



MEMORANDUM

City of Kitchener
City Hall, 200 King St. West
P.O. Box 1118
Kitchener, ON N2G 4G7

Date: September 20, 2011
To: Steering Committee Members
From: Nick Gollan and Nancy Corbett
cc: Project Team Members
Subject: **Credit Policy Development – Memorandum #3
Impact Analysis**

INTRODUCTION

As outlined in Memo #2, a number of alternatives are being considered for the development of the stormwater credit program and are listed below.

1. Do nothing
2. Non-residential credits
3. Residential credits
4. Rebate program
5. Combination of alternatives (5a) Option 2 & 3, 5b) Option 2 & 4)

In order to accurately assess the impact of each alternative on the various municipal working groups, analysis is required by each affected division within each municipality. Furthermore, consideration must be given to the implementation of a credit program such as the administrative process (i.e., applying for a credit), database (i.e., storing the information related to which sites have stormwater management measures, the type of measures, year of installation, maintenance schedule, etc.), billing requirements (i.e., issuance of a one time payment vs. credit, altering the billing for each property such that the rate includes a percentage credit), etc.

The cost to administer the program will also depend on the number of applicants, percentage of credit or amount of rebate provided, etc. To facilitate the impact analysis, staff in each municipality has conducted an uptake analysis to estimate the anticipated volume of applications from various sectors that would participate in the program. The purpose of this exercise is to identify the number of properties that would be eligible, based on the information we currently possess, and ultimately have an estimate of the financial impact of providing a credit to these properties.

KITCHENER UPTAKE ANALYSIS METHODOLOGY

As part of the stormwater rate implementation recommendations, the City's consultant, AECOM (formerly TSH), recommended that 5% of the collected revenues be set aside for lost revenue and credit payments (see DTS 10-120, assumed collection rate 95%). Accordingly, approximately 5% of projected revenue was budgeted to fund the credit

policy development and ultimate implementation. A detailed analysis of existing properties with stormwater controls was undertaken to help quantify the potential impact on the CIS billing system and resources required to implement the approved credit and rebate policy. To enable this financial analysis, the alternative combining non-residential and multi-residential credits and a residential rebate program was considered. A summary of the results are provided in Appendix G.

The methodology for determining estimated uptake of the credit and rebate program included the following steps:

1) Review of all available records where stormwater management best management practices were implemented.

This review was based on known stormwater management development approvals retrieved from the AMANDA system for projects that were built since the year 2001. A total of 583 files were sought, with 440 (or 75%) being found. Based on the information available in the development files it was determined that the best management practices found in Table 1 were commonly implemented to mitigate stormwater runoff. Furthermore, to enable the September 2011 financial analysis an arbitrary potential credit percentage has been associated with each type of infrastructure. The sites that were reviewed included non-residential as well as multi residential (greater than 5 dwelling units) properties.

TABLE 1: Type of Stormwater Control and Associated Credit for Non-Residential and Multi-Residential (>5) Properties in Kitchener

Water Quantity Control (Flood Prevention)	Potential Credit Percentage (%)
Orifice controls and super pipes	4.5
Roof top storage	4.5
Infiltration galleries	4.5
Ponds	4.5
Parking lot storage	4.5
Cisterns	4.5
Water Quality Control (Pollution Reduction)	
Ponds	3.5
Green roofs and filter strips	3.5
Oil grit separators	3.5
Goss trap	3.5
Snouts	3.0

As outlined in Table 1, a property could potentially receive a cumulative credit of 27% for flood protection measures and 18% for pollution prevention assuming all of the measures are in place on the site. The combination of these two percentages would be 45%. A further assumption was made that all of the properties that already had some form of stormwater management best management practice (BMP) would also apply for an integrated BMP and education credit which would be worth 5% of the stormwater rate for that property based on current assumptions. Integrated BMP and education credits are discussed in Memo #2 and could include a paved area sweeping program, storm drain stenciling program or a stormwater educational program for the classroom. As such, under this scenario, these

properties could theoretically receive a 50% reduction in their stormwater rate in the form of a credit.

