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450 Cowie Hill Road
P.O. Box 8388 RPO CSC
Halifax, Nova Scotia
Canada B3K 5M1

March 22, 2019

Russell Walker, Vice Chair
Halifax Water
Halifax, NS

The regular meeting of the Halifax Water Board will be held on Thursday, March 28, 2019 at 9:00 a.m. in the Boardroom at 450 Cowie Hill Road, Halifax.

AGENDA

In Camera Reports

1C Approval of Minutes of the In-Camera Meeting held on Thursday, January 31, 2019
2C Business Arising from Minutes
a)
3C Governance Matter - Verbal
4C Contractual Matter
5C Governance Matter
6C Personnel Matter

Regular Reports

1. a) Ratification of In-Camera Motions
b) Approval of the Order of Business and Approval of Additions and Deletions

2. Approval of Minutes of the Regular Meeting held on Thursday, January 31, 2019

3. Business Arising from Minutes
a) Ratification of 2019/20 Capital Budget Amendment - Verbal

Financial

4.1 Operating Results for the Eleven Months ended February 28, 2019
4.2 2019 Spring MFC Debenture

Capital *(15 minutes)*

5.1	Lucasville Water Transmission Main Twinning Phase 1 - Construction	$6,799,000
5.2	Ellenvale Run Retaining Wall – Phase 2	$3,155,000
5.3	Payroll System Replacement	$1,031,892
5.4	Aerotech WWTF Expansion and Upgrade Project – Funding Increase	$1,000,000
5.5	Bedford-Burnside Connector Water Transmission Main	$700,000
	Total:	**$12,685,892**

Other

6. Halifax Regional Water Commission Regulations - Amendments
7. Halifax Water Fraud Policy
8. Corporate Balanced Scorecard – 2019/20 Program

Information Reports

1-I Operations and Financial Monthly Update
2-I Capital Budget Approvals to Date – 2018/19 and 2019/20
3-I Bank Balance
4-I HRWC Employees' Pension Plan Financial Report – 4th Quarter (Q4), 2018
5-I HRM Pension Plan Investment Performance - 4th Quarter (Q4), 2018
6-I Cogswell Redevelopment Project

Original Signed By:

James G. Spurr
Secretary

HALIFAX REGIONAL WATER COMMISSION
MINUTES

January 31, 2019

PRESENT: Commissioner Ray Ritcey, Chair (via teleconference)
Commissioner Russell Walker, Vice Chair
Commissioner Jacques Dube
Commissioner Darlene Fenton
Commissioner Lorelei Nicoll
Commissioner Lisa Blackburn
Commissioner Craig MacMullin

REGRETS: Commissioner Richard Zurawski

STAFF: Carl Yates, General Manager, HRWC
Cathie O'Toole, Director, Corporate Services, HRWC
Jamie Hannam, Director, Engineering & IS
James Spurr, Legal Counsel, HRWC
Lorna Skinner, Administrative Assistant, HRWC

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CALL TO ORDER

The Vice Chair called the regular meeting to order at 9:02 a.m. in the Board Room of the HRWC, 450 Cowie Hill Road. The Board moved In Camera at 9:02 and the regular meeting reconvened at 9:20 a.m.

1.a) RATIFICATION OF IN CAMERA MOTIONS

MOVED BY Commissioner Fenton, seconded by Commissioner MacMullin that the Halifax Regional Water Commission Board ratify the In Camera motions.

MOTION PUT AND PASSED.

1.b) APPROVAL OF THE ORDER OF BUSINESS AND APPROVAL OF ADDITIONS AND DELETIONS

MOVED BY Commissioner Nicoll, seconded by Commissioner Blackburn that the Halifax Regional Water Commission Board approve the order of business and approve additions and deletions.

MOTION PUT AND PASSED

2.a) APPROVAL OF MINUTES – November 29, 2018

MOVED BY Commissioner Fenton, seconded by Commissioner Nicoll that the Halifax Regional Water Commission Board approve the minutes of the regular meeting of November 29, 2018.

2.b) APPROVAL OF BOARD POLL – January 4, 2019

Carl Yates reminded the Board that the e-mail poll regarding the ICIP Application for upgrades to the Halifax Peninsula transmission main was ratified unanimously.

MOTION PUT AND PASSED.

3. BUSINESS ARISING FROM MINUTES

a) None

4.1 OPERATING RESULTS FOR THE NINE MONTHS ENDED DECEMBER 31, 2018

A report dated January 31, 2019, was submitted.

Cathie O'Toole requested that this matter be deferred until Item #7 *Proposed 2019/20 Water, Wastewater and Stormwater Operating Budget,* as the results will be reflected in that report.

4.2 HALIFAX REGIONAL WATER COMMISSION EMPLOYEES' PENSION PLAN JANUARY 1, 2019, ACTUARIAL VALUATION

A report dated January 20, 2019, was submitted.

Cathie O'Toole reminded the Board that as Trustees of the HRWC Employees' Pension Plan, the Board must approve the assumptions used in the valuation. The funded position of the Plan is strong enough that valuations can be done every three years. The Pension and Benefit Committee met last week and the Actuaries from Eckler came in and did a presentation on the assumptions to be used. The assumptions recommended are the same as the ones used in the January 1, 2016, valuation. The recommended discount rate is 5.8% and a combined mortality table will be used. Results will be available by the end of April. These results will be given to the Board who will then decide on any contribution rate changes.

MOVED BY Commissioner Blackburn, seconded by Commissioner MacMullin that the Halifax Regional Water Commission Board approve the attached assumptions to be used in the January 1, 2019, Actuarial Valuation of the Halifax Regional Water Commission Employees' Pension Plan.

MOTION PUT AND PASSED.

5. CAPITAL PROJECTS

5.1 Washmill Lake Drive – Road Extension – Cost Sharing

A report dated January 31, 2019, was submitted.

MOVED BY Commissioner Walker, seconded by Commissioner Fenton that the Halifax Regional Water Commission Board approve funding in the amount of $297,850 for the Halifax Water share of the construction costs associated with the extension of Washmill Lake Drive.

MOTION PUT AND PASSED.

At this time, Jamie Hannam joined the meeting.

6. PROPOSED 2019/20 CAPITAL BUDGET

A report dated January 31, 2019, was submitted.

Jamie Hannam gave a comprehensive presentation on the 2019/20 Capital Budget. The budget was previewed and endorsed by the Audit & Finance Committee at their meeting on December 18, 2018.

Mr. Hannam stated that once the Budget has been approved by the Halifax Water Board , it will go before the Nova Scotia Utility & Review Board for approval.

Mr. Hannam stated the three drivers of the budget are asset renewal, compliance and growth but the majority of investment falls within asset renewal.

MOVED BY Commissioner Nicoll, seconded by Commissioner Blackburn that the Halifax Regional Water Commission Board approve:

1. **The 2019/20 Capital Budget at a total value of $77,348,000 as detailed in the attached Schedule 1.**
2. **List of routine capital expenditure items required for on-going departmental operation, at a total value of $6,456,000 as indicated in Schedule 1.**

MOTION PUT AND PASSED.

Jamie Hannam exited the meeting.

7. PROPOSED 2019/20 WATER, WASTEWATER AND STORMWATER OPERATING BUDGET

A report dated January 24, 2019, was submitted.

Cathie O'Toole gave an overview of the proposed 2019/20, Water, Wastewater and Stormwater Operating Budget.

Ms. O'Toole stated that the third quarter actuals show a $1M profit (under IFRS) and $4.9 profit (under the NSUARB Account Handbook). The difference lies in the fact that budgets are presented to the NSUARB with the principal portion of debt servings recorded as an expense. Under IFRS, it is recorded on the balance sheet. The other difference with how budgets are presented to the NSUARB is that pension and post-employment benefits are recorded on an accrual basis.

Consumption is up 2.07% from last year on a rolling twelve-month basis. This has allowed a proposed budget based on no decrease in consumption.

Debt servicing will be $3.2M lower than last year due to a decrease in anticipated debt in 2017/18 which links to the timing of delivery of capital projects.

Most of the key assumptions have remained the same as last year. Electricity will increase by 1.5%, furnace oil will increase by 5%, natural gas by 5% and a fuel increase has been projected at 18.2% over 2018/19.

Commissioner Dube inquired what was driving the increase in new hires. Ms. O'Toole responded that increasing capital projects, asset management and projects such as the AMI Project are driving the increase in new hires. With respect to the AMI project however, these are term hires which will be eliminated at the end of the project.

MOVED BY Commissioner MacMullin, seconded by Commissioner Nicoll that the Halifax Regional Water Commission Board approve the attached 2019/20 Water, Wastewater and Stormwater Operating Budget, including the proposed 2019/20 budget for un-regulated activities.

MOTION PUT AND PASSED.

8. PROPOSED 2019/20 BUSINESS PLAN

A report dated January 24, 2019, was submitted.

Carl Yates gave an overview of the proposed 2019/20 Business Plan. He stated that once the Board has approved the Plan, it will then proceed to Halifax Regional Municipality Council for endorsement. Key strategic initiatives are the AMI Project, upgrades to Water Supply Plants, Wet Weather Management and investments in aging infrastructure.

Mr. Yates also stated that funding requests to both provincial and federal levels of government will continue. There may be a Rate Application in the Fall of 2019 for a rate increase effective Spring 2020, depending on year end results and future consumption revenue. The Regional Development Charge will need to be updated and an apploication filed with the NSUARB (as per NSUARB direction) later this year.

MOVED BY Commissioner Fenton, seconded by Commissioner Blackburn that the Halifax Regional Water Commission Board approve the 2019/20 Business Plan in the substantive form attached and direct the General Manager to submit the 2019/20 Business Plan to Halifax Council for approval.

MOTION PUT AND PASSED.

9. HALIFAX REGIONAL WATER COMMISSION EMPLOYEES' PENSION PLAN (the Pension Plan) 2019 BUDGET

A report dated January 17, 2019, was submitted.

Cathie O'Toole stated that budget revenues projected are slightly lower than last year due to the fact that anticipated increases in assets are less and the investment earnings are less. The expenses of the Plan operation are only increasing by $200K which is due to increasing retirements.

MOVED BY Commissioner MacMullin, seconded by Commissioner Fenton that the Halifax Regional Water Commission Board approve the attached 2019 Pension Plan Budget covering the period January 1, 2019 to December 31, 2019.

MOTION PUT AND PASSED.

10. HALIFAX WATER FIT FOR DUTY POLICY

A report dated January 23, 2019, was submitted.

MOVED BY Commissioner Nicoll, seconded by Commissioner Blackburn that the Halifax Regional Water Commission Board approve the adoption for the attached Fit for Duty Policy.

MOTION PUT AND PASSED.

11. BEDFORD WEST CAPITAL COST CONTRIBUTION (CCC) – CHARGE REVISION

A report dated January 23, 2019, was submitted.

Mr. Yates stated there was an interim charge approved by the NSUARB with the caveat that once the costs were known, the CCC would be updated to reflect the actual costs.

MOVED BY Commissioner MacMullin, seconded by Commissioner Nicoll that the Halifax Regional Water Commission Board approve.

1. **The revised Bedford West Capital Cost Contribution (2008 base year) water charge of $3,217.76 per acre and a wastewater charge of $11,437.97 per acre with revised density adjustments as detailed within Table 2 of the report.**
2. **Preparation and submission of application for necessary Nova Scotia Utility and Review Board (NSUARB) approvals and amendments.**

MOTION PUT AND PASSED.

7-I. 2018 ANNUAL CUSTOMER SURVEY

Carl Yates stated the results of the Survey were very positive. The majority of Halifax Water customers are very satisfied with the service they receive. The Chair suggested that the Survey results should be included in the presentation of the Business Plan to HRM Council. Mr. Yates agreed.

12. DATE OF NEXT MEETING

The next meeting is scheduled for March 28, 2019.

The meeting was adjourned at 11:25 a.m.

Original Signed By:
James G. Spurr
Secretary

Original Signed By:
Commissioner Darlene Fenton
Chair

The following Information Items were submitted:

1-I Operations and Financial Monthly Update
2-I Capital Budget Approvals to Date
3-I Bank Balance
4-I Water Pressure Service Standards
5-I HRM Pension Plan Investment Performance – 3rd Quarter (Q3), 2018
6-I 2018 Annual Report – Pension and Benefits Advisory Committee
7-I 2018 Annual Customer Survey
8-I 2018/19 Q3 Cost Containment Report
9-I Cogswell Redevelopment Project

Halifax Water
Halifax Regional Water Commission

ITEM # 4.1
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA/CGA, ICD.D, Director, Corporate Services

APPROVED: *Original Signed By:*
Carl Yates, M.A.Sc., P.Eng., General Manager

DATE: March 20, 2019

SUBJECT: **Operating Results for the Eleven Months Ended February 28, 2019**

INFORMATION REPORT

ORIGIN

Financial Statements

BACKGROUND

The Board is required to review periodic financial information throughout the year.

DISCUSSION

Attached are the operating results for the first eleven (11) months of the 2018/19 fiscal year, period ending February 28, 2019. The statements reflect direct operating costs by department and allocations among water, wastewater and stormwater for common costs shared across all the services provided by Halifax Regional Water Commission (HRWC).

HRWC is a fully regulated government business enterprise, falling under the jurisdiction of the Nova Scotia Utility and Review Board (NSUARB). The NSUARB requires that HRWC file Financial Statements and rate applications with the Board based on the NSUARB Handbook for Accounting and Reporting for Water Utilities. The Accounting Standards Board (AcSB) requires rate regulated entities to conform to International Financial Reporting Standards (IFRS). The Commission maintains the SAP financial records in IFRS for the purposes of the annual audit and consolidation of the financial statements with those of Halifax Regional Municipality (HRM). The budget for the 2018/19 fiscal year was prepared using the NSUARB format and financial results continue to be provided in NSUARB format.

Summary information is provided for the Balance Sheet on Page 1 and the Income Statement on Page 2. A detailed presentation of the Balance Sheet and Income Statement is provided on Pages 3 and 4. Pages 5 through 8 provide Income Statements by Service and for Regulated and Un-Regulated Services. Pages 9 and 10 provide the Balance Sheet and Income Statement in IFRS format.

Consolidated Income Statement - Page 2

Summarized Consolidated Operating Results				
	Actual YTD 2018/19 '000	Actual YTD 2017/18 '000	$ Change	% Change
Operating Revenue	**$126,854**	$126,478	$376	0.3%
Operating Expenses	**$93,913**	$87,896	$6,017	6.8%
Operating Profit (Loss)	**$32,941**	$38,582	($5,641)	-14.6%
Non Operating Revenue	**$1,736**	$4,177	($2,441)	-58.4%
Non Operating Expenditure	**$30,603**	$31,367	($764)	-2.4%
Net Surplus before OCI	**$4,074**	$11,392	($7,318)	-64.2%
Pension Plan Expense	**($4,765)**	($4,585)	($180)	3.9%
OCI	**$0**	$2,021	($2,021)	-100.0%
Net Surplus (Deficit)	**($691)**	$8,828	($9,518)	-107.8%

Figures used in the various tables throughout the report may contain differences due to Excel rounding.

Key items of note:

- Operating revenue of $126.9 million is on par with the prior year.
- Operating expenses of $93.9 million are $6.0 million higher than the prior year.
- Excluding OCI and Pension Plan Expense, the Net Surplus for the year is $4.1 million, a decline of $7.3 million.
- The Net Surplus for the year is a loss of $0.7 million, a decline of $9.5 million from the prior year.
- The approved budget was for a loss of $12.1 million.
- The Forecast is for a loss of $4.9 million, an improvement of $7.2 million from the approved Budget.

Balance Sheet - Page 3

Key indicators and balances from the Balance Sheet are as follows:

Cash On Hand		
	2018/19	2017/18
Cash On Hand	**$52,611**	$47,026

Balance Sheet Liquidity (Current Ratio)		
	2018/19	2017/18
Current Assets ('000)	**$94,567**	$89,095
Current Liabilities ('000)	**$47,447**	$45,995
Current Ratio	**1.99**	1.94

Accounts Receivable		
	2018/19	2017/18
Customer Receivables	**$15,055**	$16,804
Unbilled Services	**$18,188**	$17,206
Halifax Regional Mun.	**$5,832**	$6,122
Total	**$39,075**	$40,132

Accounts Payable		
	2018/19	2017/18
Trade Payables	**$14,623**	$12,494
LT Debt Interest	**$2,409**	$2,509
Halifax Regional Mun.	**$5,988**	$5,468
Total	**$23,020**	$20,471

Capital Assets Under Construction	
	Cumulative '000
Aerotech Wastewater Treatment Facility	**$23,153**
AMI - Advanced Metering Infrastructure	**$17,344**
JD Kline Filtration Replacement	**$6,217**
Lake Major Dam Replacement	**$4,332**
All other projects	**$37,286**
Total Capital Expenditures	**$88,333**
External Funding Received	**($17,597)**
Net Assets Under Construction	**$70,735**

- Capital expenditures within the fiscal year total $52.4 million. Approximately $60 million in Capital Budget projects are expected to be completed and capitalized for year end.

Long Term Debt by Service		
	2018/19	2017/18
	'000	'000
Water	**$51,714**	$55,411
Wastewater	**$120,977**	$127,043
Stormwater	**$12,963**	$11,043
Combined	**$185,654**	$193,497

Debt Servicing Ratio by Service		
	YTD Debt Servicing Cost Ratio	
	2018/19	2017/18
Water	**16.6%**	18.8%
Wastewater	**23.8%**	23.7%
Stormwater	**18.7%**	17.7%
Combined	**20.5%**	21.3%

- Long Term Debt is down $7.8 million from the prior year as debt repayments have been greater than new debt acquired for the capital program.
- The debt service ratio of 20.5% is well below the maximum 35% ratio allowed under the blanket guarantee agreement with HRM.

Operating Surplus		
	2018/19	2017/18
Opening Op Surplus	**$20,481**	$16,677
YTD Net Profit	**($691)**	$8,828
Cumulative Op Surplus	**$19,791**	$25,505

Income Statement – All Services - Page 4

The following tables compare the results with the eleven month pro-rated budget and forecasts for the year.

Summarized Consolidated Operating Results			
	Actual YTD 2018/19 '000	Eleven Month Budget 2018/19 '000	$ Variance
Operating Revenue	**$126,854**	$123,917	$2,937
Operating Expenses	**$93,913**	$99,706	($5,793)
Operating Profit (Loss)	**$32,941**	$24,211	$8,730
Non Operating Revenue	**$1,736**	$922	$815
Non Operating Expenditure	**$30,603**	$33,517	($2,913)
Net Surplus (Deficit)	**$4,074**	($8,384)	$12,458

Summarized Consolidated Operating Results			
	Actual YTD 2018/19 '000	Eleven Month Forecast 2018/19 '000	$ Variance
Operating Revenue	**$126,854**	$125,937	$917
Operating Expenses	**$93,913**	$96,684	($2,771)
Operating Profit (Loss)	**$32,941**	$29,254	$3,688
Non Operating Revenue	**$1,736**	$1,706	$30
Non Operating Expenditure	**$30,603**	$30,670	($67)
Net Surplus (Deficit)	**$4,074**	$290	$3,785

- Year to date results are $12.4 million better than the pro-rated budget and $3.8 million ahead of the pro-rated forecast.
- Revenue and expenses are expected to align with the forecast in the final month of the fiscal year.

Operating Revenue

Operating Revenue Results			
	YTD Actual 2018/19 '000	YTD Budget 2018/19 '000	$ Variance
Consumption Revenue	**$84,184**	$80,270	$3,914
Base Charge Revenue	**$25,057**	$24,943	$114
Wastewater Rebate	**($1,227)**	($939)	($288)
Metered Sales Sub-total	**$108,014**	$104,274	$3,740
SW Site Generated Charge	**$5,635**	$6,189	($554)
HRM Fire Prot & ROW	**$10,000**	$10,000	$0
Other Operating Revenue	**$3,204**	$3,453	($249)
Operating Revenue Total	**$126,854**	$123,917	$2,937

Operating Revenue Results			
	YTD Actual 2018/19 '000	Prior Yr Actual 2017/18 '000	$ Variance
Consumption Revenue	**$84,184**	$82,905	$1,279
Base Charge Revenue	**$25,057**	$24,727	$330
Wastewater Rebate	**($1,227)**	($442)	($784)
Metered Sales Sub-total	**$108,014**	$107,190	$825
SW Site Generated Charge	**$5,635**	$5,831	($196)
HRM Fire Prot & ROW	**$10,000**	$10,011	($11)
Other Operating Revenue	**$3,204**	$3,447	($243)
Operating Revenue Total	**$126,854**	$126,478	$376

Operating Revenue is on par with the previous year. Key items of note include:

- Water consumption is up 2.4% from the previous year on a volumetric basis. Consumption had been budgeted to decline by 2.5%.
- Metered Sales revenue for Water Service is up $0.8 million (1.9%) as compared to the prior year.
- Metered Sales revenue for Wastewater Service is on par with the prior year.

Base Charge Revenue is slightly ahead of budget and the prior year. The Wastewater Rebate is an offset to revenue. It is available to certain large customers whose water does not enter the Wastewater system.

Stormwater Site Generated revenue is below budget and the prior year. A large portion of this revenue is billed annually to Stormwater-only customers in March. Other revenue categories are comparable with budget and forecasted amounts.

Operating Expenses

Summary of Operating Expenses by Department

	Actual YTD 2018/19 '000	Budget YTD 2018/19 '000	$ Variance	% Variance
Water Services	**$18,766**	$19,462	($696)	-3.6%
WW Services	**$29,818**	$30,651	($833)	-2.7%
SW Services	**$4,348**	$4,837	($488)	-10.1%
Engineering & IS	**$7,358**	$7,496	($138)	-1.8%
Regulatory Services	**$2,898**	$3,450	($552)	-16.0%
Corporate Services	**$10,719**	$12,330	($1,611)	-13.1%
Depreciation	**$20,006**	$21,481	($1,475)	-6.9%
Total Operating Expenses	**$93,913**	$99,706	($5,793)	-5.8%

Key items to note:

- Operating Expenses of $93.9 million are $6.0 million higher than the prior year and $2.8 million below the pro-rated budget for the year.
- All categories are under the pro-rated budget.
- Compared to the prior year, expense categories with the largest increases in costs to date are Water Supply & Treatment, Engineering and Information Systems, and Depreciation.

Financial Revenue

Key items to note:

- Higher than anticipated cash balances and rising interest rates have generated higher interest income.

- The agreement with the Province of Nova Scotia for funding for the Halifax Harbour Solutions Project concluded in 2017/18.
- Miscellaneous Revenue includes various un-regulated activities such as tower leases, energy generation, consulting activities and some contracted services.

Financial Expenses

Key items to note:

- Long Term Debt costs are $0.9 million lower than in the prior year. Debt servicing savings are a result of:
  - New debt issues having lower interest rates than older, maturing issues.
  - This is the third year in a row that debt repayments have been greater than new debt issues.
- New debt of $15.0 million was acquired through MFC's Fall Debenture in November.

Operating Results by Service - Pages 5-7

Year to Date Operating Results by Service		
	2018/19	2017/18
	'000	'000
Water	**$1,023**	$2,111
Wastewater	**($1,055)**	$4,534
Stormwater	**($658)**	$163
Net Surplus (Deficit)	**($691)**	$6,807

Regulated and Unregulated Operations - Page 8

Results by Activity		
	2018/19	2017/18
	'000	'000
Regulated Activities	**($1,828)**	$5,164
Unregulated Activities	**$1,137**	$1,643
Net Surplus (Deficit)	**($691)**	$6,807

Results under International Financial Reporting Standards - Pages 9 & 10

As noted previously, the AcSB requires HRWC, as a rate regulated utility, to report financial results using International Financial Reporting Standards (IFRS).

On the IFRS Balance Sheet, Accumulated Depreciation is higher producing a lower value for assets, Contributed Capital is treated as a long term liability and amortized rather than being treated as a contribution to equity, and the Operating Surplus is much higher due to changes in the Income Statement.

On the IFRS Income Statement, Operating Revenue is the same. Depreciation Expense is higher as contributed assets are depreciated and some assets are depreciated more quickly. Financial Revenue is higher as the amortization of contributed capital is treated as revenue. The most significant change is Financial Expenses are lower as there is no expense for the Long Term Debt Principal appropriation – a difference of $22.6 million for the full year.

The IFRS Net Profit for the year to date is $13.0 million.

ATTACHMENTS

Unaudited Operating Results for the eleven (11) months ended February 28, 2019

Report prepared by: *Original Signed By:*

Warren Brake, B.Comm, CPA, CGA, Manager, Accounting, 902-490-4814

HALIFAX WATER
UNAUDITED BALANCE SHEET - CONSOLIDATED
AS OF FEBRUARY 28, 2019

	2019 '000	2018 '000
ASSETS		
Cash	$52,611	$47,026
Accounts Receivable	$39,075	$40,132
Materials & Supplies	$2,500	$1,624
Prepaid Expenses	$382	$314
	$94,567	$89,095
Regulatory Asset	$3,021	$3,213
Plant in Service	$1,193,347	$1,139,722
Assets Under Construction	$70,735	$83,588
	$1,267,103	$1,226,522
Unamortized Debt Discount & Issue Expense	$856	$929
	$1,362,527	**$1,316,547**
LIABILITIES & CAPITAL		
Trade Payables & Accrued Liabilities	$23,020	$20,471
Deposits & Unearned Revenue	$1,796	$4,608
Current Portion of Long Term Debt	$22,630	$20,916
	$47,447	$45,995
Pension & Accrued Retirement Benefits	$74,632	$65,445
RDC & Special Purpose Reserves	$37,660	$23,659
Long Term Debt	$185,654	$193,497
Total Liabilities	$345,393	$328,596
Capital Surplus, Committed Reserves, & Accumulated OCI	$997,343	$964,466
Operating Surplus	$20,481	$16,677
Excess (Deficiency) of Revenue over Expenditure - Consolidated	($691)	$6,807
Total Capital & Surplus	$1,017,134	$987,950
	$1,362,527	**$1,316,547**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - CONSOLIDATED
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
$10,444	$10,073	**OPERATING REVENUE**	$126,854	$126,478	$135,182	$137,386	92.33%
$8,361	$7,727	**OPERATING EXPENSES**	$93,913	$87,896	$108,770	$105,473	89.04%
$2,083	**$2,346**	**OPERATING PROFIT**	**$32,941**	**$38,582**	**$26,412**	**$31,913**	**103.22%**
		FINANCIAL REVENUE					
$99	$67	INVESTMENT INCOME	$1,047	$615	$480	$1,155	90.67%
$0	$167	PNS FUNDING HHSP DEBT	$0	$1,833	$0	$0	0.00%
$56	$51	MISCELLANEOUS	$689	$1,729	$526	$707	97.55%
$154	**$285**		**$1,736**	**$4,177**	**$1,006**	**$1,862**	**93.28%**
		FINANCIAL EXPENSES					
$564	$590	LONG TERM DEBT INTEREST	$6,824	$7,255	$8,560	$7,325	93.16%
$1,397	$1,621	LONG TERM DEBT PRINCIPAL	$18,970	$19,452	$22,601	$20,916	90.70%
$15	$17	AMORTIZATION DEBT DISCOUNT	$184	$185	$245	$203	90.57%
$417	$398	DIVIDEND/GRANT IN LIEU OF TAXES	$4,583	$4,376	$5,142	$4,999	91.67%
$6	($6)	MISCELLANEOUS	$43	$98	$16	$16	276.23%
$2,398	**$2,620**		**$30,603**	**$31,367**	**$36,564**	**$33,459**	**91.47%**
($161)	**$11**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$4,074**	**$11,392**	**($9,146)**	**$316**	**1289.74%**
		NON NSUARB ITEMS					
($433)	($417)	PENSION PLAN EXPENSE	($4,765)	($4,585)	($2,940)	($5,200)	91.63%
$0	$184	OTHER COMPREHENSIVE INCOME	$0	$2,021	$0	$0	0.00%
($433)	**($233)**		**($4,765)**	**($2,565)**	**($2,940)**	**($5,200)**	**91.63%**
($594)	**($223)**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**($691)**	**$8,828**	**($12,086)**	**($4,884)**	**14.14%**

