



# STAFF REPORT TO COMMITTEE OF THE WHOLE

**DATE:** November 7 2012  
**TO:** COMMITTEE OF THE WHOLE  
**FROM:** GINA LAYTE-LISTON, SUPERVISOR, WASTEWATER  
**SUBJECT:** Stormwater Management Funding Strategy  
**ATTACHMENT(S):** None

## RECOMMENDATION(S):

1. That Committee of the Whole recommends that Council approves the creation of a Snow, Ice, and Stormwater Utility using Option 1 (the tiered flat rate model).

## PURPOSE:

There are three primary reasons for establishing a utility. The first is that there are different levels of service provided by the utility and those services are billed accordingly. Secondly, the revenue generated by a utility can only be used for the purpose of that utility. Thirdly, is that surplus and reserve funds within the utility cannot be repurposed or redirected for projects that aren't directly related to the utility.

Stormwater management systems represent valuable public assets that provide a number of benefits to their many users. By controlling runoff and floodwaters, and preventing pollutants from reaching our rivers, creeks, and streams, stormwater systems can protect the health and safety of the public and the environment. In so doing, clean and healthy water resources support public drinking water supplies, clean rivers and streams, and can attract local investment through increased land values.

Runoff damage from severe storm events, snowmelt, and beaver dam breaks are a high risk to public safety, private property and public works, such as roads, bridges, culverts, and piping. Stormwater infrastructure that is maintained and operated on an annual basis with dedicated funding provides for a predictability and assurance that, when needed, the existing systems will be reliable.

Some municipalities across Canada have been funding stormwater capital, maintenance, and operation through flat fee schemes for over a decade now and many are looking at stormwater utilities as the logical step in dedicated funding. It has been identified that the capital and operating funding model where stormwater management services are grouped with other general revenue projects, as is the case with the City of Prince George, is not meeting the needs of the stormwater system and further increasing the infrastructure deficit. The stormwater utility model would be structured in the same way as the City's water and sewer utilities.

The purpose of this report is to provide information on the current status of the City's stormwater system and to establish that the current stormwater management program can be modified to reflect a different funding model and that there is an advantage to charging property owners a rate based on land use runoff.

## POLICY / REGULATORY ANALYSIS:

Storm Sewer Bylaw No. 2656 (1974) and the Comprehensive Fees and Charges Bylaw No. 7557 (2004) will require updating.

The Official Community Plan Bylaw No. 8383, 2011, approved by Council in April 2012 states under Policy 13.2.14 that the City should review its Storm Sewer Bylaw and consider a stormwater utility to fund the ongoing operating and maintenance of its stormwater network.

## OTHER CONSIDERATIONS:

The City maintains approximately 373 kilometres of conveyance systems and associated service connections, 1088 kilometres of ditches, 12,497 culverts, 5075 catchbasins, 3568 manholes, 8 stormwater management ponds, and 110 outfalls. The total value asset of the storm system is in the range of \$171 million. The current annual operating and capital budgets of these assets is approximately \$4.1M, which is 2% of the total asset value. The City of Prince George's current stormwater program consists of three general components: operating and maintenance, capital projects, and emergency work. Other communities also have environmental compliance, planning, and management as additional components.

The following table is provided for the Committee's information:

	Storm Drainage						
	2005	2006	2007	2008	2009	2010	2011
Capital Spending	456,499	348,144	378,747	986,255	291,432	851,106	123,813
RIVA/Asset Management	Required investment: <b>\$1,590,000 per year</b>						

The City is responsible for managing all aspects of stormwater. However, the City's ability to effectively and adequately perform its duties is limited by available funding. Factors that are impacting the stormwater system include:

- Urbanization: Growth and development alters the amount of runoff and pollution discharged into the system;
- Aging infrastructure: Pipes, culverts and outfalls have a limited life expectancy and must be repaired and replaced;
- Design standards: Regulatory requirements are always changing such that systems designed to previous criteria may be inadequate with respect to current standards;
- Maintenance: Problems result if we are not actively operating facilities, maintaining watercourses, and sweeping streets (collecting leaves and debris);
- Design and construction: Development site plans must be properly reviewed and adequately inspected during construction to minimize the potential for hazards; and,
- Intensity and frequency of rainfall events as a result of climate change.

Many of the best management practices (BMPs) that have been constructed within the City (e.g. Storm ponds, oil/grit separators, etc.), are not only designed to prevent against flooding and erosion, but improve water quality for aquatic and terrestrial habitat as well as downstream drinking water recipients. All of the stormwater flow within the City of Prince George is directed towards the Nechako and Fraser Rivers. Stormwater related works are subject to legislation such as the British Columbia *Water Act*, *Canadian Environmental Protection Act*, the *Fisheries Act* and several guidelines published through the BC Ministry of Environment.