Based on the file review, a total of 246 non-residential and multi-residential properties were found to have existing BMPs in place.

2) Review of the Region of Waterloo rain barrel program uptake.

This review was based on the cumulative rain barrel uptake for the Region from 2001 to present day. The data provided indicates that the Region has issued 16,103 rain barrels to households in Kitchener over that time period. The data makes it clear that several households have received more than 1 rain barrel over the same time period. However, for the purposes of the September 2011 analysis it is assumed that between rain barrels and infiltration galleries, there are probably close to 16,103 residential accounts that have one or both of the BMPs implemented on their property.

KITCHENER FINANCIAL ANALYSIS

Provided below is an opinion of probable uptake and financial impact of each alternative for the purposes of estimating the required resources, timeframe to implement, and funding requirements to proceed with the alternative based on the aforementioned assumptions. All financial projections will be revised to reflect the preferred alternative once it is selected.

As summarized in Appendix G, through analysis it was determined that the appropriate maximum credits would be 45%. The analysis considered the stormwater utility operating and capital budget forecast as well as known and existing stormwater management best practices already in place on many properties throughout the city. The maximum credit is based on an assessment of the stormwater program costs that could potentially be influenced by the long term actions of property owners on the privately owned impervious areas.

Alternative #1 – Do Nothing

Under this alternative the status quo would be maintained and no additional effort would be required.

Alternative #2 – Non-Residential and Multi-Residential (>5) Credits

Under this alternative, analysis has shown that as of January 1st, 2011, there would be a minimum of 203 eligible accounts to receive a credit out of 3,143 total properties within these combined categories. Additionally, it is assumed that over a 5 year period an additional 20% of property owners would be motivated to retrofit their infrastructure in some form to become eligible for a credit payment. Under this scenario, by the year 2015 there would be a total of 243 eligible accounts. This projection only considers existing properties that retrofit their infrastructure and does not take into account new stormwater management accounts stemming from new development.

If all estimated eligible properties were to participate in the program with the credit valuations from Table 1, the financial impact to collected stormwater revenue of this alternative would be \$263,677 in 2011 including contingency.

This alternative could potentially affect 3,000 properties in Kitchener.

Alternative #3 – Residential Credits

This alternative would offer a credit off of the monthly stormwater rate for residential properties (<5 dwelling units) that implement some form of BMP to divert stormwater runoff from their properties before reaching the municipal stormwater management system. The most typical BMPs we expect to see are rain barrels and infiltration galleries. The immediate uptake of the program can be estimated based on the information provided by the Region regarding the rain barrel program. Based on that information there could be an immediate uptake of approximately 16,103 properties.

Currently, the financial analysis does not take into consideration the implementation of this option as additional development of this alternative is required. This will be undertaken subsequent to the first public information centre.

This alternative could potentially affect 66,000 properties in Kitchener.

Alternative #4 –Rebate Program

As noted in Memo #2, the intent of this alternative was to apply it to residential properties only. As such, this alternative would have a similar immediate uptake as the residential credit program. The primary difference in administering this program is that the rebate would be a one-time payment as opposed to monthly credits on the utility invoice. The financial impact analysis in Appendix G identifies that sufficient funds could be budgeted to provide a rebate payment equivalent to the weighted average rate a residential property pays in one year (\$106.77). The current projections over 5 years currently allow for 3,220 properties to receive a rebate per year. This is based on rolling out the residential rebate over 5 years.

If all eligible properties were to participate in the program with the credit valuations from Table 1, the financial impact to collected stormwater revenue of this alternative would be \$343,857.00 in 2011.

This alternative could potentially affect 66,000 properties in Kitchener.

Alternative #5 – Combination of Alternatives (Option 2 & 3, Option 2 & 4)

There are two potential combinations of alternative:

1. Multi-residential and non-residential credits + Residential credits
2. Multi-residential and non-residential credits + Residential rebate

Under the first scenario there would be 203 eligible non-residential and multi-residential properties and 16,103 residential properties that could all become eligible for a stormwater credit with monthly reductions to their rate. This alternative has currently not been accounted for in the financial analysis and will be investigated further.

