

Flood Resilience Land Use Bylaw Amendments

PURPOSE

This report seeks Council approval to amend the Land Use Bylaw 1P2007 (the Bylaw) to align development regulations with updated provincial flood hazard mapping and City-led river flood-induced groundwater risk mapping. The amendments are being brought forward now to support safer and more resilient development in Calgary's river communities, leverage the value of recent engagement and provide regulatory clarity following finalization of provincial flood maps in 2025.

PREVIOUS COUNCIL DIRECTION

At the 2017 April 10 Combined Meeting of Council, Council adopted the Flood Resilience Plan and directed Administration to conduct a land use planning and policy review and update, ensuring land use regulations work in concert with upstream and community flood infrastructure (Attachment 1). This report and recommendations fulfil that direction.

RECOMMENDATION(S):

That the Infrastructure and Planning Committee:

1. Forward this Report to the 2026 June 23 Public Hearing Meeting of Council; and
2. Give three readings to the proposed bylaw to amend Bylaw 1P2007, the Land Use Bylaw (Attachment 5).

CHIEF ADMINISTRATIVE OFFICER/GENERAL MANAGER COMMENTS

General Manager Debra Hamilton concurs with this report. The proposed Land Use Bylaw amendments will ensure development regulations reflect current flood hazard and groundwater risks, accounting for flood mitigation infrastructure now in place while strengthening public safety and providing clearer, more consistent outcomes for Calgarians in flood-affected areas.

HIGHLIGHTS

- While the Province produces maps identifying areas prone to hazardous overland flooding, municipalities are responsible for regulating land use and development standards in those areas.
- The Land Use Bylaw 1P2007 regulates development in flood hazard areas, considering local conditions and Council priorities for public safety and resilience.
- In 2025, the Province released updated flood hazard mapping and introduced a new approach to defining flood hazard areas, including a new High Hazard Flood Fringe and Protected Flood Fringe.
- The City has also developed its own new groundwater risk maps and is recommending adding a Groundwater Flood Fringe (GFF) alongside updated provincial flood hazard areas.
- Collectively, the new River Flood Maps are proposed for insertion in the Bylaw to replace the current and now outdated Floodway, Flood Fringe, and Overland Flow maps.
- Bylaw amendments are also proposed that support the new River Flood Maps and are better aligned to current flood risk and the significant investments made to protect communities from flooding since 2013.

Flood Resilience Land Use Bylaw Amendments

- The amendments propose stronger safeguards in the highest risk areas while allowing continued growth in lower risk and protected areas, providing a balance between safety and city-building needs.
- Proposed amendments were developed through a multi-stage public engagement as part of the Calgary River Valleys Project.

DISCUSSION

Background

Flood hazard mapping is developed by the Province for overland river flooding. These maps are based on the 1-in-100-year (1:100) flood event, which is linked to a river flow-rate that has a 1 per cent likelihood of occurring in any given year. It does not mean that this size of flood event will only occur every 100 years. These maps are used by municipalities for planning and to make local land use and development decisions.

The flood hazard maps officially form part of the Bylaw. The Bylaw also contains rules that regulate development in the areas on the maps. These maps and rules have been in Calgary's Bylaw since 1985 when mapping for the Bow and Elbow River was first produced.

Periodically, the Bylaw must be amended to incorporate updates to the flood maps or regulations. This happened in 2012 when mapping for Nose Creek and West Nose Creek was released, and in 2014 after the June 2013 flood event. The City may also develop its own hazard mapping, to reflect local conditions and meet Council priorities for public safety and resilience, including for groundwater flood risk.

After the 2013 flood, The City advanced a series of studies and actions to reduce river flood risk. As of 2026, Calgary's flood damage potential of a 1:100 flood has been reduced by 70 per cent. Although our city is more resilient than ever, our river communities remain vulnerable to varying degrees of flooding, and development regulations in flood hazard areas remain essential to ensure safety and address residual risks.

To ensure the regulatory updates reflect both technical evidence and Calgarians' priorities for their river valleys, Administration established the Calgary River Valleys Project (CRVP) in 2023 as a multi-year planning and engagement forum to understand how Calgarians value and want to shape their river valleys including areas impacted by flooding. Administration used the CRVP engagement to gather input on the updated 2025 River Flood Maps and proposed flood resilience regulations.