HALIFAX WATER
UNAUDITED BALANCE SHEET
AS OF FEBRUARY 28, 2019

	2019 '000	2018 '000
ASSETS		
Cash	$52,611	$47,026
Accounts Receivable		
Customers & Contractual	$15,055	$16,804
Customers & Contractual - Unbilled Services	$18,188	$17,206
Halifax Regional Municipality	$5,832	$6,122
Materials & Supplies	$2,500	$1,624
Prepaid Expenses	$382	$314
	$94,567	$89,095
Regulatory Asset	$3,021	$3,213
Plant in Service - Water	$635,230	$599,993
Plant in Service - Wastewater	$761,661	$714,226
Plant in Service - Stormwater	$263,952	$245,193
Less: Accumulated Depreciation - Water	($190,519)	($176,109)
Accumulated Depreciation - Wastewater	($225,102)	($198,686)
Accumulated Depreciation - Stormwater	($51,875)	($44,896)
	$1,196,368	$1,142,934
Assets Under Construction	$70,735	$83,588
	$1,267,103	$1,226,522
Unamortized Debt Discount & Issue Expense	$856	$929
	$1,362,527	**$1,316,547**
LIABILITIES & CAPITAL		
Trade Payables	$14,623	$12,494
Interest on Long Term Debt	$2,409	$2,509
Halifax Regional Municipality	$5,988	$5,468
Contractor & Customer Deposits	$206	$183
Unearned Revenue	$1,590	$4,425
Current Portion of Long Term Debt	$22,630	$20,916
	$47,447	$45,995
Accrued Post-Retirement Benefits	$430	$341
Accrued Pre-Retirement Benefit	$3,951	$4,060
Deferred Pension Liability	$70,251	$61,044
Special Purpose Reserves not allocated to projects	$1,407	$1,222
Regional Development Charge	$36,253	$22,437
Long Term Debt-Water	$51,714	$55,411
Long Term Debt-Wastewater	$120,977	$127,043
Long Term Debt-Stormwater	$12,963	$11,043
Total Liabilities	$345,393	$328,596
Capital Surplus	$1,027,516	$990,868
Committed Reserves	$2,391	$2,391
Accumulated Other Comprehensive Income	($44,943)	($41,172)
Operating Surplus used to Fund Capital	$12,380	$12,380
Operating Surplus	$20,481	$16,677
Excess (Deficiency) of Revenue over Expenditure - Consolidated	($691)	$6,807
Total Capital & Surplus	$1,017,134	$987,950
	$1,362,527	**$1,316,547**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - ALL SERVICES
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of BUDGET*	% of FORECAST
		REVENUE						
$3,627	$3,509	METERED SALES - WATER	$44,036	$43,209	$46,152	$47,452	95.42%	92.80%
$5,226	$5,074	METERED SALES - WASTEWATER	$63,978	$63,980	$67,601	$69,001	94.64%	92.72%
$466	$360	STORMWATER SITE GENERATED SERVICE	$5,635	$5,831	$6,752	$6,452	83.46%	87.34%
$590	$590	FIRE PROTECTION	$6,485	$6,485	$7,074	$7,074	91.67%	91.67%
$320	$321	STORMWATER RIGHT OF WAY SERVICE	$3,515	$3,526	$3,835	$3,835	91.67%	91.67%
$148	$151	OTHER SERVICES AND FEES	$2,439	$2,699	$2,905	$2,740	83.98%	89.03%
$44	$39	CUSTOMER LATE PAY./COLLECTION FEES	$397	$352	$491	$436	80.84%	91.03%
$24	$30	MISCELLANEOUS	$368	$396	$371	$395	99.12%	93.10%
$10,444	**$10,073**		**$126,854**	**$126,478**	**$135,182**	**$137,386**	**93.84%**	**92.33%**
		EXPENSES						
$643	$721	WATER SUPPLY & TREATMENT	$7,705	$6,913	$8,750	$9,153	88.06%	84.18%
$890	$691	TRANSMISSION & DISTRIBUTION	$9,143	$8,017	$10,323	$10,283	88.56%	88.91%
$860	$814	WASTEWATER COLLECTION	$10,461	$10,078	$10,622	$10,801	98.48%	96.85%
$1,567	$1,398	WASTEWATER TREATMENT PLANTS	$16,390	$16,396	$19,160	$17,508	85.54%	93.62%
$327	$272	STORMWATER COLLECTION	$4,304	$4,437	$5,239	$4,924	82.14%	87.41%
$262	$223	SMALL SYSTEMS AND OTHER SERVICES	$2,765	$2,428	$3,286	$3,110	84.16%	88.92%
$193	$182	SCADA, CONTROL & PUMPING	$2,164	$1,995	$2,565	$2,204	84.39%	98.22%
$668	$558	ENGINEERING & INFORMATION SERVICES	$7,358	$6,316	$8,177	$8,009	89.98%	91.87%
$225	$260	REGULATORY SERVICES	$2,898	$3,042	$3,763	$3,335	77.01%	86.90%
$362	$384	CUSTOMER SERVICE	$4,463	$4,374	$5,522	$5,450	80.82%	81.88%
$581	$573	ADMINISTRATION & PENSION	$6,257	$5,661	$7,929	$7,612	78.91%	82.20%
$1,784	$1,651	DEPRECIATION	$20,006	$18,240	$23,434	$23,084	85.37%	86.66%
$8,361	**$7,727**		**$93,913**	**$87,896**	**$108,770**	**$105,473**	**86.34%**	**89.04%**
$2,083	**$2,346**	**OPERATING PROFIT**	**$32,941**	**$38,582**	**$26,412**	**$31,913**	**124.72%**	**103.22%**
		FINANCIAL REVENUE						
$99	$67	INVESTMENT INCOME	$1,047	$615	$480	$1,155	218.17%	90.67%
$0	$167	PNS FUNDING HHSP DEBT	$0	$1,833	$0	$0	0.00%	0.00%
$56	$51	MISCELLANEOUS	$689	$1,729	$526	$707	131.15%	97.55%
$154	**$285**		**$1,736**	**$4,177**	**$1,006**	**$1,862**	**172.69%**	**93.28%**
		FINANCIAL EXPENSES						
$564	$590	LONG TERM DEBT INTEREST	$6,824	$7,255	$8,560	$7,325	79.72%	93.16%
$1,397	$1,621	LONG TERM DEBT PRINCIPAL	$18,970	$19,452	$22,601	$20,916	83.93%	90.70%
$15	$17	AMORTIZATION DEBT DISCOUNT	$184	$185	$245	$203	75.04%	90.57%
$417	$398	DIVIDEND/GRANT IN LIEU OF TAXES	$4,583	$4,376	$5,142	$4,999	89.12%	91.67%
$6	($6)	MISCELLANEOUS	$43	$98	$16	$16	276.23%	276.23%
$2,398	**$2,620**		**$30,603**	**$31,367**	**$36,564**	**$33,459**	**83.70%**	**91.47%**
($161)	**$11**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$4,074**	**$11,392**	**($9,146)**	**$316**	**144.55%**	**1289.74%**
		NON NSUARB ITEMS						
($433)	($417)	PENSION PLAN EXPENSE	($4,765)	($4,585)	($2,940)	($5,200)	162.07%	91.63%
$0	$184	OTHER COMPREHENSIVE INCOME	$0	$2,021	$0	$0	0.00%	0.00%
($433)	**($233)**		**($4,765)**	**($2,565)**	**($2,940)**	**($5,200)**	**162.07%**	**91.63%**
($594)	**($223)**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**($691)**	**$8,828**	**($12,086)**	**($4,884)**	**5.71%**	**14.14%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WATER OPERATIONS
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$3,627	$3,509	METERED SALES	$44,036	$43,209	$46,152	$47,452	92.80%
$590	$590	FIRE PROTECTION	$6,485	$6,485	$7,074	$7,074	91.67%
$68	$66	PRIVATE FIRE PROTECTION SERVICES	$793	$780	$860	$860	92.22%
$8	$10	BULK WATER STATIONS	$286	$292	$329	$294	97.20%
$22	$20	CUSTOMER LATE PAY./COLLECTION FEES	$222	$199	$233	$233	95.28%
$11	$11	MISCELLANEOUS	$154	$160	$154	$166	92.32%
$4,324	**$4,206**		**$51,976**	**$51,125**	**$54,803**	**$56,080**	**92.68%**
		EXPENSES					
$643	$721	WATER SUPPLY & TREATMENT	$7,705	$6,913	$8,750	$9,153	84.18%
$890	$691	TRANSMISSION & DISTRIBUTION	$9,143	$8,017	$10,323	$10,283	88.91%
$99	$85	SMALL SYSTEMS (inc. Contract Systems)	$1,120	$1,008	$1,194	$1,133	98.86%
$70	$73	SCADA, CONTROL & PUMPING	$799	$733	$965	$867	92.11%
$294	$281	ENGINEERING & INFORMATION SERVICES	$3,379	$2,868	$3,681	$3,728	90.64%
$42	$340	REGULATORY SERVICES	$610	$1,006	$997	$890	68.50%
$184	($39)	CUSTOMER SERVICE	$2,274	$2,082	$2,813	$2,777	81.89%
$520	$506	ADMINISTRATION & PENSION	$5,651	$5,565	$5,538	$6,528	86.57%
$714	$672	DEPRECIATION	$8,014	$7,438	$9,229	$9,129	87.79%
$3,456	**$3,330**		**$38,693**	**$35,629**	**$43,490**	**$44,488**	**86.98%**
$868	**$876**	**OPERATING PROFIT**	**$13,283**	**$15,496**	**$11,313**	**$11,593**	**114.58%**
		FINANCIAL REVENUE					
$44	$30	INVESTMENT INCOME	$472	$277	$216	$520	90.72%
$48	$41	MISCELLANEOUS	$516	$434	$428	$524	98.38%
$92	**$71**		**$988**	**$711**	**$644**	**$1,044**	**94.57%**
		FINANCIAL EXPENSES					
$140	$152	LONG TERM DEBT INTEREST	$1,770	$1,976	$2,363	$1,813	97.64%
$353	$611	LONG TERM DEBT PRINCIPAL	$6,791	$7,570	$8,227	$7,477	90.82%
$5	$8	AMORTIZATION DEBT DISCOUNT	$80	$86	$108	$88	90.96%
$417	$398	DIVIDEND/GRANT IN LIEU OF TAXES	$4,583	$4,376	$5,142	$4,999	91.67%
$7	($7)	MISCELLANEOUS	$24	$88	$11	$11	225.43%
$922	**$1,162**		**$13,247**	**$14,096**	**$15,850**	**$14,387**	**92.07%**
$38	**($215)**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$1,023**	**$2,111**	**($3,893)**	**($1,751)**	**158.44%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - WASTEWATER OPERATIONS
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$5,226	$5,074	METERED SALES	$63,978	$63,980	$67,601	$69,001	92.72%
$4	$2	WASTEWATER OVERSTRENGTH AGREEMENTS	$70	$201	$0	$75	92.95%
$27	$29	LEACHATE CONTRACT	$294	$293	$387	$322	91.25%
$8	$10	CONTRACT REVENUE	$80	$81	$86	$86	93.43%
$17	$17	DEWATERING FACILITY/SLUDGE LAGOON	$192	$192	$210	$210	91.65%
$0	$0	AIRLINE EFFLUENT	$80	$89	$118	$118	67.92%
$18	$16	SEPTAGE TIPPING FEES	$644	$771	$915	$775	83.11%
$20	$17	CUSTOMER LATE PAY./COLLECTION FEES	$171	$155	$238	$183	93.87%
$8	$9	MISCELLANEOUS	$130	$132	$128	$140	92.84%
$5,328	**$5,174**		**$65,640**	**$65,894**	**$69,683**	**$70,910**	**92.57%**
		EXPENSES					
$860	$814	WASTEWATER COLLECTION	$10,461	$10,078	$10,622	$10,801	96.85%
$1,567	$1,398	WASTEWATER TREATMENT PLANTS	$16,390	$16,396	$19,160	$17,508	93.62%
$114	$94	SMALL SYSTEMS	$1,155	$1,048	$1,323	$1,246	92.70%
$23	$18	DEWATERING FACILITY/ SLUDGE MGM'T	$208	$117	$331	$299	69.43%
$2	$0	BIOSOLIDS TREATMENT	$27	$1	$101	$101	27.17%
$23	$25	LEACHATE CONTRACT	$256	$254	$337	$332	77.11%
$119	$105	SCADA, CONTROL & PUMPING	$1,321	$1,222	$1,563	$1,310	100.81%
$321	$238	ENGINEERING & INFORMATION SERVICES	$3,415	$2,965	$3,400	$3,268	104.47%
$65	$123	REGULATORY SERVICES	$806	$867	$1,133	$1,305	61.73%
$153	$443	CUSTOMER SERVICE	$1,882	$2,050	$2,455	$2,425	77.61%
$425	$416	ADMINISTRATION & PENSION	$4,620	$4,026	$4,585	$5,405	85.47%
$997	$919	DEPRECIATION	$11,171	$10,146	$13,251	$12,851	86.93%
$4,670	**$4,595**		**$51,711**	**$49,170**	**$58,262**	**$56,852**	**90.96%**
$658	**$579**	**OPERATING PROFIT**	**$13,928**	**$16,724**	**$11,420**	**$14,057**	**99.08%**
		FINANCIAL REVENUE					
$44	$30	INVESTMENT INCOME	$471	$277	$216	$520	90.55%
$0	$167	PNS FUNDING HHSP DEBT	$0	$1,833	$0	$0	0.00%
$8	$10	MISCELLANEOUS	$173	$1,295	$97	$182	95.17%
$52	**$207**		**$644**	**$3,405**	**$313**	**$702**	**91.75%**
		FINANCIAL EXPENSES					
$377	$395	LONG TERM DEBT INTEREST	$4,537	$4,759	$5,427	$4,942	91.82%
$933	$912	LONG TERM DEBT PRINCIPAL	$10,977	$10,736	$12,783	$12,123	90.55%
$9	$8	AMORTIZATION DEBT DISCOUNT	$94	$90	$119	$104	90.41%
($1)	$1	MISCELLANEOUS	$19	$10	$5	$5	383.04%
$1,318	**$1,317**		**$15,628**	**$15,595**	**$18,334**	**$17,174**	**91.00%**
($608)	**($531)**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**($1,055)**	**$4,534**	**($6,600)**	**($2,414)**	**43.71%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - STORMWATER OPERATIONS
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of FORECAST
		REVENUE					
$466	$360	STORMWATER SITE GENERATED SERVICE	$5,635	$5,831	$6,752	$6,452	87.34%
$320	$321	STORMWATER RIGHT OF WAY SERVICE	$3,515	$3,526	$3,835	$3,835	91.67%
$2	$2	CUSTOMER LATE PAY./COLLECTION FEES	$4	($2)	$21	$21	17.83%
$5	$10	MISCELLANEOUS	$84	$104	$89	$89	94.98%
$792	**$693**		**$9,239**	**$9,459**	**$10,696**	**$10,396**	**88.86%**
		EXPENSES					
$327	$272	STORMWATER COLLECTION	$4,304	$4,437	$5,239	$4,924	87.41%
$4	$4	SCADA, CONTROL & PUMPING	$45	$41	$37	$26	171.14%
$52	$39	ENGINEERING & INFORMATION SERVICES	$564	$482	$1,095	$1,013	55.69%
$118	($203)	REGULATORY SERVICES	$1,482	$1,169	$1,634	$1,139	130.12%
$25	($20)	CUSTOMER SERVICE	$306	$242	$253	$248	123.39%
$69	$68	ADMINISTRATION & PENSION	$751	$655	$746	$879	85.47%
$73	$59	DEPRECIATION	$821	$656	$954	$1,104	74.35%
$668	**$219**		**$8,273**	**$7,682**	**$9,958**	**$9,333**	**88.64%**
$124	**$474**	**OPERATING PROFIT**	**$965**	**$1,777**	**$738**	**$1,063**	**90.82%**
		FINANCIAL REVENUE					
$10	$7	INVESTMENT INCOME	$105	$62	$48	$115	90.98%
$0	$0	MISCELLANEOUS	$0	$0	$0	$0	0.00%
$10	**$7**		**$105**	**$62**	**$48**	**$115**	**90.98%**
		FINANCIAL EXPENSES					
$46	$43	LONG TERM DEBT INTEREST	$517	$521	$770	$570	90.57%
$111	$97	LONG TERM DEBT PRINCIPAL	$1,202	$1,146	$1,591	$1,316	91.33%
$1	$1	AMORTIZATION DEBT DISCOUNT	$10	$9	$18	$11	89.03%
$158	**$141**		**$1,728**	**$1,676**	**$2,379**	**$1,897**	**91.09%**
($24)	**$339**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**($658)**	**$163**	**($1,593)**	**($719)**	**91.50%**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - REGULATED AND UNREGULATED OPERATIONS
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR	LAST YEAR	APR 1/18 MAR 31/19 BUDGET*	APR 1/18 MAR 31/19 FORECAST	% of FORECAST
REGULATED ACTIVITIES					
REVENUE					
METERED SALES	$113,649	$113,020	$120,505	$122,905	92.47%
FIRE PROTECTION	$6,485	$6,485	$7,074	$7,074	91.67%
PRIVATE FIRE PROTECTION	$793	$780	$860	$860	92.22%
STORMWATER SERVICE	$3,515	$3,526	$3,835	$3,835	91.67%
OTHER OPERATING REVENUE	$1,086	$1,207	$1,154	$1,163	93.32%
	$125,528	**$125,018**	**$133,429**	**$135,838**	**92.41%**
EXPENSES					
WATER SUPPLY & TREATMENT	$7,705	$6,913	$8,750	$9,153	84.18%
TRANSMISSION & DISTRIBUTION	$9,143	$8,017	$10,323	$10,283	88.91%
WASTEWATER & STORMWATER COLLECTION	$14,737	$14,492	$15,753	$15,617	94.37%
WASTEWATER TREATMENT PLANTS	$16,390	$16,396	$19,160	$17,508	93.62%
SMALL SYSTEMS	$2,256	$2,040	$2,492	$2,353	95.86%
SCADA, CONTROL & PUMPING	$2,164	$1,995	$2,565	$2,204	98.22%
ENGINEERING & INFORMATION SERVICES	$7,358	$6,316	$8,177	$8,009	91.87%
REGULATORY SERVICES	$2,898	$3,042	$3,763	$3,335	86.90%
CUSTOMER SERVICE	$4,430	$4,341	$5,487	$5,415	81.79%
ADMINISTRATION & PENSION	$10,984	$10,200	$10,639	$12,581	87.31%
DEPRECIATION	$19,989	$18,221	$23,416	$23,066	86.66%
	$98,053	**$91,973**	**$110,524**	**$109,524**	**89.53%**
FINANCIAL REVENUE					
INVESTMENT INCOME	$1,047	$615	$480	$1,155	90.67%
MISCELLANEOUS	$210	$2,773	$110	$291	72.30%
	$1,258	**$3,388**	**$590**	**$1,446**	**86.97%**
FINANCIAL EXPENSES					
LONG TERM DEBT INTEREST	$6,824	$7,255	$8,560	$7,325	93.16%
LONG TERM DEBT PRINCIPAL	$18,970	$19,452	$22,601	$20,916	90.70%
AMORTIZATION DEBT DISCOUNT	$184	$185	$245	$203	90.57%
DIVIDEND/GRANT IN LIEU OF TAXES	$4,583	$4,376	$5,142	$4,999	91.67%
	$30,560	**$31,269**	**$36,548**	**$33,443**	**91.38%**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	**($1,828)**	**$5,164**	**($13,053)**	**($5,683)**	**32.16%**
UNREGULATED ACTIVITIES					
REVENUE					
SEPTAGE TIPPING FEES	$644	$771	$915	$775	83.11%
LEACHATE CONTRACT	$294	$293	$387	$322	91.25%
CONTRACT REVENUE	$80	$81	$86	$86	93.43%
DEWATERING	$192	$192	$210	$210	91.65%
AIRLINE EFFLUENT	$80	$89	$118	$118	67.92%
ENERGY PROJECTS	$145	$145	$167	$167	86.96%
MISCELLANEOUS	$35	$34	$37	$37	93.95%
	$1,470	**$1,606**	**$1,919**	**$1,714**	**85.77%**
EXPENSES					
WATER SUPPLY & TREATMENT	$19	$16	$25	$25	74.51%
WASTEWATER TREATMENT	$519	$394	$877	$840	61.74%
SPONSORSHIPS & DONATIONS	$70	$78	$266	$266	26.52%
DEPRECIATION	$16	$19	$18	$18	0.00%
	$624	**$508**	**$1,186**	**$1,149**	**54.34%**
FINANCIAL REVENUE					
MISCELLANEOUS	$334	$643	$249	$249	134.16%
	$334	**$643**	**$249**	**$249**	**134.16%**
FINANCIAL EXPENSES					
MISCELLANEOUS	$43	$98	$16	$16	276.23%
	$43	$98	$16	$16	**276.23%**
NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES	**$1,137**	**$1,643**	**$967**	**$799**	**142.34%**
NET PROFIT (LOSS) AVAILABLE FOR TOTAL CAPITAL EXPENDITURES (REG & UNREG)	**($691)**	**$6,807**	**($12,086)**	**($4,884)**	**14.14%**

HALIFAX WATER
UNAUDITED BALANCE SHEET - IFRS FORMAT
AS OF FEBRUARY 28, 2019

	2019 '000	2018 '000
ASSETS		
Cash	$52,611	$47,026
Accounts Receivable		
Customers & Contractual	$15,055	$16,804
Customers & Contractual - Unbilled Services	$18,188	$17,206
Halifax Regional Municipality	$5,832	$6,122
Materials & Supplies	$2,500	$1,624
Prepaid Expenses	$382	$314
	$94,567	$89,095
Regulatory Asset	$3,021	$3,213
Plant in Service - Water	$635,230	$599,993
Plant in Service - Wastewater	$761,661	$714,226
Plant in Service - Stormwater	$263,952	$245,193
Less: Accumulated Depreciation - Water	($200,966)	($186,215)
Accumulated Depreciation - Wastewater	($235,758)	($209,451)
Accumulated Depreciation - Stormwater	($51,870)	($44,894)
	$1,175,270	$1,122,065
Assets Under Construction	$70,735	$83,588
	$1,246,005	$1,205,654
Unamortized Debt Discount & Issue Expense	$856	$929
	$1,341,429	**$1,295,678**
LIABILITIES		
Trade Payables	$14,623	$12,494
Interest on Long Term Debt	$2,409	$2,509
Halifax Regional Municipality	$5,988	$5,468
Contractor & Customer Deposits	$206	$183
Unearned Revenue	$1,590	$4,425
Current Portion of Deferred Contributed Capital	$13,405	$12,889
Current Portion of Long Term Debt	$22,630	$20,916
	$60,851	$58,884
Accrued Post-Retirement Benefits	$430	$341
Accrued Pre-Retirement Benefit	$3,951	$4,060
Deferred Pension Liability	$70,251	$61,044
Deferred Contributed Capital	$839,601	$807,387
Long Term Debt-Water	$51,714	$55,411
Long Term Debt-Wastewater	$120,977	$127,043
Long Term Debt-Stormwater	$12,963	$11,043
Total Liabilities	$1,160,739	$1,125,214
EQUITY		
Accumulated Other Comprehensive Income	($44,943)	($41,172)
Accumulated Surplus	$212,604	$190,822
Excess (Deficiency) of Revenue over Expenditure	$13,030	$20,814
Total Equity	$180,690	$170,464
	$1,341,429	**$1,295,678**

HALIFAX WATER
UNAUDITED INCOME STATEMENT - IFRS FORMAT - ALL SERVICES
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
91.67%

ACTUAL (CURRENT MONTH) THIS YEAR '000	ACTUAL (CURRENT MONTH) LAST YEAR '000	DESCRIPTION	ACTUAL (YEAR TO DATE) THIS YEAR '000	ACTUAL (YEAR TO DATE) LAST YEAR '000	APR 1/18 MAR 31/19 BUDGET* '000	APR 1/18 MAR 31/19 FORECAST '000	% of BUDGET*	% of FORECAST
		REVENUE						
$3,627	$3,509	METERED SALES - WATER	$44,036	$43,209	$46,152	$47,452	95.42%	92.80%
$5,226	$5,074	METERED SALES - WASTEWATER	$63,978	$63,980	$67,601	$69,001	94.64%	92.72%
$466	$360	STORMWATER SITE GENERATED SERVICE	$5,635	$5,831	$6,752	$6,452	83.46%	87.34%
$590	$590	FIRE PROTECTION	$6,485	$6,485	$7,074	$7,074	91.67%	91.67%
$320	$321	STORMWATER RIGHT OF WAY SERVICE	$3,515	$3,526	$3,835	$3,835	91.67%	91.67%
$148	$151	OTHER SERVICES AND FEES	$2,439	$2,699	$2,905	$2,740	83.98%	89.03%
$44	$39	CUSTOMER LATE PAY./COLLECTION FEES	$397	$352	$491	$436	80.84%	91.03%
$24	$30	MISCELLANEOUS	$368	$396	$371	$395	99.12%	93.10%
$10,444	**$10,073**		**$126,854**	**$126,478**	**$135,182**	**$137,386**	**93.84%**	**92.33%**
		EXPENSES						
$643	$721	WATER SUPPLY & TREATMENT	$7,705	$6,913	$8,750	$9,153	88.06%	84.18%
$890	$691	TRANSMISSION & DISTRIBUTION	$9,143	$8,017	$10,323	$10,283	88.56%	88.91%
$860	$814	WASTEWATER COLLECTION	$10,461	$10,078	$10,622	$10,801	98.48%	96.85%
$1,567	$1,398	WASTEWATER TREATMENT PLANTS	$16,390	$16,396	$19,160	$17,508	85.54%	93.62%
$327	$272	STORMWATER COLLECTION	$4,304	$4,437	$5,239	$4,924	82.14%	87.41%
$262	$223	SMALL SYSTEMS AND OTHER SERVICES	$2,765	$2,428	$3,286	$3,110	84.16%	88.92%
$193	$182	SCADA, CONTROL & PUMPING	$2,164	$1,995	$2,565	$2,204	84.39%	98.22%
$668	$558	ENGINEERING & INFORMATION SERVICES	$7,358	$6,316	$8,177	$8,009	89.98%	91.87%
$225	$260	REGULATORY SERVICES	$2,898	$3,042	$3,763	$3,335	77.01%	86.90%
$362	$384	CUSTOMER SERVICE	$4,463	$4,374	$5,522	$5,450	80.82%	81.88%
$1,014	$990	ADMINISTRATION & PENSION	$11,022	$10,246	$10,869	$12,812	101.40%	86.03%
$3,827	$3,637	DEPRECIATION	$42,636	$40,491	$23,434	$35,959	181.94%	118.57%
$10,837	**$10,130**		**$121,308**	**$114,732**	**$111,710**	**$123,548**	**108.59%**	**98.19%**
($393)	**($57)**	**OPERATING PROFIT**	**$5,546**	**$11,746**	**$23,472**	**$13,838**	**23.63%**	**40.08%**
		FINANCIAL REVENUE						
$99	$67	INVESTMENT INCOME	$1,047	$615	$480	$1,155	218.17%	90.67%
$0	$167	PNS FUNDING HHSP DEBT	$0	$1,833	$0	$0	0.00%	0.00%
$1,613	$1,568	MISCELLANEOUS	$17,871	$18,415	$526	$13,051	3400.49%	136.94%
$1,712	**$1,802**		**$18,918**	**$20,863**	**$1,006**	**$14,206**	**1881.40%**	**133.18%**
		FINANCIAL EXPENSES						
$564	$590	LONG TERM DEBT INTEREST	$6,824	$7,255	$8,560	$7,325	79.72%	93.16%
$15	$17	AMORTIZATION DEBT DISCOUNT	$184	$185	$245	$203	75.04%	90.57%
$417	$398	DIVIDEND/GRANT IN LIEU OF TAXES	$4,583	$4,376	$5,142	$4,999	89.12%	91.67%
$6	($6)	MISCELLANEOUS	($157)	($22)	$12	$12	-1267.79%	-1267.79%
$1,001	**$999**		**$11,434**	**$11,795**	**$13,959**	**$12,540**	**81.91%**	**91.18%**
$318	**$746**	**NET PROFIT (LOSS) BEFORE OTHER COMPREHENSIVE INCOME**	**$13,030**	**$20,814**	**$10,518**	**$15,504**	**123.88%**	**84.04%**
$0	$184	**OTHER COMPREHENSIVE INCOME**	$0	$2,021	$0	$0	0.00%	0.00%
$318	**$929**	**NET PROFIT (LOSS) AVAILABLE FOR CAPITAL EXPENDITURES**	**$13,030**	**$22,835**	**$10,518**	**$15,504**	**123.88%**	**84.04%**

Halifax Water
Halifax Regional Water Commission

ITEM # 4.2
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA Director of Finance & Customer Service

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: March 20, 2019

SUBJECT: **2019 Spring Debenture**

ORIGIN

Halifax Regional Water Commission (HRWC) Capital and Operating Budgets for 2018/19 and 2019/20.

RECOMMENDATION

It is recommended that the Halifax Water Board:

1. Defer the debt financing of the 2018/19 Capital Budget until the Fall 2019 Municipal Finance Corporation Debenture issue.

BACKGROUND

The HRWC is legally required to borrow through the Municipal Finance Corporation (MFC). The borrowing discussed in this report is consistent with the Five Year Business Plan, the approved Operating and Capital Budgets for 2018/19 and 2019/20, and the approved rates.

DISCUSSION

Following approval of the 2019/20 Capital and Operating Budgets, a Cash Flow Projection was prepared. The Projection was prepared utilizing known payment schedules for certain revenue and expense items and expected flows of general revenues and expenditures.

One key item in the Projection is the issuance of new debt. The Operating Budget incorporates debt servicing on new debt of $37,236,892 that would be required to finance a portion of the water, wastewater and stormwater additions to utility plant in service included in the 2018/19 Capital Budget. This follows the concept of acquiring new debt following the completion of capital projects, and aligns with the expectations of the MFC. An additional $39,904,892 of debt planned to fund additions to utility plant in service from the 2019/20 Capital Budget will be financed in 2020.

Cash balances in the current fiscal year have been higher than anticipated, continuing a pattern seen in recent years. The higher cash balances have resulted from:

- Delays in some capital projects,
- Operating results being better than budget,
- An accumulation of Regional Development Charges (RDCs) collected from current developments to fund future capital projects.

As a result of the higher cash balances, the issuance of new debt has been able to be delayed, reducing debt servicing costs.

Budget Year	New debt budgeted	New debt issued	Un-issued debt
2016/17	31,946,215	7,052,667	24,893,548
2017/18	50,361,199	25,000,000	25,361,199
2018/19	37,236,892	Pending	37,236,892
Total	119,544,306	32,052,667	87,491,639

Delaying the issuance of new debt is only a temporary measure as delayed projects will still be completed, operating surpluses are being reduced through budgeted operating losses, and the five year Capital Budget anticipates the use of RDCs collected to fund growth related projects.

The Cash Flow Projection anticipates beginning the fiscal year with $48.0 million. As such, it is not anticipated the new debt will be required in the Spring Debenture. Cash will decline to $10.1 million in October, be replenished through participation in the Fall Debenture, and finish the fiscal year at approximately $39.0 million.

The forecasted October balance of $10.1 million is unusually low due to a balloon payment of an existing debenture in October that would be refinanced in November. To mitigate any low cash balance risks associated with this, MFC offers interim financing which could

be initiated closer to that date. Other risks associated with low cash balances, such as lower revenues or higher expenditures are believed to be minimal.

HRWC's debt is covered by a blanket guaranteed approved by Halifax Regional Municipality (HRM) Council in September 2014. The blanket guarantee will apply to all HRWC debt with a condition that HRWC must maintain a debt service ratio of 35% or less. HRWC's debt service ratio is 20.5% as of February 28, 2019.

HRWC's outstanding debt at March 31, 2018 (including the current portion) was $214.4 million. Debt will be $208.3 million at March 31, 2019 and is projected to be $227.3 million at March 31, 2020.

BUDGET IMPLICATIONS

The 2019/20 Operating Budget includes $28.2 million in debt servicing; a 10.2% decrease from 2018/19. The decrease is attributable to recent debt issues being less than debt principle payments and existing debt issues being refinanced at lower interest rates. Included in that total is $2.8 million for the debt servicing on new debt from the Spring Debenture.

Delaying the issuance of new debt to the Fall Debenture is expected to save $1.6 million in debt servicing costs. Offsetting the savings is the risk of higher interest rates. Each increase in interest rates of 0.25% would increase debt servicing costs by $0.1 million in the first year and $0.7 million over the course of ten years. The specific interest rate and timing of debt issues are not known with certainty until the debenture process concludes.

