

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

EXECUTIVE SUMMARY

This report proposes changes to Calgary's Municipal Development Plan (MDP) and Land Use Bylaw (LUB) 1P2007 to address flood areas citywide. These policy changes align with the Province of Alberta's emerging policy on flood areas after the recent southern Alberta flood event in June 2013. The intent of the changes to both policy and rules is to maximize public safety and minimize risk and property damage, increase resiliency and provide clarity to building owners seeking to rebuild or repair flood damaged buildings while acknowledging the risk of future flood events. The proposed rule changes also seek to minimize public confusion by ensuring that Calgary's approach mirrors that of the Province.

Due to the rapid redevelopment occurring within the Flood Hazard Areas (FHA) and the approaching 2014 high river flow season, it is important that these amendments come before Council as soon as possible. These amendments are stage 1 of the entire project, to help us align our policies with the Province and to help impose safety and risk reduction measures on future applications. Stage 2 will involve an investigation into the future use of the FHA with consideration of recommendations from other flood advisory panels and possible provincial regulation and mapping changes. A scoping report for stage 2 actions will be brought to Council in Q3, 2014.

PREVIOUS COUNCIL DIRECTION

On 2014 February 24, Council approved PFC2014-0171, which directed Administration to "return to Council by the end of Q2, 2014 with proposed amendments to:

- a. The Municipal Development Plan regarding proposed development in Flood Hazard Areas as outlined in Option 2, Attachment 1 (of PFC2014-0171); and,
- b. The Land Use Bylaw 1P2007 to implement the proposed Municipal Development Plan policy, align with Provincial policy and further regulate development in Flood Hazard Areas as outlined in Option 2, Attachment 1(of PFC2014-0171);"

On 2013 December 16, Council approved PUD2013-0471 which directed "Administration to bring forward to the Priorities and Finance Committee in Q1 2014 a report containing:

- a. An analysis of opportunities to further resilient development within Flood Hazard Areas through land use policies and bylaws, including an examination of the status quo; and
- b. Recommendations that include a proposed course of action, engagement strategy and a resourcing/funding strategy."

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

In addition, the 2013 Recovery Operations Centre, Flood Recovery Framework was approved by Council in September 2013, with the focus of "...collaborating with the different orders of government and external stakeholders to identify opportunities for legislative, regulatory, and policy amendments while also developing long-term risk reduction and resiliency recommendations." Part of the 2014 deliverables identified in the governance and policy section of the framework is for The City to undertake a review of current City policies and LUB 1P2007, to see if revisions or updates in provisions that control development in FHA, (i.e. floodway, flood fringe and overland flow areas), are required, and to subsequently implement any appropriate changes.

ADMINISTRATION RECOMMENDATION(S)

2014 March 27

That Calgary Planning Commission recommend **APPROVAL** of the proposed Land Use Bylaw Amendments and Municipal Development Plan Amendments.

REASON(S) FOR RECOMMENDATION:

Background

The FHA maps in LUB 1P2007 show areas adjacent to the Elbow and Bow Rivers, Nose Creek and West Nose Creek that are prone to flooding. The province created these maps to indicate parcels that were eligible for disaster relief funding based on their location in the FHA. There was an understanding that based on these maps, property owners in the FHA understood their individual level of risk and that there was a recourse, in terms of provincial funding, in the event of a flood. As a result, Administration recognized the need to regulate development in the FHA based on those areas identified by the province, and severity of potential flooding; therefore, the maps (and associated development rules) were adopted into the LUB. Regulations have been in place for the Elbow and the Bow River since 1985, which specified that no new buildings were allowed in the floodway and that development in the flood fringe and overland flow areas had to be designed in such a way to mitigate impacts of a potential flood. The purpose of those rules in the LUB was, and still is, to maximize public safety and minimize property damage of parcels in the FHA. Currently, 'grandfathering' provisions apply to properties along both the Bow and Elbow rivers that were developed prior to 1985 and the implementation of the regulation so as not to impose flood risk reduction rules on development that existed prior to the creation of those rules.

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

LUB 1P2007 divides the FHA into three areas: the floodway, the flood fringe and the overland flow, which were established by the Province of Alberta and is highlighted below in Figure 1a and 1b. The rules in LUB 1P2007, with respect to building in the FHA, are based on past agreement with The Province of Alberta. These have been provided to the City as a minimum standard, indicating that the City can impose more strict regulation where it sees fit to mitigate risk and safety concerns. The City would like to ensure that the standards in the LUB, and the advice to flood affected landowners seeking to rebuild, is appropriate and in alignment with provincial efforts and policy to help minimize future flood damage to buildings in flood prone areas. There is currently no policy in the MDP to guide the planning vision for the FHA.

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

ADMINISTRATIONS RECOMMENDATION TO CALGARY PLANNING COMMISSION

1. Recommend that Council **ADOPT**, by bylaw, the proposed amendments to Land Use Bylaw 1P2007 (APPENDIX I).
2. Recommend that Council **ADOPT**, by bylaw, the proposed amendments to The Municipal Development Plan (APPENDIX III).

