

Living on a Flood Plain
City of Edmonton Information Session Summary
Held June 4, 2014 at Muttart Conservatory for the Cloverdale Community

Presentations

1. Developing within a Flood Plain
Marty Vasquez, Planner; Roger Clemens, Chief Building Safety Codes Officer; and Craig Thomas, Senior Planner – Sustainable Development
2. Drainage Services Roles, Responsibilities and Practices
Frank Fechner, General Supervisor, Preventative Maintenance, Drainage Services
3. City of Edmonton Insurance Advocacy Efforts
Todd Wyman, Director of Planning, Drainage Services

Developing within a Flood Plain

- The Government of Alberta sets the building codes; the City of Edmonton enforces the codes.
- The City uses planning tools to guide development. This includes but is not limited to Edmonton Zoning Bylaws and Neighbourhood Area Redevelopment Plans (ARPs).
- Building Permit and Inspection Services monitor all development.
- The Government of Alberta provides information on water hazards and flood mapping to municipalities.
- The 1:25 Floodway is defined as the area that has a four per cent chance of flooding any given year. The 1:100 Flood Fringe is defined as the area that has a one per cent chance of flooding any given year.
- Development and Construction Phases are:
 1. Zoning/ARPs: Zoning Bylaws – for building and development today; ARP – for future development in the area
 2. Development Permits: Authorizes development; Balances rights of builders and neighbourhood
 3. Building Permits
 4. Construction
 5. Inspection
- Zoning Bylaws divides the city into zones. Additional regulations found within other sections of the Bylaw are called Overlays. Overlays deal with area specific issues including the Flood Protection Overlay. Overlays are available online.
- Flood Protection Overlays ensure safe and efficient use of lands within the defined floodplain
 - ✓ Building heights
 - ✓ Openings into buildings
 - ✓ Proposed use of portions of buildings
 - ✓ Grades and Landscaping details
 - ✓ Basement/Site drainage details
 - ✓ Flood mitigation methods
- Area Redevelopment Plans for Rosedale, Cloverdale and Riverdale provide adequate flood protection for all new development. This is achieved by requiring all development in the general flood risk area taking into account measures to minimize the potential for flood damage.

- In 1:25 flood plain: no development prohibited. In 1:100 flood plain: certain development types are subject to the Flood Protection Overlay. Within the Overlay:
 - Will be required to submit a certificate from a professional engineer or architect indicating specific factors have been considered in the design of the building.
 - May be required to provide information regarding grade elevation and building openings from an Alberta Land Surveyor.
 - The following examples would be considered for Overlay requirements:
 - Ground floor additions that increase the liveable floor space by 14 square meters (150 square feet)
 - Finishing a basement for a secondary suite or additional bedroom(s)
 - Rebuilding or redeveloping a structure with a larger flood vulnerable area than the original structure.
 - The following examples would not be considered for Overlay requirements:
 - Insulation
 - Upgrade to services (electrical/wiring)
 - New roofing
 - Finishing a basement for recreation areas
 - Ground floor additions of less than 14 square meters (150 square feet)

Building Permits and Inspection Services

- City of Edmonton regulates the Alberta Building Code. Current edition is from 2006. Code only applies to new buildings. Code does not apply to existing buildings unless they are being renovated, and then only the renovations must meet the existing code.
- Code does not regulate the location of buildings. 2013 Building Code Bulletins only apply to persons applying for Disaster Recovery Funding.
- If a structure is being (re)developed one or more permits may be required:
 - Building permit – structural repairs, weeping tile, sump pumps
 - HVAC changes to heating or ducts
 - Plumbing and Gas changes to water heater and supply or drain piping, back flow prevention.
 - Electrical – changes to panel or wiring
- The two stages to permit and inspections are progress inspections and final inspection

Drainage Services Roles, Responsibilities and Practices

- Three types of sewer system exist in Edmonton:
 1. Sanitary – takes household sewage to treatment plants.
 2. Storm – takes stormwater to storm outfalls.
 3. Combined – both sanitary and storm. It's the oldest system in the city.
- The Dales all have combined services however some separation has taken place. Heavy rain can lead to combined system overflows. Over time Edmonton would like to eliminate the combined system.
- The stormwater outfalls are closed by floodgates when the river level rises to a certain height, but this also keeps the stormwater trapped in the system.
- New neighbourhoods are connected to separate sanitary and storm systems. Older neighbourhoods are slowly being converted to this standard as opportunity arises.
- Drainage is constantly inspecting, repairing and upgrading the systems.

- Drainage Operations is on call 24/7 – 365. Contact 311 to report drainage issues.
- Flood mitigation is not prevention. There will always be a risk and the city needs to determine what is acceptable for its neighbourhoods.

