

Council Report No. ENG 092-2025

Date: November 25, 2025

File No. 5225-03

To: Mayor and Council
From: Kathy Zhang, Drainage Engineer
Subject: Fishtrap Creek Integrated Stormwater Management Plan

RECOMMENDATION

1. That Council direct staff to undertake public consultation for Stage 3 of the Fishtrap Creek Integrated Storm Management Plan (ISMP); and
2. That Council direct staff to proceed to Stage 4 of the ISMP following completion of Stage 3.

REPORT CONCURRENCE	
GENERAL MANAGER The General Manager concurs with the recommendation of this report.	CITY MANAGER The City Manager concurs with the recommendation of this report.

PURPOSE

The purpose of the Fishtrap Creek Integrated Stormwater Management Plan (ISMP) is to develop strategies to address watershed issues, minimize impacts of future development and climate change, and improve drainage infrastructures in the Fishtrap Creek watershed to support safe and sustainable growth of the watershed and protect the environment.

SUMMARY OF THE ISSUE

To achieve the overall goals of the Fishtrap Creek ISMP, the project is conducted in four stages as follows:

- Stage 1 Background Review and Data Assessment – completed
- Stage 2 Evaluation and Assessment – completed
- Stage 3 Draft Plan – ongoing
- Stage 4 Final Plan – to be completed

Stage 1 Background Review and Data Assessment consisted of a review of existing conditions and data assessment of the watershed characteristics and a review of existing bylaws and criteria to manage stormwater and drainage. Key issues and concerns were obtained from background review and initial stakeholder input, pertaining to water quality, wildlife presence/habitat, creek erosion and sedimentation, and flooding.

Stage 2 Evaluation and Assessment included a further review of the current stage of watershed and key issues identified in Stage 1, an assessment of the drainage system, impacts of development, and the need for protection of fisheries and other environmental values.

Stage 3 Draft Plan includes alternatives to address the existing issues and mitigate the potential impacts of future development and improve watershed health. The draft plan recommends Fishtrap Creek watershed criteria and bylaws updates pertaining to runoff volume and peak flow reduction, water quality treatment, green road standards, onsite source control, tree protection, and streamside protection.

The draft plan summarizes recommended projects, including cost estimates, implementation priority, and responsibility for implementation, and is recommended to proceed to public consultation.

BACKGROUND

The City initiated an ISMP for Fishtrap Creek in 2019. An ISMP is a process of investigating stormwater, aquatic, and terrestrial habitat issues in a holistic approach at the watershed scale, providing watershed enhancing guidelines for future development, and infrastructure improvement to ensure future development in an environmentally respectful and sustainable manner.

This project is conducted in four stages: Stage 1 Background Review and Data Assessment and Stage 2 Evaluation and Assessment are already completed, while Stage 3 is in process and Stage 4 is anticipated to be completed in the Winter 2025/2026.

The Fishtrap Creek watershed is an international watershed with its upper half in Canada and its lower half in the United States. The ISMP study focuses on the watershed within Canada, which is bounded by the Canada/US border to the south, west beyond Ross Road, north past Blueridge Drive, and east to Trethewey Street. It is approximately 31.8 km² in size.

The objectives of this ISMP are to:

- identify strategies to address flooding, erosion, sedimentation, and water quality issues.
- identify the capacity deficiencies of the existing drainage systems.
- determine impacts of future development on peak flow and drainage infrastructure.
- provide strategies to minimize the impacts of future development.
- recommend capital improvement projects incorporating climate change impacts.
- develop recommendations for implementation of the ISMP strategies for long-term success.

An extensive stakeholder consultation process has been conducted throughout Stage 1 and Stage 2 of the project, as well as Stage 3 internal stakeholder consultation (details included in Appendix A):

- Stage 1 Background Review and Data Assessment: Public engagement in Spring 2019.
- Stage 2 Analysis and Evaluation: Presentation to Council and Council Committees and website update in Summer 2021.
- Stage 3 Draft Plan: Stage 1 and Stage 2 feedback from various stakeholders, organizations, and the public was carefully reviewed, documented and integrated in the Stage 3 Draft Plan. Internal stakeholders' consultation occurred in Summer 2023, and

First Nations have been invited for input in Stage 3. Presentation to Council Committees, Let's Talk and external stakeholders update is proposed to follow in Stage 3 before the Stage 4 Final Report to Council is completed.