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

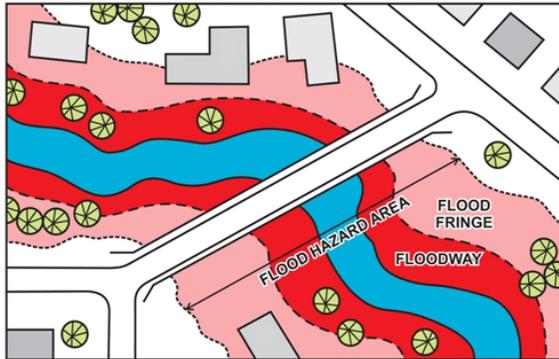


Figure 1a. Plan View of Flood Hazard Areas

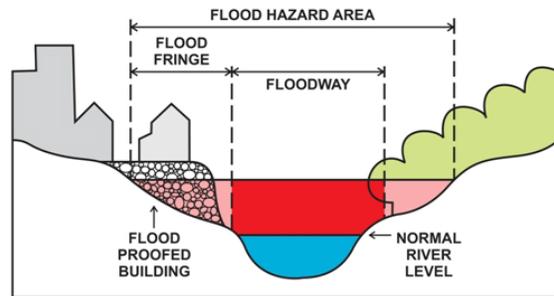


Figure 1b. Cross Section View of Flood Hazard Areas

(Source: Alberta Environment and Sustainable Resource Development¹)

Province of Alberta Direction

Due to recent flood events, the Province of Alberta has indicated that floodway development presents a high ongoing risk of damage in future flood events. The Province has indicated that they will no longer support, for developments within the floodway because they are in a high-risk area where development should not be. Development in the floodway not only has a higher expectancy to be flooded, but can also cause higher water levels upstream; thereby, increasing risks to development upstream. The Province hasn't taken away development rights in the floodway but has indicated that future redevelopment will not receive funding. The Province has also indicated the need to have flood risk reduction measures for development within the flood fringe and overland flow area, such as building on fill, piers, piles, columns, or sealing a house to be water-tight. Flood risk reduction measures will be approved if they are sufficient to protect against a 100-year flood (a flood event that has a one per cent return probability each year).

Goal of Project

The goals of this report and project are to propose LUB and MDP amendments that would increase the resiliency of the city, reduce damage to individual properties, and increase safety of both affected properties and the public. There are three assumptions that have guided the recommendations in this report:

a. Retention of the existing floodway, flood fringe and overland flow

To change the existing definitions of these three areas would mean extensive consultation with the public, as well as having agreement from the Province of Alberta. Retaining the current terms and definitions allows Administration to address any gaps within the LUB or MDP with a clear understanding of what parcels they will apply to and how parcel owners will be affected. This also allows the City to remain aligned with the

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

province as there are no anticipated changes to the provincial flood hazard maps at this time. When and if the provincial maps change, Administration will review how to align with the changes in a subsequent report.

b. Alignment with provincial policy

The Province of Alberta is changing their policy regarding funding opportunities for flood hazard areas; therefore, it is prudent of Administration to propose changes to the City's regulations to reflect these policies. Going beyond the provincial mandate would be much larger in scope and require significant stakeholder engagement.

c. Maintaining development rights

Administration is currently proposing retaining the ability to develop in the floodway through a discretionary use permit for the replacement of low density residential development on parcels that were intended for low density development prior to September, 1985 (redevelopment must be on the same footprint as originally approved). The future intention and vision for the city's floodway should be determined through citywide engagement. Potentially restricting development rights currently allowed within the floodway is a policy and visioning exercise that should be done through a comprehensive public engagement process.

Description of LUB Amendments

Due to the level of redevelopment in these areas, Administration must ensure that applications for redevelopment in the FHA are reviewed by Water Resources and that Administration has the ability to impose advisory and prior to release conditions on all development permit applications. These amendments will allow the City to require all new development in the FHA to implement acceptable flood risk reduction measures, regardless of when the parcel was originally developed, and will also put further restrictions on rebuilding in the floodway. APPENDIX IV further provides a visual example and some scenarios of the changes as well as further information about what may be allowed and what may not be allowed.

a. Floodway

Currently, no new buildings are allowed in the floodway; however, replacement of certain existing structures (i.e. low density forms such as Single Detached and Semi-detached Dwellings) are allowed, provided they are on the same building footprint. The Province has indicated that buildings, located in the floodway, that were destroyed during the June 2013 flood and that are subsequently rebuilt using funding from the Disaster Relief Program (DRP) operated by the Province, will no longer qualify for funding in future flood events. Administration proposes to remove the ability for individuals to apply for the replacement of a Contextual Single Detached or Contextual Semi-detached Dwelling, which are both currently allowed as permitted use developments. Instead, individuals

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

can still apply for redevelopment through the discretionary Single Detached or Semi-detached Dwelling DP process, which allows Administration to impose restrictions, conditions and refuse applications if a situation merits refusal.