HRWC's capital financing strategy is designed to maintain a debt service ratio of 35% or less; and to use a mixture of infrastructure funding, development related charges (reserves), depreciation, and debt. The debt servicing ratio will continue to be well below the maximum ratio.

ALTERNATIVES

HRWC could choose to initiate participation in the 2019 Spring Debenture for either all or a portion of the $37.2 million.

ATTACHMENTS

1. Cash Flow Model for 2019/20 based on approved Operating and Capital Budgets

Report prepared by: *Original Signed By:*
Warren Brake, B.Comm, CPA, CGA, Manager, Accounting, 902-490-4814

ITEM # 5.1
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair, and
Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Jamie Hannam, P. Eng.
Director, Engineering & Information Services

APPROVED BY: *Original Signed By:*
Carl Yates M.A.Sc., P. Eng., General Manager

DATE: March 15, 2019

SUBJECT: **Lucasville Transmission Main Twinning; Phase 1 - Construction**

ORIGIN

The 2019/20 Capital Budget.

RECOMMENDATION

The Halifax Water Board approve funding for the Lucasville Transmission Main Twinning – Phase 1 Construction at an estimated cost of $6,799,000 for a total project cost of $6,979,000.00,with funding as described in the report.

BACKGROUND

Based on previous master plan recommendations, Halifax Water is working to increase the transmission capacity from the Pockwock Transmission Main to the Sackville-Beaverbank area by constructing a new transmission main along the Lucasville Road. This new main will help address water supply capacity/redundancy issues for the Sackville-Beaverbank system. The planned pipe size for the transmission main is 600mm diameter.

The first phase of the work includes the installation of approximately 3,500 metres of 600mm diameter main along the Lucasville Road from the Pockwock Transmission Main Connection to the Bryanston Road intersection.

The Lucasville Transmission Main Project-Phase 1 was one of three transmission main projects approved for federal and provincial cost-share funding under the New Building Canada Program in 2015. Approved projects are eligible for up to 2/3 cost sharing on eligible costs. The first project, the Bedford Connector Phase 3, was completed in 2017. The design work for the third project, the Port Wallace Transmission Main, is scheduled to begin in 2019, with construction in 2020.

Based on concept level estimates, the Lucasville Transmission Main Project received federal-provincial funding approval as follows:

Total estimated eligible costs	$7,000,000	
Total estimated ineligible costs	$330,000	
Total Halifax Water Costs	1/3 of $7,000,000 + $330,000	$2,663,333

DISCUSSION

With respect to the Lucasville Transmission Main Project - Phase 1, Halifax Water issued a Request for Proposals (RFP) in 2018 relating to the engineering services for the Lucasville Transmission Main project. WSP Canada Inc. was selected to carry out the detailed design. Funding in the amount of $180,000 for the design work was approved in May, 2018. The design was completed and the project was tendered on March 13, 2019. There were three bids submitted. The low bidder was ARCP Ltd. with a bid price of 5,369,000 exclusive of taxes. It is anticipated that the construction will be carried out in the 2019 construction season with full project completion by November 30, 2019.

Based on the tendered price for construction, the total project cost is estimated at $6,979,000.00 (as indicated on the attached project cost estimate). The total tendered project includes the following integrated components of work, which are funded from separate sources:

$234,000.00	Culvert Replacements	To be funded from Halifax Water's 2019/20 Annual Culvert Replacement Program
$310,000.00	Integrated Street Paving Upgrades	To be funded by HRM as per HRM-Halifax Water Cost-share agreement
$6,435,000.00	Water Transmission Main Installation	To be funded from Halifax Water 2019/20 Capital Budget - Water Transmission
$6,979,000.00	Total Project Cost	See attached cost estimate

BUDGET IMPLICATIONS

The total project cost ($6,979,000.00) less the previous approved funding ($180,000) equates to a current funding requirement of $6,799,000.

Funding in the amount of $6,799,000 is available from the following three funding sources:

1. $6,255,000 is available within the 2019/20 Halifax Water Capital Budget from Water – Transmission – Lucasville Road Transmission Main – Phase 1. ($4,094,000 is the recoverable Federal/Provincial share under the New Building Canada fund).
2. $234,000 is available within the 2019/20 Halifax Water Capital Budget from Stormwater – Culverts/Ditches. Four (4) specific line items for Lucasville Road Culvert Replacements total $152,000. The balance of the funding is available from the reprioritization of the proposed Yankeetown Road Culvert replacement to 2020.
3. $310,000 is recoverable from HRM for the integration of HRM Street Paving within the Halifax Water project.

The proposed expenditure meets the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of ensures integrity and safety.

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENT

Attachment 1 - Project Cost Estimate
Attachment 2 - Site Location Sketch

Report Prepared By: *Original Signed By:*
Tom Gorman, P. Eng, Manager Water Infrastructure,
Engineering & IS Department, 902-490-4176

Financial Approved by: *Original signed by Cathie O'Toole, MBA, CPA/CGA, ICD.D, Director, Corporate Services for:*
Allan Campbell, B. Comm, CPA, CMA, Manager, Finance
902-266-8655

ITEM #5.1
HRWC Board
March 28, 2019
ATTACHMENT 1

Standardized Cost Estimate Lucasville Tranmission Main Twinning - MARCH 15/2019

Total Project Costs	
Description	**Total Project Costs**
Engineering Consulting Services Costs - (Design and Tender Phase)	$ 228,616.00
Engineering Consulting Services Costs - (Construction, Testing, Inspection, Survey)	$ 120,250.00
Materiels Testing	$ 60,000.00
Total Construction Tender	$ 5,369,000.00
Construction Sub-Total	$ 5,777,866.00
15% Construction Contingency (construction only)	$ 805,350.00
Estimated Costs Sub-Total	$ 6,583,216.00
Net HST (4.286%)	$ 282,156.64
Estimated Project Total	$ 6,865,372.64

Non-Transmission Main Costs	
Description	**Total**
Halifax Water Stormwater Culvert Replacement Net Costs	$ 193,170.00
15% Contingency	$ 28,975.50
Culvert Sub-Total	$ 222,145.50
Net HST (4.286%)	$ 9,521.16
Sub-Total	$ 231,666.66
Overhead/Interest (1%)	$ 2,316.67
Estimated Halifax Water Stormwater Culver Replacement Costs	**$ 233,983.32**
Rounded Total	***$ 234,000.00***
HRM Street Paving Cost Share	$ 255,818.50
15% Contingency	$ 38,372.78
HRM Sub-Total	$ 294,191.28
Net HST (4.286%)	$ 12,609.04
Sub-Total	$ 306,800.31
Overhead/Interest (1%)	$ 3,068.00
Estimated HRM Street Paving Cost Share Total	**$ 309,868.32**
Rounded Total	***$ 310,000.00***
Non-Transmission Main Costs Total (Rounded)	***$ 544,000.00***

Lucasville Tranmission Main Portion			
Description	**Total Project Costs**	**Eligible Costs**	**Ineligible Costs**
Total Project Cost	$ 6,865,372.64		
Non-Transmission Main Costs	$ 544,000.00		
Lucasville Tranmission Main Costs	**$ 6,321,372.64**	$ 6,321,372.64	
Halifax Water Staff Time	$ 50,000.00		$ 50,000.00
Overhead/Interest (1%)	$ 63,213.73		$ 63,213.73
Total Estimated Costs	**$ 6,435,000.00**	**$ 6,321,000.00**	**$ 114,000.00**

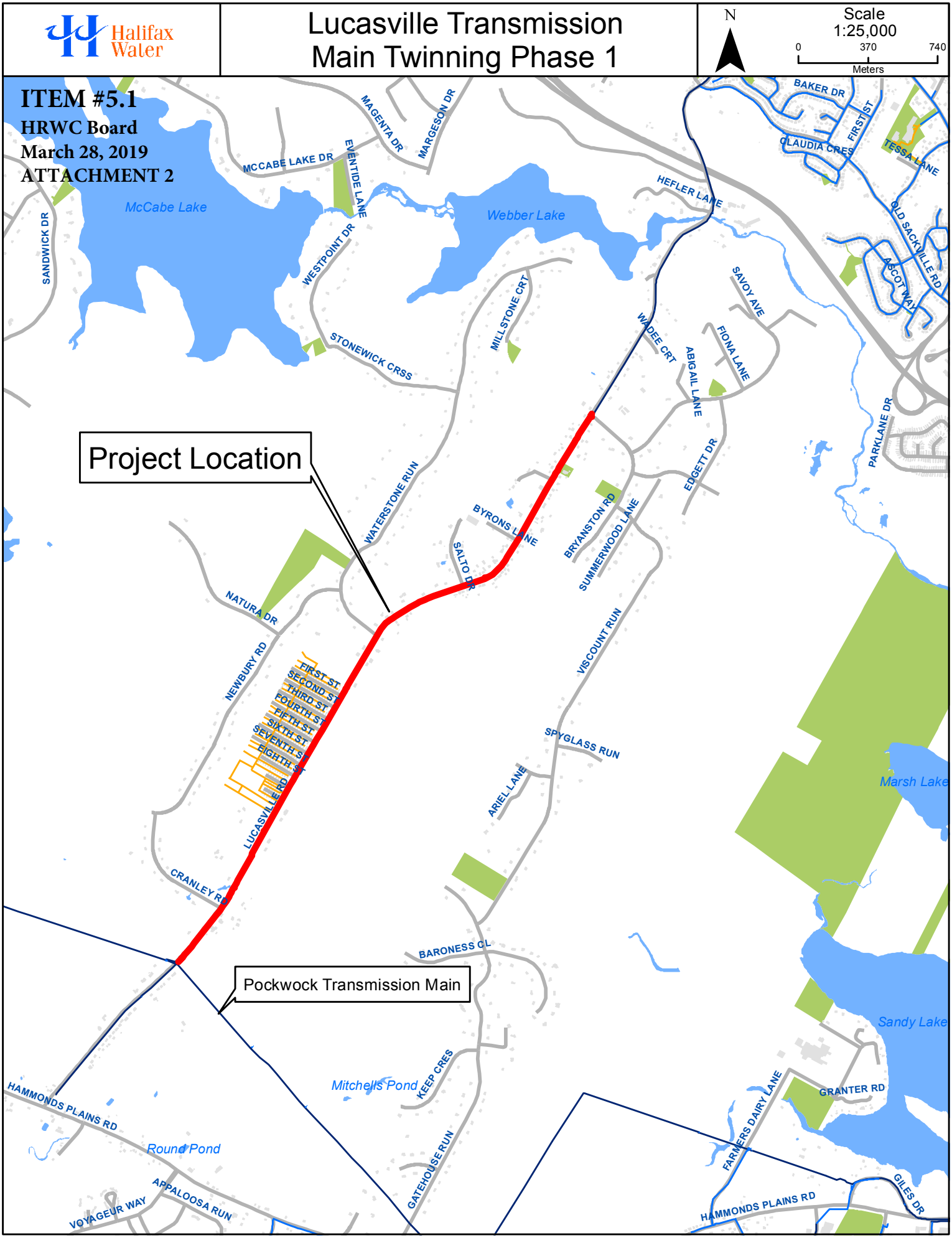
On the assumption that all costs over and
above the original cost-sharing contribution is directed to Halifax Water

$6,435,000.00	Total Project Cost
$4,214,000	Total Federal and Provincial contribution
$2,221,000	Net Cost to Halifax Water

HW Costs	Fed-Prov. Share	Total
$2,221,000	**$4,214,000**	**$6,435,000**
$60,000	**$120,000**	**$180,000**
$2,161,000	**$4,094,000**	**$6,255,000**

Funds approved in 2018/19 Budget (Design) = $180,000

2019/20 Capital Budget Requirement for Halifax Water


Halifax Water
Lucasville Transmission Main Twinning Phase 1
N
Scale 1:25,000
0 370 740
Meters
ITEM #5.1
HRWC Board
March 28, 2019
ATTACHMENT 2
Project Location
Pockwock Transmission Main
McCabe Lake
Webber Lake
Marsh Lake
Sandy Lake
Mitchells Pond
Round Pond
MCCABE LAKE DR
MAGENTA DR
MARGESON DR
EVENTIDE LANE
WESTPOINT DR
SANDWICK DR
STONEWICK CRSS
MILLSTONE CRT
HEFLER LANE
BAKER DR
FIRST ST
CLAUDIA CRES
TESSA LANE
OLD SACKVILLE RD
ASCOT WAY
SAVOY AVE
WADEE CRT
ABIGAIL LANE
FIONA LANE
PARKLANE DR
EDGETT DR
BRYANSTON RD
SUMMERWOOD LANE
BYRONS LANE
SALTO DR
WATERSTONE RUN
NATURA DR
NEWBURY RD
FIRST ST
SECOND ST
THIRD ST
FOURTH ST
FIFTH ST
SIXTH ST
SEVENTH ST
EIGHTH ST
LUCASVILLE RD
CRANLEY RD
VISCOUNT RUN
SPYGLASS RUN
ARIELL LANE
BARONESS CL
KEEP CRES
GATEHOUSE RUN
HAMMONDS PLAINS RD
VOYAGEUR WAY
APPALOOSA RUN
FARMERS DAIRY LANE
GRANTER RD
GILES DR

Halifax Water
Halifax Regional Water Commission

ITEM # 5.2
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Jamie Hannam, P. Eng.
Director, Engineering & Information Services

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P. Eng., General Manager

DATE: March 20, 2019

SUBJECT: **Ellenvale Run Retaining Wall - Phase 2 & John Cross Drive Culvert Replacement**

ORIGIN

The 2017/2018 and 2019/2020 Capital Budget – Stormwater.

RECOMMENDATION

The Halifax Water Board approve the construction phase of:

1. the *Ellenvale Run Retaining Wall – Phase 2* at an estimated cost of $2,860,000 for a total project cost of $2,908,000, and
2. the *John Cross Drive Culvert Replacement* project at an estimated cost of $295,000 for a total project cost of $309,000.

BACKGROUND

Ellenvale Run is an urban stormwater drainage system in Dartmouth that Halifax Water is responsible for as specifically identified in the 2007 Transfer Agreement between the Halifax Regional Municipality and Halifax Water. The approximately five (5) kilometre long drainage system with headwaters at Lake LeMont/Topsail Lake serves approximately 900 hectares of land and consists of natural riparian areas, culverts, various types of retaining walls, and buried pipe which eventually discharges into the northwest end of Morris Lake.

The drainage corridor of Ellenvale Run (indicated on Attachment 1) is comprised of sections that have a rectangular cross section and those with an irregular cross section. The sections with a rectangular shape are man-made cross sections and are formed by two (2) retaining walls and a relatively flat bottom. Significant sections of these retaining walls are at the end of their service life and in some cases have required immediate attention by Halifax Water Operations staff to temporarily stabilize them. The risks associated with the failure of these assets range from possible flooding to public health and safety.

DISCUSSION

Halifax Water engaged DesignPoint Engineering & Surveying Ltd. to undertake a structural assessment of the retaining wall system over the entire length of Ellenvale Run. Included in the overall work scope was also a hydraulic capacity assessment. In December 2016, DesignPoint delivered their final report, which presented a prioritized list of 11 sections of the Ellenvale Run requiring work. Detailed design on the first two prioritized sections (Sections 3 & 8) was completed in August 2017. This work, called Phase 1 was originally tendered in the fall of 2017, however, the construction tender for this work was postponed due to constraints with the supply of the required pre-cast concrete products within the short time frame. The project was re-tendered in February 2018 with the intent to start construction as soon as regulations would allow work in the watercourse to begin. Construction for Phase I began in August 2018 with the contractor obtaining substantial completion in January 2019.

Following the completion of the design for Phase 1, detailed design on the next two priority sections (Sections 1 & 2) began. This work was identified as Phase 2. DesignPoint was asked to review and revise their costs estimates for the Phase 2 work based on the information obtained from the Phase 1 tendering process. In May 2018, the Phase 2 total project cost was revised to $2,220,000 and was used to develop the 2018/2019 Capital budget for the Ellenvale Run Retaining Wall System Replacement – Phase 2 project. Subsequent to the capital budget development, the detailed design of Phase 2 was completed. In February 2019, DesignPoint provided a pre-tender cost estimate of $3,340,000 based on the knowledge gained with the completion of Phase 1.

The tender for Phase 2 included the replacement of the John Cross Drive Culvert within the proposed work scope. This culvert connects sections 1 & 2 of Ellenvale Run. The tender for Phase 2 was issued on February 6 and closed February 21, 2019. Three (3) contractors submitted bids for this project. The low bid was from Brycon Construction Ltd. at a price of $2,753,900.00, exclusive of taxes and fees. Subsequent to the tender closing, DesignPoint provided an evaluation of the submitted bids, and in a letter dated March 7, 2019 (copy attached), provided their professional opinion on the current bids, the evaluation of the project cost estimates and an overview of the impact on the full Ellenvale project.

The estimated total cost of the *Ellenvale Run Retaining Wall – Phase 2* and the *John Cross Culvert Replacement* projects, inclusive of design, taxes, fess, contingencies and construction management, is $3,217,000. The total is allocated to the two projects as follows.

$2,908,000	Retaining Wall System Replacement Phase 2	To be funded from Halifax Water 2019/20 Capital Budget
$309,000	Culvert Replacement	To be funded from Halifax Water's 2019/20 Annual Culvert Replacement Program
$3,217,000	Total Project Cost	See attached cost estimate

Based on the formal evaluation, it is recommended that Halifax Water proceed with the Ellenvale Run Retaining Wall – Phase 2 and John Cross Culvert Replacement project at a total estimated construction cost of $3,155,000.

BUDGET IMPLICATIONS

Ellenvale Run Retaining Wall – Phase 2:

The total project cost ($2,908,000) less previous approved funding ($48,000) equates to a current funding requirement of $2,860,000. The funding is available from the following.

1. $2,220,000 is available within the 2019/2020 Capital Budget under Stormwater – Structures - Ellenvale Run Retaining Wall – Phase 2.
2. $500,000 is available within the 2019/20 Capital Budget under Wastewater – Treatment Facility - Aerotech WWTF – Upgrade and Expansion Project Extra Cost. This item was identified to partially fund the over expenditure on the Aerotech WWTF project, however, the required funding was identified from underspending on a series of 18/19 projects.
3. $100,000 is available within the 2019/2020 Capital Budget under Stormwater – Pipes – Condition Inspection (CSP). The engineering work was reprioritized and will be deferred to the following year.
4. $40,000 is available from underspending in the capital project "Ellenvale Run – Legal Services". The required legal work has been completed under budget.

John Cross Drive Culvert Replacement:

The total project cost ($309,000) less previous approved funding ($200,000) equates to a current funding requirement of $109,000. The funding is available from the following.

1. $88,000 is available within the 2019/2020 Capital Budget under Stormwater - Culverts/Ditches – Yankeetown Road. This work has been reprioritized and will be deferred to the following year.
2. $21,000 is available via under spending in the capital project "Idlewylde Rd Storm Sewer Stabilization" as this engineering work was reprioritized and will be deferred to the following year.

The proposed expenditures meet the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed works meet the NR-UN criteria of "Firm regulatory requirement" and "Required to ensure infrastructure system integrity and safety," as significant lengths of the retaining walls are at the end of their service life along with some sections that have previously failed and been temporarily repaired by Halifax Water Operations Staff.

ALTERNATIVES

There are no recommended alternatives.

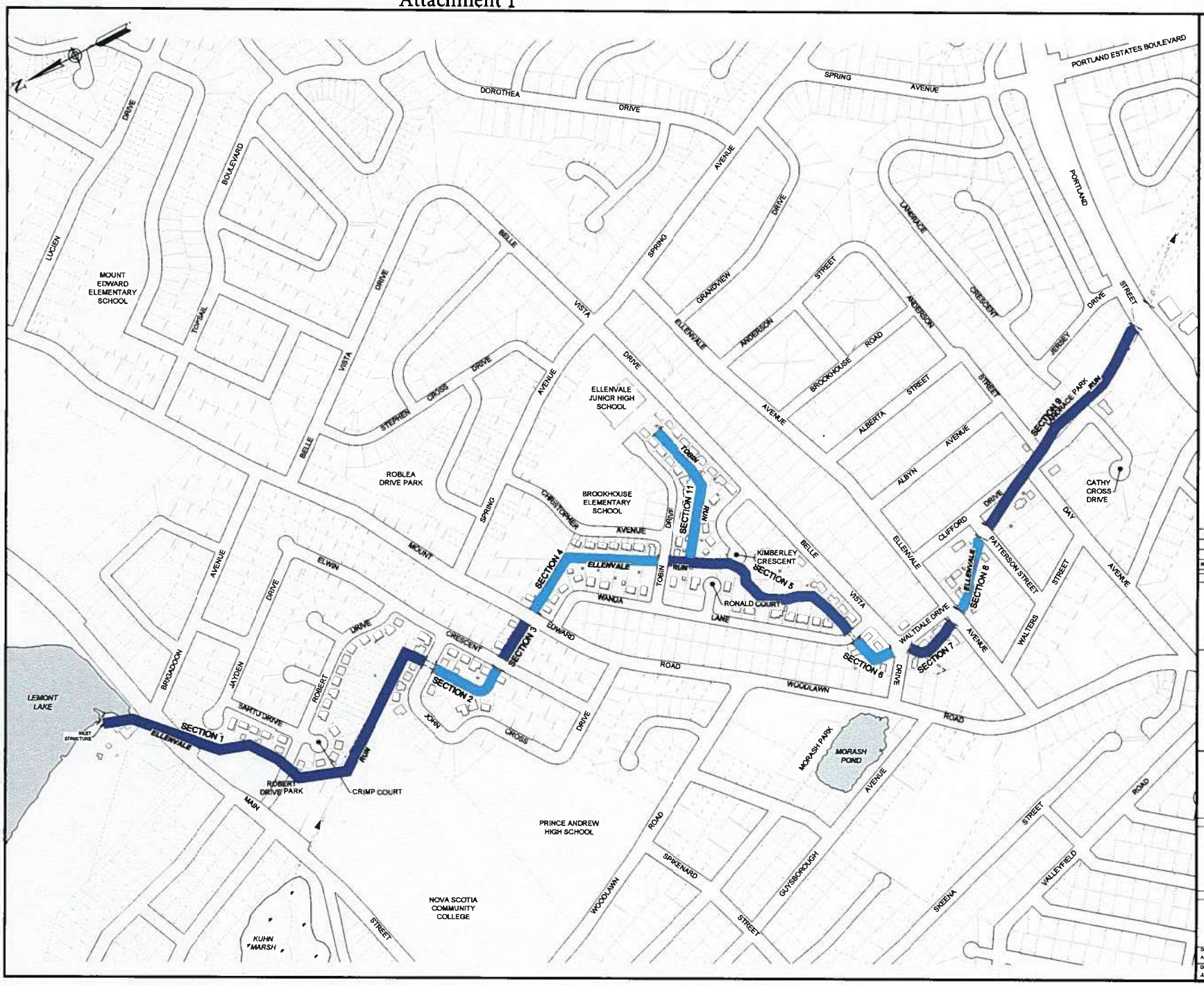
ATTACHMENT

Attachment 1 - Ellenvale Run – Site Plan
Attachment 2 – Cost Estimate - February 1, 2019
Attachment 3 – DesignPoint letter dated March 7, 2019

Report Prepared by: *Original Signed By:*
Peter Maynard, P. Eng., Project Engineer, 902-478-7350

Financial Reviewed By: *Original Signed By:*
Cathie O'Toole, MBA, CPA/CGA, ICD.D
Director of Corporate Services, 902-490-3685

Attachment 1



ITEM # 5.2
HRWC Board
March 28, 2019
ATTACHMENT 1

ISSUED FOR REVIEW, NOT FOR CONSTRUCTION

Metres 75 0 75 150
1:2500

ISSUE	DATE	DESCRIPTION
3	DEC. 9, 2018	ISSUED FOR FINAL REPORT
2	SEPT. 30, 2018	REVISED AS PER HRWC COMMENTS
1	JUL. 6, 2018	ISSUED FOR DRAFT REPORT

CONSULTANT

DESIGN POINT ENGINEERING & SURVEYING

PROFESSIONAL ENGINEER PROVINCE OF NOVA SCOTIA — DATE — D.S. WOODFORD — 6078

PROFESSIONAL ENGINEER PROVINCE OF NOVA SCOTIA — DATE — A.E. FORSYTHE — 7386

CLIENT

Halifax Water

PROJECT DESCRIPTION

ELLENVALE RUN
RETAINING WALL ASSETS
CONDITION ASSESSMENT

DARTMOUTH, NOVA SCOTIA

SHEET DESCRIPTION

SITE PLAN

Drawn	Engineer	Project No.	Drawing No.
A. SKETCHLEY	D. WOODFORD	16-001	1 of 1
Date of 1st Issue: JUL. 6, 2018	Scale: 1:2500	Filename: 16-001CBase.dwg	

Ellenvale Run (Phase II) - Sections 1 & 2
Post Tender Close update - February 2019

Cost Estimate	
Tender Costs (Brycon)	$2,494,300
Construction Contingency (5%)	$124,715
Engineering	$69,730
Subtotal	$2,688,745
4.286% Net HST	$115,240
Subtotal	$2,803,985
Direct Halifax Water Cost (1%)	$28,040
Subtotal	$2,832,024
Interest & Overhead (1%)	$28,320
Total	**$2,860,345**

Rounded	**$2,860,000**
Design Phase	**$48,000**
Total Project Cost	**$2,908,000**

John Cross Drive Culvert Replacement
Post Tender Close update - February 2019

Cost Estimate	
Tender Costs (Brycon)	$259,600
Construction Contingency (5%)	$12,980
Subtotal	$272,580
4.286% Net HST	$11,683
Subtotal	$284,263
Halifax Water Staff Inspections	$5,000
Direct Halifax Water Cost (1%)	$2,843
Subtotal	$292,105
Interest & Overhead (1%)	$2,921
Total	**$295,026**

Rounded	**$295,000**
Design Phase	**$14,000**
Total Project Cost	**$309,000**

Grand Totals (Rounded)

Construction	**$3,155,000**
Project	**$3,217,000**

March 7, 2019

Halifax Water
450 Cowie Hill Road
P.O. Box 8388, RPO CSC
Halifax, NS
B3K 5M1

Attention: Peter Maynard, P.Eng.

RE: Ellenvale Run – Budget Estimate Update
DesignPoint Project #: 17-156

Mr. Maynard,

Pursuant to the recent tender closing for the Ellenvale Run Rehabilitation, Sections 1 and 2 (HW Tender Number T03.2019), DesignPoint has reviewed the submitted bids in comparison to pre-tender construction cost estimates. The following letter summarizes our evaluation of the submitted bids, including rationalization of the tendered rates, and provides updated budget estimates for future phases of the work.

Submitted Bids:

After a public open call tender, three (3) contractors submitted bids for this project:

Contractor Name	Contractor Bid*
Brycon Construction Ltd. (Brycon)	**$2,753,900.00**
Dexter Construction Company Ltd. (Dexter)	$2,973,880.00
Atlantic Road Construction & Paving Ltd. (ARCP)	$3,753,821.00

* The bid prices presented above are the subtotal construction prices, exclusive of tax and HRM Streets and Services fees.

The low bid (Brycon) apportioned to each respective Section as demonstrated in the following breakdown table:

Work Item	Contractor Bid (excl. HST)
Watercourse Rehabilitation – Section 1	$579,480.00
Watercourse Rehabilitation – Section 2	$1,914,820.00
Cross-Culvert Replacement – John Cross Drive	$259,600.00

It is understood that Halifax Water procurement staff have (or will) evaluate each of these bids to ensure compliance with appropriate HW procurement policies.

Pre-Tender Construction Cost Estimates

The construction costs for this project were estimated at various stages throughout the design. The first cost estimate for this work was produced as part of an overall condition assessment and priorities report, dated December 9, 2016.

The objectives of this initial study included the following items:

- Review studies previously completed for Ellenvale Run;
- Evaluate the existing retaining wall structures from a structural, geotechnical, and hydraulic perspective;
- Prioritize the sections that require upgrades along the route;
- Evaluate options for wall replacement;
- Determine the approval process for proposed upgrades;
- Review legal easements and right of ways along the channel;
- Complete a hydrotechnical assessment of the proposed system;
- Develop preliminary design and cost estimates for replacement options along the route; and
- Recommendations of the preferred options and phasing schedule.

That report effectively defined the Section extents, evaluated the structural, environmental, and hydraulic condition of each respective Section, outlined necessary upgrades/repairs, and established conceptual level construction cost estimates for each respective Section. This report formed the detailed design basis of future upgrade programs.

Initial Estimate – December, 2016

At the time of the initial report, the conceptual design for the current particular sections (Section 1 and Section 2) envisioned a 3-sided pre-cast channel liner, with a total conceptual cost estimate of **$3,862,788.91**. It is important to note, however, that this cost included repairs along the entire length of Section 1 (490m). The current project only includes approximately 32m of Section 1 to be repaired. Totalling the proportionate costs of Section 1 (32m of the total Section 1 length of 490m), together with the entirety of Section 2 would equate to an estimated cost of **$1,618,696.06**. It is also important to note that this number is exclusive of tax, engineering, and contingency.

Updated Estimate – May, 2018

Subsequent to the initial conceptual cost estimate, DesignPoint further developed the detailed design of the repairs for these Sections. This detailed design development included the addition of design elements that were not necessarily envisioned in the initial report, such as more stringent than envisioned environmental requirements.

One of the key elements, that came as a result of design refinement, was the concept of embedding the pre-cast concrete channel liner within a natural stone substrate material. This design element was the culmination of discussions with environmental regulators, including federal Depart of Fisheries and Oceans (DFO) and provincial Nova Scotia Environment (NSE), who agreed that this natural stone lining would more closely mimic a natural channel, thereby improving the fish habitat within this sensitive aquatic environment.

Another major factor in the adjustment of the cost estimate was the benefit of having previously received bids for the first phase of the rehabilitation program. Since this program as a whole represents the first of its kind in this area in terms of watercourse rehabilitation of this linear scale (according to DFO and NSE), the estimated unit rates were based on untested conversations with contractors and suppliers during the design stage. Contractors had not been familiar with this type of work prior to the first phase of construction and so there was no locally applicable historical data for estimated unit rates; having now received actual tendered unit rates for the first phase of construction provided accurate local pricing data, which was used as to adjust/calibrate the cost estimate of the current phase.

