

**Bearspaw Community Flood Prevention Consultation
held April 21, 2009 at Southminster-Steinhauer United Church**

Consultation Summary

Attendance: 64

Main presenters: Patrick Hallonquist, P.Eng., Scheffer Andrew (engineering consulting firm working with the City of Edmonton)
Derek Melmoth, General Supervisor, Public Services, Drainage Services,
City of Edmonton

Presentation

The consultation began with introductions and a short recap of previous meetings with local residents. The current system moves stormwater runoff into Bearspaw Lake through a combination of storm sewer pipes and overland drainage. Excess water in Bearspaw Lake drains into Blackmud Creek. In July of 2004 the area experienced a 1 in 200 years event which overwhelmed the system. It led to major flooding on streets and homes in Bearspaw. When constructed more than 25 years ago, the lake was designed to comfortably handle a 1-25 years event. This increased to 1-100 years when South Edmonton Common water flow was diverted several years ago from Bearspaw to a major storm sewer trunk.

Mr. Hallonquist gave a brief overview of engineering studies done to date and the reasons for refining the flood prevention concept plan for Bearspaw. The initial proposal developed in 2007 included a number of projects including lowering the level of Bearspaw Lake to increase capacity.

However, further study and review indicated that increasing the capacity of storm sewer pipes would have a greater benefit to Bearspaw as a whole and may make lowering the lake unnecessary. The new recommendations include:

- Twinning several existing pipes
- Upgrade some existing catch basins

These upgrades are expected to reduce the duration and depth of ponding on various streets by more than 40%. These upgrades will move stormwater to Bearspaw Lake faster. However, the total volume of stormwater being moved from the streets to the lake will not change.

Two construction options were presented for the sewer upgrades. Open trench construction is faster, more cost effective and would result in a new road surface when completed. However, the open trench option would disrupt vehicle and pedestrian traffic and increase noise during construction. Trenchless construction is less disturbing but it is not as cost effective (about 15% higher) and would take longer to complete.

Mr. Hallonquist outlined a suggested timetable. If residents and other stakeholders have no major concerns, work could begin as early as the fall of 2009. If the work could not start by late August it would likely be delayed until the spring of 2010.

Mr. Melmoth then spoke to the group on the importance of proper home maintenance in preventing basement and property flooding. Key points included:

- A backwater valve subsidy of \$1,200 is available. A backwater valve workshop can be arranged if there is interest in the community.
- Drainage Services provides free home flood prevention checks, which can take up to an hour and can be scheduled to best suit the homeowner's availability. The home check covers all aspects of home flood prevention. Inspectors give homeowners a list of recommended solutions and upgrades.
- Proper lot grading is the most effective means of preventing home flooding.

Input from Residents

The group's main concerns regarding the proposed plan were the water level of the Bearspaw Lake and the perceived insufficient drainage of the lake into the Blackmud Creek. It was feared that more water would flow into Bearspaw Lake under the new plan and this would cause the lake to reach the 2004 high-water level more regularly.

Mr. Hallonquist repeated that increased water flow would not change the lake's total volume of water. Twinning of some pipes would not bring more water to the lake; it would simply bring the water faster to the lake so homes and streets are not flooded. He also stated that Bearspaw Lake is an unusual design in that its designed high-water level encroaches on surrounding private lots and its inflow pipes are situated below water level. Mr. Hallonquist said that this lake would never be constructed this way if built today.

One member of the group asked if the proposed wetland on the east side of the lake was still going to be built. The group was told that all plans connected to modifying Bearspaw Lake – including the wetland - are on hold until the full benefits of the storm sewer upgrades can be determined through monitoring and evaluation.

One member of the group asked why the City is considering upgrades to the system at all if they are only worried about a 1 in 200 years event. It was noted that the upgrades will prevent flooding that occurs during less severe storms while lessening the impact of very unusual, heavy rainstorms.

Several members of the group raised concerns over the rate Bearspaw Lake drains into Blackmud Creek, suggesting the rate should be increased by adding additional capacity to the outflow pipes.

