



**CITY OF HAMILTON**  
**CORPORATE SERVICES DEPARTMENT**  
**Financial Planning and Policy Division**  
*and*  
**PUBLIC WORKS DEPARTMENT**  
**Hamilton Water Division**

<b>TO:</b>	Mayor and Members General Issues Committee
<b>COMMITTEE DATE:</b>	October 7, 2015
<b>SUBJECT/REPORT NO:</b>	Stormwater Funding Review (FCS15061/PW15067) - (City Wide)
<b>WARD(S) AFFECTED:</b>	City Wide
<b>PREPARED BY:</b>	John Savoia (905) 546-2424, Extension 7298
<b>SUBMITTED BY:</b>	Mike Zegarac General Manager Finance & Corporate Services Department  Gerry Davis, CPA, CMA General Manager Public Works Department
<b>SIGNATURE:</b>	

**RECOMMENDATIONS**

- (a) That staff be directed to evaluate the benefits of an alternative Stormwater Fee structure and report back on the following:
- (i) residential Stormwater Fee;
  - (ii) multi-residential (MR)/Industrial/Commercial/Institutional (ICI) Stormwater Fee;
  - (iii) Stormwater Fee Credit Program;
  - (iv) identify budget restatement amounts for both the property tax and rate supported budgets;
  - (v) cost to implement and maintain an alternative stormwater fee based program;
  - (vi) billing mechanism and related policy/business process considerations.
- (b) That staff be authorized and directed to issue a Request for Proposals ("RFP") for Consulting Services for a Stormwater Funding Review;

- (c) That the total cost of the Stormwater Funding Review with an upset limit of \$600,000 be funded from the Stormwater reserve (108010).

## **EXECUTIVE SUMMARY**

Stormwater management is the term generally used to refer to the programmatic approach that local governments use to control the quantity and quality of stormwater runoff within their jurisdictions. Stormwater runoff is water from precipitation and snowmelt that flows across the land and over hard surfaces before it is routed into drainage systems and then on to natural areas such as creeks, lakes and wetlands.

Historically, throughout North America, stormwater infrastructure and operating activities have largely been funded through general property taxes and less commonly by wastewater utility rates or a combination of the two, but a majority of local governments still rely heavily on general property taxes to fund stormwater services.

The aforementioned traditional financing strategies do not necessarily reflect equity among users and are becoming less feasible for Hamilton that is facing a number of increased pressures to:

- maintain aging infrastructure
- minimize flooding through enhanced service delivery
- comply with more stringent water quality protection requirements
- maintain the City's commitment to the Hamilton Harbour clean-up
- be more transparent in how municipal revenues are being expended

In order to address these increasingly challenging requirements and financial constraints, dedicated stormwater funding strategies are becoming much more common. The local authority's priorities in each community continue to drive the selection of a preferred approach. There is no single funding mechanism that is a "best-fit" in every jurisdiction. Some funding sources are better suited to operations and maintenance, while others are used strictly for capital improvements or regulatory compliance.

Hamilton's stormwater program is currently funded mostly through combined wastewater/storm rates and to a much lesser extent by property taxes, with development charges contributing to stormwater infrastructure related to new development. Prior to 2004, the stormwater program was funded primarily by property taxes on an area rated basis with stormwater operational costs related to catch basins/culverts/outfalls on the general tax levy.

However, the City has experienced financial challenges under the present funding system. Revenue collected from wastewater/storm revenues is based on water use. There is no relationship between the volume of potable water used by a resident or business and the need for drainage-related services driven by the volume of stormwater

generated from a property. The continued reduction in total water consumption since 2004 has resulted in ongoing revenue pressures for both the water and wastewater programs given an increasingly more costly stormwater program. The 2015 Rate approved storm budget reflects total planned expenditures of approximately \$19 million (refer to Report FCS15002) – this represents nearly a twofold increase of the stormwater costs funded by the rate supported budget since 2004. The \$19 million rate supported stormwater budget reflects that approximately \$1.6 million is funded from development charges with the remaining \$17.4 million funded from wastewater/storm rates applicable only to properties that have connections to the City's sanitary system.

Additionally, there continues to be a portion of the stormwater program funded by property taxes and the 2015 Tax Supported budget reflects nearly \$4 million to support stormwater services.

Table 1 below provides the breakdown of the operating expenditures as reflected in the 2015 tax supported approved budget:

**TABLE 1**

<b>2015 Tax Supported Storm Budget</b>	<b>Current</b>
Catch Basin Maintenance	\$ 2,315,000
Stormwater Rehabilitation (Culverts/Ponds)	1,635,000
<b>Stormwater Total</b>	<b>\$ 3,950,000</b>

The 2015 total stormwater program with an approved budget of \$22.6 million is funded as follows: 83% from the Rate budget and 17% from property taxes.

