

2019 Stormwater Management (SWM)
Development Charges
Background Study:
Area C-1



Version for Public Consultation

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Table of Contents

Executive Summary	1
A. 2019 Stormwater Management (Swm) Development Charges Study Area C-1.....	1
B. Calculated SWM Rates	1
C. Policy Considerations.....	2
D. Cost of Growth Analysis.....	2
E. Consultation on 2019 SWM ASDC Background Study	3
I Introduction	4
A. Background.....	4
B. New Rates Have Been Calculated For Area C-1	5
C. Report Structure.....	6
II SWM ASDC Calculation Methodology.....	8
A. Development Forecast.....	8
B. Development-Related Capital Program.....	11
C. Attribution To Types Of Development	12
D. Calculation Of Development Chagres	12
III Summary of Capital Costs and Calculated Development Charge Rates	14
A. Summary of DC Eligible and Ineligible Costs.....	14
B. 2019 Calculated Area C-1 SWM Rates.....	14
C. Comparison of Current Vs. Calculated Area-Specific Swm Rates	17
IV Development Charge Policy Considerations.....	19
A. Consideration of Area Rating	19
B. Local Service Guidelines.....	19
C. Draft Area C-1 Swm By-Law	19
V Cost of Growth Analysis.....	20
A. Asset Management Plan Requirements.....	20
B. Long-Term Capital And Operating Impacts.....	21

Executive Summary

A. 2019 Stormwater Management (SWM) Development Charges Study Area C-1

The Stormwater Management Inner Greenbelt Ponds Area C-1 development charges listed within this study are intended to update the assumptions included in the City's recent 2019 SWM Development Charges (DC) Background Study. The analysis presented in this study is only related to the underlying assumptions, development related costs and growth forecasts identified for Area C-1.

Consistent with the analysis presented as part of the 2019 SWM DC Background Study, the assumptions included in this amendment are intended to provide an interim update to the *2014 Area-Specific Development Charge Background Study for Individual Stormwater Management Ponds and Drainage Systems* reports. As such, the underlying assumptions and methodologies used to calculate the Area C-1 SWM development charge are generally consistent with the approach presented in these studies.

As part of the 2019 SWM update for Area C-1, the development forecast has been updated to reflect developments that have occurred which has resulted in changes to the residential and non-residential cost allocations. The capital cost estimates have remained consistent with the analysis included in the 2019 SWM DC Background Study dated March 15, 2019.

B. Calculated SWM Rates

A summary of the calculated residential and non-residential Area C-1 SWM rates by development type is shown below.

Area	Residential Rates \$/Unit			Non-Residential Rates \$/Sq.ft.
	Single and Semi-Detached	Row/Town	Stacked Row/Apartment	
Area C-1	\$483	\$318	\$129	\$0.55

C. Policy Considerations

1. Consideration of Area Rating

As required by the *Development Charges Act* (DCA), consideration was given to the use of area rating. Consistent with the City's historical practice, the infrastructure identified for the various SWM areas is deemed to provide a localized benefit and is therefore recovered for on an area-specific basis.

2. Local Service Guidelines

The City also has Local Service Guidelines related to SWM infrastructure. The purpose of establishing these definitions is to determine the eligible capital costs for inclusion in the development charges (DC) calculation for the City of Ottawa. Functions or services deemed to be local in nature are not to be included in the determination of the development charge rates. The provision of local services is considered to be a direct developer responsibility under s.59 of the DCA and will (or may) be recovered under other agreement(s) with the landowner or developer. Local Service Guidelines for SWM infrastructure is based on the City's prevailing practices.

3. Draft Area C-1 SWM By-law

The draft Area C-1 SWM By-law will be made available under separate cover at least two weeks in advance of the statutory public meeting in accordance with the requirements of the DCA.