In May of 2018, DesignPoint re-evaluated the cost estimate based on knowledge of the first phase of construction and further refined design drawings. Although the drawings were still at a preliminary level, the revised cost estimate for this project totaled **$1,893,887.25**, again, excluding tax, engineering, and contingency. It is also important to note that this number does not include the replacement of the John Cross Drive culvert, which would be included as a separate budget item for Halifax Water. It is understood that this estimate was used by Halifax Water insetting the budget for the upcoming phase.

Pre-Tender Estimate – February, 2019

Prior to advertising the public tender, DesignPoint further refined the cost estimate for this project based on unit rates and the final construction costs obtained from the previous phase of construction and based on final detailed design drawings, which included design adjustments based on lessons learned from the first phase of construction. Design adjustments included more robust methods of retaining the natural stone lining and additional wall coping treatments, which add to construction complexity.

Based on detailed design, the pre-tender cost estimate for this work was **$2,924,550.00**, again, exclusive of tax, engineering, contingency, and the John Cross culvert.

For comparison purposes, the following table summarizes the cost estimate progression:

Date	Design Stage	Cost Estimate*
December, 2016	Conceptual	$1,618,696.06**
May, 2018	Preliminary	$1,893,887.25
February, 2019	Final	$2,924,550.00
Low Bidding Contractor Tender***		$2,494,300.00

*Exclusive of tax, engineering, contingency, and John Cross Drive culvert.
** Pro-rated proportionately.
*** Excluding John Cross Culvert, for comparison purposes.

Evaluation of Cost Differential

There are many factors that impact construction costs, such as timing, market conditions, industry workload, and various others that cannot be known or discretely quantified at the time of estimating. The unit rates used in our final estimate were based on rates obtained from recent similar local projects (including the first phase of this project), and based on preliminary conversations with contractors throughout the course of the detailed design to understand certain 'constructability' constraints in an effort to gain an appreciation for current market conditions and pricing expectations.

As discussed above, the initial cost estimate for this phase was prepared without the benefit of local historical pricing data, and was based on a preliminary design that has since evolved due to regulatory requirements and lessons learned from a previous phase of construction. As a 'pilot' program, it is difficult to ascertain unit pricing based on similar projects; since there are unique complications in this project, it is not necessarily appropriate to directly compare to other channel repair projects that employ different design elements.

Although the lowest bid is higher than the originally estimated, it appears to be reasonably consistent with current industry pricing for work of this nature.

Re-Evaluation of Design Strategy

The initial condition assessment report identified multiple repair strategies for different sections within the run. This report evaluated the following 8 options:

- Gabion baskets (galvanized or PVC coated wire);
- Stacked Stone walls;
- Cast-in-Place concrete walls;
- Enclosed pre-cast concrete pipe;
- Steel sheet pile walls;
- Pre-cast concrete segmental block retaining walls;
- Pre-cast concrete channel liner; and,
- Open channel with 1:1 side slopes.

Each of these options was evaluated based on a number of factors, including environmental considerations, aesthetics, structural life-expectancy, spatial requirements, 'constructability' and disturbance limits, and estimated construction costs. Since each individual Section has its own unique constraints, the initial condition assessment report concluded that there is no 'one size fits all' solution that could be applied along the entire length of the run. Instead, the initial report optimized the recommended repair strategy, tailored to suit each respective Section constraints.

One of the determining factors for this optimization was the estimated construction costs. The conceptual numbers used in the initial report lacked the benefit of local historical pricing data. As such, we have updated the cost estimates for each section to 'calibrate' our estimates with recent pricing data. With these revised estimates, we have re-evaluated our recommended options for each Section to verify that the current design strategy is still applicable.

Based on the updated cost estimates, the stringent environmental requirements, and considering the 'constructability' and physical constraints for this particular phase of the work, it is our opinion that the 3-sided channel liner option remains as the most economical solution for these Sections.

Furthermore, Halifax Water has engaged the low bidding contractor (Brycon), who coincidentally also constructed the first phase of the project, to discuss the possibility of changing the design strategy to find cost saving alternatives. They have since concurred that the proposed design is the most efficient from a 'constructability' perspective, and they could not identify any substantial design changes that would result in any significant cost savings. Please refer to the enclosed letter from Brycon for further information.

Closing

I trust this letter satisfies your current requirements. If you have any questions or concerns, or should you require any further information, please feel free to contact the undersigned at your earliest convenience.

Sincerely,
DesignPoint Engineering & Surveying Ltd.

Evan Teasdale, P.Eng.
Senior Engineer & Principal

Enclosures:
- Updated Cost Estimates by Section
- Brycon letter

BRYCON CONSTRUCTION LIMITED
67 Atlantic Street | Dartmouth, NS | B2Y 4P4
Tel: 902•468•0070 | Fax: 902•468-5022

March 6, 2019

Halifax Water
450 Cowie Hill Road,
P.O. Box 8388 RPO CSC,
Halifax, Nova Scotia,
B3K-5M1

Attention: Peter Maynard, P.Eng.

Re: T03.2019
Ellenvale Run Watercourse Rehabilitation Sections 1 and 2

Dear Peter,

Further to your request, we have thoroughly reviewed this project, along with our tender submission, with an eye to any possible alternatives leading to cost savings. Bryan Naugle, Brycon's President, has been an integral part of this review.

Having last year completed Sections 3 and 8 on this project, we have first-hand knowledge of the nature of the work. There are aspects of this work that are ground-breaking environmentally, and we are proud to be a part of it. In our tender submission, we have put our best foot forward, as we are keen to again work with Halifax Water on this Watercourse Rehabilitation.

We are confident that the design cannot be improved upon for any substantial savings. We are proposing the same construction techniques, and the product that has been proposed is what we feel to be the best-suited for this type of project.

If you have any questions, or require additional information, please contact me at your convenience.

Regards,
Brycon Construction Limited

Ronnie Melanson, P.Eng.
VP Engineering

Ellenvale Run Retaining Wall Assets Condition Assessment

Project Name:	Ellenvale Run
Location:	Dartmouth, NS
Plans:	Ellenvale Run Retaining Wall Assets Condition Assessment
Date:	07-Mar-2019

Item Description			From	To	Estimated Cost
Section 1	40m	(Tendered)	0+580	0+620	$ 579,480.00
Section 2	120m	(Tendered)	0+640	0+760	$ 1,914,820.00
Section 3	60m	(Tendered)	0+780	0+840	$ 843,140.00
Section 4	250m		0+850	1+100	$ 628,345.00
Section 5	100m	(Phase 3)	1+100	1+200	$ 1,666,748.00
Section 6	90m		1+430	1+520	$ 914,305.00
Section 7	115m		1+520	1+635	$ 1,332,080.00
Section 8	135m	(Tendered)	1+635	1+770	$ 1,595,240.00
Section 9	400 m		1+770	2+170	$ 670,264.00
Section 11	220 m	(Phase 3)	N/A	N/A	$ 310,639.00
Sub-total					$ 10,455,061.00
Engineering Services (8%)					$ 836,404.88
HST (15%)					$ 1,568,259.15
Contingency (10%)					$ 1,285,972.50
TOTAL					$ 14,145,697.53

TENDERED COST

Ellenvale Run Section 1 40 m

Main Street to John Cross Drive (Phase 2 Work)

Project Number: 17-156

Date: 7-Mar-2019

Note: This opinion of probable cost is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 1

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	200	$ 20.00	$ 4,000.00
9	Acid Rock Disposal	m^3	50	$ 30.00	$ 1,500.00
				Subtotal	**$ 5,500.00**
	Environmental Controls				
81	Silt Fence	m	90	$ 5.00	$ 450.00
90.1	Temporary Pumping	LS	1	$ 29,630.00	$ 29,630.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	**$ 45,580.00**
	Storm System				
39	Cast-In-Place Connection to Proposed Culvert	Ea.	1	$ 32,000.00	$ 32,000.00
40.1	Precast Concrete Channel Liner (Supply)	m	32	$ 7,590.00	$ 242,880.00
40.2	Precast Concrete Channel Liner (Installation)	m	32	$ 6,800.00	$ 217,600.00
				Subtotal	**$ 492,480.00**
	Landscaping				
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	2	$ 550.00	$ 1,100.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	2	$ 550.00	$ 1,100.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	2	$ 550.00	$ 1,100.00
63.4	In-Stream Vegetation	m^2	110	$ 67.00	$ 7,370.00
				Subtotal	**$ 10,670.00**
	Additional Items				
71	Trench Rock	m^3	200	$ 25.00	$ 5,000.00
72	Trench Excavation – Unsuitable Material	m^3	50	$ 25.00	$ 1,250.00
76	Private Property Reinstatement	LS	1	$ 16,000.00	$ 16,000.00
79	Pre-Construction Property Assessment	LS	1	$ 3,000.00	$ 3,000.00
				Subtotal	**$ 25,250.00**
				Subtotal - Section 1	**$ 579,480.00**

TENDERED COST

Ellenvale Run Section 2 120 m

John Cross Drive to Elwin Crescent (Phase 2 Work)

Project Number: 17-156

Date: 7-Mar-2019

Note: This opinion of probable cost is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 2

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	1000	$ 20.00	$ 20,000.00
9	Acid Rock Disposal	m^3	100	$ 30.00	$ 3,000.00
	Subtotal				**$ 23,000.00**
	Environmental Controls				
81	Silt Fence	m	290	$ 5.00	$ 1,450.00
90.1	Temporary Pumping	LS	1	$ 85,400.00	$ 85,400.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	**$ 102,350.00**
	Storm System				
39.1	Cast-In-Place Connection to Existing Culvert	Ea.	1	$ 26,000.00	$ 26,000.00
39.2	Cast-In-Place Connection to Proposed Culvert	Ea.	1	$ 32,000.00	$ 32,000.00
40.1	Precast Concrete Channel Liner (Supply)	m	115	$ 7,590.00	$ 872,850.00
40.2	Precast Concrete Channel Liner (Installation)	m	115	$ 6,800.00	$ 782,000.00
				Subtotal	**$ 1,712,850.00**
	Landscaping				
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	4	$ 550.00	$ 2,200.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	4	$ 550.00	$ 2,200.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	4	$ 550.00	$ 2,200.00
63.4	In-Stream Vegetation	m^2	310	$ 67.00	$ 20,770.00
				Subtotal	**$ 27,370.00**
	Additional Items				
71	Trench Rock	m^3	200	$ 25.00	$ 5,000.00
72	Trench Excavation – Unsuitable Material	m^3	50	$ 25.00	$ 1,250.00
76	Private Property Reinstatement	LS	1	$ 20,000.00	$ 20,000.00
77	Street Cleaning (Elwin)	LS	1	$ 3,000.00	$ 3,000.00
78	Street Reinstatement (Elwin)	LS	1	$ 11,500.00	$ 11,500.00
78.1	Elwin Crescent – Planing and Paving	LS	1	$ 3,500.00	$ 3,500.00
79	Pre-Construction Property Assessment	LS	1	$ 3,000.00	$ 5,000.00
				Subtotal	**$ 49,250.00**
				Subtotal - Section 2	**$ 1,914,820.00**

TENDERED COST

Ellenvale Run Section 3 60m

Elwin Crescent to Mount Edward Road (Phase 1 Work)

Project Number: 17-014

Date: May 5,2016

Note: This estimate of probable cost has been prepared without detailed design and is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is

Section 3

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	130	$ 34.00	$ 4,420.00
9	Acid Rock Disposal	m^3	100	$ 45.00	$ 4,500.00
	Subtotal				**$ 8,920.00**
	Environmental Controls				
81	Silt Fence	m	130	$ 10.00	$ 1,300.00
90.1	Temporary Pumping	LS	1	$ 15,000.00	$ 15,000.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 3,000.00	$ 3,000.00
				Subtotal	**$ 33,300.00**
	Sanitary Sewer				
26	Closed Circuit Television Inspection	m	80	$ 10.00	$ 800.00
				Subtotal	**$ 800.00**
	Storm System				
31	Precast Concrete Channel Liner	m	57	$ 11,790.00	$ 672,030.00
39	Cast-In-Place Connection to Existing Culvert	Ea.	2	$ 25,000.00	$ 50,000.00
				Subtotal	**$ 722,030.00**
	Street Construction				
45	Asphalt Walkway	m	60	$ 277.00	$ 16,620.00
				Subtotal	**$ 16,620.00**
	Landscaping				
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	3	$ 550.00	$ 1,650.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	3	$ 550.00	$ 1,650.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	3	$ 550.00	$ 1,650.00
63.4	In-Stream Vegetation	m^2	110	$ 67.00	$ 7,370.00
				Subtotal	**$ 12,320.00**
	Additional Items				
71	Trench Rock	m^3	350	$ 25.00	$ 8,750.00
72	Trench Excavation – Unsuitable Material	m^3	100	$ 25.00	$ 2,500.00
76	Private Property Reinstatement	LS	1	$ 25,000.00	$ 25,000.00
77	Street Cleaning (Elwin)	LS	1	$ 2,900.00	$ 2,900.00
78	Street Reinstatement (Elwin)	LS	1	$ 10,000.00	$ 10,000.00
				Subtotal	**$ 49,150.00**
				Subtotal - Section 3	**$ 843,140.00**

ESTIMATE OF PROBABLE COST

Dartmouth

Ellenvale Run Section 4 250m

Project Number: 16-001

Date: May 5,2016

Note: This estimate of probable cost has been prepared without detailed design and is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 4

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	305	$ 20.00	$ 6,100.00
9	Acid Rock Disposal	m^3	284	$ 30.00	$ 8,520.00
	Subtotal				**$ 14,620.00**
	Environmental Controls				
81	Silt Fence	m	270	$ 5.00	$ 1,350.00
90.1	Temporary Pumping	LS	1	$ 25,600.00	$ 25,600.00
				Subtotal	**$ 1,350.00**
	Storm System				
40	Open Channel 1:1 Rock Slopes	m	50	$ 2,000.00	$ 100,000.00
				Subtotal	**$ 100,000.00**
	Street Construction				
45	Asphalt Walkway	m	100	$ 300.00	$ 30,000.00
51	Segmental Retaining Wall	m^2	300	$ 1,000.00	$ 300,000.00
				Subtotal	**$ 300,000.00**
	Landscaping				
63	**Trees & Shrubs**				
61	Topsoil and Sod	m^2	675	$ 15.00	$ 10,125.00
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	4	$ 550.00	$ 2,200.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	5	$ 550.00	$ 2,750.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	5	$ 550.00	$ 2,750.00
63.2	Shrubs (1 gal. Pot)	Ea.	135	$ 80.00	$ 10,800.00
63.4	In-Stream Vegetation	m^2	325	$ 80.00	$ 26,000.00
64	Handrail	m	90	$ 500.00	$ 45,000.00
67	Mulch	m^3	60	$ 150.00	$ 9,000.00
				Subtotal	**$ 98,500.00**
	Additional Items				
71	Trench Rock	m^3	1350	$ 25.00	$ 33,750.00
72	Trench Excavation – Unsuitable Material	m^3	1485	$ 25.00	$ 37,125.00
76	Private Property Reinstatement	LS	1	$ 20,000.00	$ 20,000.00
77	Street Cleaning	LS	1	$ 3,000.00	$ 3,000.00
79	Pre-Construction Property Assessment	LS	1	$ 3,000.00	$ 5,000.00
80	Shed Relocation	Ea.	5	$ 3,000.00	$ 15,000.00
				Subtotal	**$ 113,875.00**
				Subtotal - Section 4	**$ 628,345.00**

ESTIMATE OF PROBABLE COST

Ellenvale Run Section 5 100 m

Tobin Drive to Wanda Lane (Phase 3 Work)

Project Number: 18-114

Date: 7-Mar-2019

Note: This opinion of probable cost is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for

Section 5

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	305	$ 20.00	$ 6,100.00
9	Acid Rock Disposal	m^3	80	$ 30.00	$ 2,400.00
				Subtotal	**$ 8,500.00**
	Environmental Controls				
81	Silt Fence	m	240	$ 5.00	$ 1,200.00
90.1	Temporary Pumping	LS	1	$ 30,000.00	$ 30,000.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	$ 46,700.00
	Storm System				
39.2	Cast-In-Place Connection to Proposed Culvert	Ea.	1	$ 32,000.00	$ 32,000.00
39.3	Cast-In-Place Connection Existing Channel (Taper)	Ea.	2	$ 40,000.00	$ 80,000.00
40.1	Precast Concrete Channel Liner (Supply)	m	97	$ 7,600.00	$ 737,200.00
40.2	Precast Concrete Channel Liner (Installation)	m	97	$ 7,000.00	$ 679,000.00
				Subtotal	**$ 1,528,200.00**
	Landscaping				
61	Topsoil and Sod	m^2	200	$ 15.00	$ 3,000.00
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	3	$ 550.00	$ 1,650.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	3	$ 550.00	$ 1,650.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	3	$ 550.00	$ 1,650.00
63.4	In-Stream Vegetation	m^2	319	$ 67.00	$ 21,373.00
				Subtotal	**$ 26,323.00**
	Additional Items				
71	Trench Rock	m^3	953	$ 25.00	$ 23,825.00
72	Trench Excavation – Unsuitable Material	m^3	208	$ 25.00	$ 5,200.00
76	Private Property Reinstatement	LS	1	$ 20,000.00	$ 20,000.00
77	Street Cleaning	LS	1	$ 3,000.00	$ 3,000.00
79	Pre-Construction Property Assessment	LS	1	$ 5,000.00	$ 5,000.00
				Subtotal	**$ 57,025.00**
				Subtotal - Section 5	**$ 1,666,748.00**

ESTIMATE OF PROBABLE COST

Ellenvale Run Section 6 90 m

Wanda Lane to Belle Vista Drive

Project Number: 16-001

Date: 7-Mar-2019

Note: This opinion of probable cost is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 6

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	155	$ 20.00	$ 3,100.00
9	Acid Rock Disposal	m^3	105	$ 30.00	$ 3,150.00
				Subtotal	**$ 6,250.00**
	Environmental Controls				
81	Silt Fence	m	100	$ 5.00	$ 500.00
90.1	Temporary Pumping	LS	1	$ 30,000.00	$ 30,000.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	$ 46,000.00
	Storm System				
39.3	Cast-In-Place Connection to Existing	Ea.	2	$ 32,000.00	$ 64,000.00
40.1	Precast Concrete Channel Liner (Supply)	m	50	$ 7,600.00	$ 380,000.00
40.2	Precast Concrete Channel Liner (Installation)	m	50	$ 7,000.00	$ 350,000.00
				Subtotal	**$ 794,000.00**
	Landscaping				
61	Topsoil and Sod	m^2	250	$ 15.00	$ 3,750.00
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	1	$ 550.00	$ 550.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	2	$ 550.00	$ 1,100.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	2	$ 550.00	$ 1,100.00
63.2	Shrubs (1 gal. Pot)	Ea.	50	$ 80.00	$ 4,000.00
63.4	In-Stream Vegetation	m^2	165	$ 67.00	$ 11,055.00
67	Mulch	m^3	25	$ 150.00	$ 3,750.00
				Subtotal	**$ 17,805.00**
	Additional Items				
71	Trench Rock	m^3	550	$ 25.00	$ 13,750.00
72	Trench Excavation – Unsuitable Material	m^3	500	$ 25.00	$ 12,500.00
76	Private Property Reinstatement	LS	1	$ 16,000.00	$ 16,000.00
77	Street Cleaning	LS	1	$ 3,000.00	$ 3,000.00
79	Pre-Construction Property Assessment	LS	1	$ 5,000.00	$ 5,000.00
				Subtotal	**$ 50,250.00**
				Subtotal - Section 6	**$ 914,305.00**

ESTIMATE OF PROBABLE COST

Ellenvale Run Section 7 115 m

Belle Vista Drive to Ellenvale Avenue

Project Number: 16-001

Date: 7-Mar-2019

Note: This opinion of probable cost is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 7

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	228	$ 20.00	$ 4,560.00
9	Acid Rock Disposal	m^3	158	$ 30.00	$ 4,740.00
				Subtotal	**$ 9,300.00**
	Environmental Controls				
81	Silt Fence	m	150	$ 5.00	$ 750.00
90.1	Temporary Pumping	LS	1	$ 29,630.00	$ 29,630.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 7,000.00	$ 14,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	**$ 45,880.00**
	Storm System				
39.3	Cast-In-Place Connection to Existing Culvert	Ea.	2	$ 32,000.00	$ 64,000.00
40.1	Precast Concrete Channel Liner (Supply)	m	75	$ 7,600.00	$ 570,000.00
40.2	Precast Concrete Channel Liner (Installation)	m	75	$ 7,000.00	$ 525,000.00
				Subtotal	**$ 1,159,000.00**
	Landscaping				
61	Topsoil and Sod	m^2	375	$ 15.00	$ 5,625.00
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	2	$ 550.00	$ 1,100.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	3	$ 550.00	$ 1,650.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	3	$ 550.00	$ 1,650.00
63.2	Shrubs (1 gal. Pot)	Ea.	75	$ 80.00	$ 6,000.00
63.4	In-Stream Vegetation	m^2	375	$ 67.00	$ 25,125.00
67	Mulch	m^3	30	$ 150.00	$ 4,500.00
				Subtotal	**$ 35,525.00**
	Additional Items				
71	Trench Rock	m^3	825	$ 25.00	$ 20,625.00
72	Trench Excavation – Unsuitable Material	m^3	750	$ 25.00	$ 18,750.00
76	Private Property Reinstatement	LS	1	$ 20,000.00	$ 20,000.00
77	Street Cleaning	LS	1	$ 3,000.00	$ 3,000.00
79	Pre-Construction Property Assessment	LS	1	$ 5,000.00	$ 5,000.00
80	Deck and Bridge	LS	1	$ 15,000.00	$ 15,000.00
				Subtotal	**$ 82,375.00**
				Subtotal - Section 7	**$ 1,332,080.00**

TENDERED COST

Ellenvale Run Section 8 135 m

Ellenvale Avenue to Patterson Street (Phase 1 Work)

Project Number: 17-014

Date: 7-Mar-2019

Note: This estimate of probable cost has been prepared without detailed design and is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is

Section 8

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	300	$ 34.00	$ 10,200.00
9	Acid Rock Disposal	m^3	250	$ 45.00	$ 11,250.00
	Subtotal				**$ 21,450.00**
	Environmental Controls				
81	Silt Fence	m	240	$ 10.00	$ 2,400.00
90.1	Temporary Pumping	LS	1	$ 25,600.00	$ 25,600.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 6,800.00	$ 13,600.00
90.3	Electro Fishing	LS	1	$ 6,000.00	$ 6,000.00
				Subtotal	**$ 47,600.00**
	Sanitary Sewer				
26	Closed Circuit Television Inspection	m	110	$ 10.00	$ 1,100.00
				Subtotal	**$ 1,100.00**
	Storm System				
31	Precast Concrete Channel Liner	m	113	$ 12,290.00	$ 1,388,770.00
39	Cast-In-Place Connection to Existing Culvert	Ea.	2	$ 28,700.00	$ 57,400.00
				Subtotal	**$ 1,446,170.00**
	Landscaping				
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	6	$ 550.00	$ 3,300.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	6	$ 550.00	$ 3,300.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	6	$ 550.00	$ 3,300.00
63.4	In-Stream Vegetation	m^2	310	$ 67.00	$ 20,770.00
				Subtotal	**$ 30,670.00**
	Additional Items				
71	Trench Rock	m^3	800	$ 25.00	$ 20,000.00
72	Trench Excavation – Unsuitable Material	m^3	250	$ 25.00	$ 6,250.00
76	Private Property Reinstatement	LS	1	$ 7,000.00	$ 7,000.00
77	Street Cleaning	LS	1	$ 5,000.00	$ 5,000.00
78	Street Reinstatement	LS	1	$ 10,000.00	$ 10,000.00
				Subtotal	**$ 48,250.00**
				Subtotal - Section 8	**$ 1,595,240.00**

ESTIMATE OF PROBABLE COST

Ellenvale Run Section 9 400 m

Patterson Street to Portland Street

Project Number: 16-001

Date: 7-Mar-2019

Note: This estimate of probable cost has been prepared without detailed design and is an estimate only. The estimate is based on unit rates obtained from previous tenders of similar work and represents a budget only. The actual construction cost will be subject to various factors that are not known at the time of estimate preparation, including market conditions, industry workload, and approval process. The actual cost cannot be known until the project is tendered and a contract is awarded. This estimate should be used with caution if using for budgeting purposes.

Section 9

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	185	$ 20.00	$ 3,700.00
9	Acid Rock Disposal	m^3	250	$ 30.00	$ 7,500.00
	Subtotal				**$ 11,200.00**
	Environmental Controls				
81	Silt Fence	m	240	$ 10.00	$ 2,400.00
90.1	Temporary Pumping	LS	1	$ 25,600.00	$ 25,600.00
90.2	Pea Gravel Bag Dam	Ea.	2	$ 6,800.00	$ 13,600.00
90.3	Electro Fishing	LS	1	$ 6,000.00	$ 6,000.00
				Subtotal	**$ 47,600.00**
	Storm System				
36	Connection to Existing Main	Ea.	4	$ 3,000.00	$ 12,000.00
40	Open Channel 1:1 Rock Slopes	m	120	$ 3,000.00	$ 360,000.00
				Subtotal	**$ 372,000.00**
	Landscaping				
61	Topsoil and Sod	m^2	600	$ 15.00	$ 9,000.00
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	4	$ 550.00	$ 2,200.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	4	$ 550.00	$ 2,200.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	4	$ 550.00	$ 2,200.00
63.2	Shrubs (1 gal. Pot)	Ea.	120	$ 80.00	$ 9,600.00
63.4	In-Stream Vegetation	m^2	392	$ 67.00	$ 26,264.00
67	Mulch	m^3	6	$ 150.00	$ 900.00
				Subtotal	**$ 42,464.00**
	Additional Items				
71	Trench Rock	m^3	1320	$ 25.00	$ 33,000.00
72	Trench Excavation – Unsuitable Material	m^3	1200	$ 25.00	$ 30,000.00
76	Private Property Reinstatement	LS	1	$ 25,000.00	$ 25,000.00
77	Street Cleaning	LS	1	$ 5,000.00	$ 5,000.00
78	Street Reinstatement	LS	1	$ 90,000.00	$ 90,000.00
79	Pre-Construction Property Assessment	LS	1	$ 5,000.00	$ 5,000.00
80	Shed Relocation	Ea.	3	$ 3,000.00	$ 9,000.00
				Subtotal	**$ 197,000.00**

Subtotal - Section 9	**$ 670,264.00**

ESTIMATE OF PROBABLE COST

Ellenvale Run Section 11 220 m

Tobin Run

Project Number: 18-114

Date: 7-Mar-2019

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Section 11

No.	Unit Description	Unit	Quantity	Unit Rate	Estimated Cost
	Earthworks				
8	Offsite Storage of Bed Materials	m^3	470	$ 20.00	$ 9,400.00
9	Acid Rock Disposal	m^3	400	$ 30.00	$ 12,000.00
	Subtotal				**$ 21,400.00**
	Environmental Controls				
81	Silt Fence	m	33	$ 5.00	$ 165.00
90.1	Temporary Pumping	LS	1	$ 30,000.00	$ 30,000.00
90.2	Pea Gravel Bag Dam	Ea.	1	$ 7,000.00	$ 7,000.00
90.3	Electro Fishing	LS	1	$ 1,500.00	$ 1,500.00
				Subtotal	**$ 38,665.00**
	Storm System				
40	Open Channel Spot Repair	m	100	$ 850.00	$ 85,000.00
				Subtotal	**$ 85,000.00**
	Landscaping				
61	Topsoil and Sod	m^2	100	$ 15.00	$ 1,500.00
63	**Trees & Shrubs**				
63.1.1	60 mm Red Maple (Acer Rubrum 'Morgan')	Ea.	4	$ 550.00	$ 2,200.00
63.1.2	60 mm Tree Lilac (Syringa Reticulata 'Ivory Silk')	Ea.	4	$ 550.00	$ 2,200.00
63.1.3	60 mm American Elm (Ulmus Americana 'Princeton')	Ea.	4	$ 550.00	$ 2,200.00
63.4	In-Stream Vegetation	m^2	22	$ 67.00	$ 1,474.00
				Subtotal	**$ 8,074.00**
	Additional Items				
71	Trench Rock	m^3	2420	$ 25.00	$ 60,500.00
72	Trench Excavation – Unsuitable Material	m^3	2200	$ 25.00	$ 55,000.00
76	Private Property Reinstatement	LS	1	$ 25,000.00	$ 25,000.00
79	Pre-Construction Property Assessment	LS	1	$ 5,000.00	$ 5,000.00
80	Shed Relocation	Ea.	4	$ 3,000.00	$ 12,000.00
				Subtotal	**$ 157,500.00**
				Subtotal - Section 11	**$ 310,639.00**

Halifax Water
Halifax Regional Water Commission

ITEM #5.3
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, BA, MBA, CPA/CMA, ICD.D
Director, Corporate Services/ Chief Financial Officer

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P. Eng., General Manager

DATE: March 18, 2019

SUBJECT: **Payroll System Replacement**

ORIGIN

The Halifax Water 2019/20 Capital Budget.

RECOMMENDATION

The HRWC Board approve additional funding of $1,031,892 for the New Payroll System, for a revised total project cost of $1,631,892.

BACKGROUND

Installed in 2009, Halifax Water's current payroll solution, SAP HCM, has been performing adequately. An internal payroll audit was conducted between July and September 2017. During this audit, the compliance tests performed were favorable and the items selected for testing were supported by an initial payroll record, appropriately approved, and filed.

The audit did however uncover the following risks:

- Redundancy of work taking place throughout the payroll process;
- High volumes of payroll records entered manually into SAP;
- Multiple sources of input records for payroll (email, paper, timesheets inbox);
- Ability of supervisors to sign-off (approve) bi-weekly payroll; and
- SAP not configured to track holiday time banked at treatment plants.

It was clear an opportunity existed to improve payroll processes within Halifax Water.

Halifax Water is currently looking to upgrade its SAP core system to S/4 Hana. While S/4 Hana has a payroll offering, it has received poor reviews as a "Software as a Service" (SaaS) offering, and SAP has acknowledged there is some work to do in making it a viable product.