Although redevelopment would still be allowed in the floodway, measures will be enforced to decrease property damage and increase public safety. These may include, but are not limited to, preventing structural damage due to floodwaters and groundwater, and specifying main floor, electrical and mechanical systems at or above the designated flood elevation. Redevelopment may also be relocated further back from the river in an attempt to decrease the amount of encroachment on the river to lower upstream water levels and ultimately remove the building from the floodway if sufficient space is available on a property within the flood fringe.

b. Flood Fringe

LUB 1P2007 contains design standards for all buildings constructed in the flood fringe after 1985 September 09. Design standards were intended to prevent structural damage by floodwaters, with the first floor of all buildings being constructed at or above the designated flood level and all electrical and mechanical equipment also being located above the designated flood level.

Redevelopment of parcels, where a form of low density development existed prior to this 1985 date, were not held to the same design standards (mentioned above) as those developed after this date provided that the redevelopment was for a low density residential form (either permitted or discretionary, or accessory uses). Similarly, these design standards do not apply to vacant parcels existing as of this date located in an area specifically designed to accommodate urban residential development for low-density forms. Administration proposes amendments to LUB 1P2007 that would require all development in the flood fringe to adhere to the design standards listed within LUB 1P2007 regardless of the original date of construction, and would delete historical provisions providing exemptions.

c. Overland Flow Area

LUB 1P2007 contains design standards for all buildings constructed in the overland flow area after 1999 June 21. Design standards were intended to prevent structural damage by floodwaters, with the first floor of all buildings being constructed a minimum of 0.3 metres above the highest grade existing on the street abutting the parcel that contains the building and with all electrical and mechanical equipment being located above the first floor.

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

Redevelopment of parcels, where a form of low density development existed prior to this 1999 date, were not held to the same design standards (mentioned above) as those developed after this date provided that the redevelopment was for a low density residential form. Similarly, these design standards do not apply to vacant parcels existing as of this date located in an area specifically designed to accommodate urban residential development for low-density forms. Administration proposes amendments to LUB 1P2007 that would require all development in the overland flow area to adhere to the design standards listed within LUB 1P2007 regardless of the original date of construction, and would delete historical provisions providing exemptions. This amendment will require all applications to provide flood risk reduction measures acceptable to redevelopment in the overland flow area.

d. Other Amendments

LUB 1P2007 currently imposes setback distances from the rivers as well as a setback for buildings from the edge of the floodway, when these buildings are built after 1985 July 22. In both the flood fringe and overland flow area, grandfathering rules should be deleted and regulations around building setback from the floodway will be required for all development through these amendments.

Administration is also proposing an amendment that would allow for work being undertaken by, or on behalf of, the City, for the purpose of erosion control, where the primary purpose is to protect public infrastructure, to be exempt from the requirement to obtain a development permit. This work is critical to ensuring the integrity of essential infrastructure and should not be delayed by the permit process. The department of Water Resources would be contracting or undertaking the work, and will ensure that all erosion control measures meet the safe practice standards.

Description of MDP Amendments

The new MDP policies will guide the planning and regulations that govern the development within the Flood Hazard Area (FHA), in concert with other administrative policies and LUB 1P2007. These amendments complement the amendments to LUB 1P2007 and provided an added level of clarity for the development authority and individual property owners.

Consultation

Due to the necessity of these amendments to ensure safe development in the FHA, Administration is conducting information session with stakeholders to ensure they are aware of the changes and have an opportunity to ask questions. Administration is not soliciting feedback on these amendments as they were developed to address the safety of affected individuals and the city as a whole. Consultation with the public, communities and industry has begun and will conclude prior to the Public Hearing of Council. Letters indicating the proposed changes will

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

be sent to all land owners within the FHA once the Calgary Planning Commission recommends the report to Council, and more information will be provided through individual meetings, public meetings and phone inquiries.

Implications

There are implications of the proposed amendments. Primarily, Administration is considering public safety over individual landowner desires and community context. Redevelopment in affected communities might not be sensitive to existing development (i.e. building height, building depth, etc.) and might result in communities that feel less cohesive. Typically, rules in the LUB and in community policies, such as Area Redevelopment Plans (ARP's), strive to ensure compatibility of new development with existing development. This new approach of putting safety first is a new policy direction, aligned with the province's directions, putting the safety of communities and citizens ahead of contextually sensitive redevelopment. Relaxations of the rules in LUB 1P2007 might be necessary given these new requirements, which could result in significant changes in the built form and development patterns of a community.

There is a risk that applications, approved by the Development Authority, with significant LUB relaxations (for the purposes of flood risk reduction) might be appealed to the Subdivision and Development Appeal Board (SDAB). Administration will work with the Development Authority, prior to the LUB and MDP amendments becoming effective, to ensure that they understand the purpose and intent of future relaxations in order to make a sound case for any appeals to the SDAB. Residential populations in affected communities might also decrease depending on a number of factors, such as: residents not liking the new patterns of development, provincial buy-outs, and future flood risks. Despite the fact that these factors might occur, there is a greater risk to the public, private land owners, businesses and the City of not making these changes, which has already been discussed and agreed upon through Council direction through PFC2014-0171 and PUD2013-0471.