D. Cost of Growth Analysis

Long-term operating impacts and asset management requirements have been examined as part of the 2019 SWM Study for Area C-1. It is expected that the City will not incur additional increased operating costs in Area C-1 as the infrastructure has already been constructed. In particular, it is recognized that the increase in rate funding associated with new development is anticipated to partially or fully offset the increased costs identified, depending on the nature of the new development.

The calculated provisions identified are considered to be financially sustainable, as it is expected that the increased capital asset management requirements can be absorbed by the rate base over the long-term. Importantly, the City's ongoing review of asset management policies and long range financial planning analysis will allow staff to continue to monitor and implement mitigating measures should the program become less sustainable.

E. Consultation on 2019 SWM DC Background Study

Following the release of the SWM DC Background Study for Area C-1, consultation will occur with the public and development industry stakeholders prior to the passage of the new 2019 SWM By-law for Area C-1.

I Introduction

A. Background

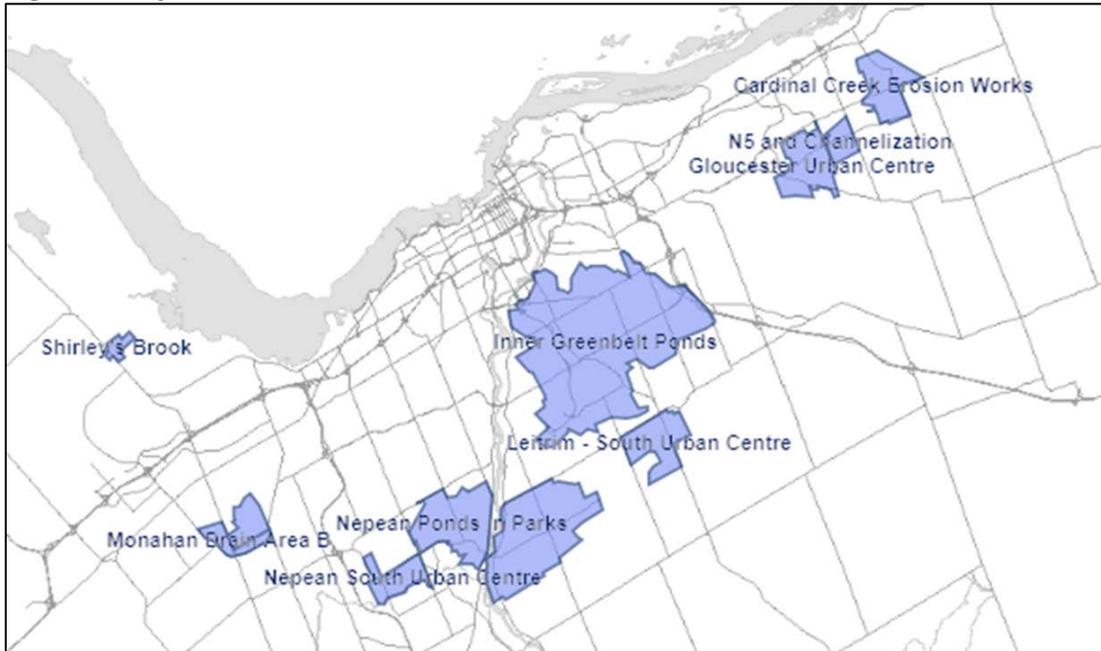
The City of Ottawa has historically established area-specific development charges for stormwater management pond and drainage infrastructure where the costs are more localized do not provide a benefit external to the drainage area. For stormwater management infrastructure that is intended to meet the increase in need for service arising from development on a broader basis (e.g. City-wide or large area), a City-wide development charge is calculated.

Currently, the City imposes Stormwater Management development charges for the following areas. A map of these areas is shown in Figure 1 below.

