
Storm Water Utility Business Plan

Recommendation

That the Standing Policy Committee on Environment, Utilities and Corporate Services recommend to City Council:

1. That the Storm Water Utility focus resources on maintenance and preservation of existing storm water assets;
2. That \$3 million be maintained in the Storm Water Utility's capital reserve to protect strategic public infrastructure from damage caused by riverbank slumping and other emergency storm water repairs;
3. That the Equivalent Runoff Unit used for Storm Water Management charges be increased by \$13.50 annually from 2019 to 2022, and utilized for projects to maintain and preserve storm water infrastructure; and
4. That the temporary Flood Protection Program be extended and phased out by \$13.50 annually from 2019 to 2022.

Topic and Purpose

The purpose of this report is to present the Storm Water Utility Business Plan and funding priorities for approval.

Report Highlights

1. Inspections of existing infrastructure in 2016 identified significant maintenance, preservation, and drainage challenges for the Storm Water Utility's \$6.2 million annual budget that will require investments to prevent higher future costs.
2. The estimated \$18.9 million cost to expand storm water infrastructure capacity in three modelled flood risk areas would enhance quality of life for citizens in these areas, but is high relative to the estimated value of flood damage.
3. Riverbank slope failures triggered by high groundwater levels are unpredictable and require a funding source that allows for timely remediation to protect strategic public infrastructure.
4. Extending and phasing out the Flood Protection Plan (FPP) by January 2022, while increasing the Storm Water Utility charge by a similar amount, will maintain charges paid by residential customers, simplify the Utility Bill, and enhance the user-pay principle.

Strategic Goals

This report supports the Strategic Goal of Asset and Financial Sustainability as it aims to use resources efficiently through maintaining and preserving storm water assets at the lowest life cycle cost. The report proposes an increase to the storm water management charge to provide sustainable funding for the utility.

This report supports the Strategic Goal of Continuous Improvement through several actions that will improve storm water management and reduce the risk of property flooding.

This report supports the Strategic Goal of Quality of Life through actions to increase safety and contribute to public recreation through riverbank slope management and appropriate use of storm water ponds.

This report also supports the Strategic Goal of Environmental Leadership through actions to protect the water quality of the watershed from pollutants entering through the storm water infrastructure.

Background

Flooding occurs in areas throughout Saskatoon during intense storm events, and is influenced by a combination of many factors such as amount of rainfall, intensity, duration, soil saturation due to previous rainfall or snowmelt, topography, area of the drainage basin, vegetation, hard-surface, storm water infrastructure, etc. In 2014, 30 known flood sites were modelled and prioritized for flood risk based on set criteria (i.e. risk of water reaching within three meters of buildings, number of properties impacted, and roadway classification). Various remediation options to reduce flood risk were assessed for three modelled areas:

1. Ruth Street/Cairns Avenue
2. First Street/Dufferin Avenue
3. Cascade Street/Dufferin Avenue

The cost of the preferred option is estimated to be \$18.9 million (2017 dollars).

At its meeting held on April 25, 2016, during consideration of the Surface Flooding Control Strategy for the Storm Water Utility report, City Council resolved:

- “1. That the Administration develop a comprehensive Storm Water Utility Business Plan, including a longer-term capital and funding plan for storm water infrastructure, that considers the factors outlined in the report of the General Manager, Transportation & Utilities Department dated April 11, 2016;
2. That the Administration explore:
 - a) alternative funding sources for Riverbank stabilization
 - b) the possibility of redirecting the temporary flood protection levy and report back about both items;
3. That the Administration concurrently meet with affected residents to provide an update and further discuss the options in the report of the General Manager, Transportation & Utilities Department, dated April 11, 2016, as well as possible interim/short-term solutions; and
4. That the City consider offering the same solution for the affected property owners experiencing flooding in top 3 priority areas as we are currently offering for St. Mary's Church.”

Report

Business Plan

The Storm Water Business Plan (Attachment 1) identifies priorities and strategies for storm water management. Highlights include the following:

- Assessing the current condition of storm water assets, and developing a plan for maintaining and preserving existing storm water infrastructure to prevent higher future costs.
- Addressing unique ongoing drainage challenges throughout the Montgomery neighbourhood.
- Reducing risks and issues caused by sump pumps and cross connections with the sanitary sewer system.
- Updating and enforcing drainage bylaws.
- Incorporating the impacts of climate change, higher densities, and increased hard surface ratios in new storm water design standards.
- Monitoring groundwater and riverbank slope stability and developing a Slope Stability Management Framework.
- Implementing a communication plan to increase awareness of measures for increasing flood resiliency.