Appendices as follows:

- APPENDIX I: Proposed Amendments to the Land Use Bylaw;
- APPENDIX II: Table of Current and Proposed LUB 1P2007 Wording;
- APPENDIX III: Proposed Amendments to the Municipal Development Plan;
- APPENDIX IV: Explanation of New Rules and Scenarios

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

APPENDIX I

PROPOSED AMENDMENTS TO THE LAND USE BYLAW

1. The City of Calgary Land Use Bylaw, being Bylaw 1P2007 of the City of Calgary, as amended, is hereby further amended:
 - a) Delete and replace subsection 25.1(d) and (e) with the following, and insert a new subsection 25.1(f) as follows:
 - “(d) **developments** as defined in section 7 of the Municipal District of Rocky View No. 44 Land Use Bylaw, Bylaw C-4841-97, that have commenced and comply with the rules of the Municipal District of Rockyview or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to June 1, 2008, and which are located in the lands annexed from the Municipal District of Rocky View No. 44 to the City of Calgary as described in APPENDIX A of Order in Council 333/2007;
 - (e) **developments** as defined in Section 8(2) of Part 10, that comply with the rules of Part 10 and have commenced or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to designation of the **parcel** under another part of this bylaw; and
 - (f) **developments** located in the **floodway**, which are being conducted by, or on behalf of, the **City** for the purpose of erosion control, where the primary purpose is to protect public infrastructure.”
 - b) Delete subsection 57(1) and replace with the following:

“**57 (1)** No new **buildings** or other new structures are allowed in the **floodway**, except for the replacement of existing **Accessory Residential Buildings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings** and **Single Detached Dwellings** on the same **building** footprint.”
 - c) Delete the “.” at the end of section 58 and add the following:

“unless those structures are being constructed by, or on behalf of, the **City** for the purpose of erosion control, where the primary purpose is to protect public infrastructure.”

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

- d) Delete section 59 in its entirety and replace with the following:
- “59 (1) Only those goods that are easily moveable may be stored on a *parcel* in the *flood fringe* or the *overland flow area*.
(2) All *buildings* in the *flood fringe* and *overland flow area* must be set back the greater of the following distances:
(a) 60.0 metres from the edge of the Bow River;
(b) 30.0 metres from the edge of the Elbow River, Nose Creek, West Nose Creek; or
(c) 6.0 metres from the edge of the *floodway*.”
- e) Delete section 60 in its entirety and replace with the following:
- “60 All *buildings* in the *flood fringe* must be designed in the following manner:
(a) to prevent structural damage by floodwaters;
(b) the first floor of all *buildings* must be constructed at or above the *designated flood level*; and
(c) all electrical and mechanical equipment within a *building* must be located at or above the *designated flood level*.”
- f) Delete section 61 in its entirety and replace with the following:
- “61 All *buildings* in the *overland flow area* must be designed in the following manner:
(a) to prevent structural damage by floodwaters;
(b) the first floor of all *buildings* must be constructed at a minimum of 0.3 metres above the highest *grade* existing on the *street* abutting the *parcel* that contains the *building*; and
(c) all electrical and mechanical equipment within a *building* must be located at or above the first floor of the *building* referenced in subsection (b).