Making careful decisions about how we plan, develop and build in flood-affected areas is fundamental to protecting and enhancing resilient river communities. Accordingly, CRVP outcomes will inform aligned amendments to the Calgary Plan and the Bylaw amendments contained in this report. This ensures Calgary's guiding documents consistently address development, planning and investment in river valleys and areas impacted by flooding.

New Provincial Mapping

In 2025 November, the Province released new flood hazard mapping for communities across the province, including Calgary. In the past, this mapping identified the Floodway, Flood Fringe and Overland Flow areas. The new maps include updates to the location of the Floodway and Flood Fringe areas, as well as introduce two new hazard areas: the High Hazard Flood Fringe, where water is deeper and/or faster than the rest of the Flood Fringe; and, the Protected Flood

Flood Resilience Land Use Bylaw Amendments

Fringe, where a community is protected by a permanent flood barrier designed to at least the 1:100 level (e.g. Sunnyside and Downtown flood barriers). The maps also reflect the flood protection provided by the Springbank Off-Stream Reservoir (SR1), which has reduced the flood hazard area along the Elbow River downstream of the Glenmore Reservoir and to a lesser extent along the Bow River downstream of the confluence with the Elbow.

New River Flood Related Groundwater Mapping

Administration is also proposing a new flood hazard area to address river flood related groundwater risk, which can affect buildings beyond the mapped overland flood hazard areas. As updated Provincial flood mapping reduces or removes some overland flood hazard areas, groundwater represents a key residual flood risk that must continue to be identified and managed. The introduction of a Groundwater Flood Fringe improves awareness of groundwater risk and applies practical, achievable, and readily implemented building design requirements - easiest to incorporate during new development or redevelopment - to reduce vulnerability to basement flood damages. This is consistent with a comprehensive flood resilience approach used in other jurisdictions.

Proposed Land Use Bylaw 1P2007 Amendments

Collectively, the new provincial mapping and the Groundwater Flood Fringe map are recommended to form an updated River Flood Map for Calgary and are proposed for insertion in the Bylaw to replace the current and now outdated Floodway, Flood Fringe, and Overland Flow maps (Attachment 5). A summary of the River Flood Map changes is contained in Attachment 2. Information on the new mapping by river reach and impacted communities is contained in Attachment 3.

This report also proposes Land Use Bylaw 1P2007 amendments to the river flood area regulations to:

- support the implementation of new River Flood Maps,
- reduce risk to property damage through building and development regulations,
- protect public safety by ensuring that development occurs in a manner appropriate to the risk level in the respective flood hazard areas.

All properties in the River Flood Map area will be subject to changes in development regulations that reflect the identified levels of flood risk. The proposed regulations are structured to provide both general building floodproofing regulations which apply to all River Flood Map areas, as well as hazard area specific regulations aligned to an area's risk profile.

Building Floodproofing Regulations

Building floodproofing regulations are scaled to acknowledge existing buildings. New buildings must meet all regulations, while existing buildings will be subject to the regulations only when a building addition is proposed, with requirements applied on a sliding scale based on the size of the addition. Floodproofing regulations include having the main floor and mechanical & electrical equipment located above the Designated Flood Elevation (DFE); setting windows, doors and building penetrations at appropriate flood safe levels; having sewer backflow valves, sump pumps and water alarms installed; and designing building area below the DFE to prevent structural damage from floodwaters.

Flood Resilience Land Use Bylaw Amendments

Hazard Area Specific Regulations

In many communities, flood risk has been reduced by major investments such as reservoirs or flood barriers. Where this is the case, the updated maps and regulations reflect that lower risk. In areas where flood protection has reduced risk (Protected Flood Fringe), the proposed regulations are consistent with the Groundwater Flood Fringe. The focus is on minimizing damage from groundwater flooding through new development processes. In these areas, building floodproofing regulations will apply, aligned to a new groundwater designated flood elevation (DFE).

The strongest regulations are proposed in the Floodway and newly defined High Hazard Flood Fringe (HHFF). In HHFF areas, land use regulation remains the key mechanism for managing significant flood risk and guiding safe, resilient development in areas with limited flood protection. For this reason, these areas are not suitable for living spaces below the DFE, added density including secondary suites, vulnerable uses, or increased building footprints which can increase the velocity of floodwaters. Special allowances for vacant lots are provided. In the Flood Fringe, it is also proposed to not allow living space below the DFE due to life safety risk.

A summary of amendments and regulations can be found in Attachments 4, 5 and 6.