Storm Water Infrastructure Expansion

The following highlights financial costs of flood damage and expected costs to expand the storm water infrastructure to reduce, but not eliminate, flood risk in the three modelled areas that have experienced flooding during intense storms:

- Between 2005 and 2016, an estimated 256 claims, valued at \$1.4 million (annual average of \$140,000), for surface flooding in Saskatoon were paid by the Provincial Disaster Assistance Program (PDAP).
- Detailed data from 2010 to 2016 indicates 208 properties in 175 postal code areas throughout Saskatoon had claims valued at approximately \$1.2 million for surface flooding, with 95% of those claims being made in 2010. (All numbers inflated to 2017 dollars at 2.5% annual inflation.) Seven of the 208 claims were from the three modelled risk areas noted above (3.4% of surface flood claims).
- Total surface flood damage in the three modelled risk areas over the last ten years is estimated to be \$64,000 (average of \$6,400 per year).
- The estimated cost to reduce the risk of flooding for 130 properties in the three modelled areas is \$18.9 million for a “1-in-10 year” flood event (\$145,000 per property protected). Low areas in these neighbourhoods could still experience overland flooding during larger storm events.
- Of the three modelled areas, First Street/Dufferin Avenue is the most favourable for network capacity expansion because it has the following:
 - The most surface flood damage claims (five claims valued at \$41,000 in total)
 - The lowest expected capital cost (\$3.8 million) because a nearby park could potentially be converted to incorporate a dry pond.
 - A below average cost per property protected of \$106,000, based on 36 modelled properties protected from water reaching within three metres of houses during a “1-in-10 year” storm event. (A “1-in-10 year” storm has a 10% chance of occurring in any given year.)

Riverbank Stabilization

Since 2012, the Storm Water Utility has funded an average of \$1.2 million annually for riverbank stabilization, including rehabilitating Saskatchewan Crescent and the Meewasin Trail, and monitoring the 11th Street slope. Riverbank slumping is unpredictable and can occur quickly. Remediation costs for the infrastructure at 16th Street and 17th Street was approximately \$3 million per site. The report recommends that a reserve of \$3 million be maintained to fund emergency repairs of strategic public infrastructure impacted by high groundwater and storm water.

Proposed Funding Strategy

The report recommends that the temporary FPP monthly levy be extended and phased out over four years, with a corresponding increase to the ERU phased in. In response to intense floods in 2005 that caused sewer back-ups, the FPP was established to fund programs to prevent similar future flooding (e.g. electronic flow monitors, backflow valves, and supertanks in at-risk neighbourhoods). The FPP is currently applied at \$4.50 per month to all water meters, with commercial and residential customers paying the same rate. The FPP is scheduled to end December 31, 2018.

The ERU is a unit of measure used by many municipalities for storm water management charges. A single family residential dwelling is deemed to produce one ERU of storm water, which is currently charged at \$4.40 monthly (\$52.80 annually). Commercial properties pay a minimum of two ERUs, with a phase-in up to a maximum of 100 ERUs (\$5,280 annually), depending on their size and surface imperviousness, by 2018.

Advantages to the proposed approach include the following:

- Total residential Utility Bills for storm water and flood protection remain the same from 2012 to 2022 at \$107 annually.
- Residential charges for storm water drainage will continue to be significantly lower than in Regina, Calgary, and Edmonton. Regina's minimum annual 2017 storm drainage charge for a single residential property is \$190.
- Utility Bills will be simplified by January 2022 when the FPP is eliminated.
- The user-pay principle for drainage is enhanced as large commercial properties that contribute more runoff pay for a more proportionate share. The share paid by single residential properties for storm water and flood protection will decrease from 66% to 54%.
- The increase for all commercial properties will be phased in over four years to avoid significant increases in a single year. The maximum increase per year will be 26%.
- An expected FPP deficit of \$300,000 will be covered and additional funding will be generated to fund projects like superpipes that reduce the risk of sewer back-ups during extreme storm events, or contribute to the backlog in storm water asset maintenance and preservation. Including estimated growth of 1.5% annually, the Storm Water Utility's budget will increase from \$6.4 million in 2018 to \$13.7 million in 2022. Comparatively, Regina's storm drainage budget was over \$14 million in 2015 with no expenses for riverbank stabilization.