Under the second scenario there would be 203 eligible non-res and multi-res properties that could become eligible for a monthly credit on their stormwater rate. There would be an additional 16,103 residential properties that would become eligible for a one-time rebate of \$106.77. Currently the financial analysis takes into consideration 3,220 rebate payments per year for 5 years to accommodate all potential residential customers.

Currently, the financial analysis does not take into consideration the implementation of the first scenario as a residential credit program has not been valued.

If all eligible properties in the second scenario were to participate in the program with the credit valuations from Table 1, the financial impact to collected stormwater revenue of this alternative would be \$617,815.00 in 2011 including contingency.

KITCHENER RESOURCE REQUIREMENTS

Under all scenarios except alternative 1, additional staff resources would be required to implement and sustain any sort of credit or rebate policy. Staff would be required to complete the following tasks:

- Inspection of non-residential stormwater best management practices to ensure compliance with credit program criteria and the completion of necessary maintenance activities.
- Utility account administration functions including rate payer liaison and public communications in order to ensure the credit program is implemented.
- Processing stormwater credit or rebate registration applications and administering account credits and/or rebates in the billing system.
- Inspection of residential stormwater best management practices to ensure compliance with credit program criteria and to demonstrate further methods of increasing the amount of stormwater that is diverted from the municipal stormwater management system.
- Work collaboratively with Waterloo Region Green Solutions (REEP) to develop and deliver the jRAIN! program funded in part by the Kitchener LEAF grant.

WATERLOO UPTAKE ANALYSIS METHODOLOGY

Unlike the City of Kitchener, the City of Waterloo did not hold back approximately 5% of projected revenue to fund the credit policy development and ultimate implementation. A detailed analysis of existing properties with stormwater controls was undertaken to help quantify the potential impact on the City of Waterloo's billing system, resources required to implement the approved credit and rebate policy, and ultimately the impact to the current stormwater fees.

The methodology for determining estimated uptake of the credit and rebate program included the following steps:

1) Review of all available records of non-residential and multi-residential properties where stormwater management best management practices were implemented.

The City of Waterloo has a database of all site plan developments that have occurred since 1988, and is currently used by Development Services staff. This database has detailed information on whether stormwater management controls were required on the property during the time of the site plan approval process. Furthermore, details on whether the stormwater management controls were for quality, quantity or for both were recorded. However, no specific information for the type of stormwater quantity or quality controls were noted in this spreadsheet. An analysis of the data was completed in August, 2011 to encompass all site plan developments from 1988 until August 2011.

Based on the site plan spreadsheet provided by Development Services, and verifying locations using the City's GIS/billing database, it was determined that a total of 436 non-residential or multi-residential properties currently have a form of stormwater management control on their property. Since the data set has been used by multiple people over more than two decades, it was determined that a factor of safety of 25% be added to this number of properties to be conservative in our estimate. Thus, a total of 545 non-residential/multi-residential properties in the City of Waterloo are estimated to have stormwater quantity or quality controls on their properties. Furthermore, it has been assumed that 100% of the non-residential/multi-residential properties with existing stormwater controls would participate in a stormwater credit and/or rebate program.

2) Review of all available records of residential properties where stormwater management best management practices were implemented.

It has been assumed that an assessment of subdivisions for stormwater management controls on residential properties would not be necessary. Subdivisions do not go through the site plan process, and so would not be captured in the Development Services site plan database. However, it has been determined that any lot level infiltration or stormwater controls (ie. soak away pits, infiltration pipes, etc.) for housing developments in subdivisions for the City of Waterloo have been primarily placed in City right-of-ways, and hence would be City property.