- Riverside South Urban Centre (Area S-1)
- Leitrim South Urban Area (Area S-2)
- Nepean South Urban Area (Area S-3)
- Nepean Ponds in Parks (Area S-4)
- Inner Greenbelt Ponds (Area C-1)
- Monahan Drain (Area W-1)
- Shirley's Brook (Area W-2)
- Cardinal Creek Erosion Works (Area E-2)
- Gloucester Urban Centre (Area E-3)
- N5 and Channelization (Area E-6)

This study deals specifically with the Inner Greenbelt Ponds (herein referred to as "Area C-1"). The City's 2019 SWM DC Background Study dated March 15, 2019 provides an analysis that supports the current development charge rates for the various SWM areas.

Figure 1: City of Ottawa SWM Areas



B. New Rates Have Been Calculated for Area C-1

This study deals with the SWM development charge rates for Area C-1 Inner Greenbelt Ponds. Following the enactment of the SWM By-laws as part of the City's 2019 DC By-law update, comments from stakeholders were received in relation to enacted rates for Area C-1. Upon further review by Hemson, the City's development charges consultant, and City staff, it was determined that adjustments to the rates were warranted and that a new By-law be brought forward.

Consistent with the approach identified in the 2019 SWM DC Background Study dated March 15, 2019, the underlying calculation assumptions and methodologies identified in this study are consistent with the *2014 Area-Specific Development Charge Background Study for Individual Storm Water Management Ponds and Drainage Systems* for Area C-1.

As part of this study, however, the development forecast has been updated to reflect new information and revised residential and non-residential allocation of costs. The capital cost estimates have not been adjusted from the previous study dated March 15, 2019.

C. Study Structure

The study includes a summary of the detailed calculation inputs used to arrive at the Area C-1 SWM development charge rate. An overview of the tables included in this study is provided below:

Table 1: Development Forecast

Table 1 provides a summary of the residential and non-residential development forecast in Area C-1. The forecast identifies the total net developable land area as well as the anticipated residential dwelling unit mix and non-residential gross floor area (GFA) by sector (e.g. industrial, commercial and institutional).

Table 2: SWM Area-Specific Capital Program

Table 2 identifies the capital costs required to service development occurring within Area C-1 over the planning period. The table provides a brief description of the program, the identified development charge recoverable costs, ineligible costs not included in the calculation and any benefit to “prior growth” or post-period.

Table 3: Summary of Residential and Non-Residential Development Charges

Table 3 summarizes the residential and non-residential development charge calculations. The approach used to calculate the Area C-1 rates is consistent with the 2014 SWM DC Background Study whereby the residential and non-residential cost allocations are based on the remaining net developable land. Furthermore, allocation of costs between the various residential unit types (e.g. single and semi-detached, rows and apartments) are based on the total amount of unbuilt hectares and the related run-off coefficient.

Consistent with the approach employed in the 2014 SWM DC Background Study, the non-residential charge is calculated on a uniform basis per square foot of gross floor area.

Map of Benefitting Area

A map of Area C-1 has been provided. The map will also be included in the revised By-law.

II SWM Calculation Methodology

The calculation methodology utilized in the Area C-1 2019 SWM update has remained relatively unchanged from the City's past development charges. The methodology presented in this DC Background Study is consistent with the requirements of the DCA.

A discussion of the infrastructure needs for Area C-1, including the identification of relevant reports, by-laws and other analyses can be found in the *2014 Area-Specific Development Charge Background Study for Individual Stormwater Management Ponds and Drainage Systems*.

A. Development Forecast

The DCA requires that a development forecast be prepared which identifies the anticipated amount, type and location of development. Consistent with historical practice, the development forecast for each SWM area is based on the potential development of the area from current (2019) to build-out. The development forecast identifies the amount of net developable land area and related residential (number of dwelling units) and non-residential (gross floor area) development potential over the planning period.

The summary table below provides a comparison of the residential and non-residential growth allocations included in the 2014 SWM DC Background Study, 2019 SWM DC Background Study and the forecast proposed for this analysis. Consistent with the City's historical practice, the allocation between residential and non-residential users has been based on net developable land areas.