Flood Resiliency

Citizens have emphasized the need for clarity about the City's planned investments in capacity expansion so they can make decisions. The Administration met with His Worship the Mayor and citizens on April 27, 2016, to discuss the flood risk at First Street/Dufferin Avenue. Previous meetings with citizens in flood risk areas provided options for residents to reduce flood damage on their property. The Administration also met with St. Mary's Church representatives regarding measures they could take to enhance drainage.

A potential cost-shared funding program for citizens to improve their properties (e.g. measures such as installing window wells, new doors and windows with improved seals, flood fences, re-grading, etc.) was assessed. A review of other Canadian municipalities identified no programs for cost sharing private property improvements to reduce surface flood risk. Other considerations include fairness in defining eligibility to certain areas and administration costs. The City cleaned and inspected the storm water sewers in the top three risk areas in 2016 to ensure they were working at capacity. Options for overland flooding peak attenuation have been assessed.

Options to the Recommendation

1. Approve \$3.8 million for storm water capacity expansion to reduce risk of flooding at First Street/Dufferin Avenue, and further assess network capacity expansion costs for two additional risk areas in 2018 (Attachment 2).
2. Fund riverbank slope monitoring, stabilization, and strategic infrastructure remediation through alternative funding (Attachment 3).
3. Maintain status quo funding for the Storm Water Utility.
4. End the FPP in 2018, as currently scheduled, rather than extending and phasing it out. This would reduce total revenues by approximately \$6 million over three years.

Public and/or Stakeholder Involvement

Extensive consultations were undertaken in 2014 with residents in the flood risk areas about the impacts of property flooding and options to reduce risks. Local residents' feedback on options to reduce flood risk was considered to determine the preferred solution for further concept development and cost assessment. Citizens emphasized the negative impact to quality of life that the risk of flooding presents even if property damage is not incurred.

Communication Plan

The Storm Water Utility Business Plan includes actions for citizen awareness and engagement regarding public and private responsibilities for storm water drainage. For example, notices will be distributed to citizens in areas where drainage and groundwater issues are more common (e.g. Montgomery Place, Adelaide/Churchill, etc.) to increase awareness of actions that can reduce flood risks and what citizens can expect from the City. Information will also be provided through earned media and with Utility Bills. City staff will be available to meet with citizens, as requested.

Financial Implications

The proposed FPP extension and phase out, and corresponding phased increase to the Storm Water ERU between 2019 and 2022 are expected to generate the following revenues, assuming a 1.5% annual growth rate.

Year	FPP	Storm Water ERUs - Status Quo	ERU Additional Phase In	Total New Charges	Total FPP & ERU
2016 (Actual)	\$3,899,055	\$6,107,661	0	0	\$10,006,716
2017	\$3,957,541	\$6,209,000	0	0	\$10,166,541
2018	\$4,016,904	\$6,360,000	0	0	\$10,376,904
2019	\$3,057,868	\$6,455,400	\$1,654,477	\$4,712,345	\$11,167,745
2020	\$1,996,604	\$6,552,231	\$3,358,588	\$5,355,192	\$11,907,423
2021	\$1,013,276	\$6,650,514	\$5,113,451	\$6,126,727	\$12,777,241
2022	0	\$6,750,272	\$6,920,203	\$6,920,203	\$13,670,475

City properties also pay for storm water and will be impacted by the increase in the ERU charges by an estimated \$284,000 over four years (\$113,500 in 2022).

Other Considerations/Implications

There are no policy, environmental, privacy, or CPTED implications or considerations.

Due Date for Follow-up and/or Project Completion

The Storm Water Management Utility Bylaw will be brought forward in early 2018 for changes to incorporate the new 2019 rates.

Public Notice

Public Notice pursuant to Section 3 of Policy No. C01-021, Public Notice Policy, is not required.

Attachments

1. Storm Water Utility Business Plan
2. Storm Water Infrastructure Capacity Expansion Option
3. East Riverbank Stabilization Funding Option

Report Approval

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