STORMWATER RATE CREDIT PROGRAM – FOLLOW-UP FROM PWS2012-001

WARD: City Wide

PREPARED BY:
Denise McGoldrick / Paul Grivicic

FILE: 

DEPARTMENT:
Public Works Services

ATTACHMENTS:
Appendix A: PWS2012-001

CLEARANCE:
Directors – February 16, 2012
Council – February 27, 2012

RECOMMENDATION

That City of Waterloo Council receives PWS2012-001.1 as information and:

1. That Council approves PWS2012-001 (attached as Appendix A to PWS2012-001.1).

2. That Council approves the proposed credit program for all City of Waterloo stormwater rate payers with full implementation in 2013 as outlined in PWS2012-001.


4. That Council approve that the Fees and Charges By-Law be updated to reflect the 2012, 2013, 2014 stormwater rate as provided in Appendix B of report PWS2012-001.

5. That Council approve one (1) program manager position (full-time) in Public Works Services, Water Services be hired in 2012 and incorporated into the 2012-2014 budget and approve in principle the 2013 staff positions:
   a. one (1) engineering technologist position (full-time) in Public Works

APPROVALS

General Manager Date Director Date

Other Date CFO/Treasurer Date
b. one (1) co-op student position (May-August annually) in Public Works Services, Water Services;
c. one (1) customer service representative position (1 year contract) in Finance-Revenue Services.

6. That Council approve up to $40,000 to enable programming changes in the billing software in 2012 to be funded from the Stormwater Management program.

EXECUTIVE SUMMARY:

The purpose of this report, PWS2012-001.1 is to provide follow-up information based on feedback at the January 30, 2012 Council meeting and to seek Council approval on the staff recommendations contained in PWS2012-001.

An analysis was performed on stormwater credit program cost benefits and potential future cost avoidance should a credit program be implemented and private properties implement stormwater management controls. While there are a number of direct and indirect benefits it is difficult to monetize all benefits. However, based on a preliminary review of stormwater program elements and costs, it is estimated that potential future cost avoidance would total approximately $1.9M on an annual basis or 29% of the total stormwater program at the sustainable funding level (2012$).

On January 30, 2012, Council was provided presentations from two delegations in support of the stormwater credit program. Overall the principles identified by the second delegation are aligned with the principles of the staff proposed stormwater credit program. The delegate also proposed revised residential credit tiers based on the proportion of a property’s impervious surface area, such as roofs and driveways, directed to pervious surfaces, such as lawns and gardens. Staff have concerns with this approach because pervious surfaces can generate runoff and the quantity of the runoff is dependant on factors such as slope, soil moisture, soil and vegetation type. Staff are in agreement with the importance of trees and the inclusion of trees in the credit program.

BACKGROUND:

On January 30, 2012, information on the proposed Stormwater Rate Credit Program (PWS2012-001) was received by Council with the intent that the recommendations would be brought forward on February 27, 2012 for Council’s consideration. The purpose of this report, PWS2012-001.1 is to provide follow-up information based on feedback at the January 30, 2012 Council meeting and to seek Council approval on the staff recommendations contained in PWS2012-001.

The additional information provided in this report includes:

1. Analysis of stormwater credit program cost benefits
2. Review of delegate (Mr. & Mrs. Stephenson) proposal on an alternative residential credit approach

Analysis of Stormwater Credit Program Cost Benefits

A stormwater credit program encourages the use of at-source controls, commonly referred to as Low-Impact Development methods (LID) or green infrastructure, to manage stormwater instead of relying on conventional conveyance and end of pipe stormwater controls. LID can cost less to install, have lower operations and maintenance costs, and provide more cost-effective stormwater management and water quality services than conventional stormwater controls. LID also provides ecosystem services and associated economic benefits that conventional stormwater controls do not. However the monetary value or cost benefits of these services are difficult to quantify and while there are case study examples in certain municipalities across North America, it is difficult to apply these values to Waterloo. Therefore, staff have attempted to outline the benefits of implementing LID through a stormwater credit program that are linked to economic benefits. Staff have also analyzed the potential future cost deferrals to the City of Waterloo’s stormwater program costs.

Benefits of a Stormwater Credit Program

As noted above, it is difficult to quantify economic and environmental benefits of LID strategies in monetary terms. The following provides a summary of the ecosystem services and ancillary economic benefits of LID:

1. Pollution Abatement – LID practices can reduce both the volume of runoff and pollutant loadings discharges into receiving waters. Reductions in pollutant loadings can improve habitat for aquatic and terrestrial wildlife and enhance recreational uses. It can also decrease stormwater and drinking water treatments costs.\(^1\)

2. Reduced Flooding and Property Damage – At-source LID controls reduce downstream flooding through the reduction of peak flows and the total volume of runoff. As a result the impact and costs associated with flooding can be reduced or avoided altogether.\(^2\) In addition, by reducing hydrologic impacts on receiving waters, stream channel degradation from erosion and sedimentation is reduced.

3. Groundwater Recharge – LID practices can be used to infiltrate clean runoff to recharge groundwater resources and are particularly important for drinking water sources that are groundwater dependent such as the Region of Waterloo. Infiltration of rainwater is also important to maintain baseflows to streams during dry weather to provide adequate water depth, flow and temperatures for aquatic life.

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4. Climate Change Adaptation – The climate adaptation benefits of LID are generally related to their ability to moderate the impact of extreme precipitation or temperature.\textsuperscript{3} Practices such as green roofs, urban forestry, and runoff capture and storage can assist in building adaptive capacity or reduce climate related vulnerabilities. Additionally some LID practices provide co-benefits to climate mitigation goals by helping to reduce greenhouse gas emissions. For example, trees absorb and store carbon and can provide shade that reduces cooling needs and hence electricity demands.