Unlike water and wastewater services, the City's stormwater program does not have dedicated and distinct funding that reflects the annual stormwater program revenue needs. The current stormwater funding comes from rate and property tax revenue allocations which mean that wastewater customers and taxable property owners bear the burden of funding the program. An alternative stormwater fee structure will aim to ensure more balanced cost allocation across the community which reflects the actual need or demand for stormwater services.

Many communities have found that adequate, consistent funding of their stormwater program is as important to the long-term success and sustainability of the program as the actual source of revenue, which has led to the continued growth in the number of dedicated stormwater funding structures being established in Canada and the United States. A number of Ontario municipalities (London, St. Thomas, Waterloo, Kitchener and Mississauga) have dedicated stormwater rate structures in place or to be implemented in the near future. Additionally, municipalities such as Guelph, Ottawa and Markham are currently undertaking stormwater rate structure reviews.

The recommended Stormwater Funding Review (“Review”) will seek to identify an alternative stormwater rate structure that seeks to support the current stormwater management level of service.

The objective of the Review is to analyze, evaluate and recommend an alternative funding approach for the City’s stormwater program that aligns with the following principles:

**Fairness and Equity** – The intent is to ensure that consumers are contributing equitably in proportion to the cost of the stormwater program. The alternative approach will aim for balanced cost allocation which takes into consideration the level of stormwater services being provided, and factors such as large impervious surfaces, low water consumption and no potable water connection.

**Financial Sustainability** – Sustainability of the stormwater program can be achieved through full cost pricing and a user pay approach as exists with the City’s water and wastewater systems. The decline in water consumption coupled with the need for additional capital funding for the stormwater program (particularly for managing the impact of severe storm events) has resulted in challenges to maintain the level of service expected and demanded by the public.

The focus of the Review will be an alternative Stormwater Fee structure, which will include consideration of the following:

- Residential Stormwater Fee to be a charge reflecting an equitable distribution of costs that considers the level of stormwater services being provided. The intent is that the average residential customer’s initial revised stormwater fee will reflect their current stormwater costs as reflected by the average residential wastewater/storm charges and property taxes;
- Multi-residential (MR)/Industrial/Commercial/Institution (ICI) stormwater fee to be based on stormwater runoff contribution (utilizing such factors as land use, property size, estimated impervious area and the intensity of infrastructure) to reflect the level of stormwater services being provided;
- Stormwater Fee Credit Program to be studied;
- Budget restatement amounts for both the property tax and rate supported budgets;
- Cost to implement and maintain an alternative stormwater rate based program;
- Billing mechanism and related policy/business process considerations.

Staff will report back to Council once the Review is completed. It is contemplated that public consultation will occur in conjunction with the Review.

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The timeline below incorporates the following steps that may culminate with the implementation of a revised Stormwater Fee structure:

<b>Timeline</b>	<b>Process Step</b>
October 7, 2015	Report to GIC seeking approval to conduct a review of stormwater funding alternatives to be evaluated with detailed analysis
October 2015 – Dec 2015	Recruit/place temporary project manager and develop/issue RFP in order to award consultant assignment by January 2016
January 2016 – May 2016	Conduct Stormwater Funding Review incorporating feedback from Council workshops and public engagement sessions to develop a recommended Stormwater Rate Structure
May 2016	Council Education Sessions – to provide information related to how the City's stormwater funding structure compares with other municipalities and best practices
June 2016	Report to GIC with stormwater recommended rate structure for Council's consideration
June – Dec 2016	Assuming Council approval of a revised stormwater rate structure, coordinate with City' billing agent a plan for customer communications and required billing system programming changes
Winter 2016	2017 Rate & Tax Supported Budgets incorporating revised storm rate structure
January 2017	Revised Stormwater Rate Structure implemented with 2017 rates

The cost of the Review includes consulting services estimated between \$500,000 and \$550,000 and a temporary project manager for six months of \$50,000. The total cost of the Review with an upset limit of \$600,000 will be funded from the Stormwater reserve (108010).

***Alternatives for Consideration – See Page 18***

**FINANCIAL – STAFFING – LEGAL IMPLICATIONS**

**Financial:** The total cost of the Stormwater Funding Review with an upset limit of \$600,000 will be funded from the Stormwater reserve (108010). The cost of the Stormwater Funding Review includes between \$500,000 and \$550,000 depending upon procurement results for consulting services and \$50,000 for a temporary project manager to manage the Review for an initial 6 month period. Should Council endorse an alternative rate structure in Spring/Summer 2016, the temporary project manager role would be extended for a further 12 month period at an estimated cost of \$100,000. The Storm Reserve (108010) has sufficient funds to support the Review and related staffing costs with a 2014 year end balance exceeding \$13 million.

**Staffing:** If Council approves the proposed Stormwater Funding Review, Hamilton Water will be required to project manage the consultant and it is recommended that a temporary project manager be engaged to manage the Review. If Council approves an

alternative stormwater rate structure, the project manager role would need to be extended a further 12 months for the implementation phase of the new rate/fee structure.