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

APPENDIX II

TABLE OF CURRENT AND PROPOSED LUB 1P2007 WORDING

Current	Proposed	Rationale
<p>25.1 The following <i>developments</i> do not require a <i>development permit</i>.</p> <p>(a) Public Transit System;</p> <p>(a.1) temporary structures affiliated with a City approved street festival;</p> <p>(a.2) any activity and associated structures granted a permit through the Parks and Pathways Bylaw;</p> <p>(b) Utilities – Linear;</p> <p>(c) <i>developments</i> as defined in section 8(2) of Bylaw 2P80 that comply with the rules of The City of Calgary Land Use Bylaw 2P80, that have commenced or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to June 1, 2008;</p> <p>(d) <i>developments</i> as defined in section 7 of the Municipal District of Rocky View No. 44 Land Use Bylaw, Bylaw C-4841-97, that have commenced and comply with the rules of the Municipal District of Rockyview or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to June 1, 2008, and which are located in the lands annexed from the Municipal District of Rocky View No. 44 to the City of Calgary as described in APPENDIX A of Order in Council 333/2007; and</p>	<p>25.1 The following <i>developments</i> do not require a <i>development permit</i>.</p> <p>(a) Public Transit System;</p> <p>(a.1) temporary structures affiliated with a City approved street festival;</p> <p>(a.2) any activity and associated structures granted a permit through the Parks and Pathways Bylaw;</p> <p>(b) Utilities – Linear;</p> <p>(c) <i>developments</i> as defined in section 8(2) of Bylaw 2P80 that comply with the rules of The City of Calgary Land Use Bylaw 2P80, that have commenced or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to June 1, 2008;</p> <p>(d) <i>developments</i> as defined in section 7 of the Municipal District of Rocky View No. 44 Land Use Bylaw, Bylaw C-4841-97, that have commenced and comply with the rules of the Municipal District of Rockyview or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to June 1, 2008, and which are located in the lands annexed from the Municipal District of Rocky View No. 44 to the City of Calgary as described in APPENDIX A of Order in Council 333/2007;</p>	<p>This will allow the speedy recovery of areas that need erosion control measures because there is significant risk to public infrastructure. Erosion can happen not only due to flooding, but from other forces of nature such as rain, and snowmelt or from public use. A form of retaining wall needs to be used to ensure that riverbank material does not get washed away or contribute to further bank instability.</p> <p>This amendment will ensure that public infrastructure that is at risk from erosion can be mitigated immediately without the need for a development permit review.</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
<p>(e) developments as defined in Section 8(2) of Part 10, that comply with the rules of Part 10 and have commenced or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to designation of the parcel under another part of this bylaw.</p>	<p>(e) developments as defined in Section 8(2) of Part 10, that comply with the rules of Part 10 and have commenced or for which an application for a permit pursuant to the Building Permit Bylaw was received prior to designation of the parcel under another part of this bylaw; and</p> <p>(f) developments located in the floodway, which are being conducted by, or on behalf of, the City for the purpose of erosion control, where the primary purpose is to protect public infrastructure.</p>	
<p>57 (1) No new buildings or other new structures are allowed in the floodway, except for the replacement of existing Accessory Residential Buildings, Contextual Semi detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings and Single Detached Dwellings on the same building footprint.</p> <p>(2) An addition to a building in the floodway may only occur if it does not increase the building footprint or increase the obstruction to floodwaters.</p> <p>(3) In the floodway, nothing must be stored outside of a building.</p>	<p>57 (1) No new buildings or other new structures are allowed in the floodway, except for the replacement of existing Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings and Single Detached Dwellings on the same building footprint.</p> <p>(2) An addition to a building in the floodway may only occur if it does not increase the building footprint or increase the obstruction to floodwaters.</p> <p>(3) In the floodway, nothing must be stored outside of a building.</p>	<p>Contextual Single and Contextual Semi-detached Dwelling are both permitted uses. These two uses have been deleted from the types of uses that a property owner in the floodway can apply for. Property owners will still have the potential to build this form, but through a discretionary review (under the Single and Semi-detached Dwelling uses). This is so that Administration can review the location, determine if there is better siting (i.e. if the building could be moved to a portion of the property outside of the floodway), and address any needed risk reduction measures.</p>