The City currently funds its stormwater improvements, both operating and capital from general revenue collected, through property taxes based on assessed value. Where new infrastructure is required for new development, development cost charges may be used to fund specific stormwater collection infrastructure.

With competing demands for general revenue, there is value in considering alternative ways to support the storm water system by providing sustainable funding that is fair, equitable, and flexible. There are various funding mechanisms that can be used to support the stormwater infrastructure maintenance and improvements. Canadian municipalities have adopted flat rate user fees, tiered rate user fees, or stormwater rates based on impervious surfaces or zoning and intensity of development. In most cases, the costs of storm water management have been removed from the general tax levy once the stormwater utility has been approved and becomes revenue neutral- a tax shift.

## **STORMWATER MANAGEMENT FUNDING – BEST PRACTICES**

Most Canadian municipalities still rely on funding the operation, maintenance and capital improvements of their storm water facilities through property taxes based on assessed value. With the growth in complexity of stormwater management issues comes the requirement for adequate and predictable funding to ensure optimal solutions. As these stormwater issues, which include environmental protection, become more prevalent, cities are increasingly looking at innovative ways to fund the management of stormwater programs.

The Canadian municipalities listed in this report have initiated a variety of service charges, fees, levies or parcel taxes in order to secure dedicated funding to address stormwater funding deficiencies. This method is considered to be a far more equitable approach than funding stormwater through general revenue which is based on assessed property value.

The “user pay” or impervious surface calculation (Option 2) method is considered to be a most equitable management practice. Of the communities researched for this report, only Edmonton and Kitchener-Waterloo have adopted this practice (Victoria is in the final stages). In most cases, it is noted by the other municipalities that the cost and complexity of a stormwater user rate prohibited its execution at the onset but is considered to be an endpoint for many.

For Prince George, the addition of snow management within the concept of a stormwater utility is a unique consideration, one not applied at the other communities researched by City staff. The idea of including snow management in the stormwater utility rate is supportable as snow melt runoff impacts City storm sewer infrastructure, ditches and snow disposal sites. During the spring, when the snow is melting, whether it is piled high on a corner or melting off of a property, the stormwater system is used as if it is rainwater. The system must be able to move that snowmelt and any other precipitation through the pipes and discharge it to the creeks, rivers, and streams around the City. Both quantity and quality are factors for consideration.

In the case of snow management levy, all property owners benefit from snow removal. Applying a rate that is determined by considering level of service within various City sectors and property frontage could be considered to be more equitable.

The following are examples of municipalities that have achieved, or are working towards, dedicated funding for storm water management issues:

City of Regina                    Flat fee, property size - The fee for drainage is a daily fee applied to the total property size in increments of 2,000 m<sup>2</sup>. For example: 1,001 to 3,000m<sup>2</sup> = \$0.58 per day, 3,001 to 5,000m<sup>2</sup> = \$1.16 per day, 5,001 to 7,000m<sup>2</sup> = \$1.74 per day etc.

City of Edmonton                Impervious surface area, development intensity factor - Edmonton has a fully funded stormwater utility with all of the fees based on total impervious surfaces. Considerations in the calculation of rates include:

1. Area of property - lot size in square metres (m<sup>2</sup>).
2. Development Intensity - the measure of the portion of lot being utilized for its intended development.
  - For residential customers the intensity of development factor is 1.
  - For non-residential properties that are largely undeveloped or utilizing on-site stormwater management, a reduced factor may apply.

- Properties draining directly to the North Saskatchewan River are eligible for a credit to reduce their stormwater fee.
3. Run-off coefficient - the permeability of your lot's surface (i.e. grass versus concrete), based on land zoning.
    - The run-off coefficient for a single detached residential property is typically 0.5-0.65.
  4. Rate - the rate used for the base calculation (approved by City Council) and applies to all properties.