**Legal:** Under the authority of sections 9, 10, and 11 and 391 of the *Municipal Act, 2001*, the City has the authority to charge a user fee to cover the cost of a service, including stormwater management services. A key consideration is to ensure that there is a connection between the amount of the user fee and the cost of the service being provided, such that it is not categorized as a tax.

Legal Services will be engaged during the Stormwater Funding Review.

## **HISTORICAL BACKGROUND**

The City is responsible for managing all aspects of stormwater within its jurisdiction through the planning for and controlling of runoff from rain and snow melt. The stormwater infrastructure includes roadways, ditches, storm sewers, storm sewer manholes and catchbasins, stormwater management ponds and other related facilities. The City is responsible for operating and maintaining the various components and is held accountable to a variety of regulatory agencies such as the Ministry of Environment and Climate Change, Ministry of Natural Resources, Fisheries and Oceans Canada and local conservation authorities for providing and maintaining this infrastructure. The purpose of the infrastructure is to collect and manage stormwater in a manner that reduces downstream erosion, flooding and water-quality degradation. The City does not maintain facilities that are located on private property or that fall under the jurisdiction of other governmental entities, such as the local conservation authorities.

Hamilton's stormwater program is currently funded mostly through its wastewater/storm rates and to a lesser extent by property taxes with development charges contributing to stormwater infrastructure related to new development. Prior to 2004, the stormwater program was funded primarily by property taxes on an area rated basis – stormwater operational costs related to catch basins/culverts/outfalls were not area rated.

Beginning in 2004, approximately 85% of the stormwater management costs were transferred from the tax levy to the rate supported budget. The total transfer of \$10.2 million to the rate budget was essentially off-set by the financial savings resulting from the GST rebate for municipalities effective April 1, 2004. The transfer to the rate supported budget was intended to ease some pressures on the property tax levy. Additionally, the transfer recognized that a portion (approximately 36%) of the City's wastewater (sanitary) system was a combined system with stormwater. In the combined system, the sewers, located primarily in the oldest sections of the City, collect both domestic sewage and stormwater runoff. This combined flow is collected, stored and treated prior to discharge from the Woodward Wastewater Treatment Plant (WWTP).

### *Current Stormwater Program Funding*

As previously noted, the City's stormwater program is currently funded through wastewater/storm rates and property taxes, with development charges funding stormwater infrastructure related to the construction of new development (development charges do not fund ongoing operations and maintenance).

The City experiences financial challenges under the present funding system. Revenue collected from wastewater/storm revenues is based on water use. **The continued reduction in total water consumption since 2004 has resulted in ongoing revenue pressures for both the water and wastewater programs given an increasingly more costly stormwater program.**

The 2015 Rate approved storm budget reflects total planned expenditures of approximately \$19 million (refer to Report FCS15002) – this represents nearly a twofold increase of the stormwater costs funded by the rate supported budget since 2004. The \$19 million rate supported stormwater budget reflects that approximately \$1.6 million is funded from development charges with the remaining \$17.4 million funded from wastewater/storm rates applicable only to properties that have connection to the City's water system.

From a budgeting perspective, Hamilton's three very distinct rate supported service programs, Water, Wastewater and Stormwater, were historically budgeted under the rate-supported revenues as if they were one service. This budgeting practice was unique as most communities – whether or not stormwater is funded by Rates – typically budget each service as separate distinct utilities (reflected by different rates) and adopt related increases for each service program. By treating the three services as one, the increasing cost pressures of the stormwater component have resulted in both water and wastewater services and projects being deferred in recent years. As approved under the 2013 Rate Structure Review, the intent over time is to budget both the expenses and revenues for wastewater and storm separate from water services. Should a dedicated stormwater revenue/or is fee structure be approved in the future, wastewater and stormwater would be budgeted separately, aligning with industry best practices.

Additionally, there continues to be a portion of the stormwater program funded by property taxes and the 2015 Tax Supported budget reflects nearly \$4 million to support stormwater services. Table 1 to Report FSC15061/PW15067 provides the breakdown of the operating expenditures as reflected in the 2015 tax supported approved budgets.

*The 2015 total stormwater program with an approved budget of \$22.6 million is funded as follows: 83% from the Rate budget and 17% from property taxes.*

Therefore, unlike water and wastewater (sanitary) services, the City's stormwater program does not have dedicated distinct funding that reflects the annual stormwater program revenue needs. Currently, stormwater is funded essentially from rate and property tax revenue allocations which mean that water users and taxable property

owners bear the burden of funding the program, and stormwater services have to compete for limited rate and tax revenues. An alternative stormwater fee structure will aim to ensure more balanced cost allocation across the community which reflects the actual need or demand for stormwater services.

## **POLICY IMPLICATIONS AND LEGISLATED REQUIREMENTS**

The recommended options support the principle of a sustainable user-pay stormwater program.

## **RELEVANT CONSULTATION**

City Manager's Office – Legal Services Division has reviewed this report and provided their input.