<p>58 On those areas of land within the floodway that are subject to municipal jurisdiction, no alterations shall be made to a floodway and no structures including, but not limited to, berms, decks, docks, fences, gates, patios, rip-rap or</p>	<p>58 On those areas of land within the floodway that are subject to municipal jurisdiction, no alterations shall be made to a floodway and no structures including, but not limited to, berms, decks, docks, fences, gates,</p>	<p>This addition will allow the above exemption in section 25.1 to happen only for this specific purpose.</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
walls shall be constructed on, in or under a floodway .	patios , rip-rap or walls shall be constructed on, in or under a floodway unless those structures are being constructed by, or on behalf of, the City for the purpose of erosion control, where the primary purpose is to protect public infrastructure.	
<p>59 (1) Only those goods that are easily moveable may be stored on a parcel in the flood fringe or the overland flow area.</p> <p>(2) Where a parcel was vacant on July 22, 1985, all buildings must be set back the greater of the following distances:</p> <p>(a) 60.0 metres from the edge of the Bow River;</p> <p>(b) 30.0 metres from the edge of the Elbow River, Nose Creek, West Nose Creek; or</p> <p>(c) 6.0 metres from the edge of the floodway.</p> <p>(3) Where a parcel was used for the following uses on July 22, 1985, as may be defined in Land Use Bylaw 2P80: agricultural purposes; a pit or a quarry; an athletic or recreational facility; automotive purposes; a special care facility; a hospital; a cemetery or crematorium; a radio or television transmitting station; or industrial uses involving processing, manufacturing or outside storage; all buildings must be set back by the greater of the following distances:</p> <p>(a) 60.0 metres from the edge of the Bow River;</p>	<p>59 (1) Only those goods that are easily moveable may be stored on a parcel in the flood fringe or the overland flow area.</p> <p>(2) Where a parcel was vacant on July 22, 1985, All buildings in the flood fringe and overland flow area must be set back the greater of the following distances:</p> <p>(a) 60.0 metres from the edge of the Bow River;</p> <p>(b) 30.0 metres from the edge of the Elbow River, Nose Creek, West Nose Creek; or</p> <p>(c) 6.0 metres from the edge of the floodway.</p> <p>(3) Where a parcel was used for the following uses on July 22, 1985, as may be defined in Land Use Bylaw 2P80: agricultural purposes; a pit or a quarry; an athletic or recreational facility; automotive purposes; a special care facility; a hospital; a cemetery or crematorium; a radio or television transmitting station; or industrial uses involving processing, manufacturing or outside storage; all buildings must be set back by the greater of the following distances:</p> <p>(a) 60.0 metres from the edge of the Bow River;</p>	<p>These amendments delete the 'grandfathering' clause that exempts development, on parcels in the flood fringe and overland flow area, which were developed prior to July 22, 1985, from having to be setback from the various rivers and the floodway. This will result in a number of buildings becoming non-conforming buildings, which will only impact the building/parcel when that parcel does an addition. At this time, Administration can review the non-conformity and grant conformity through the same DP used to consider the addition.</p> <p>The remainder of the section can be deleted as it is made redundant by taking out the 'grandfathering' clause. Essentially, everything will now have to conform to these rules.</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
<p>(b) 30.0 metres from the edge of the Elbow River, Nose Creek, West Nose Creek; or</p> <p>(c) 6.0 metres from the edge of the <i>floodway</i>.</p> <p>(4) On <i>parcels</i>, other than those referenced in subsections (2) and (3), <i>buildings</i> must be set back the greater of the following minimum distances:</p> <p>(a) for Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings and Single Detached Dwellings:</p> <p>(i) that are being redeveloped for either an Accessory Residential Building, Contextual Semi-detached Dwelling, Contextual Single Detached Dwelling, Duplex Dwelling, Secondary Suite, Secondary Suite – Detached Garage, Secondary Suite – Detached Garden, Semi-detached Dwelling or Single Detached Dwelling:</p> <p>(A) 6.0 metres from the edge of the <i>floodway</i>; or</p> <p>(B) such lesser minimum distance from the edge of the <i>floodway</i> that the <i>Development Authority</i> may specify if the <i>Development Authority</i> is satisfied that the velocity of the flow will not result in</p>	<p>(b) 30.0 metres from the edge of the Elbow River, Nose Creek, West Nose Creek; or</p> <p>(c) 6.0 metres from the edge of the <i>floodway</i>.</p> <p>(4) On <i>parcels</i>, other than those referenced in subsections (2) and (3), <i>buildings</i> must be set back the greater of the following minimum distances:</p> <p>(a) for Accessory Residential Buildings, Contextual Semidetached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings and Single Detached Dwellings:</p> <p>(i) ——— that are being redeveloped for either an Accessory Residential Building, Contextual Semi-detached Dwelling, Contextual Single Detached Dwelling, Duplex Dwelling, Secondary Suite, Secondary Suite – Detached Garage, Secondary Suite – Detached Garden, Semi-detached Dwelling or Single Detached Dwelling:</p> <p>(A) ——— 6.0 metres from the edge of the <i>floodway</i>; or</p> <p>(B) ——— such lesser minimum distance from the edge of the <i>floodway</i> that the <i>Development Authority</i> may specify if the <i>Development Authority</i> is satisfied that the velocity of the</p>	