Strathcona County	<u>Flat fee</u> - This Alberta County has established a flat fee for drainage which is attached to the customer's sanitary sewer utility bill.
City of Calgary	<u>Flat fee</u> - Calgary has a flat fee "drainage service charge" to all their sanitary sewer customers which is intended to provide dedicated funding for capital projects.
City of Hamilton	<u>Flat fee</u> – in 2004, Hamilton established a flat fee for stormwater which is attached to the customer's water/sanitary sewer utility bill.
City of London, ON	<u>Flat fee</u> - in 2004, London established a Storm Drainage Charge which is a flat rate charge for residential, commercial and institutional customers and is charged on a land area basis for industrial customers
Kitchener-Waterloo	<u>Impervious surface area, development intensity factor</u> - The twin cities of Kitchener and Waterloo adopted a stormwater utility in June 2010. The stormwater user rate fee is charged on the basis of stormwater runoff contribution to the City's stormwater management system. Under the new method, land use classification, property size, estimated impervious area and the intensity of infrastructure is the basis to estimate the level of contribution of stormwater in the City's stormwater management system.
City of Langley	<u>Flat rate (residential)</u> - Langley has a stormwater levy as a line item added to their residential tax bill. This tax is intended to be dedicated funding to cover the municipalities stormwater operating expenditures.
City of Surrey	<u>Flat rate by parcel</u> - Surrey has developed a dedicated drainage parcel tax.
City of Pitt Meadows	<u>Two-tiered flat rate (residential), flat rate and property area (rural, commercial)</u> - Pitt Meadows funds the drainage utility in two ways- a utility charge based on assessed value; and a levy, which is a flat rate for residential properties or a charge per area for rural and commercial properties.
City of Victoria	<u>Impervious surface area</u> - Similar to Edmonton, Victoria's stormwater utility will be based on a total impervious surface area model. This fee will begin to be charged in January 2013.

In discussions with a number of municipalities, especially those in Ontario, it was noted that they have been using a flat rate fee structure for a number of years and are now moving towards a user rate based on impermeable surface area similar to Option 2. In Hamilton, Council did not approve the new user rate structure (Option 2) because of the cost to implement.

Based on research from other communities in Canada, the City of Prince George may consider the funding models: Tiered Flat Rate Model or Stormwater User Rate Model.

## OPTION 1: Tiered Flat Rate Funding Model

The Tiered Flat Rate funding model apportions a flat rate charge to a property based on the property's land use or zoning classification. The rationale for assigning stormwater charges based on land use is that there is generally a correlation between zone type and the higher volume of runoff due to hard surfaces, such as roofs, parking areas, and sidewalks. This generalization is an accepted engineering practice for stormwater management planning and designs and, as such, is applicable.

In factoring in the snow and ice portion of the utility, we would be considering what level of service is being provided to each sector within the City.

There would be up-front implementation costs for populating the existing Utilities billing system. City staff has determined that the most efficient approach to populating the new utility accounts would be to use the existing water meter accounts for multi-family, industrial, commercial and institutional customers. Exceptions would include properties outside of the City's water service area of which there are approximately 2000 accounts. With the use of the City's GIS system the size of the property would be determined and a rate assigned. The single family residential accounts would be charged a flat fee determined by the properties' zoning. Once implemented, there would be on-going administrative support (customer service) and billing updates for the program which would equate to at least one additional staff person.

To provide better refinement to the Tiered Flat Rate calculations, it is possible to include a value in the calculation that takes into consideration the percentage of runoff contribution from a property. A larger value will have lower infiltration and higher runoff (pavement, steep gradient), and a lower value will be more permeable with more vegetated areas (forest, grass). For example, a property that has a large commercial building, sidewalks, and a parking lot will have a much higher runoff than a single family home with a small driveway and grass lawn. As well, for each property classification, additional tiers could be identified based on property size.

Below is an example of Option 1: a comparison between general tax revenue apportioned for various land use types and the 2012 budget for stormwater, snow, and ice management. It is important to note that the numbers presented below are high level and based on preliminary calculations.

Current Stormwater & Snow paid by Property Tax					Tiered Flat Rate- Snow, Ice, and Stormwater Utility			
Parcel Type	% of Total Tax	Stormwater	Snow	Combined Tax Levy	Accounts	% Runoff Factor	% of Total * Utility	Revenue Contribution by Land Use
Residential	54	2,206,000	2,722,000	4,928,000	27,431	40-70	40	\$3,665,000
Commercial	27	1,103,000	1,361,000	2,464,000	2,004	80-90	34	\$3,085,000
Industrial	19	776,000	956,000	1,732,000	141	30-90	25	\$2,287,000
Farm	0.05	2,000	2,000	4,000	400	5-20	1	\$91,000
Tax Exempt	0.0	0	0	0	1,370	60-80	0	\$0**
<b>TOTAL</b>	<b>100</b>	<b>\$4,087,000</b>	<b>\$5,041,000</b>	<b>\$9,128,000</b>	<b>31,346</b>		<b>100</b>	<b>\$9,128,000</b>

### Notes:

\* Percentages are for illustration only- could be based on property frontage and sector within City (e.g. downtown, arterial frontage, residential)

\*\* Tax exempt properties may be capped by Council policy. Currently, Tax Exempt properties pay their portion of the water and sewer utilities. Council will need to decide at a future date if Tax Exempt properties should pay, or to what extent they would pay their portion of a new utility and how that would be phased in.