DC Study	DC Study Planning Horizon	Residential	Non-Residential
2014 SWM DC Study – Area C-1	2013 to buildout	39% (25.30 ha)	61% (39.80 ha)
2019 SWM DC Study – Area C-1	2019 to buildout	70% (25.30 ha)	30% (10.79 ha)
Area C-1 SWM DC Study (Current Study)	2019 to buildout	44% (14.3 ha)	56% (18.30 ha)

Following the release of the 2019 SWM DC Background Study dated March 15, 2019 and the subsequent passing of the Area C-1 2019 DC By-law, the development forecast for Area C-1 was reviewed and updated.

A revised development forecast for this DC Background Study has been prepared and is shown as Table 1.

10
TABLE 1

CITY OF OTTAWA
STORMWATER MANAGEMENT POND/DRAINAGE SYSTEM
INNER GREENBELT PONDS (AREA C-1)
PROJECTED GROWTH

Development Type	Existing	Projected Growth	Total Build-out
Residential Units			
Single Detached	12,663	61	12,724
Semi-Detached	1,961	13	1,974
Row/Town	11,773	257	12,030
Stacked Row	4	28	32
Apartment	13,520	631	14,151
Total	39,921	990	40,911
Developed Residential Land Area (Net HA)			
Single Detached	575.6	2.8	578.4
Semi-Detached	61.3	0.4	61.7
Row/Town	267.6	5.8	273.4
Stacked Row	0.1	0.0	0.1
Apartment	108.1	5.3	113.4
Total	1,012.7	14.3	1,027.0
Developed Non-Residential Land Area (Net HA)			
Industrial	98.9	4.4	103.3
Commercial	166.3	3.1	169.4
Institutional	598.1	10.8	608.9
Total	863.3	18.3	881.6
Non-Residential GFA (sq.ft.)			
Industrial	4,928,159	219,377	5,147,536
Commercial	9,835,695	184,920	10,020,615
Institutional	3,588,677	64,835	3,653,512
Total	18,352,531	469,132	18,821,663

Residential	Non-Residential
44%	56%

B. Development-Related Capital Program

The SWM development-related capital program includes pond and drainage infrastructure for the C-1 servicing area.

1. Identification of Capital Costs

The capital costs identified are consistent with the amounts listed in the 2019 SWM DC Background Study dated March 15, 2019 which are generally consistent with the infrastructure identified in the 2014 SWM DC Background Study and adjusted to reflect expenditures incurred to date and any additional capital works deemed to be eligible for funding. A description of the relevant documents and studies used to identify the capital infrastructure can be found in the *2014 Area-Specific Development Charge Background Study for Individual Stormwater Management Ponds and Drainage Systems (completed by Watson & Associates)*.

Table 2, as shown in the technical appendices of this study, provides a brief description of the identified infrastructure and gross capital project costs. Consistent with the City's current calculations, the infrastructure is anticipated to provide services to development occurring over the planning period to build-out. As such, timing for individual projects is not identified.

2. Deductions for Ineligible Costs

In accordance with the requirements of the DCA, deductions have been made to the identified gross capital project costs. This includes adjustments for capital grants, subsidies or other contributions as required by the DCA (s. 5. (2)) and the portion of projects that confer benefits to existing residents (s. 5. (1) 6). These portions of projects and their associated net costs are the funding responsibility of the City. The City's required contribution for non-growth shares of projects is identified as part of the preparation of the development-related capital forecast. These adjustments are shown in Table 2.

3. Adjustments for Uncommitted Excess Capacity

There is also a requirement in the DCA to reduce the applicable development charge by the amount of any "uncommitted excess capacity" that is available for a service. Such capacity is available to partially meet the future servicing requirements. The individual projects identified in the capital program are related to the increase in need for servicing arising from development occurring within the benefitting area. As such, no uncommitted excess capacity has been identified for Area C-1.