## **ANALYSIS AND RATIONALE FOR RECOMMENDATION**

### ***Levels of Stormwater Service***

The City's drainage system is comprised of two drainage components: major and minor drainage systems. These two sub-systems work in concert to control the quantity and improve the quality of runoff before it is discharged into creeks, streams and Lake Ontario. The entire system is largely maintained by the City's Public Works department.

### ***Major Drainage System***

Major drainage systems include natural drainage systems such as creeks and lakes, which receive and channel runoff from rain. Major systems also include structures such as channels, ditches, dykes or berms, buffer strips, grassed waterways, stormwater management ponds and culverts. Major drainage systems are more commonly located in low density/rural areas of the City.

Open drains can receive overland flow and thus have the advantage of serving as surface drainage and where parallel to roads are used to receive water off the roadway, providing road safety in wet conditions. They are a vital component of the local infrastructure. Without them, many areas of the City may be subjected to regular flooding, reduced production from agricultural land and increased public health risks.

Unlined open drainage systems (ie. not lined with brick, concrete or mortar) are not as capital intensive as closed drainage system infrastructure but still require on-going maintenance. As major drainage structures tend to be more easily accessible than minor system infrastructure, maintenance of major drains is generally less complex but not necessarily less costly. Inspections and cleaning operations may be easier to perform as these drains are not buried. However, regular inspections and associated maintenance are required to prevent major issues from arising (e.g., blockages, erosion and destabilization, and containment failure) usually related to obstruction or degradation due to siltation, vegetation or the accumulation of foreign materials and



debris. Generally, major systems experience higher maintenance expenditures relative to minor systems which are subjected to far less contamination and tend to be self-cleaning.

In rural areas, stormwater runoff is often directed from roadways, ditches and watercourses, all of which must be maintained by the City. In addition, stormwater runoff eventually ends up in waterways and groundwater and if left untreated, degrades aquatic habitat and water quality. For example, agricultural properties can impact watercourses if crop inputs such as fertilizers and pesticides are misapplied. The proper maintenance of the existing infrastructure, as well as the retrofit and construction of new infrastructure is required for the protection of public health, property and the environment.

### *Minor Drainage System*

Minor drainage systems or storm drain pipe systems, are pipe conveyances used in the stormwater drainage system for transporting runoff from the roadway, as well as, other impervious surfaces and other inlets to outfalls and receiving facilities or features. Minor drainage system infrastructure includes components such as catch basins, closed storm drain pipes, manholes and storage vaults. As a matter of location and associated development standards, minor systems are typically found in medium to high-density residential and commercial/industrial development where the use of natural drainage ways and/or vegetated open channels is less commonly found. Minor drainage systems have much higher capital requirements than that required from major drainage systems.

Generally the stormwater program must address the following components:

- Flooding Issues
- Regulatory Requirements
- Water Quality
- Operations and Maintenance
- Engineering & Planning
- Capital Investment
- Asset Management
- Public Education & Enforcement
- Administration & Financial Management

The following chart outlines the various stormwater program services required by each of the two drainage system components and indicates the funding sources for these services. As demonstrated, whether served by a major or minor system, the level of stormwater management required is significant. It should be noted that the rate supported budget, funds over 80% of those service costs, which are funded by both rates and taxes.

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City of Hamilton Stormwater Program Services				
Stormwater Program Services	Drainage System		Funding Sources	
	Minor	Major	Taxes	Rates
<b>Stormwater Planning</b>				
Master planning/basin studies	X	X		X
System modeling and analysis	X	X		X
SW Plan review and inspection (new & redevelopment)	X	X		X
Asset Management & Capital Improvement Planning	X	X	X	X
<b>Operation &amp; Maintenance</b>				
System inspections	X	X	X	X
Routine system maintenance (cleaning/mowing/dredging)	X	X	X	X
Inventory/GIS data management	X	X	X	X
Complaint response & tracking	X	X	X	X
System retrofits and repairs (structural)	X	X	X	X
Spill response	X	X		X
Street sweeping	X	X	X	
<b>Stormwater Collection &amp; Treatment</b>				
Field Operations (pumps, tanks, gates)	X	X	X	X
Field Monitoring (gauges, flow data)	X	X	X	X
Backflow Prevention program (grants such as 3P)	X			X
Emergency response	X	X	X	X
<b>Regulation &amp; Enforcement</b>				
Erosion & Sediment control		X	X	X
Standards & policy Development	X	X	X	X
Floodplain management	X	X	X	X
Industrial Discharge Compliance	X	X		X
Harbour/Water Quality Monitoring	X	X		X
<b>Capital Improvements</b>				
Project design	X	X		X
Construction oversight and inspection	X	X		X
Construction contract management	X	X		X
Land acquisition/easement management	X	X		X
<b>General Services</b>				
Public Education and outreach	X	X		X
Program management	X	X	X	X
Budget Development and Tracking	X	X	X	X