Flooding in Edmonton

- River flooding:
 - Worst river flood occurred in 1915. 1972 and 1986 also saw bad river floods.
 - These are caused by upstream snowmelt and aggravated by intense rain.
 - Upstream dams have reduced river flooding risks since the early 1970s. A river basin of 80,000 square kilometres collects rain and transports it through Edmonton.
 - When the outflow floodgates are shut due to storm activities it can trap stormwater in low laying areas. Six river gates can be closed in Edmonton.
 - Drainage Services will sandbag at risk properties but they cannot sandbag entire communities.
- Storm flooding:
 - Widespread storms impact the entire city. Localized storms impact certain communities.
 - When the storm system reaches capacity flooding can occur. Hail can plug catch basins.
 - Safety issues can arise from flooded overpasses and rising stormwater lakes.
 - Best way to report flood issues is through 311. Drainage Services also tracks social media, news media and other city departments for information.
- The City prioritizes its flood response during an event:
 1. Keep roads clear for Emergency Services.
 2. Clear clogged catch basins and replace manhole covers
 3. Monitor 311 to attend the most critical areas
 4. Bring in extra staff as needed.
- The Floodproof Program is a city program enacted after 2004 floods. We will inspect your property and suggest best ways to protect your property.
- The Backflow Valve subsidy is for dwellings built before 1989. The valve helps prevent sewage/stormwater from backing up into basements. The subsidy is for up to \$1,200 including GST. Access to the valve is essential for regular inspection and maintenance.

City of Edmonton Insurance Advocacy Efforts

- The City is advocating on behalf of homeowners with the Insurance Bureau of Canada, informing them of the special circumstances faced by homeowners in Edmonton and the flood mitigation measures underway.
- The City is doing a city-wide examination of its flooding risks and investing in reducing those risks.
- The Insurance Bureau of Canada is looking at how it assesses flood risks. It has a **consumer hotline 780-423-2212** that can provide assistance to property owners having trouble getting insurance due to flooding. They also provide advice and will advocate on your behalf.

Comments and Feedback

Q. How are the 1:25 and 1:100 flood event levels defined?

- A. The information comes from Alberta Environment and Sustainable Resource Development, not the City of Edmonton. It is ongoing data collection process and the maps are based on 2013 data. In the building codes there are snow and rain load tables and these both were increased between the 1997 and 2006 code updates.

Q. Is the flood data provided by the Government of Alberta the same data that southern Alberta receives? They were caught off-guard in Calgary and High River last summer.

- A. It's our understanding that studies are done independently for different areas of the province, so the data we have been given is not from the same source as the data for the areas around Calgary.

Q. How long has the Flood Overlay been in place? There is development in Cloverdale that should not have been allowed, yet they got a permit.

- A. If the development is in the 1:100 flood plain area, a professional certification from an architect or engineer stating the plans meet bylaw requirements would have been required to get a permit.

Q. A single family lot on our block is being developed into a triplex. Why has that been approved?

- A. The property owner has a right to proceed with this development if it falls within the zoning bylaws. It is up to the architect to ensure the design meets the bylaw requirements.

Q. We've been sent a letter from the City giving us a very little time to appeal this development. Why should developers be given relaxed restrictions for building in a floodplain?

- A. Let's talk after the meeting and we can discuss this more in-depth.

Q. In 2011 and 2013 we had sewer back-ups in our condo complex and we were told it was due to the fact the City refused to open the flood gates on the river outfalls. What is the City doing to help us the next time this happens? This is a situation that is out of our control yet we have lost insurance coverage because of it.

- A. The elevation of the river necessitated the closing of the outfall gates. We realize that sewer back-ups are a real risk when we close the flood gates during high intensity rain events and we need to seriously evaluate all options. When the river is high and we have a high intensity rain event it really is the worst of all worlds and we have hard decisions to make in those situations.

Q. It's been 11 months since the Cloverdale Community met to discuss this problem. Is there not a way residents can be informed when the outfall flood gates are being closed so we can manage our own risks? The City has a responsibility to inform the citizens.

A. In 2013 we didn't do a good job of sharing information. We are investigating the best ways to share information with you so you can take the steps you feel are necessary. There are several ways we can push out information and we need your help to determine what information is useful and meaningful to you.

Q. Have the floodgates been closed in the last 11 months?

A. No they haven't.

Comment: I'm trying to understand the City's thought process with its various projects. Why is the separate sewage system taking so long to install when we have the same drainage problems year after year? And the paving done in this area in the past few years has increased the drainage problems we experience. Forget the floodgates for now; we need help with our drainage issues.