4. Adjustments for Prior Growth

Consistent with the City's historical practice, reserve fund balances have been incorporated into the rate calculation. The negative reserve fund balance of approximately \$461,500 for Area C-1 has been deemed to be committed excess capacity and has been included in the calculation.

5. Legislated Discount

In accordance with the DCA, SWM infrastructure is not subject to the statutory ten per cent adjustment, therefore, no such deduction has been made to the infrastructure identified in the capital program.

C. Attribution to Types of Development

The next step in the determination of the SWM is the allocation of development-related net capital costs between the residential and non-residential sectors. Where reasonable data exist, the apportionment is based on the expected demand for, and use of, the service by each sector.

Consistent with the City's historical approach and for the purposes of the Area C-1 development charges calculation, total residential and non-residential land area is used to determine the apportionment of costs between residential and non-residential development. For the purposes of SWM infrastructure, this is a reasonable and defensible approach to allocate costs between benefitting sectors.

D. Calculation of Development Charges

1. Residential

Consistent with approach used in past studies, the residential development charges are calculated based on the run-off co-efficient specific to each type of unit (e.g. single and semi-detached, row/town and apartments). The co-efficient is consistent with the City of Ottawa Sewer Design Guidelines.

The residential development charges are calculated by multiplying the unbuilt land area associated with residential development by the run-off co-efficient. The costs attributed to each type of development is then divided by the remaining units to be constructed over the identified planning period (2019 to build-out). Residential development charges are calculated based on the following units:

- Single and Semi-detached;
- Row/Towns; and
- Apartments (includes stacked rows).

2. Non-Residential

Consistent with historical practices, the non-residential development charge is calculated on a uniform basis. The non-residential charge is established by dividing the applicable non-residential costs by the total amount of gross floor area identified over the planning period (2019 to build-out).

III Summary of Capital Costs and Calculated Development Charge Rates

A. Summary of DC Eligible and Ineligible Costs

Table 2 below provide a summary of the DC eligible and ineligible costs for Area C-1 and the residential and non-residential cost allocations.

As shown, \$461,500 is related to the recovery of a committed reserve fund balance. This balance is proposed to be recovered from future residential and non-residential development occurring in Area C-1.

B. 2019 Calculated Area C-1 SWM Rates

Table 3 provides a summary of the calculated residential and non-residential SWM rates, by benefiting area.

As shown, the calculated residential development charges for residential dwelling units amounts to \$483 per single and semi-detached unit, \$318 per row/town unit and \$129 per stacked row/apartment.

The non-residential rates have been calculated on a uniform basis at \$0.55 per square foot.

TABLE 2

CITY OF OTTAWA
 STORMWATER MANAGEMENT POND/DRAINAGE SYSTEM
 INNER GREENBELT PONDS (AREA C-1)
 DEVELOPMENT-RELATED CAPITAL PROGRAM

Item No.	Project Description	2019 DC Recoverable Costs ¹	Replacement & BTE Shares		Prior Growth	DC Eligible Costs	Post-Period Benefit
			%	\$			
C1-1	McEwan Creek Water Quality and Erosion Control - 901240	\$ -	0%	\$ -	\$ -	\$ -	\$ -
250	Reserve Fund Balance - Committed ¹	\$ 461,480	0%	\$ -	\$ -	\$ 461,480	\$ -
TOTAL INNER GREENBELT PONDS (AREA C-1)		\$ 461,480		\$ -	\$ -	\$ 461,480	\$ -

¹ Committed Active Capital Project Outstanding Balance - \$0

Residential Share of DC Eligible Cost	44%	\$	202,495
Non-Residential Share of DC Eligible Cost	56%	\$	258,984

Outstanding Balance		\$	-
Reserve Fund Balance	Uncommitted ¹	\$	461,480
Total Balance (Negative)		\$	461,480