***Evaluation of Current Stormwater Funding Structure***

Staff have evaluated the City's existing stormwater funding structure based on how it aligns to the Guiding Principles that Council previously approved for the Water, Wastewater and Stormwater Rate Structure Review (refer to Report FCS11025) with the following observations:

***Fairness and Equity*** – The City's current Stormwater funding structure is a combination of wastewater/storm utility user fees, development charges and property taxes. Most of

the funding comes from the rate revenues which are based on the metered water consumption of those City wastewater users with a City system connection. However, stormwater services are provided throughout the City, albeit at different service levels (i.e. major and minor systems), so there are many properties benefiting from stormwater service who currently are not being charged for wastewater services (for example, parking lots with no service connections). There are approximately 3,300 accounts with City water billings that do not have connection to the City's sewer system and hence, do not contribute to the stormwater program via rate fees. Furthermore, there are properties such as those with large commercial enterprises, which receive the benefit of substantially higher levels of service as measured by runoff generation rates but given relatively lower water consumption are not proportionally supporting the stormwater program through their rate fees relative to the stormwater services the property receives. Therefore, the current stormwater funding structure is not directly linked to the demand for the service.

*Financial Sustainability and Stabilize Revenue* – As noted, most of the stormwater program is funded by the wastewater/storm utility fees reflecting the metered water consumption of City water customers who are connected to the City's wastewater system. As overall water consumption has steadily declined over the last few years, water, wastewater and stormwater services are competing for more limited funds. As noted previously, the stormwater service costs funded by the rate supported budget have increased two-fold since 2004 when some stormwater services were transferred from the property tax supported budget. The ongoing challenge in an environment of even slightly declining water consumption, is that the revenue pressures on delivery of all services are increased, making it less likely that revenues can match program needs.

*Be Justifiable and Simple to Understand & Update* – Stormwater funding continues to be largely based on water consumption as a means of cost allocation unlike alternative funding structures that achieve balanced cost allocation by taking into consideration the level of stormwater services being provided, and factors such as large impervious surfaces, low water consumption and no potable water connection.

Although the City has done a good job in providing stormwater services on a limited budget, the backlog of stormwater projects has grown and inadequate funding has remained an issue.

As well, provincial and federal laws require that municipalities address the environmental impacts of stormwater pollution. In fact, Ontario's *Water Opportunities Act, 2010* includes a strong focus on the need for municipal water sustainability plans, as well as the establishment of performance indicators and targets for municipal water, wastewater and stormwater services.

However, as there lacks sustainable infrastructure funding from the senior levels of government to municipalities to address the impacts of stormwater pollution, the City

should investigate alternative means for raising the funding necessary to manage the issue.

### ***Ontario Stormwater Funding Practices***

Relative to other Ontario municipalities, Hamilton has a rather unique stormwater funding structure that currently utilizes a combination of water/sewer utility fees and property taxes as funding sources. No other Ontario comparator has been identified that utilizes a combination of these funding sources. The majority of Ontario municipalities continue to rely on property taxes to fund their stormwater programs. However, there are a growing number of municipalities (City of Mississauga's new stormwater fee structure is effective January 1, 2016), that have shifted from property tax funding to a stormwater structure funded by sewer utility fees or a dedicated stormwater utility fee with a summary of their practices provided below.

### **Ontario Stormwater Funding Structures**

<b>Funding Source</b>	<b>Hamilton</b>	<b>Ottawa</b>	<b>London, Kitchener, Waterloo, Aurora, St. Thomas, Peel Region &amp; Markham (2016)</b>	<b>Majority</b>
Property Taxes	x			x
Wastewater Fees	x			
Wastewater Surcharge		x		
Dedicated Stormwater Fee			x	

### ***Ottawa***

Ottawa is the one of few municipalities in Ontario identified that fund their entire stormwater program via their rate supported budget. Ottawa uses a volumetric calculation where water users pay based on the cubic metres of water consumed with a surcharge rate (currently 117%) that is applied to the water rate to fund sewer and stormwater services. However, unlike Hamilton's former sewer surcharge which historically remained at 100% of the water rate, in recent years Ottawa has increased their sewer surcharge to meet commitments for implementing stormwater projects – such as their Ottawa River Action plan and the West End Flooding prevention program.

Ottawa, like many other older cities in Ontario, has seen water use, and subsequently water and sewer revenues decline over the past decade at a time when the need to support maintenance of an aging infrastructure is increasing and regulatory standards are requiring more stringent quality controls. To minimize the need to continue to raise their rates to offset declining water use, the City is embarking on a rate review of their water, sanitary, and stormwater rate structure to evaluate their short and long term options. As part of that review, there will be a study to remove all stormwater costs from

the rate supported budget and to recover all stormwater costs on a city-wide basis perhaps by linking stormwater charges to the size of a property.