Mr. Hallonquist told the group that the lake's outflow was not at the root of the area's flooding problems. He noted adding additional capacity would be a concern to Alberta Environment and cause erosion problems downstream. The outflow rates for Bearspaw Lake are already 258% above Alberta Environment's current standard. This increased flow enables Bearspaw Lake to return to near normal levels in approximately 30 hours - much faster than other stormwater lakes.

A concern over the inflow pipes into the lake was raised, as they are partially underwater. The twinning of several pipes should help prevent backup of the upstream pipes in the future. This will be monitored. If it is found that additional work needs to be done to reduce water levels, the idea of lowering the lake will be revisited.

The question of the project's cost was raised. It was asked if it would not be more cost effective to do the sewer upgrades and lower the lake right now, since it may be lowered in the future anyways if the sewer upgrades do not solve the area's flooding problems.

Mr. Hallonquist assured the group that all the studies and engineering assessments done to this point show that the sewer upgrades alone will provide significant flood relief for the most streets and homes in the area. The proposed sewer upgrades will cost about \$5 million while lowering the lake would cost about \$10 million.

A commitment was made to supply outflow statistics and a detailed chart of the lake's high-water level of Bearspaw Lake in the final summary. This has been provided as an appendix to these summary notes.

One member of the group stated that the 13th Avenue area was an area of concern and the proposed plans do not show upgrades here. It was proposed that an additional line be added for this area that could be pushed through the park to drain into the lake. Additionally Mr. Hallonquist was asked what benefit the planned upgrades would have for the areas south of 11th Avenue.

Mr. Hallonquist said that the current plans will reduce the stress on the southern storm water trunk that helps drain the 13th Avenue area. In total the new upgrades will remove 15% of the water currently flowing into the southern storm trunk. Adding a new line through the park would significantly increase the complexity and time frame of the project for minimal benefit but he committed to look at the possibility. He indicated there is a proposed development plan for the park area.

The majority of participants preferred the open trench method of twinning pipes. One person expressed concern over safety related to open trenching but she was assured all safety precautions would be taken to ensure there was no danger to residents or schoolchildren.

Updates

A copy of the April 21, 2009 presentation and other information about the City of Edmonton's flood prevention program can be found on Drainage Services' website at www.edmonton.ca/floodprevention. Additional comments or questions regarding plans for reducing the risk of flooding in the Bearspaw neighbourhood may be forwarded to Ken Chua, Flood Prevention Program Manager, Drainage Services, City of Edmonton ken.chua@edmonton.ca T: 780-496-5545.

Appendix to the Summary Notes

Bearspaw Lake Water Levels

The normal water level for Bearspaw Lake is 675.7 metres (This refers to the surface area it covers at its normal depth during dry weather). The following chart shows what happens to the water level when it rains. At normal lake levels, the foundations of homes that back onto the lake are about 2.1 metres above the lake.

Rainfall event	1 in 5 years	1 in 10 years	1 in 25 years	1 in 100 years	(July, 2004)
High water level	676.5 m	676.7 m	677 m	677.4 m	678.2 m

High Water Level at Foundation Footings of Homes Backing onto Bearspaw Lake

Rainfall event	1 in 5 years	1 in 10 years	1 in 25 years	1 in 100 years
High water level below house footings	1.4 m	1.2 m	0.9 m	0.5 m

Bearspaw Lake Outflow to Blackmud Creek

Water from Bearspaw Lake discharges to Blackmud Creek through a 67.5 cm outlet pipe and a surface drainage channel. The pipe starts flowing as soon as the lake's water level rises. The outlet pipe flows at 1.7 cubic metres per second. During an extreme event, the drainage channel and the pipe pass water into Blackmud Creek at a rate of 2.8 cubic metres per second. The lake takes about 30 hours to return to normal after an extreme event (1 in 100 years). The Bearspaw Lake design is an older design. Excess water in the lake drains into Blackmud Creek 60% faster than current standards. However, there are no plans to upgrade (reduce the flow rate to the creek) as the erosion and public property risk to Blackmud Creek is normally low.