3) Review of the Region of Waterloo rain barrel program uptake

This review was based on the cumulative rain barrel uptake for the Region from 2001 to 2011, to assist in determining the number of households in Waterloo that currently have rain barrels, and consequently, would want to participate in the stormwater credit and/or rebate program. The data provided indicates that the Region has issued 9458 rain barrels to households in Waterloo over that time period. The data makes it clear that several households have received more than 1 rain barrel over the same time period. It was assumed that 80% of the total number of rain barrels belonged to houses with a range of one to four rain barrels, with the assumption that an average house owner has two rain barrels. As well, it was assumed that 20% of the total number of rain barrels belonged to households with on average 5 rain barrels. Using these assumptions, the total number of residential properties that were assumed to have rain barrels was estimated to be 4,161 properties. It is further assumed that 100% of these properties will participate in a credit and rebate program.

4) Review of the Existing Tree Canopy in the City of Waterloo

During the background research stage of the policy development, it was discovered that the City of Portland, Oregon incorporated a tree canopy as a partial credit in their stormwater credit program. The criteria for was for a tree canopy of 200 ft², which translated to be a total of at least four trees, each 4.5 metres high, per residential property. Since the City of Waterloo's stormwater utility helps to fund the urban forest programs at the City, the Project Team determined that it would also propose to include a partial credit for having a significant tree canopy on a residential property.

The Project Team used some very general assumptions in determining an estimate for the number of residential properties that would be able to qualify for a partial credit for a tree canopy. The Grand River Conservation Authority (GRCA) was contacted to see if

any data on tree canopy was available; however, there were no data sets available as it relates to tree canopy on an average residential property. The basic assumptions made by the Project Team included the following:

- The larger the lot, the more likely the property will qualify.
- The MPAC structure data was used to determine the year built.
- The older the lot, the more likely the property will qualify.
- City of Waterloo stormwater fee rate tiers were used for lot sizes.
- A low and high estimate was done for each residential SWM tier.
- The low estimate was used for each rate tier in determining the number of residential properties that could be eligible for a trees credit.

Based on this methodology, the number of properties that may have enough trees or tree canopy to apply for this credit was determined to be 10,044 residential properties. It was assumed that 50% of the eligible residential properties would participate.

Future Uptake of Stormwater Credits and/or Rebates

The City of Waterloo is not incorporating future development into the current property uptake analysis, since the current stormwater fees structure does not yet have the future uptake incorporated into the model. Instead, a high percentage uptake (100%) has been assumed for the existing properties that the City has recorded as having existing stormwater management controls on-site.

Based on the research done on existing stormwater programs in other municipalities, it was found that the City of Edmonton has their stormwater credit program embedded into their site plan application process. Future uptake of the City of Waterloo's credit program could also be via the Development Services site-plan process in the long term, to streamline the process for developments.

CITY OF WATERLOO FINANCIAL ANALYSIS

Based on the assumptions of properties that would be eligible, and participate a credit and/or rebate program, the next step was to determine the financial impact of each alternative for the purposes of estimating the required resources, timeframe to implement, and funding requirements to proceed with the alternative.

The City of Waterloo's list of non-residential/multi-residential properties with known stormwater controls was matched to the City's GIS/billing database to determine the current 2014 stormwater fees required of these properties. In order to evaluate the high-level financial impact of each of the five alternatives, various assumptions were made for each of the alternatives. A summary of the five alternatives, and the assumptions made in the high-level analysis is outlined in the following table.

TABLE 2: Alternative Assumptions for City of Waterloo

Alternatives	Assumptions
#1. Do Nothing	<ul style="list-style-type: none"> No cost impacts to the existing stormwater fees
#2. Non-Residential and Multi-Residential Credit	<ul style="list-style-type: none"> Maximum of 45% credit for properties with both quantity and quality controls Maximum of 30% credit for quantity controls Maximum of 20% credit for quality controls 100% of properties with stormwater controls (based on database information, with 25% factor of safety) would participate in a stormwater credit and rebate program
#3. Residential Credit	<ul style="list-style-type: none"> 100% of the estimated 4,161 properties in Waterloo with rain barrels assumed to participate in a stormwater credit program Estimated that 10,044 properties would be eligible for a partial credit for tree canopy – estimating 50% uptake of these properties for the credit program Assuming maximum of 45% credit for properties with cisterns and infiltration galleries, rain barrels, and a maximum of 9% credit for properties eligible for a tree canopy credit
#4. Residential Rebate	<ul style="list-style-type: none"> Estimated that 832 properties per year will participate in the stormwater rebate program Assuming a maximum of 5% of the total stormwater fee revenue for rebate per year.
#5a) Combination of Alternatives (Options 2 & 3)	<ul style="list-style-type: none"> Same assumptions as for non-residential credit (Option #2) and residential credit (Option #3) combined.
#5b) Combination of Alternatives (Options 2 & 4)	<ul style="list-style-type: none"> Same assumptions as for non-residential credit (Option #2) and residential rebate (Option #4) combined.