### ***Dedicated Stormwater Fee Overview***

As noted previously, a number of jurisdictions have adopted a dedicated stormwater fee structure premised on user charges as the primary revenue source to pay for capital, operations and maintenance costs in the stormwater utility. The financing principle behind a stormwater fee is that stormwater runoff is generated by the development of a property, changing the runoff rates, placing a demand on the government to provide safe collection and discharge of the flow. Hence, these developed properties should pay for stormwater services proportionally based on a measure of that demand.

The volume of stormwater runoff produced is directly proportional to the amount of impervious area, everything else being equal. This concept is often referred to as the run-off coefficient, which reflects the permeability of a property's surface area.

Impervious area includes hard surfaces that block the infiltration of rainwater into the ground. Examples include rooftops, driveways, parking areas, patios, garages, etc. All of these land use types have a higher runoff coefficient (used in the engineering design of stormwater infrastructure) than undeveloped property since water cannot infiltrate. The amount of impervious area on a property has a direct correlation to its contribution of runoff volume and pollutant loading onto the City's stormwater management system and is used as the basis of cost allocation for many stormwater fees.

Gravel driveways or parking areas are similar to their asphalt counterpart in that over time, the gravel gets compacted and fine soil particles begin to fill the voids in the gravel which allows infiltration of very little, if any, stormwater runoff. For many stormwater utilities, no distinction is made between gravel and paved areas as both would be treated as impervious area. Furthermore, a landowner may choose to pave a gravel driveway over time.

Implementation of a user-fee cost recovery system can result in significant one-time costs, particularly for those with rates based on property permeability, when detailed mapping, digitizing and development of a customer database are required. However, when compared to on-going administrative costs for billing water consumption, stormwater fees are less administratively intensive for long-term management.

### **Alternative Stormwater Fee Structure Recommended for Study**

As noted previously, stormwater fees are typically based on land size/use and/or the amount of impervious area associated with each land use type. Stormwater fee implementation costs can be significant and with any rate structure, it should be able to be effectively maintained by City staff in future years. The implementation costs are a one-time expense and the long-term management of the billing file is less

administratively burdensome and not as costly as metered customer accounting in potable water. A billing file would only change when there is a change in the base factors for the fee for a given property, or when the rate is adjusted. Additionally, the following principles are typically followed to guide best practices in developing a stormwater rate structure:

- User pays
- Sustainability of revenue
- Defensible rate structure correlated to demand for service
- Equity in allocating costs to users
- Encourage use of on-site controls and best practices

#### *Residential Stormwater Fee*

The development of a stormwater fee to be charged based upon the contribution of stormwater runoff, as indicated by the amount of impervious surface area on the property would yield the most fair and equitable approach to funding stormwater management since the properties that have the most impervious area and place more demand on the system, would also pay more. However, the variation in the amount of stormwater runoff and the impact of a typical residential property to the City's stormwater systems may not be significant enough to justify the considerable expense of mapping and digitizing the impervious surface area of thousands of residential properties. Selection of the allocation methodology should address this potential concern.

One option is to establish a residential stormwater fee structure that apportions the program cost based on land size so that there would be a fixed charge with a limited number of property size classifications. This would be similar to the stormwater rate system that the City of London has in place, which does not include a measurement or an estimate of the impervious area on a property.

A stormwater fee structure should be rationally connected to the user fee amounts charged and the public services provided. Therefore, the stormwater funding structure should be linked to the level of stormwater services being provided. For example, costs for operating and maintaining distinct "Minor" and "Major" portions of the system could be calculated and stormwater fees set for each service area, allowing the rate structure to closely align to the principle of Fairness and Equity.

#### *Multi-Residential (MR) & Industrial/Commercial/Institutional (ICI) Stormwater Fee*

Some communities have chosen to base their stormwater fee structure solely on property size. Doing this does not consider the contribution of stormwater runoff as indicated by the amount of impervious surface area on the property. A stormwater fee structure for MR/ICI customers based on permeability offers a better metric for allocating stormwater contributions and would more fully address concerns regarding

the equity of stormwater funding. For example, with a stormwater fee structure based solely on property size, a very large property with a high degree of permeable surface area and/or on-site retention may still pay a much higher stormwater fee than a smaller property that is mostly impervious if land size per parcel is the only basis for the fee.

Furthermore, the factors that affect the extent to which stormwater flows from a particular property are more pronounced with MR and ICI properties. Some of these factors are the amount of impervious area, amount of semi-impervious area, total area, topography, slope, soil conditions, and availability of on-site retention or direct stream/creek/lake discharge. Water quality may also vary depending upon the source of runoff. For example, parking lots generally produce more polluted runoff than pedestrian surfaces.

Factoring in the amount of impervious surface area on a property makes the stormwater fee calculation more transparent and understandable, but, depending on available data, may take more time and resources are required to implement the "Total Impervious Surface Area" option.

Similar to the proposed residential stormwater fees, it is suggested that MR and ICI stormwater fees be established for areas based on the level of service they receive (i.e. whether they are serviced by Major or Minor drainage facilities and the associated costs under each system).