## **OPTION 2: Stormwater User Rate Model**

An alternative to the Tiered Flat Rate Model is the stormwater user rate which is calculated based on the contribution of stormwater runoff from each property to the municipal drainage system (ditches, sewers) and end of pipe infrastructure (ponds, creeks) as measured by the amount of impervious area contained on each property.

Determining the impervious surface for each property affords the opportunity for the property owner to effect a positive change in dealing with rain water run-off. Credits can be given to property owners who incorporate best management practices for stormwater detention/retention. Reductions in rain water run-off improve storm water quality, reduce scouring in streams and creeks, reduce storm water main capacity issues and help recharge the natural aquifer.

### **Cost of Creation and Implementation of a Stormwater Utility**

Based on research, the full cost of implementing a stormwater user rate model would be an additional \$400,000.00 to \$800,000.00. This would depend on existing information that is available and consultant costs. The amount stated would include the up-front implementation cost for populating the water/sewer billing system with property information; extensive programming of GIS software applications and other technological changes for grouping of account numbers and incorporating GIS property information; determination of impervious surfaces for each property within the municipality (City of Prince George- 31,346); and then verification and inputting of this data into the billing system.

There would also be ongoing costs for administrative support (customer service) and billing (calculations for any changes made to properties in the billing cycle) for the program. To implement this model in the City of Prince George, it would be necessary to hire additional staff and consultants to provide the upfront implementation of the program and then 2 additional staff persons for ongoing customer service and billing adjustments.

### **NEXT STEPS: Process for Implementation**

If City Council is supportive of creating a new utility it would result in the current funding from the general tax levy being shifted to the new utility. There is significant work, public consultation, and Council input that would be required before a bylaw could be presented for Council to consider.

Staff proposes that this be implemented over two fiscal years. For Year One - 2013 - a budget of \$250,000 is proposed to investigate options for the detailed rate structure, development of a comprehensive program strategy, and preparation of a communications plan including public consultation and outreach. The Year Two -2014- budget would be \$350,000.00 and includes building the database, bylaw creation and review, public consultation and outreach, administration and legal review, and training.

It has been the experience of other municipalities that the process for implementation of a stormwater utility (no matter the alternative chosen) takes an extended period of time. The reasons for this is the time necessary to conduct public and stakeholder consultation, funding needs to be allocated for each of the steps of implementation, technical and billing needs, and the public outreach process.

### **Stakeholder and Public Consultation**

The purpose of the consultation process would be to gain an understanding of what stakeholders and residents of Prince George know about stormwater management, how stormwater management compares to other public services in terms of public priorities, and which funding methods people find the most fair and equitable.

A number of municipalities across Canada have completed stakeholder and public consultation processes with respect to stormwater management and funding alternatives. There have been a number of lessons learned by

these communities that the City of Prince George would want to evaluate and incorporate into its communication plan. These include:

- starting at the beginning and providing information on what stormwater is and what services the municipality provides when it comes to stormwater;
- what a new utility would mean for different property types and how that would impact the general tax levy;
- communications with those organizations that are tax exempt at this time and what the cost impacts would be; and,
- in the end, the municipalities that did not consult with the public and the stakeholders that would be impacted by a stormwater utility either took much longer to implement a stormwater utility (years) or the concept was never approved.

Another lesson learned was that once a Council has approved a stormwater utility that public and stakeholder outreach is essential. This means that before the first bill gets delivered that there is a program that communicates to all those who had not been involved in the consultation process what a stormwater utility will mean to them.

The earliest that Council could expect the implementation and tax shift to a new utility would be for 2014.

### **SUMMARY AND CONCLUSION:**

The Standing Committee on Finance and Audit recommends the establishment of a Snow, Ice and Stormwater Utility based on land use - Option 1.

The following are considerations with regards to implementing a Snow, Ice and Stormwater Utility for the City of Prince George:

- A utility provides for dedicated funding to provide stormwater management services and to maintain stormwater infrastructure;
- Revenues generated by utility rates provide for a tax shift from the General Tax Levy;
- Stormwater runoff rates are attributed by land use, which represents different runoff volumes depending on building coverage, asphalt, and concrete surfaces;
- Snow and ice management to be included in the utility though rates would be determined by level of service in specific City sectors, parcel frontage, and other possible factors; and,
- Tax exempt parcels may be given special consideration.

**Respectfully submitted:**



---

Gina Layte-Liston  
Supervisor, Wastewater Collection and Treatment

**To: Committee of the Whole**