TABLE 3

CITY OF OTTAWA
 STORMWATER MANAGEMENT POND/DRAINAGE SYSTEM
 INNER GREENBELT PONDS (AREA C-1)
 SUMMARY OF UNADJUSTED RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES

Net Residential Cost	\$	202,495
Net Non-Residential Cost	\$	258,984

RESIDENTIAL SHARE							
Development Type	Unbuilt Hectares	Run-off Coefficient	Hectares x Coefficient	% of Total	Net Cost	Remaining Units	Calculated Rates per Unit
Single Detached	2.8	0.6	1.6	15%	\$ 31,168	61	\$ 483
Semi-Detached	0.4	0.6	0.2	2%	\$ 4,583	13	
Row/Town	5.8	0.7	4.1	40%	\$ 81,696	257	
Stacked Row	0.0	0.8	0.0	0%	\$ 748	28	
Apartment	5.3	0.8	4.2	42%	\$ 84,300	631	
TOTAL	14.3		10.1	100%	\$ 202,495	990	

NON-RESIDENTIAL SHARE			
Development Type	Net Cost	Remaining GFA (sq. ft.)	Calculated Rates per Sq. Ft.
Non-Residential	\$ 258,984	469,132	\$ 0.55

C. Comparison of Current vs. Calculated Area-Specific SWM Rates

Table 4 provides a comparison of the calculated residential and non-residential rates compared to the rates implemented under the 2019 SWM Area C-1 DC By-law approved in May 2019 and the previous rates implemented as part of the 2014 SWM Area C-1 DC By-law, indexed to current day dollars. As stated in Section I of this study, the recently enacted rates for Area C-1 are proposed to be updated to reflect better information related to the development forecast assumptions.

As shown, the proposed residential rates represent an increase from the current 2019 SWM Area C-1 rates. For example, the proposed rate of \$483 per single and semi-detached unit represents an increase of \$445 over the current enacted single and semi-detached rate of \$38 per unit. However, when compared to the rates implemented under the 2014 SWM Area C-1 By-law, the calculated residential rates have decreased. The calculated rate of \$483 per single and semi-detached unit represents a decrease of \$757 over the 2014 single and semi-detached rate of \$1,202 per unit.

For the non-residential rates the proposed rate of \$0.55 per square foot represents a decrease of \$6.12 per square foot from the current calculated rate and a decrease of \$7.50 per square foot from the enacted 2014 indexed to current dollars.

TABLE 4

**CITY OF OTTAWA
STORMWATER MANAGEMENT POND/DRAINAGE SYSTEM
INNER GREENBELT PONDS (AREA C-1)
COMPARISON OF PROPOSED AND PAST RESIDENTIAL AND NON-RESIDENTIAL DEVELOPMENT CHARGES**

Residential \$/unit	Proposed 2019 Rates (A)	Current 2019 Rates (B)	Difference (\$) (A - B)	2014 Rates (Indexed to 2019\$) (C)	Difference (\$) (A - C)
Single & Semi	\$483	\$38	\$445	\$1,202	(\$757)
Row/Town	\$318	\$25	\$293	\$791	(\$498)
Apartment & Stacked Row	\$129	\$10	\$119	\$320	(\$201)

Non-Residential \$/sq.ft.	Proposed 2019 Rates (A)	Current 2019 Rates (B)	Difference (\$) (A - B)	2014 Rates (Indexed to 2019\$) (C)	Difference (\$) (A - B)
Non-Residential \$/sq.ft.	\$0.55	\$6.67	(\$6.12)	\$1.38	(\$7.50)

Note: the 2014 rates are based on the SWM rates in force prior to the enactment of the Area C-1 SWM By-law in May 2019

IV Development Charge Policy Considerations

A. Consideration of Area Rating

As required by the *Development Charges Act*, consideration was given to the use of area rating. Consistent with the City's historical practice, the infrastructure identified for various SWM areas is deemed to provide a localized benefit and is therefore recovered for on an area-specific basis. This practice is consistent with the charges calculated for Area C-1.