Halifax Water executive management decided in the third quarter of the 2018-2019 fiscal year to move forward with the possible replacement of the SAP HCM module. On July 24, 2018, based on the 2018/19 Capital Budget, the General Manager approved issuing a RFP for a payroll solution at an estimated cost of $220,000. An RFP was released and TELUS was selected as the preferred proponent to enter into the negotiation phase. Given SAP did not bid the Payroll Replacement RFP, the proposed solution will replace the current SAP HCM module.

DISCUSSION

The original estimate for the new payroll system was $600,000, however the revised estimate for the project is now $1,631,892, which includes additional scope that was anticipated to be carried out with future IT projects. Justification for the revised project given the increased costs can be examined from both a quantitative and qualitative perspective.

The implementation of a new payroll system opens the door for new and improved payroll processes to be created, mitigating many of the risks identified during the payroll audit referenced above. Increased automation reduces the risk of human error, provides a well-defined audit trail, and various checks and balances throughout the process. Further, streamlining the system, moving from four (4) payroll cycles (Non-Union, CUPE Local 227, CUPE Local 1431, and Pensioners' payroll) to two (2) would be more efficient.

Halifax Water staff, in conjunction with ADP, conducted an independent analysis in 2014 and concluded a potential cost savings of $634,000 annually could be realized with the implementation of a new payroll system. As salaries and wages, and the number of full-time equivalents (FTEs) has increased since 2014, potential savings would be even higher in today's terms. The savings primarily relates to SAP costs in addition to labour costs (internal staff time) associated with processing payroll.

Other cost savings realized as a result of outsourcing would include:

- SpinifexIT (Payroll & reporting tool for SAP) will no longer be required, thereby reducing licensing/maintenance costs for the current Human Capital Management (HCM) solution, at an estimated annual cost of $3,750

- SAP HCM module will not be renewed in the next contract extension with the province. This will reduce the overall licensing and maintenance costs for the current HW SAP platform, at an estimated annual cost of $150,000

- HCM will be removed from the scope of the SAP S/4 Hana project, resulting in an estimated cost savings of $500,000 due to a reduction in implementation costs related to moving to a new ERP platform. The interface required to upload information from the new payroll system to a new ERP platform is included in the cost of the new payroll system; and

- New software and project costs associated with the *HR Training and Benefits Project* identified in the 2020/21 IT Strategic Plan would not be required, as the modules are available within the TELUS VIP system, awaiting implementation. Configuration is the only item that would be required. This will result in cost savings estimated at $750,000, thereby reducing the estimated net cost of the project from $1,000,000 to $250,000.

The new payroll system is robust, containing a series of all-inclusive modules within its pricing structure. Several of these modules are add-ons, making it a more comprehensive Human Capital Management (HCM) system for Halifax Water. The pension module for example will assist in pension administration for the various pension plans, replacing a relatively manual recordkeeping process with an electronic alternative. Reporting will be enhanced, especially with respect to annual member statements, retirement estimates and pension adjustments. This will improve the efficiency and effectiveness of pension administration for Halifax Water, provide enhanced governance, and mitigate many of the risks associated with manual recordkeeping by ensuring safe storage and data integrity. In 2018 Halifax Water received a quote for a stand-alone pension data tracking system; the system set-up cost ranged from $125,000 - $150,000, with annual maintenance and hosting costs of $12,500 - $27,500.

Savings created through the implementation of a new payroll system would not be limited to cost reductions alone. Savings created would also be in terms of organizational capacity gains, whereby Halifax Water staff would be able to focus time and effort on other, higher-level initiatives. For example:

- More efficient time reporting processes will be introduced for operations staff involved in payroll processing;
- Reduced supervisory and management time spent on scheduling, reviewing and proving time;
- Human Resource (HR) staff able to support other value-added activities such as attendance management, talent management, and policy implementation; and
- HR staff and the Quality Assurance Officer will have greater opportunity to work on internal control projects and policy compliance.

Other features of the new payroll system making it a more interactive and time-saving initiative are the individual web portals for employee, managers and pensioners. In the employee and pension portal, employees and pensioners alike will be able to access, view or manage personal information such as bank account information, insurance coverages, paystubs and taxation slips. Employees can view vacation and sick-time balances, and perform such tasks as submitting

expense claims and timesheets to supervisors for approval. Managers, through their portal, will be provided with a comprehensive toolset to effectively monitor, action, consult and measure all aspects of their human resource management responsibilities. Falling under the IT strategic theme *"Enable Employees Anywhere"* the new payroll system seeks to deliver costs savings through improved payroll processes, deliver enhanced functionality for managers and employees, and avoid costly upgrades and decommissioning of software displaced by the proposed payroll solution. Migration to S/4 Hana (or another ERP) will be easier with one less module to migrate.

BUDGET IMPLICATIONS

Approved funding for this project was identified within the 2019/20 Capital Budget under Corporate Projects - Information Technology in the amount of $600,000. The additional funding of $1,031,892 to complete this project is available from the following sources:

- 2018/19 Capital Budget (Corporate Projects - Information Technology)
  Wi-Fi Design and Build
  Amount: $600,000

- 2018/19 Capital Budget (Corporate Projects - Information Technology)
  Computer Maintenance Management System (CMMS) Enhancements
  Amount: $431,892

The proposed expenditure meets the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "directly supports the implementation of the Asset Management Program."

ALTERNATIVES

There are no recommended alternatives.

ATTACHMENTS

None

Report Prepared By:	*Original Signed By:* Daya Pillay, IS Manager 902-266-8776
Financial Reviewed By:	*Original Signed By:* Allan Campbell, B. Comm., RPO, CSC, Manager Finance 902-266-8566

Halifax Water
Halifax Regional Water Commission

ITEM #5.4

HRWC Board

March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Jamie Hannam, P. Eng.
Director, Engineering & Information Services

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: March 19, 2019

SUBJECT: **Aerotech Wastewater Treatment Facility (WWTF) Expansion and Upgrade Project – Funding Increase**

ORIGIN

2015/16 – Capital Budget and the 2016/17 – Capital Budget

RECOMMENDATION

The Halifax Water Board approve an increase in the capital funding for the Aerotech WWTF – Expansion and Upgrade Project in the amount of $1,000,000 for a revised total project cost of $23,755,000.

BACKGROUND

The expansion and upgrade of the Aerotech WWTF focused on biological nutrient removal (BNR) with chemical phosphorous utilizing membrane bioreactor treatment technology to achieve the long term environmental and growth plans for the region. Project and funding approval was secured over various phases as the project progressed to completion as listed below:

- $1,080,000 – Studies, testing, conceptual and preliminary engineering phase funding was obtained from the Halifax Water Board and the Nova Scotia Utility and Review Board (NSURB), on September 17, 2012 and November 22, 2012, respectively.

- $1,304,634 - Engineering design phase funding was obtained from the Halifax Water Board and the NSURB, on October 30, 2014 and February 11, 2015, respectively.

- $4,285,000- Membrane bioreactor (MBR) component procurement funding was obtained by the Halifax Water Board and the NSURB, on July 30, 2015 and September 17, 2015, respectively.

- $16,085,365 - Construction Phase funding of the project was obtained by the Halifax Water Board and the NSURB, on April 28, 2016 and August 22, 2016, respectively.

The total approved estimated project cost as outlined above is $22,755,000, with a net cost to Halifax Water of $8,755,000. This includes $21,000,000 of eligible costs which are shared at $7,000,000 equally across the two levels of government and the Halifax Water within the Federal/Provincial *New Building Canada* infrastructure program. In addition, Halifax Water is responsible for $1,755,000 related to costs incurred prior to the external funding agreement, costs ineligible within the program, and any costs exceeding the projected estimates.

DISCUSSION

The design and construction engineering services contract was awarded to EXP Services *Ltd.* based on their successful response to a Halifax Water Request for Proposals.

The tender for construction of the AWWTF Expansion and Upgrade – Construction Phase project closed on September 9, 2016. The construction contract was awarded to *L&R Construction Ltd.* for a contract bid price of $16,481,196.55 (exclusive of taxes).

The project was contractually scheduled to obtain Substantial Performance within 52 weeks of the Notice of Award for an original Contract Time of January 18, 2018. The Consultant undertook a review of the project delays, change orders and change directives approved on the project to provide their opinion of a revised contract time. Based on their review of the submitted documentation and time requests by the Contractor, the Contract Time was extended to July 18th, 2018. The achieved date of substantial completion by the Contractor was August 24, 2018. Based on this revised schedule and completion date the contractor was assessed 27 work days of liquidated damages ($27,000) as a credit to towards the total project cost.

The overall project (Preliminary, Detailed Design and Construction) had a total approved funding of $22,755,000 that included a contingency of $1,000,000 (4%). The project was completed at a total project cost of $23,755,000. The cost overruns, in relation to actual costs versus opinion of probable cost, are as follows:

- Prefunding preliminary design cost ($1,080,000 increased to $1,125,000) – Additional fees associated with equipment preselection and modifications to preliminary design scope.

- Engineering design fees scope change ($876,000 increased to $1,042,460) – Addition of a membrane expert sub-consultant to the project ($11,200) and additional design fees for scope changes ($155,260).

- Engineering construction services scope change ($655,000 increased to $1,025,000) – The original budget was an estimate prepared by the consultant that was carried to secure external funding prior to detailed design. The revised amount reflects the actual expenditure based on revised scope of work to meet construction duration and deliverables required.

- Construction contract changes - 173 construction change orders at a cost of $1,910,000.

The final project contingency spending is $2,000,000 or 8.4% of the overall project costs of $23,755,000. The revised total AWWTF Expansion and Upgrade costs are presented in Table 1. The net cost to Halifax Water on implementing this project is $9,755,000 vs the original projection of $8,755,000.

Table 1: AWWTF Expansion and Upgrade Project Costs

<table>
<tr><th>Category Description[1]</th><th>Budget (Includes Net HST)</th><th>Spent (Includes Net HST)</th><th>Variance</th></tr>
<tr><td>Preliminary Engineering</td><td>$1,080,000</td><td>$1,124,828</td><td>($44,828)</td></tr>
<tr><td>Detailed Design Engineering</td><td>$1,304,635</td><td>$1,263,268</td><td>$41,366</td></tr>
<tr><td>MBR Procurement</td><td>$4,285,000</td><td rowspan="3">$21,366,904</td><td rowspan="3">($996,539)</td></tr>
<tr><td>Construction – Engineering Service</td><td rowspan="2">$16, 085,365</td></tr>
<tr><td>Construction – Contractor Services</td></tr>
<tr><td>SUB-TOTAL</td><td>$22,755,000</td><td>$23,755,000</td><td>($1,000,000)</td></tr>
<tr><td colspan="3">1 - Tasks include contracted services, HW staff time, Interest, overhead and net HST</td><td></td></tr>
</table>

BUDGET IMPLICATIONS

Funding for the required $1,000,000 in additional funding is available from underspending in the 2018/2019 and 2017/18 Capital Budget within the following projects:

2018/19 Capital Budget:

1. *Wastewater – Treatment Facility – Emergency Wastewater Treatment Facility Equipment Replacements* - $200,000. This project is an annual program and funding was available from underspending.

2. *Wastewater – Treatment Facility – Community Wastewater Treatment Facilities – Uplands WWTF – New Screening Facility* - $290,000. This project was cancelled.

3. *Wastewater – Treatment Facility – Community Wastewater Treatment Facilities – Timberlea Wastewater Treatment Facility – Asset Renewal Program* - $50,000. This project is an annual program and funding was available from underspending.

2017/18 Capital Budget:

4. *Wastewater – Treatment Facility – Mill Cove Wastewater Treatment Facility - Vacuum Swing Absorption* - $460,000. This project was cancelled based on the pending upgrades.

The project is currently in the warranty phase. There may be minor cost adjustments as the consulting and construction contracts are finalized, however, the totals should not be material to the overall budget.

The proposed expenditures meets the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of "Firm regulatory requirement and Growth related infrastructure supported by pre-design level master plan". The project meets these criteria as outlined in the discussion section above.

ALTERNATIVES

There are no recommended alternatives.

Report Prepared By:	*Original Signed By:*
	Chris Fahie, M.A.Sc., P. Eng., Project Engineer, WWTF Infrastructure Engineering 902-802-9732
Financial Reviewed By:	*Original Signed By:*
	Cathie O'Toole, MBA, CPA/CGA, ICD.D Director, Corporate Services, 902-490-3572

Halifax Water
Halifax Regional Water Commission

ITEM # 5.5
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Jamie Hannam, P.Eng. Director Engineering & IS Department

APPROVED BY: *Original Signed By:*
Carl Yates, M.A.Sc., P.Eng., General Manager

DATE: March 20, 2019

SUBJECT: **Bedford – Burnside Connector Water Transmission Main**

ORIGIN

Halifax Water Infrastructure Master Plan and recent Nova Scotia Transportation and Infrastructure Renewal [NSTIR] announcement on near term construction of the Highway 107 Extension from Burnside to Bedford.

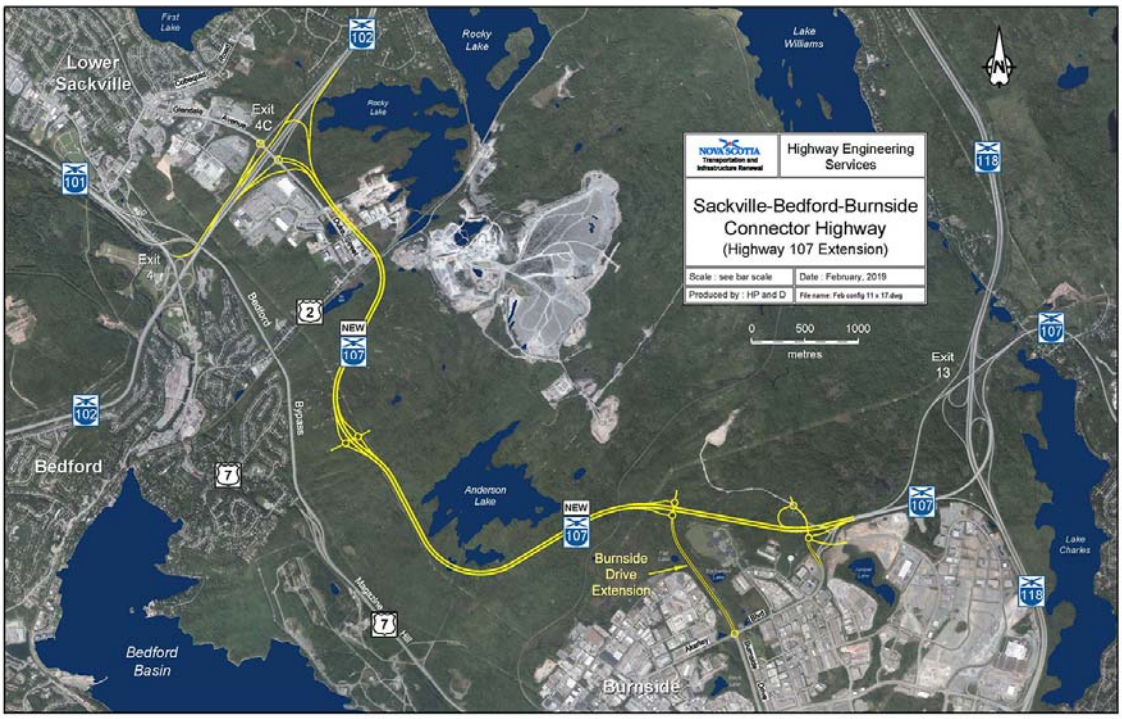
RECOMMENDATION

The Halifax Water Board approved funding in the amount of $750,000 for the detailed design of the Bedford – Burnside Connector Water Transmission Main as an addition to the 2019/20 Capital Budget with funding to come from debt.

BACKGROUND

The Nova Scotia Department of Transportation and Infrastructure Renewal (NSTIR) is proceeding with the construction of an extension to Highway 107 that will connect Burnside to the communities of Bedford and Sackville. Planning and design work are underway in preparation for scheduled site work for spring 2019.

The proposed highway will be a 9 km controlled access 4-lane freeway with a 1.2 km arterial connector (extension of Burnside Drive). Starting near the interchange with Highway 118, the highway will travel west toward Bedford, south of Anderson Lake and then connect with Highway 102 near Exit 4C. The map below illustrates the location of the new highway.



The total estimated cost to construct the highway, interchanges, and connector road is $210 million. Highway 107 is a key component of the 100 Series Highway System within HRM and this project has been approved for Federal funding contribution of up to $86.5 million.

Planning and detailed design work is underway for this project. Construction of this project requires completion of the detailed design for the highway, structures, and interchanges, along with the acquisition of land, environmental mitigation plans, and unexploded ordinance mitigation. NSTIR is proceeding on a schedule that will result in clearing of trees and vegetation at the eastern (Burnside) end of the project in spring 2019. All construction for the project is scheduled to be completed in fall 2023.

The corridor of the Highway 107 Extension has long been considered a potential water transmission main link between the Pockwock and Lake Major water supply and distribution networks. The proposed highway project brings this opportunity into current focus.

DISCUSSION

The Pockwock water system provides water to the general areas of Halifax, Bedford and Sackville with the eastern service boundary in the area of the Bedford Commons and Rocky Lake Drive. The Lake Major water system provides water to the general areas of Dartmouth and Cole Harbour with the western service boundary at the west edge of Burnside Industrial park. The only current interconnection between the systems is via the 600mm diameter line on the Macdonald Bridge.

Halifax Water is currently completing an Infrastructure Master Plan in conjunction with *GM BluePlan Consultants*. Part of the scope of work for the master plan is to identify and prioritize water system enhancements that would improve system capacity, reliability and resiliency during normal and emergency operations, both now and in the future.

The current draft version of the master plan has identified the potential water transmission main link between Bedford and Burnside, connecting the two core systems, as a high priority project noting the following benefits:

- The interconnection provides a critical large capacity linkage between the two core systems for emergency flow in either direction.
- The interconnection supports/improves the operation of the Akerley Reservoir,
- The interconnection, with other system upgrades, would provide full system resiliency to the Lake Major System,
- With the connection in place Halifax Water could explore decommissioning Lake Lamont as the backup supply, and
- The connection is required by 2040 to support growth in the East Region.

NSTIR is aware of the potential desire for the new highway corridor to accommodate a water transmission main as well as several other municipal/utility services. The highway design is being developed to provide a corridor adjacent to the highway that may include an HRM Active Transportation trail, a Heritage Gas pipeline and a Halifax Water water transmission main. The proposed approach by NSTIR is to include the construction of the highway subgrade, utility corridor subgrade and utility pipe installations in a single construction contract for overall efficiency of construction and to minimize future impacts of staged construction. NSTIR propose to construct the full cross section (highway and utility corridor) subgrade at their cost and recover the direct cost of rock removal, pipe installation and surface treatment from the benefitting partners. HRM, Heritage Gas and Halifax Water would be permitted to have their respective infrastructure within the Right of Way via a provincial permit with no land acquisition requirement.

The NSTIR subgrade construction project is scheduled for public tender in December 2019 with construction proposed for the 2020 construction season.

The scope of the water transmission main project would be approximately 7500m of 750mm diameter main with related appurtenances, installed in a standard depth trench within the subject utility corridor. The estimated cost of the water main in 2020 under the NSTIR contract would be in the range of $15M to $20M. The 2019 design cost would be approximately $750,000. Optimization of the new transmission main would also require extensive interconnection work within the Bedford area to connect to the existing water transmission main on the west side of the Highway 102. This would have a similar order of magnitude cost as the proposed connector main, however, this could be designed and constructed over the next five to ten years.

The current opportunity for 2020 construction provides the benefit of cost effective construction inside of the NSTIR subgrade project. However, the project would require a fast track design and the development of a project funding plan outside of the current capital budget plan. The project is most practical in the near term if Heritage Gas undertakes their proposed work at the same time. Either company lagging their work and installing after the first pipeline is installed would create potential conflicts, construction impacts and higher costs. The desired approach would be for both utilities to proceed at the same time. The decision for HRM to proceed or not with an active transportation trail has less impact as the work is generally at finished grade. However, should HRM proceed with the trail now, a future pipe installation would require the asphalt trail restoration as an added cost.

One alternative that is being considered is to delay the installation of the pipe projects until five to ten years in the future when the true demand is required. This would have the benefit of proceeding with design in a normal timeline, deferring the significant capital investment and aligning with the timeframe of the system demands. The notable downside would be the potential increased capital cost due to limited access to the utility corridor from a then functioning 100 series highway.

Halifax Water is currently in discussion with HRM, Heritage Gas and NSTIR to develop an optimized plan for all involved.

The preferred approach for Halifax Water is to participate with the subgrade construction project for the water transmission main installation in 2020. Ideally this would be in conjunction Heritage Gas, or Heritage Gas and HRM. Therefore, it is recommended that the Board approve $750,000 for the detailed design of the Bedford – Burnside Connector Transmission Main, contingent upon development of a practical near term project plan in conjunction with NSTIR, Heritage Gas and HRM.

If Halifax Water does not develop a practical plan for near term construction, discussion will continue with TIR to cost share on rock removal within a future water main trench within the utility corridor during the 2020 subgrade construction and plan for a future transmission main installation at an appropriate time in the future.

BUDGET IMPLICATIONS

The 2019 design cost of $750,000 for the Bedford-Burnside Connector Water Transmission Main will be added to the 2019/20 Capital Budget subject to NSUARB approval, bringing the total revised 2019/20 Capital Budget to $79,098,000.

The impact on 2019/20 Debt Servicing would not be material, and can be accommodated within the 2019/20 Operating Budget.

The proposed expenditures meets the "No Regrets – Unavoidable Needs" approach of the 2012 Integrated Resource Plan. The proposed work meets the NR-UN criteria of Ensuring Integrity and Safety and Supports Asset Management Implementation

ALTERNATIVES

Defer the water transmission main installation to future years and negotiate with NSTIR to include rock removal within the future water main trench as part of the 2020 TIR subgrade project.

ATTACHMENTS:

N/A

Report Prepared By:	*Original signed by:* Jamie Hannam, P. Eng., Director Engineering & IS 902-490-4804
Financial Approved By:	*Original signed by Cathie O'Toole, MBA, CPA/CGA, ICD.D, Director, Corporate Services for:* Allan Campbell, B.Comm., CPA, CMA Manager, Finance 902-266-8655

Halifax Water
Halifax Regional Water Commission

ITEM # 6
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
James Spurr, Corporate Legal Counsel, Secretary to the Board

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: March 26, 2019

SUBJECT: **Halifax Regional Water Commission Regulations - Amendments**

ORIGIN

The Halifax Regional Water Commission Regulations, as approved by an Order of the Nova Scotia Utility and Review Board, dated March 8, 2018, and effective May 1, 2018.

RECOMMENDATION

It is recommended that the Halifax Water Board approve an Application to the Nova Scotia Utility and Review Board requesting amendments to the Halifax Regional Water Commission Regulations (the "Regulations") in the substantive form attached.

BACKGROUND

The Regulations were last amended and consolidated by Order of the Nova Scotia Utility Board (the "Board"), by its Order dated March 8, 2018, as part of Halifax Water's Application to the Board for amendments to the Regulations to enable financing for the full replacement of private laterals and the establishment of a reserve in respect thereof.

DISCUSSION

Since May, 2018, Halifax Water has undertaken a coordinated review of the Regulations, overseen by its Regulatory Enforcement Committee chaired by the Director of Regulatory Services. That review has identified numerous gaps in the ability of the Regulations to

support the operational needs of Halifax Water to enforce compliance with its regulatory regime.

Historically, Halifax Water has requested amendment and consolidation of the Regulations in conjunction with an Application to the Board on a particular matter. However, the review of the Regulations referenced above has identified numerous amendments that should be incorporated within the Regulations at this time. As such, staff are recommending a "stand alone" Application to the Board for the sole purpose of amending and consolidating the Regulations. The requested amendments will correct uncertainty in the language of the Regulations by, for example, amending and adding defined terms as well as amending the language of various provisions throughout the Regulations to provide clarity to the intended meaning to support operational requirements.

There are several other amendments identified to adjust fees and charges, or add new fees, which will be brought forward in conjunction with the next Rate Application.

BUDGET IMPLICATIONS

None identified

ALTERNATIVES

Defer amending the Regulations until the next scheduled Rate Application to the Board requiring amendments to the Regulations.

ATTACHMENTS

Halifax Regional Water Commission Regulations (tracked changes)

Report Prepared by: *Original Signed By:*

James G. Spurr, Corporate Legal Counsel and Secretary to the Board
(902) 490-6101

Financial Reviewed by: *Original Signed By:*

Cathie O'Toole, MBA, CPA/CGA, ICD.D
Director, Corporate Services, (902) 490-3685

Nova Scotia Utility and Review Board

IN THE MATTER OF: ***Public Utilities Act***

- and -

IN THE MATTER OF: An Application by the Halifax Regional Water Commission for Approval of Various Amendments to the Halifax Regional Water Commission Regulations to Support the General Administration of the Regulations.

SUBMISSION IN SUPPORT OF AN APPLICATION BY THE HALIFAX REGIONAL WATER COMMISSION FOR AN ORDER APPROVING AMENDMENTS TO THE HALIFAX REGIONAL WATER COMMISSION REGULATIONS

March 29, 2019

NOTICE OF APPLICATION

NOVA SCOTIA UTILITY AND REVIEW BOARD

IN THE MATTER OF: THE PUBLIC UTILITIES ACT

-and-

IN THE MATTER OF: AN APPLICATION BY THE HALIFAX REGIONAL WATER COMMISSION FOR APPROVAL OF VARIOUS AMENDMENTS TO THE HALIFAX REGIONAL WATER COMMISSION REGULATIONS TO SUPPORT THE GENERAL ADMINISTRATION OF THE REGULATIONS.

TO: THE NOVA SCOTIA UTILITY AND REVIEW BOARD

The Applicant hereby applies to the Board for an Order approving various amendments to the Halifax Regional Water Commission Regulations, in substantially the form attached hereto as Schedule 'A' or to like effect, to support the general administration of the Regulations.

The Applicant hereby submits the following particulars in support of this Application:

1. The Halifax Regional Water Commission ("Halifax Water") is a body corporate, incorporated under the *Halifax Regional Water Commission Act*, S.N.S. 2007, c.55, as amended, (the "HRWC Act") and has its head office and chief place of business at 450 Cowie Hill Road, Halifax, Halifax Regional Municipality, Province of Nova Scotia.

2. Halifax Water is a public utility regulated under the *Public Utilities Act,* R.S.N.S. 1989, c.380, as amended, (the "Public Utilities Act") and has responsibility for the supply of municipal water and fire protection services, municipal wastewater services and municipal stormwater services throughout the Halifax Regional Municipality ("HRM").

3. Halifax Water therefore makes this Application, pursuant to the provisions of the Public Utilities Act, and the HRWC Act, for approval of amendments to the Halifax Regional Water Commission Regulations to support the general administration of the Regulations.

4. Halifax Water is represented in this proceeding by:

James Spurr
Corporate Legal Counsel
Halifax Regional Water Commission
450 Cowie Hill Road
PO Box 8388, Station A
Halifax NS B3K 5M1
Phone: 902.490.6101
Facsimile: 902.490.4808
Email: jamess@halifaxwater.ca

5. Contact information for Halifax Water in respect of this application is as follows:

Cathie O'Toole, MBA, CPA, CGA
Director, Corporate Services and Chief Financial Officer
Halifax Regional Water Commission
450 Cowie Hill Road
PO Box 8388, Station A
Halifax, Nova Scotia, B3K 5M1
Phone: 902.490-3685
Facsimile: 902.490-4808
Email: cathieo@halifaxwater.ca

Filed at Halifax, Nova Scotia this xxth day of March, 29 2019.

James G. Spurr
Corporate Legal Counsel

Halifax Water is a regulated utility pursuant to the *Public Utilities Act* and has provided potable water and fire protection services to the residents of the former City of Halifax since 1945. Following municipal amalgamation in 1996 these services have been provided to the urban core and satellite systems of the Halifax Regional Municipality (HRM).

On August 1 2007, municipal wastewater and stormwater facilities were transferred by HRM to Halifax Water and, as a result of this transfer, these services became regulated under the *Public Utilities Act.*

HRM transferred the operation of the Aerotech/Airport water system to Halifax Water on April 1, 2006. The August 1 2007 transfer of municipal wastewater and stormwater facilities from HRM included the Aerotech/Airport wastewater facilities. As a result of these transfers, the Aerotech/Airport system became regulated under the Public Utilities Act.

The Board approved consolidation of the Aerotech/Airport system with the Urban Core effective April 1, 2015 in a Supplemental Decision in matter number M05463 dated October 31, 2014 and Order dated November 3, 2014.

BACKGROUND

1. Since becoming a regulated public utility, it has been Halifax Water's practice to request the Nova Scotia Utility and Review Board (the "Board") to make amendments to the Halifax Regional Water Commission Regulations (the "Regulations") necessitated by the subject matter of particular Applications made by Halifax Water to the Board. Recent examples include Applications respecting financing for the full replacement of private laterals for the provision of water, wastewater and stormwater service (M08344), establishment of a Dispute Resolution Officer (M07559), rates for stormwater service (M07731), repair and replacement of lead service pipes (M07891) and installation of Automated Meter Infrastructure (AMI) meters (M07473).

2. Despite amendments to the Regulations directly related to the subject matter of particular Applications, Halifax Water also identifies from time to time needs for regulatory amendments arising out of its ongoing administration of Regulations. Such required amendments may generally be referred to as "housekeeping" amendments and are required to correct uncertainty in the language of the Regulations by, for example, adding defined terms in Section 3 of the Regulations and amending the language of various provisions throughout the Regulations to provide clarity to the intended meaning of such provisions.

ORDER SOUGHT

Halifax Regional Water Commission requests approval of amendments to the Halifax Regional Water Commission Regulations, for the general administration of the Regulations in substantially the form attached hereto as Schedule ‘A’ or to like effect, to be effective on such day as the Board declares by Order.

ATTACHMENTS

Schedule A – Requested amendments to the Halifax Regional Water Commission Regulations

Schedule 'A'

Amendments to the Halifax Regional Water Commission Regulations made by the Nova Scotia Utility and Review Board under Section 65 of Chapter 380 of the Revised Statutes of Nova Scotia 1989, the Public Utilities Act

Selected Explanatory Notes

Clause 3(a): the term "Animal" is defined to clarify the prohibitions against discharge to wastewater system in clause 63(3)(n) and discharge to a stormwater system in clause 66(3)(o).