DISCUSSION

The Fishtrap Creek ISMP is currently in Stage 3 (Draft Report), which addresses the following areas:

- Drainage infrastructure improvement
- Flood management
- Erosion management
- Sediment management
- Mitigation of stormwater impacts of future developments
- Environmental restoration and enhancement
- Monitoring and adaptive management

The key findings in this Stage are summarized below:

- Environmental Findings
 - a) Watershed health is poor due to historic development impacts, lack of forest cover, and invasive plant species.
 - b) Poor water quality is caused by litter and garbage, urban and agricultural runoff, overgrowing vegetation, sediment, low oxygen, high temperatures, and low flow.
 - c) Fish habitat is moderate to low quality, and two endangered species of Salish sucker and Nooksack dace present in the watershed.
 - d) Two high risk erosion sites were found along Enns Brook and on the middle Fishtrap Creek mainstem.
- Drainage Assessment Findings
 - a) Conveyance system performs reasonably well against historic criteria, however deficiency exists especially for future development with climate change impacts.
 - b) Upland flooding is largely due to sediment/ vegetation detritus accumulation, culvert blockage, and beaver dams.
 - c) Lowland flooding issues are largely due to the lowland nature of the area where the creek naturally overtops its banks, exacerbated by beaver dams, sediment accumulation, and several undersized culverts.
 - d) Large portions of the watershed are well drained and offer good opportunity for infiltration.

The draft ISMP recommends the following mitigation plans:

- Flood Management
 - Upgrade undersized culverts and storm sewers
 - Improve detention deficiencies
 - Enlarge lowland channel capacity and berm banks to convey 10-year flow
- Erosion Management
 - Manage beaver dams, creek sediment, and channel vegetation
 - Rehabilitate and stabilize instream erosion sites
- Sediment Management

- Remove sediment and detritus from ponds and sediment traps
- Mitigate Impacts of Future Development
 - Protect riparian, ravine, and wildlife areas
 - Maximize low impact development techniques
 - Construct stormwater quality treatment measures
 - Construct detention/ infiltration facilities
- Environmental Enhancement
 - Improve fish passage
 - Restore riparian areas and planting
 - Identify water quality pollutant sources and treat before discharge to creek
 - Investigate/ improve low summer baseflow
- Municipal Stormwater Management Program - Recommended Criteria and Bylaws
 - Treat stormwater prior to discharge to watercourses
 - Reduce runoff volume and peak flows to preserve baseflows and minimize downstream erosion and habitat degradation
 - Update Development Bylaw to develop green road standards for stormwater treatment and volume reduction
 - Enforce City's Erosion & Sediment Control and Streamside Protection Bylaws
 - Enhance and enforce City's Tree Protection Bylaw in all areas of the watershed
 - Update GIS and Watercourse Classification mapping based on field survey findings

Details of the findings and mitigation alternatives of the Draft Report are included in Appendix A Executive Summary.

Works were prioritized into categories: Immediate Work, 5-year Plan, Long-term Plan, End of Life, and At Time of Development by future developments. Details of the implementation plan are included in Appendix A.

The next steps include:

- Presentation to Council Committees
- Project Update – ISMP Final Draft Report (Let's Talk Abbotsford) in Fall 2025
- Open House – Fall/Winter 2025
- Stage 4 Final Report to Council for adoption in winter 2025/2026.

FINANCIAL PLAN IMPLICATION

Adoption of the ISMP and its recommendations have financial implications. The Capital Drainage Program utilizes a combination of Development Cost Charges, Urban Drainage Levies, and drainage reserves, and \$5.4 M appears to be available to fund the immediate work.

Over the next five years, an estimated cost of \$41.7 M is needed to upgrade drainage systems, remove sediment, stabilize erosion sites, modify detention facilities, and survey the creek.

In consideration of other funding priority elsewhere in the City, the financing and timeline of the projects recommended in the ISMP will be incorporated into the upcoming overall Drainage Master Plan Update for prioritization and may be adjusted at the time of future annual budget update.

The Draft ISMP has implications for other City departments and budget, and the Financial Plan Implications will be reviewed as part of the implementation plan (Appendix A).

IMPACTS ON COUNCIL POLICIES, STRATEGIC PLAN AND/OR COUNCIL DIRECTION

The Fishtrap Creek ISMP supports the City's Principal of "Sustainable and Safe City" and the goal of sustainable growth and minimizing environmental impacts. It also supports the climate resilience strategy to address climate change in our community. It aligns with the Engineering departmental plans for drainage infrastructure improvements to serve the growing community.

APPROVALS

Nathan Koning, General Manager of Engineering and Regional Utilities
Komal Basatia, Chief Financial Officer
Peter Sparanese, City Manager

ATTACHMENTS

Appendix A - Executive Summary