A detailed description of each of the five alternatives is noted in the following sections.

Alternative #1 – Do Nothing

Under this alternative the status quo would be maintained and no additional funding or resources would be required.

Alternative #2 – Non-Residential and Multi-Residential Credits

Under this alternative, analysis has shown that a conservative estimate of 545 non-residential/multi-residential properties would be eligible to receive a credit. It is assumed that 100% of these eligible properties would participate in a credit program. This estimate only considers properties that have existing infrastructure, and does not take into account new stormwater management accounts stemming from new development. This estimate does not look at projected numbers in the future.

Based on the various assumptions for non-residential uptake, the financial impact to collected stormwater revenue of this alternative would be \$239,129, or 10% of the 2.4M total revenue for 2014, not including estimated resource/administrative costs.

Alternative #3 – Residential Credits

This alternative would offer a credit off of the monthly stormwater rate for residential properties that implement some form of BMPs to divert stormwater runoff from their properties before reaching the municipal stormwater management system. The most typical BMPs that are expected are tree canopy, rain barrels and cisterns. The uptake of the program can be estimated based on the information provided by the Region of Waterloo's rain barrel program over the last decade, together with an estimate of the number of residential properties that may qualify for a tree canopy credit. Based on these assumptions, there could be an uptake of approximately 9184 properties.

Based on the various assumptions for residential uptake, the financial impact to collected stormwater revenue of this alternative would be \$58,482 or 2.4% of the 2.4M total revenue for 2014, not including estimated resource/administrative costs.

Alternative #4 – Residential Rebate Program

This alternative would offer a one time rebate for residential properties that implement some form of BMPs to divert stormwater runoff from their properties before reaching the municipal stormwater management system. The most typical BMPs that are expected are rain barrels and cisterns. The immediate uptake of the program can be estimated based on the information provided by the Region of Waterloo's rain barrel program over the last decade. Based on these assumptions, there could be an uptake of approximately 4,162 properties.

Based on the various assumptions for residential uptake, assuming approximately 875 barrels per year, and a \$40 rebate for each barrel, the financial impact to collected stormwater revenue of this alternative would be approximately \$35,000 in 2014, or 1.5% of the 2.4M total revenue for 2014, not including estimated resource/administrative costs.

Alternative #5a) – Combination of Alternatives - Option #2 & #3: Multi-residential and Non-residential Credits + Residential Credits

Based on the various assumptions for non-residential and residential uptake, the financial impact to collected stormwater revenue of this alternative would be \$297,611 or 12.4% of the 2.4M total revenue for 2014, not including estimated resource/ administrative costs.

Alternative #5b) – Combination of Alternatives - Option #2 & #4: Multi-residential and Non-residential Credits + Residential Rebates

Based on the various assumptions for non-residential and residential uptake, the financial impact to collected stormwater revenue of this alternative would be \$274,129 or 11.5% of the 2.4M total revenue for 2014, not including estimated resource/ administrative costs.

WATERLOO RESOURCE REQUIREMENTS

The City of Waterloo's stormwater rates would need to be increased in order to address any credit and/or rebate program, since implementation of any of the alternatives 2 – 5b) would be an increased level of service. Additional staff would be required to address the following tasks:

- Public outreach and customer service;
- Credit registration form development and business process;
- Application form review for completeness, accuracy and approval;
- Onsite inspections; and,
- Customer billing adjustments.