

# Mill Creek Floodplain Proposed Bylaw

## Frequently Asked Questions



### Q: What is a *Floodplain Bylaw*?

A: A *Floodplain Bylaw* is a flood hazard management tool to ensure future land use will be planned and buildings constructed in a manner that will reduce or prevent injury, human trauma and loss of life, and to minimize property damage during major flood events. Floodplain bylaws are required when creeks, streams, and lakes can overflow their natural boundaries. This could happen in Kelowna along Mill Creek, Mission Creek, Bellevue Creek and Okanagan Lake. The Bylaw must be approved by Council.

### Q: How were flood hazards managed before the bylaw?

A: Historically, the Provincial Ministry of Environment (MOE) actively participated in the floodplain development decisions and standards. However, MOE has recently dissolved its role in this capacity and this responsibility now rests with local government to keep its communities safe, as defined under Section 910 of the Local Government Act.

### Q: How does a *Floodplain Bylaw* work and what does it do?

A: The *Floodplain Bylaw* must address a variety of factors including the following:

- Establish flood construction levels (FCLs) for new development and redevelopment areas
- Establish land-filling controls for rights-of-way and private parcels
- Consider flood protection enforcement (i.e., unauthorized fills)
- Consider whether minimum building elevations would be applied consistently for all development types including residential, commercial, industrial, and institutional
- Assess risk (public safety, financial, liability, public acceptance)
- Confirm impact on disaster flood assistance coverage.
- Allow process for variances

### Q: Why is the City considering this Bylaw?

A: The City considers that writing a *Floodplain Bylaw* is a 'duty of care' to reduce or prevent injury, human trauma and loss of life, and to minimize property damage during flooding events. Experience has shown that regulating land development to keep people out of harm's way is the most practical and cost effective way of achieving these goals.

**Q: Why do we need a *Floodplain Bylaw*?**

A: Adopting a *Floodplain Bylaw* increases certainty and establishes consistency with regard to managing development, redevelopment, and building construction so that property owners can knowingly manage cost, risk and liability.

**Q: How is the floodplain level established?**

A: In BC, a floodplain map delineates the area that can be expected to flood, on average, once every 200 years (called the 200-year flood). It should be noted that:

- A 200-year flood can occur at any time in any given year
- The indicated flood level may be exceeded
- Portions of the floodplain can flood more frequently

**Q: How is the flood construction level (FCL) established?**

A: In BC, the FCL is *the higher* of the 200-year daily peak flow with 600 mm of freeboard or the 200-year instantaneous peak flow with 300 mm of freeboard. Freeboard is a safety factor, expressed as a distance above a calculated flood inundation level. Freeboard compensates for unknown factors that could contribute to flood heights, such as, waves or turbulence and the uncertainty in estimating the probability of flooding.

**Q: What is a floodplain boundary?**

A: The floodplain boundary is determined by extending the governing FCL on both sides of the watercourse until it intersects the natural ground elevation. This boundary is the limit where the FCL would be applicable.

**Q: The watercourses in Kelowna have dikes and levees, so why do we need to establish a floodplain?**

A: When establishing a floodplain, the Ministry of Environment's *Floodplain Mapping Program* requires us to assume the dikes may fail during the 1:200-year event.

**Q: How close can I build to Mill Creek?**

A: The minimum setback from is defined by the City of Kelowna Official Community Plan and the Zoning Bylaw. This distance ranges considerably and can be greater than 30 meters.

**Q: What is the impact of designating a floodplain on residential property values?**

A: Research has found no consistent difference between values of residential properties situated in and out of designated floodplains; particularly, where floods are not frequent and financial impacts are modest. A flood event, rather than the floodplain designation, is likely to have a greater effect on property values.

**Q: What is the impact of this bylaw?**

A: It reduces the required FCL from previous conservative provincial guidelines because of the hydrodynamic analysis that is now possible with contemporary computer-based flood modeling software. This translates into a reduction of the financial burden to development when compared to historical FCLs. Establishing a floodplain boundary also ensures the FCL is applied to all properties consistently and fairly.

**Q: What is the visual impact of implementing the required FCL?**

A: Previous building construction levels are found to be both high and low relative to the proposed FCL in this bylaw. Floor areas constructed below the proposed FCL, such as, residential basements are not visibly obvious from the street and new construction that does not include a basement would result in a negligible visual impact (i.e., no visually significant changes in building elevations for new construction vs. existing non-conforming).

**Q: What is the impact to farm and agricultural buildings?**

A: Open-sided livestock buildings on lands zoned for agriculture, as well as, close-sided buildings zoned for agriculture that are protected by a standard dike and are *not* intended for human habitation are exempt.