Clause 3(b): the term "Animal by-product" is defined to clarify the prohibitions against discharge to a wastewater system in clause 63(3)(n) and discharge to a stormwater system in clause 66(3)(o).

Clause 3(e): to specifically include Halifax Water's systems in the definition.

Clause 3(m): to permit suspension of service under subsection 13(1) in landlord/tenant circumstances where the Customer at rented premises is the landlord. This provision will permit suspension of service at, for example, the landlord's home without interrupting service to tenants.

Clause 3(u): the term "Encoder Receiver Transmitter " (ERT) is added to clarify that Customer responsibility for damage to meters in Section 49 includes the ERT as part of the AMI technology delivering water service.

Clause 3(ddd): clarifies the components of a Stormwater System.

Section 5, Tables 1 and 2: deletes spent provisions.

Section 5: updates actual size of meter lines.

Section 6, Tables 3 and 4: deletes spent provisions.

Section 6: updates actual size of meter lines.

Clause 7(2)(a): This provision is spent as of March 31, 2017.

Clause 11(6)(b): limits the period of retrospective billing for Service not billed.

Subsection 13(1): see note for Clause 3(m).

Section 15: provides for no charge to a Customer for electronic copies of bills.

Subsection 18(4): limits reconnection of Service outside Regular Working Hours where disconnection was for a violation of the Regulations.

Section 21: clarifies inspection fees based on size of service connection.

Subsection 23(1): clarifies temporary nature of approval for extra strength wastewater discharges.

Section 24: updates audit inspection fee structure.

Clause 27(1((c): updates Bulk Fill Station Account administration to a Personal Identification Number (PIN) format.

Subsection 29(3): distinguishes HRM building permit from Halifax Water permit to connect as a determinant for the Regional Development Charge for wastewater infrastructure.

Subsection 29(4): adds the term “renovations” as a separate and distinct criterion for application of the Regional Development Charge for wastewater infrastructure.

Subsection 30(3): see note for subsection 29(3).

Subsection 30(4): see note for subsection 29(4).

Section 33: deletes spent provisions.

Section 35, Table 5: deletes spent provisions.

Subsection 45A(3): limits refusal for installation of an AMI water meter.

Subsection 49(1): see note for Clause 3(u).

Subsection 49(2): expands the criteria for liability for damage to water meters, ERTs and related equipment.

Subclauses 51(h)(iv) and (v): provides for maintenance bonds for abandonment of a water Service Connection.

Subclause 51(h)(vi): provides conditions for installation of a new Service Connection.

Subsection 61(9): provides conditions for installation of a new Service Connection.

Clause 63(3)(n): see note for Clauses 3(a) and 3(b).

Clause 66(3)(o): see note for Clauses 3(a) and 3(b).

Clause 66(3)(r): adds construction water waste to the listed of prohibited discharges to a stormwater system.

Section 70: adds provisions for grease interceptors, their cleaning and maintenance, for restaurants in order to deal with the problems of fats, oils and greases (FOG) used by restaurants from entering Halifax Water's stormwater system. Modified provisions include the most relevant Food Related Grease Interceptor requirements from CSA B481 (Restaurant owners may not have easy access to such CSA publication and its cost may be prohibitive.

Clause 72(2)(d): adds the requirement for emptying any sediment interceptors where product manufacturers' recommendations may not exist at establishments such as car washes.

Subsection 78(2): updates contact information in the event of a Release, as defined in Clause 3(uu).

Attachment 1: corrects and standardizes nomenclature.

~~SCHEDULE "A"~~

SCHEDULE OF RATES, RULES & REGULATIONS

FOR WATER, WASTEWATER, AND STORMWATER SERVICES

~~Effective May 1, 2018~~

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Regulations Respecting Rates and Charges for the Provision of Water, Wastewater, Stormwater, Public and Private Fire Protection Service, made by Order of the Nova Scotia Utility and Review Board effective ~~May 1~~, 201~~9~~5**
~~(as amended, October 26, 2016)~~

PART I - INTERPRETATION

Short Title

1. These regulations may be cited as the "Halifax Regional Water Commission Regulations".

Adoption of Statutory Definitions

2. All terms defined in the Halifax Regional Water Commission Act have the same meaning in these Regulations, unless otherwise defined.

Definitions

3. In these Regulations,

a~~1~~) "Animal" means any creature that is not human and includes any other thing prescribed as an animal, but does not include any thing prescribed as excluded;

b) "Animal by-product" means a part of an animal or its carcass that is extracted, collected or otherwise obtained from an animal or its carcass for purposes that are not a principal intention of growing or raising the animal and includes blood and any of its components, antlers, bones, bristles, feathers, flesh, hair, hides, skins, hoofs, horns, offal and anything containing any of those things or derived from any of those things;

c) "Automated Meter Infrastructure (AMI)" means a system which uses radio frequency transmission technology for measuring individual Customer's water consumption at intervals of an hour or less and communicating such information at frequent intervals to the Commission.

~~a~~)d) "Accredited Laboratory" means any laboratory accredited by an authorized accreditation body in accordance with a standard based on "CAN-P-1585: Requirements for the Accreditation of Environmental Testing Laboratories" established by the Standards Council of Canada, as amended, or "ISO/IEC/EN 17025: General Requirements for Competence of Calibration and Testing Laboratories" established by the International Organization for Standardization, as amended;

~~b~~)e) "Adverse Effect" means an effect that impairs or damages the environment or the operation of a Water System, Wastewater System or Stormwater System, including an adverse effect respecting the health of humans or the reasonable enjoyment of life or property;

~~c~~)f) "Best Management Practices (BMP)" means an integrated plan to control and reduce the Release of restricted and prohibited substances into Wastewater or Stormwater Systems to a practicable extent, through methods including physical controls, pretreatment

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processes, operational procedures and staff training;

~~d)~~g) "Biochemical Oxygen Demand (BOD)" means the five-day BOD being the determination of the molecular oxygen utilized during a five-day incubation period for the biochemical degradation of organic material (carbonaceous demand), and the oxygen used to oxidize inorganic material, including sulphides and ferrous iron, and the amount of oxygen used to oxidize reduced forms of nitrogen (nitrogenous demand) as determined by the applicable procedure in Standard Methods;

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~~e)~~h) "Biosolids" means an organic, stabilized material produced during the treatment of domestic Wastewater and septage sludge which has undergone treatment to reduce pathogen content;

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~~f)~~i) "Blow Down" means the Discharge of recirculating Non-contact Cooling Water for the purpose of discharging materials contained in the water;

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~~g)~~j) "Chemical Oxygen Demand (COD)" means a measure of the capacity of water to consume oxygen as a result of oxidation of inorganic chemicals and decomposition of organic matter;

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~~h)~~k) "Combined Sewer" means a sewer intended to function simultaneously as a Stormwater and a Wastewater sewer;

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~~i)~~l) "Combustible Liquid" means a liquid that has a flash point not less than 37.8 degrees Celsius and not greater than 93.3 degrees Celsius;

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m) "Common Customer Location" means two or more locations in respect of which Service is provided by way of separate accounts to the same Customer;

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~~j)~~n) "Composite Sample" means a volume of Wastewater, Stormwater, Uncontaminated Water, or effluent made up of three or more Grab Samples that have been combined automatically or manually and taken at intervals during the sampling periods;

~~k)~~o) "Customer" means a person who arranges to be or is supplied with water and/or Wastewater Service at a specified location or locations and includes a person receiving Stormwater Service;

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~~l)~~p) "Discharge" means to directly or indirectly discharge, Release, permit or cause to be discharged or Released into Wastewater or Stormwater Systems;

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~~m)~~q) "Discharger" means an owner, occupant or person who has charge, management or control of effluent, Wastewater, Stormwater, Uncontaminated Water or any combination thereof, which is Discharged to Wastewater or Stormwater Systems;

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~~n)~~r) "Ditch" means an excavated or constructed open channel, which is vested in or under the control of the Commission;

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~~n1~~s) "Driveway Culvert" means a culvert pipe within a portion of a street right of way intended for the purpose of providing passage of water along a drainage ditch, under a driveway, from one side of the driveway to the other side of the driveway, and such culvert pipe is

deemed to be part of the Stormwater System;

~~o)~~t) "Dwelling Unit" means the whole or any part of a building or structure that is kept or occupied as a permanent or temporary residence and includes (i) a building within the curtilage of a Dwelling Unit that is connected to it by a doorway or by a covered and enclosed passage-way, and (ii) a unit that is designed to be mobile and to be used as a permanent or temporary residence, regardless of whether it is being used as such a residence;

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u) Encoder Receiver Transmitter" (ERT) means a device used to transmit data from a water meter to the Commission and is deemed to be a part of such meter;

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~~p)~~v) "Extraneous Water or Wastewater" means water or Wastewater originating from a source other than the Commission's water supply, but does not include water originating from private wells for domestic use where a connection to the Commission's Water System is not available;

~~q)~~w) "Extra Strength Wastewater" means Wastewater Released to a sewer that is higher in concentration for one or more constituent concentrations than those set out in Table 6 in these Regulations;

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~~r)~~x) "Fuel" includes alcohol, gasoline, naphtha, diesel fuel, fuel oil or any other ignitable substance intended for use as a fuel;

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~~s)~~y) "Grab Sample" means a volume of Wastewater, Stormwater, Uncontaminated Water or effluent which is collected over a period not exceeding 15 minutes;

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~~t)~~z) "Hauled Waste" means any Waste, including Hauled Wastewater, which is transported to and deposited into, or proposed to be deposited into, any location in a Wastewater or Stormwater System;

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~~u)~~aa) "Hauled Wastewater" means Waste removed from a Wastewater facility, including a cesspool, a septic tank, a vault privy or pit privy, a chemical toilet, a portable toilet or a Wastewater holding tank;

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~~v)~~bb) "Hazardous Substance" means:

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i) any substance or mixture of substances, other than a Pesticide, that exhibits characteristics of flammability, corrosivity, reactivity or toxicity; and

ii) any substance that is designated as a hazardous substance within the meaning of any applicable provincial or federal legislation, as amended from time to time;

~~w)~~cc) "Hazardous Waste" means any Hazardous Substance disposed of as Waste;

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~~x)~~dd) "HRM" means the Halifax Regional Municipality;

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~~y)~~ee) "Ignitable Waste" means a substance that:

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i) is a liquid, other than an aqueous solution containing less that 24 percent alcohol by

volume, and has a flash point less than 93 degrees Celsius, as determined by the Tag Closed Cup Tester (ASTM D-56-97a), the Setaflash Closed Cup Tester (ASTM D-3828-97 or ASTM D-3278-96e1), the PenskyMartens Closed Cup Tester (ASTM D-93-97), or as determined by an equivalent test method;

ii) is a solid and is capable, under standard temperature and pressure, of causing fire through friction, absorption of moisture or spontaneous chemical changes and, when ignited, burns so vigorously and persistently that it creates a danger;

iii) is an ignitable compressed gas as defined in regulations made under applicable provincial or federal legislation, as amended; or

iv) is an oxidizing substance as defined in regulations made under applicable provincial or federal legislation, as amended;

~~z)~~ff) "Impervious Area" means an area or surface which prevents or limits the entrance or passage of stormwater, including asphalt, concrete, bricks, roofs and gravel surfaces if they are hard packed, and all of which are denoted as impervious by the satellite imagery utilized by the Commission in that determination;

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~~aa)~~gg) "Industrial, Commercial or Institutional (ICI)" includes or pertains to industry, manufacturing, commerce, trade, business, or institutions and includes multi-unit dwellings of four or more units;

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~~bb)~~hh) "Infrastructure Charge" means a development charge levied as a condition of subdivision approval or at a building permit stage;

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~~cc)~~ii) "Interceptor" means a receptacle that is installed to prevent oil, grease, sand or other materials from passing into a Wastewater System or a Stormwater System;

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~~dd)~~jj) "Leachate" includes any liquid that has percolated through solid waste and, during percolation, has extracted dissolved or suspended materials from such solid waste, including the liquid produced from the decomposition of waste materials and liquid that has entered the waste material from external sources including surface drainage, rainfall and groundwater;

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dd1)"Landlord" has the same meaning as set out in Section 2 of the Residential Tenancies Act;

~~ee)~~kk) "Non-contact Cooling Water" means water that is used in a process for the purpose of removing heat and that has not, by design, come into contact with any raw material, intermediate product, waste product, or finished product, but does not include Blow Down water;

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~~ff)~~ll) "NORM" means naturally occurring radioactive material found in industrial wastes or by-products enriched with radioactive elements found in the environment, including uranium, thorium and potassium and any of their decay products, including radium and radon;

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~~gg)~~mm) "Monitoring Access Point" means an access point, including a chamber, in a

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Wastewater or Stormwater Service Connection to allow for observation, sampling and flow measurement of the Wastewater, Uncontaminated Water or Stormwater within such a Service Connection;

(gg1)"No-Corrode Pipe" means a coal tar impregnated wood fibre pipe, also known generically as Orangeburg pipe;

~~hh)~~nn) "Pathological Waste" includes fluids or materials which may contain pathogens of human or animal origin;

~~ii)~~oo) "PCBs" means any monochlorinated or polychlorinated biphenyls or any mixture of them or a mixture that contains one or more of them;

~~jj)~~pp) "Pesticides" includes any substance that is a pest control product within the meaning of the "Pest Control Products Act" (Canada) or a fertilizer within the meaning of the "Fertilizers Act" (Canada) and that contains a pest control product;

~~kk)~~qq) "Phenolic Compounds" means hydroxyl derivatives of benzene and its condensed nuclei;

~~ll)~~rr) "Pretreatment Facility" means Wastewater treatment processes designed to remove pollutants from Wastewater prior to Discharge to the Commission's Wastewater System;

~~mm)~~ss) "Reactive Waste" means a substance that:

i) is normally unstable and readily undergoes violent changes without detonating;

ii) reacts violently with water;

iii) forms potentially explosive mixtures with water;

iv) when mixed with water, generates toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment;

v) is a cyanide or sulphide bearing Waste which, when exposed to pH conditions between 2 and 12.5 can generate toxic gases, vapours or fumes in a quantity sufficient to present danger to human health or the environment;

vi) is capable of detonation or explosive reaction if it is subjected to a strong initiating source or if heated under confinement;

vii) is readily capable of detonation or explosive decomposition or reaction at standard temperature and pressure; or

viii) is an explosive (Class 1) as defined in the Explosives Regulations, C.R.C., c. 599, as amended from time to time;

~~nn)~~tt) "Regular Working Hours" means any time between the hours of eight o'clock in the forenoon and four o'clock in the afternoon on any day which is not a Saturday, a Sunday or a holiday, as that term is defined in the Interpretation Act;

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~~oo)~~uu) "Release" means a substance that has spilled, leaked, seeped, drained, sprayed, emptied or has been emitted, Released, Discharged, disposed of, injected, inoculated, abandoned, deposited, poured, thrown, dumped, pumped, exhausted or placed in the environment or the Water, Wastewater or Stormwater System;

vv~~oo1~~) "Right of Way Charge" means the charge imposed by the Regulations on HRM for the impervious area in the street right of way.

~~pp)~~ww) "Service" means water Service, Wastewater Service or Stormwater Service or any combination of each of them;

~~qq)~~xx) "Service Connection" means Water Service Connection, Wastewater Service Connection, or Stormwater Service Connection, or any combination of each of them;

~~qq1~~yy) "Site Related Flow Charge" means the charge for service and for the benefit a Customer receives, including access to a property over a Commission owned culvert, and management of stormwater from a property that enters any part of the Commission's stormwater system.

~~rr)~~zz) "Solvent Extractable Matter" includes grease or oils from animal, vegetable, mineral or synthetic sources;

~~ss)~~aaa) "Standard Methods" means *Standard Methods for the Examination of Water and Wastewater* (the edition current at the time of testing), published jointly from time to time by the American Public Health Association, the American Water Works Association and the Water Environment Federation;

~~tt)~~bbb) "Stormwater" means water from precipitation of all kinds, and includes water from the melting of snow and ice, groundwater discharge and surface water;

~~uu)~~ccc) "Stormwater Service Connection" includes a piping system that conveys Stormwater from a property to a Stormwater System;

~~vv)~~ddd) "Stormwater System" means a system carrying Stormwater, including ditches, culverts, deep storm sewers, manholes, catchbasins and resevoirs, which system and its components are ~~and~~ vested in or under the control of the Commission;

~~ww)~~eee) "Suspended Solids" means the insoluble matter suspended in Wastewater or Stormwater that is separable by laboratory filtration;

~~xx)~~fff) "Total Kjeldahl Nitrogen" means the sum of organic nitrogen and ammonia nitrogen;

~~yy)~~ggg) "PAHs" means the total of all of the following polycyclic aromatic hydrocarbons: Acenaphthene, acenaphthylene, anthracene, benza(a)anthracene, benzo(a)pyrene, benzo(b)fluoranthene, benzo(g,h,i)perylene, benzo(k)fluoranthene, chrysenes, dibenzo(a,h)anthracene, fluoranthene, fluorene, indeno(1,2,3-cd)pyrene, methylnaphthanlene, naphthalene, phenanthrene, pyrene;

~~zz)~~hhh) "Toxic Substance" means any substance defined as toxic under the *Canadian*

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Environmental Protection Act 1999, as amended from time to time;

~~aaa)~~iii) "Uncontaminated Water" means potable water or any other water to which no matter has been added as a consequence of its use;

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~~bbb)~~jjj) "Waste" means a substance that would cause or tend to cause an Adverse Effect if added to the environment, or the Water, Wastewater or Stormwater System, and includes rubbish, slimes, tailings, or other industrial wastes, effluent, sludge, Wastewater, garbage, refuse, scrap, litter or other waste products of any kind;

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~~ccc)~~kkk) "Waste Radioactive Substances" includes uranium, thorium, plutonium, neptunium, deuterium, their respective derivatives and compounds and such other substances as the Atomic Energy Control Board (Canada) may designate from time to time as being capable of releasing ionizing radiation;

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~~ddd)~~lll) "Wastewater" means liquid waste containing animal, vegetable, mineral or chemical matter as well as water from sanitary appliances that contains human fecal matter or human urine in solution or suspension together with such groundwater, surface water or Stormwater as may be present;

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~~eee)~~mmm) "Wastewater Service Connection" means a piping system that conveys Wastewater from a property to a Wastewater System;

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~~fff)~~nnn) "Wastewater System" means the structures, pipes, devices, equipment, processes and related equipment used, or intended to be used, for the collection, transportation, pumping or treatment of Wastewater and disposal of effluent, which are vested in or under the control of the Commission;

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~~ggg)~~ooo) "Water System" means the source, structures, pipes, hydrants, meters, devices, equipment or other things used, or intended to be used, for the collection, transportation, pumping or treatment of water, and which are vested in or under the control of the Commission;

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~~hhh)~~ppp) "Water Service Connection" means a piping system that conveys water from a water main to a property;

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~~iii)~~qqq) "Watercourse" means:

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(a) the bed and shore of every river, stream, lake, creek, pond, spring, lagoon or other natural body of water, and the water therein, within the jurisdiction of the Province, whether it contains water or not; and

(b) all ground water.

<u>Interpretation</u>

4.(1) These Regulations shall be interpreted in accordance with the principles for the interpretation of legislation.

(2) The *Interpretation Act* (Nova Scotia) applies to these Regulations, except where a contrary intention appears.

PART II - RATES

Rates for Water Service

5.(1) Bills for water Service, other than for a specific one time Service, shall be issued on a monthly or quarterly basis and shall be comprised of a base rate and a consumption rate, each applicable as follows;

~~(a) Table 1. Base Rate for Water Service on or after May 1, 2015~~

~~Size of Meter (mm)~~	~~Minimum Water Monthly Bill~~	~~Minimum Water Quarterly Bill~~
~~15~~	~~$13.00~~	~~$39.00~~
~~2019~~	~~$18.00~~	~~$54.00~~
~~25~~	~~$29.00~~	~~$87.00~~
~~4038~~	~~$55.00~~	~~$165.00~~
~~50~~	~~$85.00~~	~~$255.00~~
~~8075~~	~~$170.00~~	~~$510.00~~
~~100~~	~~$264.00~~	~~$792.00~~
~~150~~	~~$527.00~~	~~$1,581.00~~
~~200~~	~~$946.00~~	~~$2,838.00~~
~~250~~	~~$1575.00~~	~~$4,725.00~~

Table 1. Base Rate for Water Service on or after April 1, 2016

Size of Meter (mm)	Minimum Water Monthly Bill	Minimum Water Quarterly Bill
15	$13.00	$39.00
~~20~~19	$18.00	$54.00
25	$29.00	$87.00
~~40~~38	$55.00	$165.00
50	$85.00	$255.00
~~80~~75	$170.00	$510.00
100	$264.00	$792.00
150	$527.00	$1,581.00
200	$946.00	$2,838.00
250	$1,575.00	$4,725.00

(b) Consumption Rate

The consumption rate for water is: ~~$0.845 / m³ for water sold on or after May 1, 2015, and~~ $0.976 / m³ for water sold on or after April 1, 2016.

(2) Non-metered Customers will be charged the approved base water rate and the consumption rate for an equivalent size meter, as estimated by the Commission based on the best information available to the Commission.

Table 2. Non-metered Service Rates

~~Service on or after May 1, 2015:~~

	~~Monthly Bill~~	~~Quarterly Bill~~
~~(15 mm) 164 m³ /year (Domestic)~~	~~$25.00~~	~~$75.00~~
~~(1920 mm) 566 m³/year~~	~~$58.00~~	~~$174.00~~
~~(25 mm) 1102 m³/year~~	~~$107.00~~	~~$321.00~~

Service on or after April 1, 2016:

	Monthly Bill	Quarterly Bill
(15 mm) 158 m³ /year (Domestic)	$26.00	$78.00
(~~1920~~ mm) 541 m³/year	$63.00	$189.00
(25 mm) 1061 m³/year	$116.00	$348.00

Rates for Wastewater Service

6.(1) Bills for Wastewater Service, other than those charges for a specific one time Service shall be issued on a monthly or quarterly basis and shall be comprised of a base rate and a volumetric rate, each applicable as follows;

~~(a) Table 3. Base Rate for Wastewater Service on or after May 1, 2015~~

~~Size of Meter (mm)~~	~~Minimum WW Monthly Bill~~	~~Minimum WW Quarterly Bill~~
~~15~~	~~$13.00~~	~~$39.00~~
~~2019~~	~~$19.00~~	~~$57.00~~
~~25~~	~~$32.00~~	~~$96.00~~
~~4038~~	~~$63.00~~	~~$189.00~~
~~50~~	~~$101.00~~	~~$303.00~~
~~8075~~	~~$203.00~~	~~$609.00~~
~~100~~	~~$317.00~~	~~$951.00~~
~~150~~	~~$634.00~~	~~$1,902.00~~
~~200~~	~~$1,142.00~~	~~$3,426.00~~
~~250~~	~~$1,903.00~~	~~$5,709.00~~

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Table 3. Base Rate for Wastewater Service on or after April 1, 2016

Size of Meter (mm)	Minimum WW Monthly Bill	Minimum WW Quarterly Bill
15	$14.00	$42.00
~~20~~19	$20.00	$60.00
25	$33.00	$99.00
~~40~~38	$64.00	$192.00
50	$103.00	$309.00
~~80~~75	$206.00	$618.00
100	$321.00	$963.00
150	$641.00	$1,923.00
200	$1,154.00	$3,462.00
250	$1,923.00	$5,769.00

(b) Wastewater Discharge Rate

The Discharge rate for all Wastewater Discharged to the Wastewater System is: ~~$1.638 / m³ for Wastewater Discharged on or after May 1, 2015, and~~ $1.753/ m³ for Wastewater Discharged on or after April 1, 2016.

(2) Non-metered Customers will be charged the approved Wastewater base charge and the consumption Discharge rate for an equivalent size meter, as determined by the Commission and based on the projected usage of the customer, as estimated by the Commission based on the best information available to the Commission, including comparison with other similar customers and/or the use of private meters.

Table 4. Non-metered Service Rates

~~Service on or after May 1, 2015:~~

	~~Monthly Bill~~	~~Quarterly Bill~~
~~(15 mm) 171 m³ /year (Domestic)~~	~~$37.00~~	~~$111.00~~
~~(20~~19 ~~mm) 564 m³/year~~	~~$96.00~~	~~$288.00~~
~~(25 mm) 1086 m³/year~~	~~$181.00~~	~~$543.00~~

Service on or after April 1, 2016:

	Monthly Bill	Quarterly Bill
(15 mm) 164 m³ /year (Domestic)	$38.00	$114.00
(~~20~~19 mm) 539 m³/year	$99.00	$297.00
(25 mm) 1046 m³/year	$186.00	$558.00

(3) Despite subsections (1) and (2), where a Customer is discharging Wastewater from sources other than the Commission's system, or where a Customer may be discharging Stormwater into the Wastewater System, or where, in the opinion of the Commission, a Discharge into the Wastewater System by a Customer may not be accurately reflected by

use of a similar size and class of Customer water meter, the Commission may require a Customer in any such circumstances to measure actual Discharge in a manner approved by the Commission, in which case the volumetric charge will be based on the actual measured Discharge into the Commission's Wastewater System.

Rates for Stormwater Service

7.(1) Bills for Stormwater Service, other than those charges for a specific one time Service, shall be issued on a semi-annual or annual basis, and levied based on Impervious Area calculated and rounded to the nearest 10m^2.

(2)~~(a)Effective July 1, 2017 HRM shall pay annually to the Commission for the fiscal year commencing April 1, 2017, for Stormwater Service associated with the HRM owned Street Right of Way (ROW) the amount of $3,846,611, which amount is composed of $970,352 for the period April 1, 2017 to June 30, 2017, ($3,881,408 x 3/12) and effective July 1, 2017 to be $2,876,259 for the period July 1, 2017 to March 31, 2018 ($3,835,012 x 9/12). This amount is calculated based on the Impervious Area within the HRM owned ROW.~~

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~~(b)~~ Effective April 1, 2018 HRM shall pay annually to the Commission for Stormwater Service associated with the HRM owned Street Right of Way (ROW) the amount of $3,835,012 calculated based on the Impervious Area within the HRM owned ROW.

(3) Non-Residential ~~c~~Customers shall pay a Site Related Flow Rate of $0.135 per m^2 of Impervious Area on and after July 1, 2017, Impervious Area being measured through satellite imagery, provided that where a part of a property is located outside the Commission's Stormwater Service Boundary, that part of the property located outside the Boundary is exempt from the charge.

(4) Residential ~~c~~Customers shall pay a Site Related Flow Charge which shall be based on the impervious area of their property, provided that properties with impervious area falling within a tier set out in this subsection shall be subject to the Standard Annual Charge for that tier, billed at such frequency as HRWC may determine.

Tier	Tier Parameters (Based on Imperious Area m^2		Rate
	From	To	
1	0	Less than 50	$0
2	50	200	$14
3	210	400	$27
4	410	800	$54
5	810	or more	$81

(5) Properties that are within the Commission's service boundary and do not receive Stormwater Service from the Commission are exempt from the Site Related Flow Charge.

(6) Properties that have impervious area less than 50 m^2 are exempt from the Site Related Flow Charge.

(7) Notwithstanding (5) and (6), a ~~r~~Residential or ~~n~~Non-residential property that has a Driveway Culvert, is deemed to be receiving stormwater service and will be charged therefor in accordance with Tier 2 as set out in subsection (4).

(8) Non-residential ~~properties~~ Customers may be eligible for a credit not less than 30% but not exceeding 50% of the Site Related Flow Charge if they are undertaking certain qualified stormwater best management practices that detain their peak flow on an on-going basis in accordance with the parameters and application process set out in the Commission's Stormwater Credit Manual.

(9) Any person who objects to not being exempt from the Site-Related Flow Charge portion of the charge under subsections (5), (6) or (7) may file a notice with the Commission setting out the reasons for the objection and the relevant facts on which that person relies, such Notice of Objection to be accepted by the Commission by way of email, letter, facsimile, telephone or in person.

(10) On receipt of a Notice of Objection the Commission shall, with all due dispatch, vary or confirm, in writing, its original decision, the onus being on the Commission to show, based on engineering or other evidence, that the property in question receives Stormwater Service.

(11) For greater certainty, any person may register a complaint with the Dispute Resolution Officer under Part XIIIA of these regulations respecting a matter which is the subject of this Section.

(12) Any person who disputes a decision of the Commission under subsection (10), after referral to the Dispute Resolution Officer, may refer the matter to the Board for resolution.

Charge for Temporary Water, Wastewater or Stormwater Service

8.(1) The Commission may furnish water, Wastewater or Stormwater Service to persons requiring temporary Service for construction of buildings or other work.

(2) Persons referred to in subsection (1) who require water Service shall deposit with the Commission such sum as may be determined by the Commission as being sufficient to defray the cost of making the necessary connection to the Services provided, together with the cost of the meter to be installed to measure the water consumed.

(3) Upon completion of the work referred to in subsection (2) and the return to the Commission of the undamaged meter, the Commission shall refund the deposit referred to in subsection (2) after payment for the Services provided and the Commission's determination of connection or disconnection charges calculated based on the time and materials used in providing the Service, together with the meter base charge and the consumption and/or Discharge rates in respect of such Service installation.

(4) The Commission may approve the temporary Discharge of Wastewater or Stormwater to the Wastewater or Stormwater Systems, upon such terms and conditions as the Commission determines appropriate in the circumstances, such temporary Discharges to be subject to the Discharge rate approved by these Regulations.

(5) Costs incurred by the Commission to sample, analyze, monitor or inspect a temporary Discharge may be charged to and recovered from the person to whom permission to Discharge has been given.

New Water, Wastewater or Stormwater Account Charge

9. The Commission shall charge $25.00 for the creation of a water, Wastewater, or Stormwater account.

PART III - BILLING

Payment of Bills

10.(1) Bills for Service issued by the Commission to Customers shall be payable on the date indicated thereon and will provide as follows:

(a) Bills issued on a quarterly basis and which are not paid within 30 days after the billing date shall be subject to an interest charge of 1.5% per month or part thereof, or a maximum of 19.56% per annum, such amount being due and payable within such 30 day period, and the effective date of the interest charge shall be clearly shown on the bill.

(b) Bills issued on a monthly basis and which are not paid within 25 days after the billing date shall be subject to an interest charge of 1.5% per month or part thereof, or a maximum of 19.56% per annum, such amount being due and payable within such 25 day period, and the effective date of the interest charge shall be clearly shown on the bill.