For stormwater management infrastructure that is intended to meet the increase in need for service arising from development on a broader basis (e.g. City-wide or large area), a City-wide development charge is calculated.

B. Local Service Guidelines

The City also has Local Service Guidelines related to SWM infrastructure. The purpose of establishing these definitions is to determine the eligible capital costs for inclusion in the development charges (DC) calculation for the City of Ottawa. Functions or services deemed to be local in nature are not to be included in the determination of the development charge rates. The provision of local services is considered to be a direct developer responsibility under s.59 of the DCA and will (or may) be recovered under other agreement(s) with the landowner or developer. Local Service Guidelines for SWM infrastructure is based on the City's prevailing practices.

C. Draft Area C-1 SWM By-law

The draft Area C-1 SWM By-law will be made available under separate cover at least two weeks in advance of the statutory public meeting in accordance with the requirements of the DCA.

V Cost of Growth Analysis

This section provides an examination of the long-term capital and operating costs as well as the asset management related annual provisions for the capital facilities and infrastructure to be included in the By-law. This examination is required as one of the provisions of the *Development Charges Act*.

A. Asset Management Plan Requirements

The DCA now requires that municipalities complete an Asset Management Plan before passing a development charges by-law. A key function of the Asset Management Plan is to demonstrate that all assets proposed to be funded under the by-law are financially sustainable over their full life cycle.

1. Calculated Annual Provision

When assets require rehabilitation or are due for replacement, the source of funds is limited contributions from operating sources. Capital expenditures to carry out the rehabilitation and replacement of aging infrastructure are not growth-related and are therefore not eligible for funding through development charge revenues or other developer contributions.

Based on the information obtained from City staff regarding useful life assumptions and the capital cost of acquiring and/or emplacing each asset, a provision for infrastructure replacement has been calculated. Provisions for infrastructure replacement are initially calculated for each asset based on their useful life and the anticipated cost of replacement. The aggregate of all individual provisions form the required annual capital provision. In calculating the annual provisions, a number of assumptions are made to account for inflation and interest.

As the development-related costs for Area C-1 are related to an existing reserve fund balance for infrastructure already constructed, no annual provision has been calculated as it is assumed that these assets are already included in the City's ongoing asset management practices.

2. Assets are deemed to be Financially Sustainable

The City has internal asset management policies and practices which are supported through the City's Comprehensive AMP, long range financial plan annual budgeting exercises. Example of relevant studies and reports include:

- [2017 Strategic Asset Management Plan](#)
- [2017 State of the Asset Report](#)
- [Comprehensive Asset Management Policy](#)
- [Long Range Financial Plan V - Water, Wastewater and Stormwater Supported Programs](#)

In particular, the City's *Long Range Financial Plan V - Water, Wastewater and Stormwater Supported Programs* identified required stormwater rate increases to support the City-wide and area specific capital programs.

The assets identified in this Study are deemed to be financially sustainable as it is expected that the increased capital asset management requirements can be absorbed by the tax and user rate base over the long-term. Importantly, the City's ongoing review of asset management policies will allow staff to continue to monitor and implement mitigating measures should the program become less financially sustainable.

B. Long-Term Capital and Operating Impacts

The City has incurred increased operating costs since the infrastructure in Area C-1 was constructed. Increases in user rate revenues associated with new development are anticipated to partially or fully offset operating costs, depending on the nature of the new development. For example, the City has a dedicated Stormwater rate fee which is used to pay for the non-DC eligible and operating costs associated with this infrastructure. Importantly, the City's *Long Range Financial Plan V - Water, Wastewater and Stormwater Supported Programs* examines the anticipated operating impact of new infrastructure. The financial plan analysis indicates that the City's SWM rates have been structured to align with current and anticipated operating expenditures. Importantly, Council is required to review and adopt operating budgets on an annual basis which ensures the financial sustainability of the program.