As noted earlier, rate structures that take into account the impervious area of a property are becoming more common across North America. A MR/ICI stormwater fee structure could be charged on the basis of stormwater runoff contribution to the City's stormwater management system. Under this method, land use classification, property size, estimated impervious area and the intensity of infrastructure could be considered when estimating the level of contribution of stormwater into the City's stormwater management system, resulting in a fair and equitable approach to stormwater charges.

#### *Stormwater Fee Credit Program Considerations*

Credit programs are increasingly a part of a comprehensive stormwater rate structure to improve equity, provide incentives to implement or carry out an overall community stormwater management plan, or advance some other social or environmental objective. The basic principle in developing and granting stormwater credits is that credits should be given for approved private investments or actions that reduce public cost, for those that result in a stormwater related public benefit, or to recognize that some stormwater flows are directly discharged (and for which, the utility therefore does not have management responsibility). Depending on the type of detention, retention or direct discharge structure, the contribution to the municipal stormwater system may be reduced or eliminated. If credits are to be given, the methodology for calculation of the credit must be determined. Credits are generally based on reduction of impact or

reduction of cost of service and evaluated on approved flood prevention (quantity) and pollution reduction (quality) controls.

A stormwater fee credit and/or rebate program provides incentives for property owners to provide on-site controls that reduce their individual contributions of stormwater runoff and pollutant loading to the municipal stormwater management system. Encouraging such source controls supports the City's stormwater management policies and water quality initiatives. In addition, a credit and/or rebate program would also recognize those existing properties with stormwater controls or stormwater best practices already in place.

For example, such credit programs may allow adjustments to the stormwater fee when property parcel runoff differs by more than a minimum percentage from the appropriate land use standard. Some stormwater fee policies allow a property to be credited for up to an established maximum credit (e.g. 50%) of the stormwater drainage fee for onsite measures which are owned and maintained by the applicant which effectively reduces the stormwater discharge. In other credit programs, even higher credit levels are considered, for example, Kitchener in developing a stormwater fee credit program, is considering providing a credit greater than 50% for circumstances, similar to those of Conestoga College, where runoff is controlled and managed on-site and does not discharge into the City's infrastructure for even the 100-year design storm event.

Generally speaking, a stormwater credit program could provide the following results:

- Stormwater will be diverted or retained on-site, resulting in long-term improvements in surface water quality;
- Existing privately-owned stormwater best management infrastructure (such as oil and grit separators) will be required to be maintained as a result of ongoing follow-up on credits and incentives;
- Private properties will have an incentive to implement best management practices and make choices that benefit the environment.

Some examples of stormwater management practices (SMPs) that may be implemented to gain credits:

- Rain Gardens - contain specifically chosen plants and are designed to collect rainwater from hard surfaces, such as roofs, sidewalks and parking lots.
- Detention Basins - detention system consisting of a large pipe or vault that holds rain water on the property and then allows water to flow slowly through a "flow control structure." The flow control structure has a small hole at the bottom of the pipe that meters the amount of water that can drain out of the detention system.
- Rain Tanks, Cisterns and Underground Structures – structures that collect, hold and control rainwater so that it is slowly absorbed into the ground.



- Vegetated “Green” Roof - is a roof or section of a roof that is covered with plants which can reduce the speed and amount of rainwater flowing off of the roof by temporarily storing some of that water.
- Bio-retention Systems - shallow depressions in the ground designed with a soil mix and plants adapted to the local climate and soil conditions. Bio-retention systems can both detain and treat stormwater. They can be designed to take rain water from roof tops, driveways or parking areas.
- Permeable Pavement - paving system which allows rainwater to percolate through the system into the underlying soil or an aggregate reservoir. They are designed to slow down the flow of stormwater and can be used on walkways or driveways instead of solid surfaces.
- Ponds on Private Property - provide temporary storage of rainwater that detains and cleans water by allowing time for pollutants to settle to the bottom of the pond rather than continuing on.
- Oil/Water Separators - systems designed to separate oil and water from each other and allow the oil to stay in the system while letting the clean water discharge out.

The potential ongoing administration costs should also be considered when developing stormwater fee credit programs and as such, the City’s existing Wastewater Abatement Program (WAP) should be reviewed as a cost effective credit program model.

The WAP approved in 2003, takes into account the differences that occur when water flows are not discharged into the sanitary or combined sewer system but are instead consumed by the user's product or processes. Eligible commercial and industrial ratepayers are able to apply for an assessment of the flow differential between water use and effluent discharged to the City's sanitary sewer and combined sewer systems. In some circumstances, a ratepayer's sewer surcharge may be abated (allows for a credit on the Sanitary Surcharge amount of the water bill paid by the ratepayer) to more accurately reflect their use of the City's sewer systems. The WAP includes administrative fees related to initial application and annual administration ensuring minimal staff and cost impacts from the provision of this credit program.

#### Comparison of Stormwater Options

A dedicated stormwater fee is the most equitable of the funding options considered and is recommended for further study and for future potential adoption.