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
<p>serious damage to the <i>building</i>; and</p> <p>(ii) that are being redeveloped to a <i>use</i> other than an Accessory Residential Building, Contextual Semidetached Dwelling, Contextual Single Detached Dwelling, Duplex Dwelling, Secondary Suite, Secondary Suite – Detached Garage, Secondary Suite – Detached Garden, Semi-detached Dwelling or Single Detached Dwelling:</p> <p>(A) 60.0 metres from the edge of the Bow River;</p> <p>(B) 30.0 metres from the edge of the Elbow River, Nose and West Nose Creeks; and</p> <p>(C) 6.0 metres from the edge of the <i>floodway</i>; and</p> <p>(b) for all other <i>buildings</i>, a minimum distance of 6.0 metres from the <i>floodway</i>.</p>	<p>flow will not result in serious damage to the <i>building</i>; and</p> <p>(ii) — that are being redeveloped to a <i>use</i> other than an Accessory Residential Building, Contextual Semidetached Dwelling, Contextual Single Detached Dwelling, Duplex Dwelling, Secondary Suite, Secondary Suite – Detached Garage, Secondary Suite – Detached Garden, Semi-detached Dwelling or Single Detached Dwelling:</p> <p>(A) 60.0 metres from the edge of the Bow River;</p> <p>(B) 30.0 metres from the edge of the Elbow River, Nose and West Nose Creeks; and</p> <p>(C) 6.0 metres from the edge of the <i>floodway</i>; and</p> <p>(b) for all other <i>buildings</i>, a minimum distance of 6.0 metres from the <i>floodway</i>.</p>	
<p>60 (1) Unless otherwise referenced in subsection (2), all <i>buildings</i> constructed in the <i>flood fringe</i> after September 9, 1985 must be designed in the following manner:</p> <p>(a) to prevent structural damage by floodwaters;</p> <p>(b) the first floor of all <i>buildings</i> must be constructed at or above the <i>designated flood level</i>; and</p> <p>(c) all electrical and mechanical equipment within a <i>building</i> shall be located at or above the <i>designated flood level</i>.</p> <p>(2) The rules regarding <i>building</i> design referenced in subsection (1)</p>	<p>60 (1) Unless otherwise referenced in subsection (2), All <i>buildings</i> in the <i>flood fringe</i> after September 9, 1985 must be designed in the following manner:</p> <p>(a) to prevent structural damage by floodwaters;</p> <p>(b) the first floor of all <i>buildings</i> must be constructed at or above the <i>designated flood level</i>; and</p> <p>(c) all electrical and mechanical equipment within a <i>building</i> shall be located at or above the <i>designated flood level</i>.</p> <p>(2) The rules regarding <i>building</i> design referenced in subsection</p>	<p>Similar to the section above, these amendments delete the 'grandfathering' clause, which is currently in place for low density residential forms, in the flood fringe that exempts parcels that were developed prior to September 9, 1985 from having to be constructed/ designed in the identified manner under subsection 60(1)(a)(b)(c).</p> <p>This means that a number of buildings will become non-conforming buildings, which</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
<p>and the rule for driveways referenced in subsection (4) do not apply to Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings where any one of these <i>uses</i> existed as of September 9, 1985 and are being redeveloped to any one of these <i>uses</i>.</p> <p>(3) The rules regarding <i>building</i> design referenced in subsection (1) do not apply to vacant <i>parcels</i> existing as of September 9, 1985 located in an existing area specifically designed to accommodate urban residential development at that time and are being developed for Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings.</p> <p>(4) Driveways shall be constructed at or above the <i>designated flood level</i>.</p>	<p>(1) and the rule for driveways referenced in subsection (4) do not apply to Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings where any one of these <i>uses</i> existed as of September 9, 1985 and are being redeveloped to any one of these <i>uses</i>.</p> <p>(3) The rules regarding <i>building</i> design referenced in subsection (1) do not apply to vacant <i>parcels</i> existing as of September 9, 1985 located in an existing area specifically designed to accommodate urban residential development at that time and are being developed for Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings.</p> <p>(4) Driveways shall be constructed at or above the <i>designated flood level</i>.</p>	<p>will only impact the building/parcel when that parcel does an addition. At this time, Administration can review the non-conformity and grant conformity through the same DP used to consider the addition and can impose the associated design criteria on the addition or the principal building as part of an approval or can refuse an application if the applicant does not wish to comply.</p> <p>The remainder of the section can be deleted as it is made redundant by taking out the 'grandfathering' clause.</p>
<p>61 (1) Unless otherwise referenced in subsection (2), all <i>buildings</i> constructed in the <i>overland flow area</i> after June 21, 1999 must be designed in the following manner:</p>	<p>61 (1) Unless otherwise referenced in subsection (2), All <i>buildings</i> in the <i>overland flow area</i> after June 21, 1999 must be designed in the following manner:</p>	<p>Similar to the section above, these amendments delete the 'grandfathering' clause, which is currently in place for low density residential forms, in overland flow area that</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
<p>(a) to prevent structural damage by floodwaters;</p> <p>(b) the first floor of all buildings must be constructed at a minimum of 0.3 metres above the highest grade existing on the street abutting the parcel that contains the building; and</p> <p>(c) all electrical and mechanical equipment within a building shall be located at or above first floor of the building referenced in subsection (b).</p> <p>(2) The rules regarding building design referenced in subsection (1) do not apply to Accessory Residential Buildings, Contextual Semidetached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings where any one of these uses existed on a parcel as of June 21, 1999, which is being redeveloped to any one of these uses.</p> <p>(3) The rules regarding building design referenced in subsection (1) do not apply to vacant parcels existing as of June 21, 1999 located in an existing area specifically designed to accommodate urban residential development at that time and are being developed for Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex</p>	<p>(a) to prevent structural damage by floodwaters;</p> <p>(b) the first floor of all buildings must be constructed at a minimum of 0.3 metres above the highest grade existing on the street abutting the parcel that contains the building; and</p> <p>(c) all electrical and mechanical equipment within a building shall be located at or above first floor of the building referenced in subsection (b).</p> <p>(2) The rules regarding building design referenced in subsection (1) do not apply to Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semidetached Dwellings or Single Detached Dwellings where any one of these uses existed on a parcel as of June 21, 1999, which is being redeveloped to any one of these uses.</p> <p>(3) The rules regarding building design referenced in subsection (1) do not apply to vacant parcels existing as of June 21, 1999 located in an existing area specifically designed to accommodate urban residential development at that time and are being developed for Accessory Residential Buildings, Contextual Semi-detached Dwellings, Contextual Single Detached Dwellings, Duplex</p>	<p>exempts parcels that were developed prior to June 21, 1999, from having to be constructed/designed in the identified manner under subsection 61(1)(a)(b)(c).</p> <p>This means that a number of buildings will become non-conforming buildings, which will only impact the building/parcel when that parcel does an addition. At this time, Administration can review the non-conformity and grant conformity through the same DP used to consider the addition and can impose the associated design criteria on the addition or the principal building as part of an approval or can refuse an application if the applicant does not wish to comply.</p> <p>The remainder of the section can be deleted as it is made redundant by taking out the 'grandfathering' clause.</p>