5. Other in-direct benefits – In-direct benefits of LID include increased aesthetics, increased real estate values, improved air quality and associated health effects, and a reduction in the urban heat island effect.

Potential Cost Deferral to the City of Waterloo’s Stormwater Program Costs

A preliminary analysis was performed on potential future cost avoidance should a credit program be implemented and private properties implement stormwater management controls.

It is important to note that the existing stormwater funding level is insufficient to maintain and renew stormwater infrastructure and meet legislated requirements. For example, based on the Ministry of Environment Certificate of Approvals for stormwater management ponds, ponds should be removed of sediment at a frequency of once every seven (7) to fifteen (15) years, depending on the sediment loading to the pond. Under the existing funding program stormwater management pond sediment removal activities would occur at a frequency of once every 245 years. Table 1 provides additional comparisons of current and sustainable maintenance/renewal frequencies for stormwater program elements.

Table 1: Comparison of Current and Sustainable Maintenance/Renewal Frequencies

<table>
<thead>
<tr>
<th>Activity</th>
<th>Current Frequency</th>
<th>Existing Annual Funding</th>
<th>Sustainable Frequency</th>
<th>Sustainable Annual Funding</th>
<th>Funding Gap</th>
</tr>
</thead>
<tbody>
<tr>
<td>Storm sewer replacement</td>
<td>Once every 750 years</td>
<td>$290,000</td>
<td>Once every 100 years</td>
<td>$2,200,000</td>
<td>($1,910,000)</td>
</tr>
<tr>
<td>Stormwater Pond – sediment removal</td>
<td>Once every 245 years</td>
<td>$42,000</td>
<td>Once every 10 years</td>
<td>$1,000,000</td>
<td>($958,000)</td>
</tr>
<tr>
<td>Creek Rehabilitation</td>
<td>Once every 70 years</td>
<td>$964,000</td>
<td>Once every 40 years</td>
<td>$1,700,000</td>
<td>($736,000)</td>
</tr>
</tbody>
</table>

\textsuperscript{3} Foster, J., A. Lowe and S. Winkleman 2011. \textit{The Value of Green Infrastructure for Urban Climate Adaptation}. The Center for Clean Air Policy.
The overall stormwater program funding gap was documented in the report *Kitchener-Waterloo Stormwater Management Program and Funding Review: Stormwater Management Needs and Expenditures, 2007* and communicated to Council in PWS2007-30 and PWS2009-16. Since the 2007 report identifying the sustainable funding level of $4.5M, staff have undertaken a preliminary re-evaluation based on updated cost and asset data and it is estimated that the sustainable funding level is now approximately $6.5M. The increase in level of service is due to the following factors:

- The assumption of new stormwater assets through the development process, in particular stormwater management ponds
- A reduction in the stormwater capital program funding since 2007 of approximately $300,000
- Inflationary increases since 2007

It should be noted that the sustainable funding level will be reevaluated and reported to Council as part of the long term funding strategy in advance of the next budget cycle.

Therefore the future cost avoidance analysis was based on two assumptions. The first assumption is that the stormwater program is funded to achieve a ‘sustainable’ level of service. The second assumption is that there would be maximum credit program uptake and therefore all properties would provide private stormwater control measures. With these assumptions, it is estimated that future cost avoidance would total approximately $1.9M on an annual basis or 29% of the total stormwater program.

**Review of Delegate Proposal**

On January 30, 2012, Council was provided presentations from two delegations in support of the stormwater credit program. An alternative approach to residential credits was provided by one delegate and staff have had an opportunity to review and consider the alternative approach. Overall the principles identified by the delegate are aligned with the principles of the staff proposed stormwater credit program. These include:

- Keep it simple, easy to understand and justify
- Ensure the credit program is accessible to all customers
- Ensure the credit program is customer driven in that the customer identifies the stormwater controls present and completes the application form
- Ensure that the credit program is cost-efficient and easy to administer

The delegate also proposed revised residential credit tiers based on proportion of a property’s impervious surface runoff, such as roofs and driveways, directed to pervious surfaces, such as lawns and gardens. Staff have concerns with this approach because pervious surfaces can also generate runoff and the quantity of the runoff is dependant on factors such as slope, soil moisture, soil and vegetation type. These variables are difficult to measure and there would be a likelihood that some customers would be provided credit that is not justified.
The delegate also spoke to the importance of trees in absorbing rain water, noting that their property contains more than 60 trees. The delegate further quantified the amount of rain water that a mature tree absorbs. Staff are in agreement with the importance of trees and the inclusion of trees in the credit program. In addition, staff had also researched and quantified the amount of rain water that an average tree absorbs and the numbers are consistent with those presented with the delegate. Staff believe that trees can be readily incorporated in the proposed residential credit program with minimal administration required.

Additional Communications since January 30, 2012

In accordance with the City’s policy of providing a minimum of five days notice of changes to fees and charges, an advertisement was placed in the Waterloo Chronicle on Wednesday February 22, 2012 and advertised through social media.

FINANCIAL IMPLICATIONS:

Details on financial implications of a credit program are provided in PWS2012-001, attached as Appendix A to this report.

LEGAL CONSIDERATIONS:

None

LINK TO STRATEGIC PLAN:

The proposed strategy related to the Stormwater Management program and funding model achieves the vision outlined in Council’s 2011-2014 Strategic Plan as it relates to “Sustainability and Our Living Environment”. This strategy will enable the long term sustainability of the stormwater system, increase overall equity in the stormwater funding model and position the City with a more structural and environmentally responsible stormwater management system for the future.
Submitted by:

Signature
Name: Denise McGoldrick
Position: Director of Water Services, Public Works Services

Submitted by:

Signature
Name: Paul Grivicic, CA
Position: Financial Analyst, Finance