(c) Bills may be issued annually and if not paid within 30 days after the billing date shall be subject to an interest charge of 1.5% per month or part thereof, or a maximum of 19.56% per annum, such amount being due and payable within such 30 day period and the effective date of the interest charge shall be clearly shown on the bill.

Adjustment of Bills

11.(1) Any Customer desiring to question their bill shall do so in writing within two years from the date shown on such bill.

(2) In the event the Commission determines it is necessary to make a billing adjustment as a result of a Customer being under-billed, such adjustment shall be retroactive for a maximum of four billing periods or one year, whichever is longer.

(3) Despite subsection (2), in the event that a billing adjustment is the result of the Customer's unauthorized connection to the Water, Wastewater or Stormwater System or willful interference with or damage to metering equipment, the Customer shall be responsible for all payments of such accounts from the date such unauthorized connection to water Service or interference with meter equipment occurred.

(4) In the event the Commission determines it is necessary to make a billing adjustment as a result of a Customer being over-billed, such adjustment will be estimated by the Commission, and, based upon such estimate, the Commission will pay to such Customer the overbilled amount together with interest calculated as simple interest paid on savings

accounts by deposit taking banks listed in Schedule I of the Bank Act (Canada), during the period which the Customer was over-billed by the Commission, such period not to exceed two years.

(5) If a water meter security seal is broken or if a meter does not register correctly or has been removed without the Commission's authorization, the charge for water, and Wastewater Service shall be estimated in accordance with the best data available to the Commission, provided that if the subject premises are unmetered or a non-user of the Commission's Water System, then the charge for Service will be estimated in accordance with the best available data to the Commission.

(6)(a) In the event a ~~c~~Customer has been billed in error for a Service they did not receive, the Commission will reimburse such customer the amount billed to and paid by the customer, together with interest calculated as simple interest paid on savings accounts by deposit taking banks listed in Schedule I of the Bank Act (Canada), respecting the period during which the customer was incorrectly billed by the Commission, such period not to exceed five years.

(b) In the event a Customer is receiving Service for which such Customer has not been billed, the Commission may bill such Customer retroactively for a maximum of four billing periods, or one year, whichever is the longer period.

(7) In the event, as a result of a decision respecting a Notice of Objection pursuant to subsection 7(10) or as a result of any other review carried out under the Regulations it is determined the billing determinant of chargeable impervious area for stormwater accounts is inaccurate or yields an inequitable result the Commission may adjust the chargeable impervious area in order to rectify such inequity.

(8) In the event, as a result of a decision respecting a Notice of Objection pursuant to subsection 7(9), or through a credit application process, it is determined that a portion of the stormwater from a non-residential property does not reach a Commission stormwater system, or the Customer is only receiving the benefit of a culvert at the end of their driveway, the chargeable impervious area may be adjusted downward.

Estimated Reading for Billing Customers

12.(1) The Commission may estimate a meter reading provided that under no circumstances will an estimated reading be used for more than three consecutive billing periods.

(2) In the event an estimated bill is utilized by the Commission for three consecutive billing periods, the Commission shall make every reasonable effort to obtain a meter reading.

(3) For the purposes of subsection (2), if entry to the property on which such meter is located is required, the Commission shall notify the Customer by first class mail and undertake its reasonable efforts to obtain a reading, and failing such arrangements being made despite its reasonable efforts, the Commission may suspend Service until arrangements are made with the Customer for the Commission to obtain a reading of such meter.

(4) When a meter reading referred to in subsection (3) has been obtained, any previously estimated bill or bills provided in respect of Service measured by such meter shall be

adjusted by the Commission if required by its reconciliation of metered Service data to previously estimated Service.

Suspension or Refusal of Service

13.(1) The Commission shall have the right to suspend Service to a Customer at any Common Customer Location for such Customer where~~ese~~ a water, Wastewater or Stormwater account remains unpaid for more than 40 days.

(2) With respect to

(a) water, Wastewater and Stormwater accounts referred to in subsection 13(1); and
(b) a Landlord who is in default for more than 40 days under the terms of repayment arrangement referred to in subsection 31(2),

unpaid balances will be transferred to HRM with a request from the Commission that they be registered as a lien against the property to which Service is provided or in respect of which a repayment arrangement exists under subsection (2) of Section 31, and in respect of which such accounts have been rendered as evidence of such Service or repayment arrangement.

(3) In the event of a violation of these Regulations by a person or Customer, including liabilities and obligations owed to the Commission by any Customer under a private contract for Services entered into between the Commission and such Customer, the Commission may refuse or immediately suspend Service to such Customer, and may continue such refusal or suspension until the violation has been cured.

Collection of Overdue Bills

14. The Commission may charge a $35.00 fee for each visit by Commission staff to a Customer whose payment is overdue, if in the opinion of the Commission, such fee is warranted.

Customer Bill Retrievals / Copies

15. The Commission shall charge a fee of $12.00 per copy for water, Wastewater, and/or Stormwater bill retrievals or copies issued to Customers outside the Customer's regular billing cycle,except that no such fee shall be charged for the provision of electronic copies of such bills.

Dishonoured Payments

16. The Commission shall charge a $25.00 fee plus bank charges for cheques or pre-authorized payments that have been dishonoured by the Customer's bank or other financial institution.

Deposits

17.(1) The Commission may require an applicant for water, Wastewater and/or Stormwater Service to deposit with the Commission a sum equal to the estimated charges for six months of Service, which deposit shall be held by the Commission as security for the payment of the applicant's bills as a Customer of the Commission.

(2) When a Customer referred to in subsection (1) ceases to be a Customer, a deposit paid in accordance with subsection (1) shall be returned to the Customer with interest thereon at the simple interest rate than being paid on savings accounts by the Commission's chartered bank.

PART IV - CHARGES

Connection/Disconnection of Service

18.(1) The Commission shall charge $55.00 for a connection or disconnection of Service during Regular Working Hours, which charge shall be $210.00 for a connection or disconnection of Service outside Regular Working Hours.

(2) When water, Wastewater, or Stormwater Service has been suspended for any violation of these Regulations, such Service shall not be re-established until a connection charge has been paid.

(3) Despite subsections (1) and (2), where suspension of Service is for non-payment only, the fees set out therein respecting connection or disconnection of Service during Regular Working Hours do not apply in respect of one disconnection and one connection of Service every year, or in any 12 month period.

(4) The Commission may, in considering the circumstances respecting a request to reconnect Service, decline to reconnect such Service outside Regular Working Hours where the Service was disconnected as a result of a violation of these Regulations.

Water Meter Installation

19.(1) The Commission shall charge $55.00 for the installation of a meter in a Customer's premises during Regular Working Hours for a meter size up to and including 25 mm, in a meter setting specified by the Commission and provided by the Customer unless the meter installation is initiated by the Commission as part of an implementation of AMI or other technology, in which case no charge will be applied.

(2) Installation of a meter referred to in subsection (1) which takes place outside of Regular Working Hours shall be subject to a charge of $210.00, unless the meter installation is initiated by the Commission as part of an implementation of AMI or other technology change, in which case no charge will be applied.

(3) In respect of the installation by the Commission of meters of a meter size of 40 mm or larger in a Customer's premises in a meter setting specified by the Commission and

provided by the Customer, such charge shall be calculated based on the Commission's determination of any difficulties or challenges it encountered in carrying out such installation including access to the location of the meter.

Customer Monitoring Service

20.(1) The Commission may enter into an agreement with a Customer to monitor the metered flow of Service to the Customer and to provide the Customer access to the data generated by such monitoring.

(2) The cost of providing the monitoring referred to in subsection (1) will be charged to the Customer at the rate of $120.00 per month per meter, and billed to the Customer monthly.

Inspection of Service Connections and Driveway Culverts

21.(1) The Commission shall require all Water, Wastewater and Stormwater Service Connections, including renewals and repairs, to be inspected by the Commission prior to activation of such water, Wastewater or Stormwater Service, subject to the following fees:

(a) for Water, Wastewater or Stormwater Service Connections, $90.00 per site visit ~~up to and including 50 mm in diameter the fee shall be $90.00 per inspection visit, and $165.00 for Water Service Connections greater than 50 mm in diameter~~.

(b) for water, Wastewater or Stormwater Service Connections requiring an acceptance package under the Commission's design specifications, $75.00 per Application ~~up to and including 125~~150 mm in diameter the fee shall be $90.00 per inspection visit, and ~~$165.00 for Wastewater or Stormwater Service Connections 150 mm or greater than 125 mm in diameter~~.

(c) where multiple Service Connections are inspected within the same inspection visit, the applicable fee shall be charged once ~~only one fee shall apply and it shall be the higher of the applicable fees~~.

(2) Driveway culverts inspected by the Commission shall be subject to a fee of $90.00 per inspection visit.

(3) Replacement of a lead Service Connection pipe shall be exempt from the fees set out in this Section.

Wastewater Rebate

22.(1) A Customer who uses more than 1,000 m^3 of water in a one year period is eligible for a wastewater rebate if they can demonstrate to the satisfaction of the Commission that the volume of Wastewater Discharged by the Customer into the Commission's Wastewater System is less than the volume of water used by the Customer.

(2) Upon application for a rebate referred to in subsection (1) being made by a Customer to the Commission, a rebate of the Wastewater Discharge Charge attributable to the difference between the amount of the water used and the amount of Wastewater Discharged to the Commission's Wastewater System shall be paid to the Customer.

(3) The rebate referred to in subsection (1) does not apply to the Wastewater Discharge Base Charge nor to leakage or wastage from a metered water supply.

(4) Application for a rebate under subsection (1) shall be made annually by a Customer to the Commission, together with such documentation required by the Commission in support of such application for rebate, such application to be submitted to the Commission no later than 6 months after the year in respect of which the application for rebate is made.

Extra Strength Wastewater Surcharge

23.(1) The Commission may grant temporary;approval to a user of a Wastewater System to ~~D~~discharge Extra Strength Wastewater into the Commission's Wastewater System in accordance with the terms of an agreement referred to ~~as set out~~ in Section 65~~ of these Regulations~~.

(2) The approval referred to in subsection (1) shall include an Extra Strength Wastewater surcharge that shall be established by the Commission as set out in Attachment 2 to these Regulations, which surcharge shall be in addition to an approved wastewater Discharge rate and which surcharge shall be in addition to the monthly or quarterly Wastewater bill of the Customer, as the case may be.

The Extra Strength Wastewater surcharge rates are as follows:

Effective May 1, 2015: BOD: $1.0545 per kg and Suspended Solids: $0.8959 per kg

Effective April 1, 2016: BOD: $1.0951 per kg and Suspended Solids: $0.9273 per kg

Audit Inspections and Review of Drawings

24(1). The Commission shall levy a charge pursuant to a services agreement with any person requesting a review of final design drawings for additions or extensions to the Commission's system, at the following rates:

(a)	Water Mains	$1.24 per linear metre
(b)	Wastewater Mains	$1.24 per linear metre
(c)	Stormwater Mains/Ditches/Culverts	$1.24 per linear metre

(2) The charges referred to in subsection (1) are due upon receipt by the Commission of a signed ~~service~~ systems agreement with the counterparty to such agreement.

(3) The Commission will undertake audit inspections of Water, Wastewater and Stormwater Systems in respect of an extension of Commission infrastructure resulting from a subdivision application by an applicant to HRM or in support of a new Service Connection, such audit inspection fee being equal to ~~2~~0.5% of the estimate of the construction cost of the project or $2500, whichever is greater, to which such systems relate.

(4) Audit inspections f~~F~~ees referred to in subsection (3) which are in respect of an extension of ~~Service incorporated~~ Commission infrastructure incorporated in a subdivision application to HRM shall be remitted to HRM.

(5) In the event the Commission incurs costs more than or less than the ~~estimated 2%~~fees described in subsection (3), an amount equal to the difference between such estimated ~~2%~~ fees and actual cost incurred shall be payable to the Commission or reimbursed to the payor of such estimated cost, as the case may be.

Missed Appointment by Customer

25.(1) Where the Commission makes an appointment with a Customer respecting:

(a) a Water, Wastewater, and/or Stormwater Service Connection;

(b) the installation of a water meter;

(c) water turned on or off to a property;

(d) a Service related visit requested by the Commission; or

(e) a Customer's request to have the Commission visit a property,

and the Customer fails to keep or permit such appointment or the required plumbing is not completed to allow for the installation of a water meter, the Commission ~~shall~~ may levy a charge of $45.00 for each missed appointment.

(2) Where the Commission fails to keep an appointment with a Customer under subsection (1), the Commission shall credit the customer's account in the amount of $45.00 for each missed appointment.

(3) Despite subsection (2), the $45.00 charge referred to therein shall not apply in respect of an appointment with a Customer related to an implementation of AMI.

Theft of Service

26. The Commission may impose penalties in addition to charges for Service approved by these Regulations for each unauthorized Water, Wastewater, and/or Stormwater Service Connection and Bulk Fill, as follows:

1st incident	$300.00
2nd incident	$750.00

Designated Bulk Fill Station

27.(1) The Commission may permit a Customer to have access to bulk fill water stations in accordance with the fees, consumption rates and access card use as follows,

(a) annual designated bulk fill station permit fee:

an annual permit fee will be charged for each vehicle equipped for access to the bulk fill stations, as follows:

(i) first Vehicle - $225.00

(ii) each Additional Vehicle - $2150.00

(b) consumption rates:

consumption rates for water accessed through the bulk fill stations will be $2.08 per cubic metre effective May 1, 2015 and $2.24 effective April 1, 2016.

(c) ~~access Cards~~Bulk Fill Station Account:

(i) bulk ~~water access cards~~ fill station accounts will be pre-loaded in specific dollar amounts and will be recorded as deferred revenue;

(ii) ~~bulk water access cards~~ individual accounts and personal identification numbers (PIN) will be assigned to ~~specific~~ each vehicle~~s~~ to use the station to access water~~identified for access to designated fill stations~~;

~~(iii)~~ (iii) when an account is closed by an authorized user any outstanding balance will be refunded to such user;~~the following shall apply in respect of access cards:~~

~~(A) first time applicants shall receive one access card per permit;~~
~~(B) a fee of $20.00 shall be charged for each additional access card; and~~
(iii) ~~(C) a fee of $200.00 shall be charged for replacement of a lost or stolen card.~~

(iv) ~~Access cards may be returned by the authorized user and any outstanding balance will be refunded to such user upon such return.~~

(2) Consumption charges will be deducted from an ~~access card balance~~ account based on the volume of water sold in accordance with the rate structure authorized by these Regulations.

(3) Vehicles accessing a designated bulk fill station shall be inspected and approved by the Commission on an annual basis, beginning April 1, as part of its permitting process.

(4) Designated bulk fill station procedures as prescribed by the Commission shall be adhered to at all times by authorized users as a condition of retaining such permit.

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(5) Failure to comply with the permitting requirements set out in this Section shall result in termination of a designated bulk fill station permit.

(6) The Commission reserves the right to control flow rates at each designated fill station.

Area Master Capital Cost Contribution Charge

28.(1) The Commission may establish a water, Wastewater and Stormwater capital cost contribution charge to be collected from developers and/or future Customers requiring extension of oversized infrastructure.

(2) The total amount of a capital cost contribution charge shall ensure that the cost impact to the Commission is neutral to the design, construction, financing and applicable overhead costs, as prescribed by the Commission.

(3) The water, Wastewater and Stormwater capital cost contribution charge shall be calculated for charge areas referred to in Attachment 3 and allocated on the basis of the water, Wastewater and Stormwater capital cost contribution formula, as set out in Attachment 3.

(4) Funds collected under the water, Wastewater and Stormwater capital cost contribution charge shall be placed in a reserve account and will be used for extension or improvements of the applicable system within the area related to the charge upon application and subject to the approval of the Board.

(5) The Commission may require a capital cost contribution from developers and/or future users requiring extension or improvements of the Water, Wastewater or Stormwater System, the total amount of such capital cost contribution having a cost impact to the Commission which is neutral to the design, construction, financing and applicable overhead as prescribed by the Commission.

(6) Cost factors to be used in calculating the capital cost contribution in subsection (5) shall include, but not be limited to the supply, storage, transmission, distribution, pressure control and fire protection requirements as required by the Commission from time to time.

(7) The Commission will allocate capital costs in accordance with the Rates and Charges approved by these Regulations.

Regional Development Charge for Wastewater Infrastructure

29.(1) In this Section,

(a) “Regional Development Charge” means a regional development charge for Regional Wastewater infrastructure;

(b) “Regional Wastewater Infrastructure” means core regional Wastewater treatment facilities and trunk sewer systems directly conveying Wastewater to, or between, such facilities, including

(i) existing Wastewater treatment facilities (WWTF) that provide a regional Service including the facilities generally known as the Halifax WWTF, Dartmouth WWTF, Herring Cove WWTF, Eastern Passage WWTF, Mill Cove WWTF Beechville/Lakeside/Timberlea WWTF, and Aerotech WWTF,

(ii) trunk sewers and related appurtenances which directly convey Wastewater to regional treatment facilities, and

(iii) trunk sewers and related appurtenances which divert Wastewater from one regional treatment facility to another due to environmental concerns, capacity constraints or operational efficiency

but does not include infrastructure within or directly adjacent to approved or planned development areas which is required to directly support development within an approved or planned development area;

c) "Regional Wastewater Master Plan" means an overall servicing plan for regional Wastewater treatment and collection systems to accommodate planned growth.

(2) A Regional Development Charge shall be established to ensure the cost impact to the Commission is neutral to the design, construction and financing during construction of capacity expansion to Regional Wastewater Infrastructure related to planned growth.

(3) A Regional Development Charge applicable to new buildings that will be connected to a Wastewater System, as detailed in Table 4A, shall be paid to HRM as agent for the Commission prior to the issuance of a building permit or permit to connect to the Wastewater System, as applicable.

Table 4A. Regional Development Charge - Wastewater

Type of Development	July 14, 2014	April 1, 2015
SUD/TH[1]	$ 2,853.90	$ 4,080.80
MUD[2]	$ 1,812.42	$ 2,740.84
ICI[3] (per sq ft)	$1.41	$ 2.24

1 SUD/TH – Single Unit Dwelling/Townhouse
2 MUD – Multiple Unit Dwelling
3 ICI – Industrial, Commercial or Institutional

(4) For new buildings, ~~and~~ building additions and renovations that are undertaken as the redevelopment of an existing serviced building, the Regional Development Charge applicable under subsection (3) shall be based on the net increase in residential units and/or square footage of floor space for Non-Residential construction, as applicable, but not including interior or underground parking.

(5) When an un-serviced lot of land, occupied by a building, existed prior to July 14, 2014, the Regional Development Charge applicable under subsection (3) shall be payable to the Commission, when the building is connected to the Wastewater System.

(6) A Regional Development Charge applicable to Industrial, Commercial or Institutional premises will be determined by applying the charge in subsection (3) to the area of the building.

(7) The Regional Development Charge set out in Table 4A shall be collected by HRM on behalf of the Commission at the time an application for construction approval is submitted.

(8) Funds collected under the Regional Development Charge shall be placed in a reserve account and shall be used for providing capacity in Regional Wastewater Infrastructure as defined in the current Regional Wastewater Master Plan.

(9) Subject to subsections (10) and (11) the Commission may consider and approve deferral of payment of a Regional Development Charge in its sole discretion where such Charge otherwise payable is $100,000 or greater.

(10) The deferral of payment referred to in subsection (9) may be, in the Commission`s sole discretion, up to 25% of the Regional Development Charge otherwise payable under this Section, which deferral shall be placed as a lienable charge on the property, to be collected by HRM, pursuant to clause 33(2)(a) of the Halifax Regional Water Commission Act.

(11) The regional level infrastructure to be supported by the Regional Development Charge is deemed to be for the benefit of the properties to be liened.

(12) Subject to subsections (13) and (14), the administration of the Regional Development Charge shall, every five years after, July 14, 2014, be reviewed by the Commission, including with reference to any changes to the Regional Wastewater Master Plan.

(13) In the event changes to the inputs to the Regional Wastewater Master Plan, including growth projections, land use, consumption rates, inflow/infiltration assumptions, capital costs, financing costs, and benefit to existing ~~c~~Customers, result in changes to the infrastructure requirements identified in the Regional Wastewater Master Plan, including the timing of their implementation, the Regional Development Charge, will be reviewed by the Commission and adjusted, subject to Board approval, prior to a five year review described in subsection (12).

(14) In the event the changes to infrastructure requirements described in subsection (13) result in an impact of 15%, either in the positive or the negative, to the Regional Development Charge, the Commission will change the Regional Development Charge, subject to Board approval, to reflect such impact in infrastructure requirements. (June 2014)

Regional Development Charge for Water Infrastructure

30.(1) In this Section,

(a) “Regional Development Charge” means a regional development charge for water infrastructure;

(b) “Regional Water Infrastructure” means core regional water supply facilities and the water transmission systems directly conveying water from such facilities to the various distribution systems, including

(i) existing water supply facilities that provide a regional Service including the facilities generally known as the J.D. Kline water supply facility at Pockwock Lake and the Lake Major water supply facility at Lake Major,

(ii) water transmission mains and related appurtenances which directly convey water from regional treatment facilities to the distribution system, and

(iii) water transmission mains and related appurtenances which divert water from one regional treatment facility supply area to another due to environmental concerns, capacity constraints or operational efficiency

but does not include infrastructure within or directly adjacent to approved or planned development areas which is required to directly support development within an approved or planned development area;

(c) “Regional Water Master Plan” means an overall servicing plan for regional water treatment and transmission systems to accommodate planned growth.

(2) A Regional Development Charge shall be established to ensure the cost impact to the Commission is neutral to the design, construction and financing during construction of capacity expansion to Regional Water Infrastructure related to planned growth.

(3) A Regional Development Charge applicable to new buildings that will be connected to a Water System, as detailed in Table 4B, shall be paid to HRM as agent for the Commission prior to the issuance of a building permit or application to connect to the water System, as applicable.

Table 4B. Regional Development Charge - Water

Type of Development	July 14, 2014	April 1, 2015
SUD/TH[1]	$ 91.44	$ 182.88
MUD[2]	$ 61.42	$ 122.83
ICI[3] (per sq ft)	$ 0.04	$ 0.09

1 SUD/TH – Single Unit Dwelling/Townhouse
2 MUD – Multiple Unit Dwelling
3 ICI – Industrial, Commercial or Institutional

(4) For new buildings, ~~and~~ building additions and renovations that are undertaken as the redevelopment of an existing serviced building, the Regional Development Charge applicable under subsection (3) shall be based on the net increase in residential units and/or square foot of floor space for Non-Residential construction, as applicable, but not including interior or underground parking.

(5) When an un-serviced lot of land, occupied by a building, existed prior to July 14, 2014, the Regional Development Charge applicable under subsection (3) shall be payable to the Commission, when the building is connected to the Water System.

(6) A Regional Development Charge applicable to Industrial, Commercial or Institutional premises will be determined by applying the charge in subsection (3) to the area of the building.

(7) The charge set out in Table 4B will be collected by HRM on behalf of the Commission at the time an application for construction approval is submitted.

(8) Funds collected under the Regional Development Charge shall be placed in a reserve account and shall be used for providing capacity in Regional Water Infrastructure as defined in the current Regional Water Master Plan.

(9) Subject to subsections (10) and (11) the Commission may consider and approve deferral of payment of a Regional Development Charge in its sole discretion where such Charge otherwise payable is $100,000 or greater.

(10)The deferral of payment referred to in subsection (9) may be, in the Commission`s sole discretion, up to 25% of the Regional Development Charge otherwise payable under this Section, which deferral shall be placed as a lienable charge on the property, to be collected by HRM pursuant to clause 33(2)(a) of the Halifax Regional Water Commission Act.

(11)The regional level infrastructure to be supported by the Regional Development Charge is deemed to be for the benefit of the properties to be liened.

(12)Subject to subsections (13) and (14), the administration of the Regional Development Charge for water shall, every five years after July 14, 2014, be reviewed by the Commission, including with reference to any changes to the Regional Water Master Plan.

(13)In the event changes to the inputs to the Regional Water Master Plan, including growth projections, land use, consumption rates, inflow/infiltration assumptions, capital costs, financing costs, and benefit to existing ~~c~~Customers, result in changes to the infrastructure requirements identified in the Regional Water Master Plan, including the timing of their implementation, the Regional Development Charge, will be reviewed by the Commission and adjusted, subject to Board approval, prior to a five year review described in subsection (12).

(14)In the event the changes to infrastructure requirements described in subsection (13) result in an impact of 15%, either in the positive or the negative, to the Regional Development Charge, the Commission will change the Regional Development Charge, subject to Board approval, to reflect such impact in infrastructure requirements. (June 2014)

Recovery of Costs

31(1) The Commission may recover from a person who has violated these Regulations its costs incurred as a result of any such violation.

(2) The Commission may recover costs and expenses from a person who has entered into a repayment arrangement with the Commission, respecting an amount not to exceed ten

thousand dollars, to enable full replacement of the private portion of a lead service line, full replacement of the private portion of No-Corrode Pipe, full replacement of a non-compliant water, wastewater or stormwater lateral, or installation of the private portion of a new deep stormwater sewer lateral, such repayment arrangement not to exceed 60 months at an interest rate not to exceed prime plus 2%.

PART V - FIRE PROTECTION CHARGES

Public Fire Service Charge

32. The Commission shall annually render to HRM not later than the last day of August, an invoice for fire protection service calculated in accordance with these Regulations.

Public Fire Protection Rate

33. Effective ~~May 1, 2015 HRM shall pay, to the Commission for public fire protection services, the sum of $8,031,718 which is comprised of:~~

~~(a) payment for the period beginning April 1, 2015 and ending April 30, 2015 will be based on 1/12 of the 2014/15 amount of $8,952,880;~~

~~(b) payment for the period beginning May 1, 2015 and ending March 31, 2016 based on 11/12 of $7,947,976; and~~

~~beginning~~ April 1, 2016, HRM shall pay annually to the Commission for public fire protection services the sum of $7,074,373.

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Special Service Supplied from Fire Hydrants

34.(1) Water supplied from fire hydrants is reserved for firefighting or for Commission Water, Wastewater or Stormwater System maintenance purposes.

(2) Any person, other than the Halifax Regional Fire and Emergency Service or the Commission, who desires to use a fire hydrant for the supply of water, shall obtain prior written approval from the Commission.

(3) The Commission may furnish water from a fire hydrant to persons requiring temporary supply pursuant to Section 8 of these Regulations.

(4) Any connection to a fire hydrant other than in accordance with this section shall constitute an offence against these Regulations.

Building Fire Protection Systems

35.(1) A ~~c~~Customer, in respect of each of its buildings having a fire protection system installed, shall pay annually to the Commission fees for such service as follows:

~~Table 5. Charges for Sprinklers 2015/16~~

~~Description~~	~~Diameter mm~~	~~Ratio of Area to Reference Size~~	~~Annual Charge~~
~~Reference size~~	~~25~~	~~1.0~~	~~$50.00~~
~~Fire Lines~~	~~50~~	~~4.0~~	~~$67.00~~
~~Fire Lines~~	~~75~~	~~9.0~~	~~$170.00~~
~~Fire Lines~~	~~100~~	~~16.0~~	~~$262.00~~
~~Private Hydrants~~	~~150~~	~~36.0~~	~~$314.00~~
~~Fire Lines~~	~~150~~	~~36.0~~	~~$314.00~~
~~Fire Lines~~	~~200~~	~~64.0~~	~~$402.00~~
~~Fire Lines~~	~~250~~	~~100.0~~	~~$402.00~~
~~Fire Lines~~	~~300~~	~~144.0~~	~~$402.00~~

Table 5. Charges for Sprinklers 2016/17:

Description	Diameter mm	Ratio of Area to Reference Size	Annual Charge
Reference size	25	1.0	$50.00
Fire Lines	50	4.0	$68.00
Fire Lines	75	9.0	$170.00
Fire Lines	100	16.0	$269.00
Private Hydrants	150	36.0	$373.00
Fire Lines	150	36.0	$373.00
Fire Lines	200	64.0	$478.00
Fire Lines	250	100.0	$478.00
Fire Lines	300	144.0	$478.00

(2) A Customer shall be responsible for the cost of installing a private fire line from the street water main to a building, including a shut-off valve approved by the Commission.

(3) The charges set out in Table 5 shall be based on the size of the line of a building fire protection system at the point of its connection with a hydrant line or sprinkler line.

PART VI - PROVISION OF SERVICE

Liability for Payment of Service

36.(1) Any person who applies to the Commission for water or Wastewater Service is deemed to

agree to take and pay for such Service according to the rates and charges approved by these Regulations.

(2) Any person receiving Stormwater Service is liable for payment for such Service according to rates and charges as approved by the Regulations.

(3) Any person who receives water or Wastewater Service whether metered or unmetered, without the consent of the Commission, shall be liable for the cost of such Service as determined in the sole discretion of the Commission based upon its reasonable estimate of the amount of Service utilized.

(4) Where Service is supplied to a condominium unit, the condominium corporation in which the unit is situated shall be deemed to be the ~~c~~Customer of record and shall be liable for payment of Service to the condominium unit.

(5) The Commission may, in its sole discretion, require a property owner who rents or leases a property, or a self-contained unit within such property, to open an account with the Commission for Service to such property or self-contained unit.

Plumbing to be Satisfactory

37.(1)(a)All plumbing, pipes, fittings, vents, fixtures, and other devices used by a Customer in receiving Service from the Commission but which devices are not the property of the Commission, shall be installed in a manner provided by the Building Code Act (Nova Scotia) and regulations made thereunder and be approved by a person appointed as a building inspector under HRM's By-law B-201 respecting the Building Code, including its successor, and as amended from time to time.

(b)Despite clause (a), in order to facilitate a conversion to AMI technology and eliminate the requirements for multiple visits to a Customer's premises, any additional costs to the Commission related to the implementation of AMI, including meter installation, shall be borne by the Commission.

(2) Service shall not be provided, except for construction and testing purposes, until an applicant for Service has complied with the requirements set out in subsection (1).

(3) Water Service may be discontinued at any time, if in the opinion of the Commission, a person has not complied with the requirements of subsection (1).

(4) Water Service to a Customer may be discontinued at any time if, in the opinion of the Commission, the water meter measuring such Service is in a dirty, unsanitary or inaccessible place.

Prohibited Appliances

38. (1) Water Service may be refused or suspended by the Commission to a Customer who installs or uses any device or appurtenance, including booster pumps, quick opening or quick closing valves, water operated pumps or siphons, stand pipes, private fire hydrants

or large outlets for supplying ships, which may cause sudden large demands of any duration or affect the stability of regulation of water pressure in the Commission's Water system.

