation Authority, and the Grand River Conservation Authority) recommended evaluating the impacts of climate change using the past 50 years of historical rainfall data.

Following this approach, the City conducted statistical analysis of the London Airport rain gauge data, collected up to 2021, and confirmed range of a 15% decrease and a 2% increase, compared to UTRCA's 250-year intensity-frequency-duration (IDF) parameters. This supports updating the 250-year regulatory event based on current observed stream flow data and not including additional assumed factors to account for climate change.

### **2.2.1.3 Freeboard assessment**

Rather than adopt the approach applied by the largest CA's, the UTRCA has included a 0.3m freeboard to account for climate change within the Regulatory Floodline. In this case, "freeboard" represents an additional vertical elevation between the regulatory water level and the proposed floodline. There is no precedent of other CAs including freeboard as a climate change factor with the regulatory floodplain limit line.

The City's position is that the 250-year Regulatory Floodline should reflect only the flood estimated during the 250-year event per O.Reg. 41/24. Rather than incorporating a freeboard into the flood modeling, it is recommended that a freeboard allowance of 0.3 be included in the CA's implementation standards for floodproofing. This is an approach used by several other CAs.

### **2.2.1.4 Outdated data**

The UTRCA's statistical analysis was limited to including data up to 2010, therefore, missing 13 years of data. This was identified by the UTRCA's peer reviewers but not addressed in the final outputs. Given that the flow analysis is governing the increased flow rates, it is recommended that the UTRCA update its dataset to 2023 to ensure that this floodplain update is representative of current available data.

## **2.2.2 Impacts of expanding the floodplain**

Public safety and property protection are paramount in the consideration of flooding and climate change adaptation; however, higher floodplain limits impact property values, restrict development, and increase infrastructure costs for municipal bridges, culverts, and dykes.

On September 17, 2024, the UTRCA stated that the impacts of the increased flood limits on property owners or infrastructure had not been reviewed. However, City staff has reviewed several areas that are impacted by the floodplain limit increase.

### **2.2.2.1 Buildings/structures**

The floodplain area has increased by approximately 145 hectares (10%) when comparing the updated draft floodplain (1481 hectares total area) with the existing regulated floodplain (1336 hectares total area). The floodplain increase has added 406 buildings, which equates to 474 addresses that may include multiple residential units to the floodplain, bringing the new total number to 2175

buildings within the floodplain. A methodology was not provided on how it was determined whether a building/structure was defined as inside or outside the floodplain, especially when a building/structure footprint is partially touching or within proximity of the floodplain.

### **2.2.2.2 Land use and city impacts**

The possible implications of adopting higher flow rates and increased floodplain limits include:

- Limiting land re-development or intensification opportunities within the expanded floodplain limits;
- Longer approval processes for development that may be able to mitigate the floodplain impacts;
- Impacts to property value for new properties in the floodplain;
- Inability to allow basement apartments;
- Increased costs to taxpayers to construct municipal infrastructure based on higher flow rates (i.e. bridges, culverts, dykes); and,
- Potential lawsuits from landowners, costing the CA and the City (if adopted in the Official Plan, The London Plan) time and money to justify the updated floodplain limits in court.

### **2.2.2.3 Example of impacted area**

One of the largest existing areas impacted by the floodplain update is the Beaufort/Irwin/Gunn/Saunby (BIGS) Neighbourhood Secondary Plan completed by the City in 2016. The BIGS neighbourhood is located north of Oxford Street and Wharncliffe Road at the Canadian National (CN) Rail Tracks. The Secondary Plan identified opportunities for intensification and redevelopment to enhance the character of the area and support provincial housing targets.