**Q: What is the impact to carports and parking garages?**

A: That portion of a building used or intended to be used only as a carport, parking area, and including enclosed underground parking are exempt. In the case of the enclosed underground parking, an unobstructed means of pedestrian access must be provided above the flood level, and signage must be posted at all points of entry notifying users that the parking area is not protected from inundation by floodwaters.

**Q: What is the impact to existing properties that do not conform?**

A: There are limitations to how much expansion allowed on non-conforming properties. Building improvements or additions will be limited to a total increase of less than 25% to the existing non-conforming structure's site coverage (also called building footprint).

**Q: Are there any exemptions allowed to the FCL or Setback?**

A: Yes, there is allowance for consideration of "site-specific" exemptions to the FCL or Setback. Property owners will need to provide justification and other types of prescribed engineered alternatives that are considered equivalent flood management measures on the site.

**Q: Who can get floodplain insurance?**

A: Commercial insurance is available for this risk to businesses and government entities; insurance for flooding is not available for residential homes. BC Provincial Emergency Program (PEP) provides up to \$200,000 for victims of flooding but not all circumstances are eligible for BC PEP disaster financial assistance. Contact your local insurance provider.

**Q: Will this affect commercial property insurance rates?**

A: According to responses from industry executives, flood insurance is readily available with either a \$10K or \$25K deductible, covers building and contents, and implementation of the *Floodplain Bylaw* will have a negligible impact on commercial –industrial rates. The insurance carrier will likely recommend that owner's purchase "bylaws coverage." Basically, this means that clients increase the amount of coverage in the policy. The increase in coverage would be intended to bring the building up to the present in-force Bylaw requirements after a flood incident.

**Q: How can I tell if my property is affected by this bylaw?**

A: Mapping will be available online at [www.kelowna.ca](http://www.kelowna.ca) and City Hall. A legal survey may be required at time of building permit to confirm building elevations.

**Q: What does the City do when there is a flood?**

A: The City has an Emergency Operations Centre (EOC), located at the main fire hall on Enterprise Way, and has a Flood response plan in place. The EOC will coordinate all emergency services. In the event of a major flood, the EOC will coordinate the release of timely and accurate information to the news media, issue authoritative instructions to the public, and coordinate emergency response.

**Q: Has the floodplain information been prepared for other creeks inside the City limits?**

A: Only Okanagan Lake currently has an established FCL and floodplain boundary. We anticipate modeling Mission and Bellevue creek flows in the near future to provide greater certainty to properties within their respective floodplains. Floodplain boundaries and associated FCL requirements for these creeks would eventually be added to this bylaw.

**Q: Are there other bylaws that regulate building construction on properties located near floodwaters?**

A: Yes; however, the engineering requirements in these bylaws are intended to ensure City service levels can be met and are generally limited to the 1:100-yr event.

- The City of Kelowna's *Official Community Plan* establishes riparian management areas (RMAs) which are intended to limit environmental and hydrological impacts on local watercourses. For Mill Creek, the RMA specifies horizontal "setbacks" of 30m upstream and 15m downstream of Hardy Street which are measured from the top-of-bank or from the natural boundary where the top-of-bank is not clearly defined.
- The *Subdivision, Development & Servicing Bylaw* identifies regulations pertaining to servicing and engineering requirements to properties within the City boundaries. Schedule 4 states that "foundation perimeter drains shall be connected by gravity via a storm service to the storm main provided that the elevation of the basement/crawlspacel floor is at least 600 mm above: the elevation of the storm main obvert, the anticipated or known high ground water table level, or the 100-year hydraulic grade line within the main at that point, whichever is higher." In the same section, the bylaw states that to ensure flooding is avoided, carports or garages attached to residential buildings shall not be constructed with their floor level below the adjacent curb of City Street or crown of pavement of City streets, unless:
  - The drainage of the driveway serving the carport or garage is connected by gravity to a City storm sewer meeting the connection criteria, or
  - Is above the 100-year flood line, or
  - The runoff water from the driveway may flow past the carport/garage without accumulating and entering. Properties utilizing this method must have an engineer sign and "seal" the design. All other relevant criteria of this document must also be met.
- The *Building Bylaw* describes the regulations regarding the construction, repair, demolition, or alteration of buildings and structures in the City of Kelowna. The bylaw also outlines building permit related information. Section 6.2 of the Building Bylaw states that, unless the floor slabs and foundation walls are waterproofed as per the requirements in the building code, all floor slabs, and crawl space ground covers must be 600 mm above the established high ground water table level.
- The *Zoning Bylaw* outlines the land-use and density of all developments within the City boundary to ensure systematic and consistent development. Section 6.14.1, of the bylaw, states that in all zones where RMA setbacks are required "No alteration of land shall be permitted within a RMA without an authorized Development Permit."