Q. Last year you closed the outfall flood gates on a Friday, and on the Sunday the river levels were reduced. Yet it took the City hours to reopen the gates to allow our neighbourhood to drain...why?

A. We are looking at ways to automate the system to make this process faster in the future. We are also looking at placing high markers on the floodgate valves that will make them easier to locate when covered by water. We are hoping this will be done in the next six months.

Q. During the 2013 event the police and fire crews were onsite 45 minutes before city crews. You would have known that the height of the river was low enough to open the outfall flood gates to drain our neighbourhoods. Do you believe there was an error in your calculations that lead to the gates staying closed as long as they did?

A. We do not base the decision only on calculations, but rather on the look and feel of the situation during an event. The heavy rain compounded the factors going into the operations of the gates. It took us time to inspect the area to determine that the conditions were safe to open the valves.

Comment: I just want these methods to be evaluated because the current method of determining whether or not to open or close the gates based on how the area 'looks and feels' seems callous to those of us who have suffered losses.

Q. Is this area over-developed and over-dense for our drainage system?

A. As far as we are aware this area is within the limits set out by the Area Redevelopment Plan. In general the lift pumps in the drainage system are adequate for this area.

Q. The spring runoff from the ski hill and park cause localized flooding every spring. The ski hill makes additional snow all winter long meaning there is much more runoff than there would be naturally. Can catch basins in this area be extended to account for this? Prior to area repaving there was less of a problem with runoff from the ski hill, now it all goes to 95th street.

A. This is the first time this has been brought up. It's a good point and we will look into it.

Q. Is there an opportunity to take advantage of the pending LRT construction to do our separate sewer upgrades?

A. *(Councillor Henderson)* It's a complicated issue because there are two different funding sources involved for the two projects. To take advantage of the planned LRT work is a great idea and we are working hard to make sure flood mitigation money is in place to take advantage of these opportunities all across the city.

Q. Can you explain the design of the lift station, where it is, what are the redundancies and if it is monitored?

A. Yes it is monitored, and I believe there are two pumps but I would have to verify this. *(After meeting supplement information:* Pump station #121 (one pump) is located at 9655-97 Street just west of the Muttart Conservatory. The flow rate is approximately 134 litres/second. 65 different elements are monitored on the station. The key items are the wet well level high alarm set point and over flow alarm set point. During or after a severe storm the depth in the wet well may be up to 2.30m which triggers the high level alarm. There is a 450mm overflow pipe upstream of the pump station. If the pump fails, sewage surcharges up to 8.07m at the wet well before overflowing into the storm sewer. A detailed drawing of the pump station is available to anyone who is interested.)

Q. Our condo complex has a number of issues that should have been caught by an inspector but weren't and now we can't get insurance or sell our properties. Is the City going to compensate us somehow? It is a very difficult situation, we pay taxes but are not getting the services we need from the City.

A. In order to be built the building would have had to be designed and certified by an architect to meet the zoning by-laws.

Q. It's like the whole system failed to protect the consumer. Why didn't the inspections catch the deficiencies in our complex?

A. It depends of what the problems are and when we were able to do the inspections. I don't have an answer for you right now but if you give us your contact information we will investigate this and see what options are available to help you. The City is presenting flood mitigation options to City Council this fall that will look to address issues like this before the rain hits next time.

Comment: As a long-term area resident I feel the areas has been allowed to be over-developed and that has overwhelmed our existing sewer system. The City's departments need to talk with each other when development occurs. The LRT development will change the drainage situation and the ski hill is only adding to our problems. The City's lenient development policies have contributed to all of our problems.

Response: The LRT expansion is being investigated to see what the runoff impacts will be. It should be a self-contained system that does not impact the surrounding area. We can only work to address issues from this day forward, we cannot change past actions. We will continue to look for opportunities for improvement leading to neighbourhood renewal in this area in 2021.

Comment: The problems in this area have been known to the City for at least 25 years. Action needs to take place now. We have a very active community league...work with them to develop more realistic goals, objectives and timelines.

Response (Councillor Henderson):

We are ramping up our engagement with communities and we need to hear from you. The City planning and funding process takes time and we are working on addressing your problems and taking them seriously. We are adding more funding, \$50 million a year, to help deal with issues like yours. Council has heard your concerns.

Comment: A significant player in this is the Government of Alberta and no one has held them into account for the restricted infrastructure funding that the City has had to deal with for years. A lot of the negative comments toward the City are probably better directed to the Government of Alberta.

Q. We live at the bottom of 91st Street which is the catch basin for both Gallagher Park and 91st. Street. Is there a way to divert some of the water before it reaches our area?

A. Drainage designs of the day were not adequate to meet our current needs. We are trying to address these issues in a holistic way.