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

Current	Proposed	Rationale
Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings.	Dwellings, Secondary Suites, Secondary Suites – Detached Garage, Secondary Suites – Detached Garden, Semi-detached Dwellings or Single Detached Dwellings.	

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

APPENDIX III

PROPOSED AMENDMENTS TO THE MUNICIPAL DEVELOPMENT PLAN

- (a) After Section “4.3.3 Airport Vicinity Protection Area (AVPA)”, insert a new section “4.4 Flood Hazard Areas” with the following text:

“4.4 Flood Hazard Areas

This section provides policies that give direction to guide the planning and regulations that govern the development within the Flood Hazard Area (FHA), in concert with other administrative policies and the Land Use Bylaw.

In Canada, floods are the natural disasters that cause the most damage and expense to communities. Climate change models indicate flood events will likely occur more frequently and severely than in the past. Therefore it is imperative The City be proactive in its approach to increasing resiliency and be forward thinking with regard to regulating land uses and development within Flood Hazard Areas.

Throughout its history, Calgary has experienced flooding of varying degrees with recent major events occurring in 2005 and 2013. Though these floods caused minimal loss of life, they significantly impacted the city in causing social, environmental and economic damages. All citizens of Calgary are stakeholders, either directly or indirectly, in being impacted by flooding and in how The City responds to flood events. Therefore, the approach to flood risk reduction will place a priority on the public good over private interests.

The City’s top priorities in the approach to reducing impacts from flood events are to:

- Increase public safety through appropriate land use and development regulations in the FHA;
- Minimize property damage by requiring all development and redevelopment in the FHA to be flood proofed;
- Enhance Calgary’s flood resiliency by employing a comprehensive approach to flood risk reduction measures; and
- Align The City’s policies and regulations to meet at least the minimum standards set by the Province.

Flood hazard mapping is developed by the Province and identifies the floodway, flood fringe and overland flow areas, each with varying levels of flood risk. These maps are based on the 100-year flood event and are a crucial part of informing policy direction regulating development. The 100-year flood event has a 1% likelihood of occurring in any given year, which is generally linked to a river water flow-rate. It does not mean that this size of flood event will only occur every 100 years.

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

The floodway is the area closest to rivers and has the highest risk for damage to buildings and development located there as the flood water is the deepest and fastest moving. Development in the floodway may potentially increase upstream water levels and therefore increase the risk of damage to those areas. Reducing the level of development within the floodway overtime will contribute to a reduction in risk exposure to people, property and the environment.

Flood fringe and overland flow areas have comparatively lower risk for flood damage, since flood water is shallower and slower moving than in the floodway. People can generally tolerate occasional flooding in these areas, and development does not cause higher upstream river water levels. Flood risk reduction measures can be incorporated into development to reduce the amount of damage that is likely to occur during a 100-year flood.

Due to this discrepancy in risk, a graduated approach to regulating land use and development in the FHA is appropriate, with the floodway having higher strictness than the flood fringe and overland flow areas.

The City regulates land use and development; however, where development and redevelopment in the FHA is allowed to occur, it is undertaken by choice of the land owner, and involves their acceptance of risk of potential flood damage.

Policies

- a. Increase public safety, reduce private and public property damage and enhance the city's flood resiliency, through the following:
 - i. Flood risk reduction work undertaken by, or on behalf, of The City of Calgary within the floodway, consisting of repairing river banks, erosion control, and land stability where the primary purpose is to enhance public safety, protect public infrastructure and ensure proper function of river morphology, be allowed without requiring a development permit;
 - ii. All new development in the floodway should be refused by the Development Authority, with the exception of the following;
 - uses related to agriculture, open space, outdoor recreation, parks and utilities; and
 - the redevelopment of low density residential buildings on the existing building footprint where sufficient risk reduction measures have been taken to the satisfaction of the Development Authority.
 - iii. For redevelopment of existing buildings where the building footprint straddles both the floodway and flood fringe, the redeveloped building should be located exclusively in the flood fringe;

**LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW**

- iv. All redevelopment of existing low density residential buildings in the floodway must be done through a discretionary permit process;
- v. All buildings located in the floodway, flood fringe or overland flow area must be designed to prevent:
 - damage by floodwaters;
 - damage by elevated groundwater; and
 - incremental increase of upstream river water levels.
- vi. The Development Authority, when reviewing applications that propose flood risk reduction measures, ensure that public safety and minimizing property damage take precedence in considering development relaxations that may alter the existing built form context and development pattern in a neighbourhood. Approved relaxations should be commensurate with the degree of proposed flood risk reduction measures;
- vii. Align The City's flood policy and development regulations to at least meet the minimum standards set by the Government of Alberta; and
- viii. Recognize the importance of using up to date flood modelling information as the basis for informing policy and development regulations. “

LAND USE BYLAW AMENDMENT & POLICY AMENDMENT
CITY WIDE
FLOODWAY, FLOOD FRINGE AND OVERLAND FLOW

APPENDIX IV

EXPLANATION OF NEW RULES AND SCENARIOS

Scenario: Reconstruction Abilities



Scenarios:

- 4 Houses in a community built pre 1985,
- Existing House “A” was built in 2011 as a Contextual Single Detached Dwelling (permitted),
- Existing Houses “B”, “C” & “D” were built as Single Detached Dwellings (discretionary),
- All need to be torn down after the 2013 Flood event due to damage
- All come in for DP applications as per LUB 1P2007

After Amendments:

- Houses “A” & “B” could apply as a *Contextual Single Detached Dwelling*, assuming they meet all the rules of that use, AND have to comply with the flood risk reduction rules stated in section 60 (as proposed). If they cannot meet these rules and still remain within the building envelope for the use, they will have to apply for a discretionary *Single Detached Dwelling* to meet the building design rules.
- Houses “C” & “D” could no longer apply for a *Contextual Single Detached Dwelling* to rebuild on the same footprint (because a portion on the building is in the floodway). They could come in for a *Contextual Single Detached Dwelling* if they proposed a new footprint outside the floodway (and have it be subjected to the same scenario as Houses “A” & “B”) or could come in as a discretionary *Single Detached Dwelling*, in which Administration could require the house to be moved out of the floodway to a new location or require extra measures as a condition.
- All 4 houses would be required to be designed in a manner that prevents structural damage.