A number of observations support investigating a dedicated stormwater fee structure:

- A stormwater fee represents a more dedicated, sustainable funding mechanism than property taxes, since rates are assessed to each parcel of land based on an estimate of how much stormwater runoff they contribute. This is the most fair and

equitable approach to funding stormwater management since the properties that have the most impervious area and place the most demand on the system also pay more.

- By transferring stormwater management from the water/sewer utility fees and property taxes to a user-fee model, the funds collected are guaranteed to be used for stormwater management.
- Revenue stability is enhanced as cash flow should be predictable and lack extreme variations.
- A utility which provides dedicated funding for stormwater infrastructure is considered a best practice according to the Federation of Canadian Municipalities (Refer to “A Best Practice by the National Guide to Sustainable Municipal Infrastructure” published by FCM in conjunction with the Canada’s National Research Council).

## **ALTERNATIVES FOR CONSIDERATION**

### ***Alternative Funding Model – Full Funding of Stormwater Program with Property Taxes***

The option of shifting back those stormwater costs that had been shifted to the Rate supported budget beginning in 2004, would address some of the City’s current stormwater funding structure shortcomings identified in the *Analysis and Rationale Section* of this report with respect to the Water, Wastewater and Stormwater Rate Structure Review Guiding Principles, but this option would still present limitations with respect to fully aligning to the Principles:

*Fairness and Equity* – All taxable properties would be charged through their property taxes to recover the stormwater costs relative to the stormwater service level received. The stormwater tax levy could be done on an area rated basis. So, for example, those areas of the City serviced by Minor Drainage systems (“Minor”) could pay based on the cost of operating and maintaining the minor stormwater piping system and those properties receiving Major Drainage Service (“Major”) could pay based on the associated costs of operating and maintaining ditches, ponds, and other major system facilities. Therefore, to some extent, this type of stormwater funding structure could be linked to the level of stormwater service being provided.

*Stabilize Revenue* – Property tax funding would eliminate the current stormwater funding structure where most stormwater service costs are recovered from wastewater/storm utility fees that are based on water consumption, therefore resulting in a more predictable revenue stream relative to the current funding structure.

As noted previously, there is a growing trend of municipalities transferring funding for their stormwater programs from property taxes to a fully dedicated stormwater utility fee

structure. This shift reflects issues that have been raised with funding stormwater services with property taxes:

*Fairness and Equity* – Full storm funding from property taxes could improve fairness and equity issues, however, this alternative funding model still would have shortcomings in meeting the principle of fairness and equity:

- Property taxation is based on property value and there would not be a direct link to stormwater runoff, particularly for non-residential properties who have invested in stormwater management infrastructure that mitigates their properties' impact on the City's stormwater systems.
- Not all properties pay taxes (tax exemptions, abatements or payments in lieu) although such tax-exempt properties may still benefit from stormwater services.

*Affordability and Financial Sustainability* – A full property tax storm funding model could stabilize revenues for the City's stormwater program, however, shifting approximately \$19 million back to the tax levy basis, even on a phased-in approach, would be extremely difficult given current property tax affordability concerns. For 2015, a 1% tax rate increase would yield approximately \$7.4 million in tax revenues for the City; therefore, to shift stormwater back to property taxes would require a 2.7% increase to fully accommodate the current \$19 million rate supported stormwater budget.

Property taxation is regressive in nature with lower-income residents generally paying a higher percent of household income on housing than other residents so shifting full stormwater service costs to the levy will only exacerbate the affordability challenge. As many City services must compete for funding from property tax revenues, the alternative of full tax levy funding for the stormwater program does offer some improvements but, in essence, this option would continue the lack of a *dedicated* sustainable funding mechanism for stormwater management, thereby not meeting the long term financial sustainability objective.

It is not recommended to pursue investigating further an alternative funding model where the stormwater program would be fully funded by property taxes.

## **ALIGNMENT TO THE 2012 – 2015 STRATEGIC PLAN**

### **Strategic Priority #1**

A Prosperous & Healthy Community

*WE enhance our image, economy and well-being by demonstrating that Hamilton is a great place to live, work, play and learn.*

### **Strategic Objective**

- 1.1 Continue to grow the non-residential tax base.

1.2 Continue to prioritize capital infrastructure projects to support managed growth and optimize community benefit.

1.3 Promote economic opportunities with a focus on Hamilton's downtown core, all downtown areas and waterfronts.

1.6 Enhance Overall Sustainability (financial, economic, social and environmental).

## **Strategic Priority #2**

### **Valued & Sustainable Services**

*WE deliver high quality services that meet citizen needs and expectations, in a cost effective and responsible manner.*

### **Strategic Objective**

2.1 Implement processes to improve services, leverage technology and validate cost effectiveness and efficiencies across the Corporation.

2.3 Enhance customer service satisfaction.

## **APPENDICES AND SCHEDULES ATTACHED**

Not Applicable.