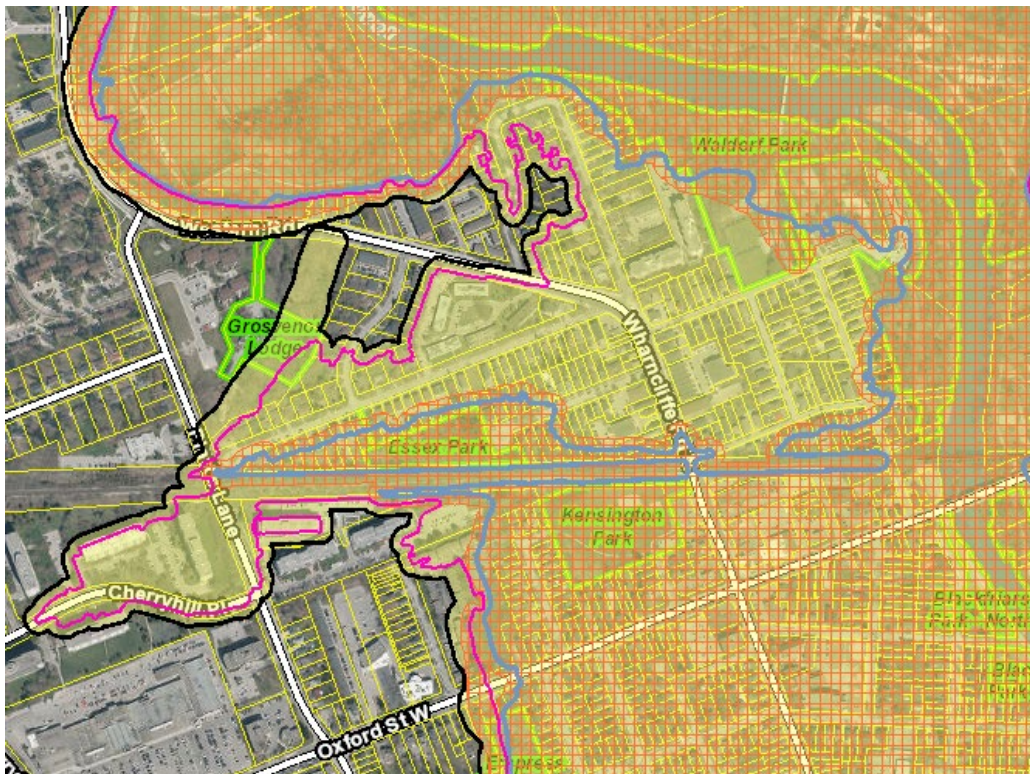


Figure 1: Draft Updated Regulatory Floodplain limit in the BIGS Neighbourhood

Figure 1 depicts the blue line as the current floodplain limit and the pink line as the proposed floodplain limit. Impacts within this area include 213 buildings (equates to 246 addresses which may include multiple residential units) and approximately 31 hectares of added floodplain area.

There are several additional homes and businesses impacted that are adjacent to the Thames River. The City's comments will request the UTRCA conduct a



refined assessment of the water level analysis and to investigate the building openings prior to including additional properties in the floodplain limit.

### 2.2.3 Preliminary review summary

An underlying challenge with establishing floodplain mapping is that modelling is an interpretive and often subjective practice. An engineer requires a good understanding of the watershed to construct hydrologic and hydraulic models, but it is challenging to depict highly variable natural phenomena, such as weather, with reasonable accuracy and reliability. Theoretical flood risks need to be assessed critically against historical flood response, professional judgement, ground-truthing, and ideally, a cost-benefit risk assessment. Figure 2 illustrates the components of balancing flood risk, uncertainty, and level of service:

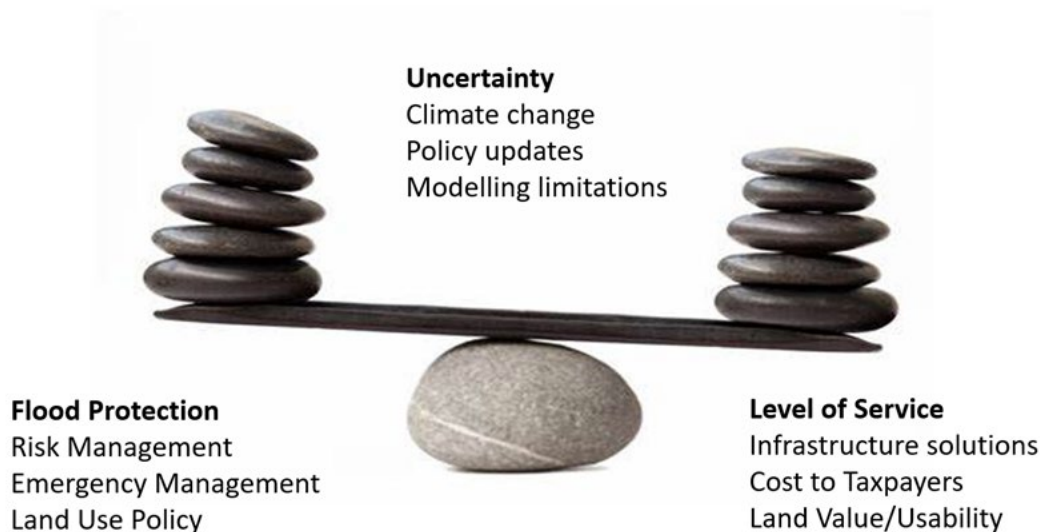


Figure 2: Balancing Flood Protection

City staff recommend that a balanced approach must be applied when considering the Thames River Regulatory Floodplain update. As a result of our preliminary review, City staff recommend that the UTRCA provide more details on the statistical analysis to explain how the 250-year flow rates were generated, update the dataset up to 2023, and to remove the 0.3m freeboard from the floodplain limit. Once completed, new properties within the updated floodplain should be considered in more detail prior to being included within the Regulatory Flood limit. An updated model with documentation would then be presented to the City and property owners for further review.

### 3.0 Financial Impact/Considerations

Both UTRCA and the City have set aside budget to fund this Service Level Review.

The direct and indirect cost impacts to the floodplain update are undefined at this time.

## Conclusion

Streamlining housing and development approvals within the City is a strategic priority to achieve Council's housing pledge of 47,000 units by 2031. City staff and the UTRCA are collaborating on a Service Level Review that will review the efficiency and applicability of comments during the housing and development approval process, as well as a value-for-money audit of modelling practices. One of the objectives of this review is to establish a culture of continuous improvement within UTRCA. As part of this project, regular quarterly updates and a final presentation to the Planning and Environment Committee are included as deliverables.

Regarding the UTRCA's Thames River floodplain update, City staff recommend that the UTRCA provide more details on the statistical analysis to explain how the 250-year flow rates were generated in the Thames River, update the dataset up to 2023, and that a

freeboard allowance of 0.3 be included in the CA's implementation standards for floodproofing rather than within the floodline. Further, a review of impacted property should be considered prior to expanding the floodplain. An updated model with documentation would then be presented to the City and property owners for further review prior to finalizing.

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