Implementation

Administration is recommending an effective date of 2026 June 23 to provide regulatory clarity following finalization of provincial flood maps in 2025. City staff will continue to support residents, businesses, and other interested parties by providing clear information ahead of the implementation of these regulations. Administration is already preparing updates to internal systems, training staff, and providing guidance to ensure a smooth transition to the new regulations.

If Council approves the recommendations in this report, the River Flood Maps and regulations will be included in the new Zoning Bylaw. Updated policies aligned to these regulations will be included in the Calgary Plan.

EXTERNAL ENGAGEMENT AND COMMUNICATION

- | | |
|--|---|
| <input checked="" type="checkbox"/> Public engagement was undertaken | <input checked="" type="checkbox"/> Dialogue with interested parties was undertaken |
| <input type="checkbox"/> Public/interested parties were informed | <input type="checkbox"/> Public communication or engagement was not required |

Three stages of public engagement were completed between 2023 and 2025 through the Calgary River Valleys Project. Prior to release of the final flood maps, engagement gathered input from Calgarians on river-valley values and priorities to help inform policy and regulatory direction. Draft flood maps and potential regulatory approaches were then shared for input with the public; this feedback informed development of draft regulations proposed for inclusion in the Bylaw, which were presented alongside the finalized mapping for feedback in the third stage.

Engagement focused on communities and property owners affected by flood risk and was open to all Calgarians. The engagement process included in-person events, online surveys and info

Flood Resilience Land Use Bylaw Amendments

sessions, and targeted outreach to interested parties, including community associations, development industry and flood advocacy groups.

The City also worked closely with the Province during the development of the flood maps and coordinated local engagement within provincial timelines. Summaries of engagement results and how feedback was considered are included in Attachment 7.

IMPLICATIONS

Social

Supports social wellbeing by improving public safety and reducing the risk of harm to people living in flood-affected communities. Clear, updated land use regulations also help residents better understand flood risk, make informed decisions about their homes, and build long-term resilience at the household and community level.

Environmental

Development setbacks protect riparian areas that stabilize riverbanks, provide space for high flows, and reduce flood-related erosion and damage. By regulating development in flood-prone areas, these measures increase long-term resilience to increasingly frequent and severe flood events, supporting Calgary's climate-resilience objectives.

Economic

Supports economic resilience by providing clear and consistent land use regulations that reduce future flood damages and uncertainty for property owners and builders. Aligning development with flood risk also protects public and private investments and helps avoid long-term repair and recovery costs.

Service and Financial Implications

This work can be completed with existing base operating funding.

No anticipated financial impact

RISK

Not approving these amendments would introduce the following risks:

- Outdated or inconsistent flood mapping would continue to drive unclear and inconsistent land use decisions, increasing the likelihood that development does not reflect current flood risk or the benefits of existing flood protection investments.
- Approving development that is misaligned with flood risk would increase exposure to public safety concerns, emergency response challenges, property damage, and long-term recovery costs.
- Failure to meet Council direction and Flood Resilience Plan objectives.
- Loss of momentum and confidence resulting from extensive public and interested-party engagement and the commitments made to complete this work.
- Divergence from the direction of other flood risk municipalities in Alberta that have adopted updated flood hazard mapping and implemented similar development regulations.

Approving these amendments would introduce the following risks:

**Planning & Development Services Report to
Infrastructure and Planning Committee
2026 April 15**

**ISC: UNRESTRICTED
IP2026-0212**

Flood Resilience Land Use Bylaw Amendments

- Introduction of a new Groundwater Flood Fringe may increase education needs and near-term compliance costs for some landowners (may be offset by avoided flood damages and lower insurance costs).
- Stronger development regulations in high-risk areas place increased requirements on development.

ATTACHMENT(S)

1. Background and Previous Council Direction
2. Summary of Changes to River Flood Areas
3. Summary of Implications by River Reach
4. Summary of Proposed River Flood Area Regulations
5. Proposed Amendments to Land Use Bylaw 1P2007
6. Proposed Amendments to Land Use Bylaw 1P2007 – Redline
7. Summary of Engagement
8. Presentation

Department Circulation

General Manager/Director	Department	Approve/Consult/Inform
Debra Hamilton	Planning & Development Services	Approve
Nicole Newton	Climate & Environment	Approve
Kathy Davies Murphy	City & Regional Planning	Approve

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