(2) Permission to install or use any device or appurtenance listed in subsection (1) shall be obtained from the Commission.

Improper Use of Water, Wastewater, or Stormwater

39. No Customer shall permit the improper use of water, Wastewater, or Stormwater, nor sell or give water to any person, except upon such conditions and for such purposes as may be approved in writing by the Commission.

Capacity of Wastewater and/or Stormwater Systems

40. In the event the Commission deems that the Wastewater and/or Stormwater Systems, or any portion thereof, have insufficient capacity to accept existing or proposed Wastewater and/or Stormwater flows, the Commission may require that the amount of flow which can be Discharged into the Wastewater and/or Stormwater Systems be limited according to such terms and conditions as the Commission may approve.

Pipe Installation

41. The Commission shall not be required to install pipe in any short term or seasonal conditions which, in its opinion, are not suitable for such installations and under which the Commission cannot guarantee a free flow of water, Wastewater and/or Stormwater in service pipes.

Unauthorized Extensions, Additions, or Connections

42. No person shall, without the prior written consent of the Commission, make or cause to be made any connection to any part of the water, Wastewater or Stormwater System, or in any way obtain or use the Water, Wastewater or Stormwater System in any manner other than as set out in these Regulations.

Interference with Commission Water System

43.(1) No person shall, unless authorized by the Commission in writing:

(a) draw water from, open, close, cut, break, infill, alter or in any way injure or interfere with any fire hydrant, water main, service pipe, or property of the Commission;

(b) obstruct the free access to any hydrant, valve, service box, meter, or property of the Commission.

~~(2)~~ Nothing in this Section shall be deemed to prevent an officer or member of the Halifax Regional Fire and Emergency engaged in Discharge of his duties and responsibilities,

from using any hydrant or other source of water supply of the Commission for such purpose.

Interference with Commission Wastewater or Stormwater System

44. No person shall, unless authorized by the Commission in writing:

(a) Discharge Wastewater or Stormwater into the Wastewater System or Stormwater System;

(b) open, cut, break into, or in any way injure or interfere with any part of the Wastewater System or Stormwater System, or any property of the Commission;

(c) obstruct the free access by the Commission to any portion of the Wastewater System or Stormwater System.

PART VII - METERING

Water to be Supplied Only by Meter

45A(1) Where AMI becomes available to a Customer, the Commission may require such Customer to have an AMI meter installed for the metering of Service.

(2) Where AMI is the standard meter in use, and a new Customer at an existing or new location refuses to permit the installation or continued use of an existing AMI meter and, as a result of such refusal, the Commission installs a manually read meter, such Customer will be subject to a charge of $50.00 for the measurement of Service by a meter which is required to be read manually and such meter will be read on a quarterly basis.

(3) Where an existing Customer has water consumption measured by a meter which uses a radio frequency technology to report the meter readings to a receiving device, such Customer may not refuse replacement of such meter with an AMI meter.

45.(1) All water Service shall be metered, except as otherwise provided in these Regulations.

(2) The Commission shall approve the size and type of meter to be installed for water Service, which meters remain the property of the Commission while metering such Service.

(3) Where a Customer chooses to sub-meter to allocate costs, such sub-meter shall be installed downstream of the Commission's meter.

(4) Sub-meters referred to in subsection (3) shall be considered by the Commission to be owned, installed, read and maintained by the customer at the Customer's expense.

(5) Despite subsections (3) and (4), data provided by the Commission's meter shall be used to prepare billings for Service.

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(6) In the event of a discrepancy between readings displayed by a meter and a meter reading device located on the exterior of a building to which water service is provided the reading of the meter shall govern.

(7) A Customer shall not sell unmetered water to any person without the prior written approval of the Commission.

Installation and Removal of Water Meters

46.(1) All meters, outside register devices, and radio frequency units, shall be installed, maintained and removed with the approval of and under the supervision of the Commission.

(2) No person shall install, alter, change or remove a meter without the prior written permission of the Commission.

(3) Each metered Service shall have a stop device located at the property line or outside the building foundation wall of a premises where Service is provided, as determined by the Commission, to permit control of such Service.

(4) Each water Service line shall be metered individually.

(5) A Service Connection to a meter shall be installed with a shut-off valve on both sides of the meter, inside the building, to the satisfaction of and without expense to the Commission, and as prescribed by the Commission.

Location of Water Meters

47.(1) The Commission shall have the right to refuse water Service to, or suspend the water Service of any Customer who does not provide a place which, in the opinion of the Commission, is suitable for a meter, and a related reading device located on the exterior of the building to which Service is provided.

(2) A meter shall be located in the building to which water Service is provided in close proximity to the point of entry into such building of the service pipe, in a location where it can be easily read, and replaced, and where it will not be exposed to temperatures below the freezing point of water.

(3) A meter reading device located on the exterior of a building to which water Service is provided shall be located where it can be easily read and replaced.

(4) In the event of an alteration or renovation to a building to which water Service is provided, the Customer shall be responsible, as required by the Commission, to relocate the meter, including, as may be required by the Commission, a meter reading device located on the exterior of such building, at the Customer's expense and to a location approved by the Commission.

(5) Where the premises of a Customer are of such a nature that a meter cannot be adequately installed in a building or if the building is not sufficiently resistant to the effects of frost to maintain the proper and accurate functioning of the meter, the Commission may order the Customer to provide a reasonably frost resistant insulated receptacle in which the meter can be placed for its safe and accurate functioning.

(6) Until a Customer complies with the requirements set out in subsection (5) the Commission may refuse or suspend water Service to the premises.

(7) In order for a Customer to comply with the requirements set out in subsection (5), the Commission may require such Customer to have installed at the Customer's expense a by-pass around a meter which is ~~50~~75 mm or larger in diameter.

Master Water Meters

48.(1) In circumstances where a Customer or Customers is or are, as the case may be, provided Service by the Commission with multiple water meters, the Commission may supply, at its expense, a master meter and install such master meter in a location on such Customer's premises in a manner approved by the Commission.

(2) A Customer is liable to pay for water which passes through the meter measuring Service to such Customer, provided, however, that if the aggregate of the amounts of water passing through the meters of individual Customers is less than the amount of water passing through the master meter associated with the meters of such individual Customers, the difference in cost of Service obtained by subtracting the aggregate cost of metered water Service measured by the meters of individual Customers from the cost of metered water Service measured by the master meter shall be shared equally among such individual Customers.

(3) The Commission may suspend water Service without notice to those individual Customers referred to in subsection (2) who fail to pay their respective portion of the difference in cost of water Service described therein.

(4) Customers receiving water Service where there is a master meter providing Service as described in subsection (1) are jointly and severally liable for all water passing through such master meter and for the minimum charges therefor as provided herein.

(5) The Customer, or group of individual Customers referred to in this section, as the case may be, is responsible for the distribution of water from the Commission's master meter to the properties of a Customer or Customers, and the Commission shall be under no obligation to install, maintain or replace any pipes, appliances, fixtures, or other apparatus connected therewith.

Damage to Water Meters

49.(1) A Customer is responsible for the condition of the ERT and the water meter installed on the service pipe through which Service is provided to the Customer's premises and shall take reasonable measures to protect the condition of such water meter.

(2) A Customer is liable for any damage to a water meter, ERT and related equipment, providing Service to such Customer's premises, including damage resulting from any willful act, carelessness, hot water, steam, or the action of frost.

(3) Costs incurred by the Commission resulting from damage to a water meter, ERT and related equipment providing Service to a Customer's premises shall be paid by the Customer.

(4) After tendering a bill to a Customer for costs referred to in subsection (3), and such bill remains unpaid 30 days thereafter, the Commission may suspend water Service to such Customer.

Meter Testing

50.(1) Subject to subsection (2), and in respect of meter sizes 15mm to 50mm, upon receiving a request from a Customer to have such Customer's meter tested the Commission may charge the sum of $100.00 to defray in part the cost of conducting the test.

(2) If the test referred to in subsection (1) indicates that:

(a) for positive disc type displacement meters the meter is over-registering by more than 1.5 %, or

(b) for turbine or compound meters the meter is over-registering by more than 3%,

the sum charged to a Customer under subsection (1) shall be refunded to such Customer and the bill for Service rendered to that Customer shall be adjusted accordingly, provided that no volumetric adjustment shall be made for a period beyond two years prior to such test and one refund shall be made only to the Customer who, based on such test results, overpaid for Service.

(3) For meters of ~~80~~75 mm and larger which require on-site testing, the Commission shall levy a fee to cover the expenses in contracting a third party to conduct testing.

(4) The amount referred to in subsection (3) shall be billed to the Customer if the testing conducted confirms to the satisfaction of the Commission that the meter was providing accurate readings prior to the Customer's request that the meter be tested.

(5) If a meter has been removed from service due to its replacement any dispute between the Commission and the Customer will be resolved based on the best information available in the absence of the meter, including historic metered consumption and occupancy and use of the premises in respect of which such Service is provided.

PART VIII - WATER SERVICE

Water Service Connection

51. Upon receipt of an application for water Service to any premises fronting on a public street,

where there exists adjacent to such section of public street a Commission owned and active water main and such premises are not already provided with water Service, the Commission shall allow the installation of a Service Connection which it considers to be of suitable size to provide the Service required, provided that

(a) no water Service smaller than ~~20~~19 mm in diameter shall be installed;

(b) the necessary excavation for the laying of the Service Connection, backfilling, and replacement of the street and sidewalk surfaces from the water main in the street to the premises, including the supply and laying of the Service Connection and fittings to the specifications of the Commission, shall be the responsibility of the applicant for water Service and all such work shall be performed without cost to the Commission;

(c) such excavation may be the same excavation as is used for the Service Connection or if minimum horizontal and vertical separation between water and Service Connections cannot be obtained, a separate excavation for the ~~W~~water Service Connection shall be required, provided, however, that in either case, the excavation shall be carried out by the applicant to the satisfaction of the Commission;

(d) should any person make application for more than one Service Connection to a premises, the decision respecting the necessity of the additional service pipe shall be made by the Commission;

(da) where the Commission concludes that repair, replacement or other disturbance of a ~~W~~water Service Connection composed of lead should be undertaken on an urgent basis, it will replace such ~~W~~water Service Connection at the Commission's expense.

(db) contemporaneous with the replacement of the ~~W~~water Service Connection referred to in clause (da) the Commission will seek the consent of the Customer for the Commission to replace the Customer's lead water Service Connection pipe, terminating at its connection to the water meter on the Customers' premises.

(dc) where a Customer advises the Commission that it intends to replace its lead Service Connection pipe, the Commission shall replace the ~~W~~water Service Connection composed of lead leading to such Customer's property as soon as practicable thereafter.

(dd) a Customer who replaces a lead water Service Connection pipe, as contemplated in clause (dc), shall be reimbursed by the Commission 25% of the cost of such replacement, to a maximum of $2500.00, upon completion of replacement of the ~~W~~water Service Connection by the Commission.

(de) the reimbursement referred to in clause (dd) shall be limited to the cost of excavating the Customer's property, installing the replacement service, connection to the Commission's service and meter and reinstating excavated materials.

(e) all Service Connections shall be installed in accordance with the Building Code Act, R.S.N.S. 1989, c. 46 and regulations made under the authority of that Act and to the satisfaction of the Commission;

(f) when a Service Connection has been installed without objection from the Customer as to

its location, no subsequent removal of or alteration to the position of the Service Connection shall be made except at the expense of the Customer requesting such removal or alteration;

(g) each water Service Connection shall be individually metered;

(h) in the event of a change of the use of such premises, including by way of rezoning, re-subdivision, condominium conversion or otherwise, where such use would result in an increased occupancy of the premises, the owner of such premises shall apply to the Commission for a determination of whether the existing Service Connection or Connections is or are, as the case may be, of a suitable size to provide the increased demand required, pursuant to which application:

(i) the applicant may be required to provide a hydraulic analysis of the proposed water use and existing system to determine the suitability of the Service for the new use, subject to the Commission, in its sole discretion, determining whether existing Service Connections are not suitable;

(ii) all such Service Connections shall be installed at the owner's expense, from the main water line in the public street or right of way to the applicant's premises, such installation to be in accordance with the Building Code Act, R.S.N.S. 1989, c.46 and regulations made under the authority of that Act and to the satisfaction of the Commission;

(iii) When a Water Service Connection is abandoned or is to be abandoned, the Commission may require the owner of the property serviced by such Water Service Connection to, at its expense, cap off such Water Service Connection at the water main water line referred to in subclause ~~51(h)~~(ii) or as otherwise prescribed by the Commission.

(iv) The Commission may require the owner referred to in subclause (iii) to provide either a maintenance bond in the amount of Ten Thousand Dollars ($10,000.00) respecting residential Water Service Connections and Twenty Thousand Dollars ($20,000.00) respecting ICI Water Service Connections, or a certified cheque payable to the Commission to ensure performance of such abandonment.

(v) Where an owner fails to carry out an abandonment referred to in subclause (iii) within six months of issuance of a demolition permit by HRM, the Commission shall be entitled to negotiate the maintenance bond or certified cheque, as the case may be, referred to in subclause (4) without notice to the owner, and apply the proceds to the cost of completing such abandonment, together with other costs related thereto, and the balance of the proceeds, if any shall be returned to the owner without interest.

~~(iii)~~(vi) Where an application for a Service Connection is submitted to the Commission with a building permit for a construction project with a value greater than $100,000, or where a property is being redeveloped, and the Service Connection is 30 years of age or older, the owner shall install a replacement or new Service Connection at the owner's expense and in accordance with the Commission's design specifications.

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Water Service Cross Connection Control & Backflow Prevention

52.(1) In the event of any breach, contravention or non-compliance by a person of any of the provisions in subsections (2), (3), (4) or (5), the Commission may:

(a) suspend water Service to such person, or

(b) give notice to the person to correct the breach, contravention or non-compliance within 96 hours, or a specified lesser period, provided that, if such person fails to comply with such notice, the Commission may immediately suspend water Service to such person.

(2) No person shall connect, cause to be connected, or allow to remain connected to a Water System, or a plumbing installation, without the prior written approval of the Commission, any piping fixtures, fittings container or sanitary appliance in a manner which may cause water, Wastewater, or any other liquid, chemical or substance, to ingress or egress the Water System.

(3) Where, in the opinion of the Commission, there may exist a risk of contamination to the Water System, the Commission may, despite subsection (1), require a Customer, at the Customer's sole cost and expense, to install at any point on the Customer's Water Service Connection or water service pipe, one or more backflow prevention (BFP) devices, which devices shall be of a quality and type approved by the Commission.

(4) All BFP devices installed pursuant to subsection (3) shall be maintained in good working order, inspected and tested by a certified tester approved by the Commission, at the expense of the Customer, and carried out annually or at such other intervals as the Commission may require.

(5) A Customer shall submit a report in a form approved by the Commission respecting all tests performed pursuant to subsection (4) on a BFP device within ~~30~~7 days of a test, such report form to be displayed on or adjacent to the BFP device on which the tester shall record:

(a) the name and address of the owner of the device;

(b) the location, type, manufacturer, serial number, and size of the device;

(c) the test date, the tester's initials, the tester's name, the name of the tester's employer, and the tester's license number.

(6) The Commission shall maintain a program for the issuance, renewal and cancellation of Cross Connection Control Tester's Licenses, which shall include minimum standards, insurance requirements, fees and administrative procedures.

(7) Installation, maintenance, field-testing and selection of all BFP devices shall conform to the latest edition of CSA ~~8~~B64.10 and CSA B64 series.

Alternate Water Supply Prohibited

53.(1) Subject to subsection (2), where a Customer's ~~water system~~ plumbing is connected to the Commission's Water System, connection to any other source of water supply is prohibited.

(2) The prohibition in subsection (1) does not apply where a Customer has installed on its private water supply~~system~~ or Water Service Connection a device acceptable to the Commission to prevent the flow of water from another source of water supply into the Commission's Water System.

Repairs to Water Service Connection

54. Where a repair to a Service Connection is required:

(a) it shall be carried out as soon as practicable at the Commission's expense if the repair is located between the main and the street boundary line or the easement boundary, and otherwise at the Customer's expense;

(b) despite clause (a) the Commission may make such repairs for any Customer provided the Customer agrees to pay the cost of repair and provided the Customer requesting the Commission carry out such work deposits with the Commission a sum equal to the estimated cost of the work; and

(c) should a repair be required on the Customer's portion of the Service Connection, and the Customer, after being notified, refuses or unreasonably delays to have repairs made, the Commission may, upon notice to the Customer, discontinue the Customer's water Service in order to prevent wastage of water or property damage.

Water Service Pressure Reducing Valves

55. Where, in the opinion of the Commission, a pressure reducing valve is required for proper Service to a Customer:

(a) the valve shall be installed on the service pipe between the meter and the shutoff valve on the supply side of the meter;

(b) the type of valve shall be satisfactory to the Commission; and

(c) the Customer shall be responsible for the cost of purchasing, installing and maintaining the valve.

Water Service Control Valves

56. In respect of water service control valves;

(a) the service box or valve housing the premises' control valve shall be exposed for access by Commission personnel at all times,

(b) all control valve service boxes or valves shall be fully exposed and adjusted to final landscape grade before the installation of the premises' water meter,

(c) any adjustment to the service box or valve box shall be the responsibility of the Customer,

(d) the Commission may provide the service to adjust the service box or valve box and invoice the Customer for all expenses incurred in providing such service,

(e) in the event the service box is buried, paved over, back-filled or damaged as a result of carelessness, willful obstruction or any other like occurrence that, in the opinion of the Commission, results in the Commission being required to expose, adjust or repair the service box and/or valve box, such activity of the Commission shall be at the Customer's expense,

(f) the Commission may undertake such activities as it deems necessary to gain access to the premises' control valve or curb-stop without expense to the Commission,

(g) in respect of actions undertaken by the Commission pursuant to clauses (e) and (f), reinstatement of the road, right-of-way, driveway, sidewalk, curb or landscape will, at the discretion of the Commission, be charged to and recovered from the Customer.

Water Conservation Directives

57.(1) The Commission may implement water conservation measures, if in the opinion of the Commission, such measures will permit the Commission to provide a reliable, continuous water supply to all Customers serviced by the Commission.

(2) During such times as water conservation measures referred to in subsection (1) are implemented, Customers who do not comply with such measures may have their water Service suspended during such period as the Commission's water conservation measures are in place.

(3) The cost of turning on a water Service suspended pursuant to subsection (2) will be the responsibility of the Customer.

Acceptance of Private Community Water, Wastewater and Stormwater Systems

58. The acceptance of private community water, Wastewater and Stormwater systems by the Commission shall be in accordance with Attachment 1 to these Regulations, entitled "Procedure for Acceptance of Private Community Water, Wastewater and Stormwater Systems".

PART IX - FIRE PROTECTION

Fire Protection Service Pipes

59.(1) Upon receipt of an application, the Commission will permit an applicant to install a fire

protection service pipe from the street main to the applicant's premises, subject to the applicant being responsible for all excavation, backfill, labour, material and street and sidewalk restoration costs related to such fire protection service pipe installation and subject to the Commission making the required connection to the street main at the applicant's cost.

(2) If requested by an applicant, and subject to the applicant having applied for and received all required approvals, a metered service pipe may be connected to the fire protection service pipe outside the serviced premises provided such metered service pipe is fitted with a shutoff valve approved by the Commission.

(3) The portion of a private fire line that extends from the water main in a street to the street boundary line of a property shall be, and is hereby deemed to be, vested in the Commission and the Commission's portion of such line shall be maintained by the Commission.

(4) Discharge of water from fire protection systems for maintenance purposes shall be in accordance with these Regulations.

Private Fire Protection

60.(1) Fire protection plumbing within buildings shall be installed in such manner that all pipes will be open and readily accessible for inspection at any time by authorities having jurisdiction in such matters, and no connection for any purpose other than fire protection shall be made thereto,

(2) Unless approved by the Commission in writing, no fire protection charge line shall be connected in any manner to a metered Service,

(3) A Customer is solely responsible for the maintenance, repair and replacement of all privately owned fire protection systems, including fire protection plumbing, valves, sprinklers, hydrants, and related appurtenances.

PART X - WASTEWATER AND/OR STORMWATER SERVICE

Wastewater and/or Stormwater Service Connections

61.(1) Every Wastewater and Stormwater Service Connection shall be designed and constructed at the expense of the Customer served by such Service Connection, whether on privately owned property or otherwise.

(2) No person shall make a physical pipe connection to the Wastewater System or the Stormwater System without the prior written approval of the Commission.

(3) The Commission may require a Wastewater or Stormwater Service Connection to be inspected and brought into compliance with these Regulations and the Commission's

Design and Construction Specifications as amended from time to time.

(4) The Commission shall determine the necessity of having more than one Wastewater Service Connection or more than one Stormwater Service Connection to a premises, upon application by any person requesting more than one such connection.

(5) When the portion of a Wastewater or Stormwater Service Connection located within a street right of way or easement has been installed without objection from a Customer respecting location of such Service Connection, no subsequent removal or alteration of the location of such Service Connection shall be made except at the expense of the Customer requesting such removal or alteration.

(6) In the event of a change of the use of premises, by way of rezoning, re-subdivision, condominium conversion or otherwise, where such use would result in an increased occupancy of the premises, the owner of such premises shall apply to the Commission for a determination as to whether the existing Wastewater or Stormwater Service Connection or Connections is or are, as the case may be, of a suitable size to provide the increased demand required on such Service Connection or Connections and, in respect of such application,

(a) the applicant may be required to provide a hydraulic analysis of the proposed Wastewater and/or Stormwater generation and existing downstream system capacity to determine the suitability of the Service Connection for a proposed new use;

(b) should the Commission determine that the existing Wastewater and/or Stormwater Service Connection or Connections is or are, as the case may be, not suitable, the property owner shall comply with the requirements of the Commission with respect to its determination of the appropriate type and size of Wastewater or Stormwater Service Connection to be utilized; and

(c) such Wastewater and/or Stormwater Service Connections shall be installed at the owner's expense and all installation shall be to the satisfaction of the Commission.

(7) When Wastewater or Stormwater Service Connections are abandoned or are to be abandoned, the Commission shall require the owner of the property serviced by such Wastewater or Stormwater Service Connections to, at its expense, cap off such Service Connection or Connections at the main, or as otherwise prescribed by the Commission.

(8) The Commission may give notice in writing to an owner of a property serviced by the Wastewater System or Stormwater System, requiring such owner, within the time specified in such notice, to connect to the Wastewater System or Stormwater System through a Wastewater or Stormwater Service Connection.

(9) Where an application for a Service Connection is submitted to the Commission with a building permit for a construction project with a value greater than $100,000, or where a property is being redeveloped, and the Service Connection is 30 years of age or older, the owner shall install a replacement or new Service Connection at the owner's expense and in accordance with the Commission's design specifications.

Repairs to Wastewater and/or Stormwater Service Connections

62. In the event a Wastewater or Stormwater Service Connection is obstructed, the following procedure shall be followed in removing the obstruction:

(a) at the Customer's expense, the Customer shall be responsible for the initial investigation and clearing of the obstruction with the services of a licensed plumber to identify the cause and the location of the obstruction and take all necessary measures to remove the obstruction before requesting the Commission for assistance;

(b) if the obstruction is located in the portion of the Service Connection on private property, the Customer shall be responsible for all the costs of removal of the obstruction, including the expenses of any contractor to excavate and replace the pipe if necessary and including obtaining any permits required by HRM by-laws or the Commission before commencing any excavation;

(c) if the obstruction is located in the portion of the Service Connection on HRM property, between the main and the street line or the easement boundary, and a plumber is unable to remove it, the Customer shall submit to the Commission a written report from a plumber and a video identifying the location and probable cause of the obstruction and on receipt of such report and video , the Commission shall investigate the obstruction and if it is determined by the Commission that the cause of the obstruction was:

(i) non-structural, the Commission shall advise the Customer of its determination and the Customer shall be responsible for clearing the obstruction, including replacing the pipe, if necessary;

(ii) caused by a broken, sheared, sagged, or collapsed pipe or some other structural cause, the Commission will rectify the deficiency and reimburse the Customer for the cost of plumbing and video services in an amount not exceeding $400.00, including HST; and

(iii) caused by the roots from an HRM owned tree, the Commission will clear the obstruction and, on behalf of HRM, reimburse the Customer for the cost of plumbing and video services in an amount not exceeding $400.00, including HST.

PART XI - WASTEWATER AND STORMWATER DISCHARGE

Discharge into the Wastewater System

63.(1) No person shall Discharge into a Wastewater System, Wastewater which causes or may cause:

(a) a health or safety hazard;

(b) obstructions or restrictions to the flow in the Wastewater System;

(c) an offensive odour to emanate from the Wastewater System, including with respect to Wastewater containing hydrogen sulphide, mercaptans, carbon disulphide, other reduced sulphur compounds, amines, or ammonia in such quantity that may cause an offensive odour;

(d) damage to a Wastewater System;

(e) interference with the operation and maintenance of the Wastewater System;

(f) a restriction of the beneficial use of Biosolids from the ~~Commission's~~ Wastewater System;

(g) effluent from the ~~Commission's~~ Wastewater System to be in violation of any Provincial or Federal Acts or Regulations;

(h) capacity or hydraulic impacts which may interfere with the operation of the Wastewater System.

(2) No person shall Discharge into the Wastewater System, Wastewater with any one or more of the following characteristics:

(a) a pH less than 5.5 or greater than 9.5;

(b) two or more separate liquid layers;

(c) a temperature greater than 65 degrees Celsius.

(3) No person shall Discharge, into the Wastewater System, one or more of the following:

(a) Combustible Liquids;

(b) Fuel;

(c) Hauled Waste or Leachate, except with the prior written approval of the Commission;

(d) Ignitable Waste including but not limited to, flammable liquids, solids, or gases, capable of causing or contributing to an explosion or supporting combustion in the Wastewater System;

(e) detergents, surface-active agents or other substances that may cause excessive foaming in the Wastewater System;

(f) dyes or colouring materials which pass through the Wastewater System and discolour the Wastewater infrastructure or effluent;

(g) Pathological Waste in any quantity;

(h) PCBs;

(i) Pesticides;

(j) Reactive Waste;

(k) Waste Radioactive Substances, including naturally occurring radioactive material (NORM), in excess of concentrations greater than those specified for Release to the environment under the *Nuclear Safety and Control Act* and Regulations made thereunder, each as amended from time to time;

(l) Hazardous Waste;

(m) Extraneous Water or Wastewater without the prior written approval of the Commission;

(n) ~~(i)~~ animal ~~offal~~by-product;

(o) ~~(ii)~~ seawater;

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(4) Subject to Sections 65 and 74, no person shall Discharge into the Wastewater System, Wastewater containing a substance with a concentration in excess of any of the limits set out in Table 6:

Table 6: Limits for Discharge to Wastewater System

Parameter	Milligrams Per Litre
Aluminum, Total	50
Antimony, Total	5
Arsenic, Total	1
Barium, Total	5
Benzene	0.01
Beryllium, Total	5
Biochemical Oxygen Demand	300
Bismuth, Total	5
Cadmium, Total	0.7
Chemical Oxygen Demand	600
Chloride	1500
Chloroform	0.05
Chromium, Total	2
Cobalt, Total	5
Copper, Total	1
Cyanide, Total	2
1,2 - Dichlorobenzene	0.05

Parameter	Milligrams Per Litre
1,4 - Dichlorobenzene	0.08
cis - 1,2 - Dichloroethylene	4.0
trans - 1,3 - Dichloropropylene	0.15
Ethylbenzene	0.06
Fluoride	10
Iron, Total	50
Lead, Total	1
Manganese, Total	5
Mercury, Total	0.01
Methylene chloride	0.2
Molybdenum, Total	5
Nickel, Total	2
Oil & Grease - mineral or synthetic in origin (TPH)	15
Oil & Grease - animal or vegetable in origin	100
Phenolic Compounds (4AAP)	1
Phosphorus, Total	10
Selenium, Total	1
Silver, Total	2
Sulphates Expressed as SO4	1500
Suspended Solids, Total	300
Sulphide (as H_2S)	1.0
1,1,2,2 - Tetrachloroethane	0.5
1,1,2,2 - Tetrachloroethylene	0.5
Tin, Total	5
Titanium, Total	5
Toluene	0.01
Total Kjeldahl Nitrogen	100
Trichloroethylene	0.5
Vanadium, Total	5
Xylene, Total	0.3
Zinc, Total	2

*Refer to section 63(2) for pH limit
**A reference to "Total" in this table denotes total concentrations of all forms of the metal and ion including both particulate and dissolved species.

(5) No person shall dilute Wastewater in order to become compliant with these Regulations, without the prior written approval of the Commission.

(6) No person shall Discharge Uncontaminated Water into the Wastewater System without the prior written approval of the Commission.

Stormwater Discharge to the Wastewater System

64.(1) The Commission may from time to time undertake testing or inspections to identify and locate connections that convey Stormwater into the Wastewater System.

(2) No person shall, without the prior written approval of the Commission connect, cause to be connected, or allow to remain connected to the Wastewater System or plumbing installation, any piping, fixtures, sump pumps, downspouts, fittings appliances or like equipment or device in a manner which allows or may allow Stormwater to ingress or flow into the Wastewater System.

(3) The Commission may direct a person to Discharge Stormwater to the Stormwater System, a surface area or ~~w~~Watercourse.

(4) Upon the Commission creating a new Service account for a person, the Commission may require a Wastewater Service Connection to be inspected and brought into compliance with these Regulations, at such person's expense.

(5) The inspection required in subsection (4) shall include the Discharge location of any roof or foundation drain or sump pump and such other inspection activities as will permit the Commission to determine whether a Wastewater Service Connection is in compliance with these Regulations.

(6) The Commission may determine, in its discretion, that this Section does not apply to existing premises connected to an existing Combined Sewer system or to new premises intended to be connected to a Combined Sewer system, provided that those premises are not serviced or able to be serviced by a separate Stormwater System.

Extra Strength Wastewater Surcharge

65.(1) The Commission may enter into a surcharge agreement with a Customer who Discharges Extra Strength Wastewater into the Wastewater System and who is not in compliance with these Regulations, respecting Discharges of,

(a) Biochemical Oxygen Demand; and

(b) Suspended Solids, total.

(2) A surcharge agreement referred to in subsection (1) may include terms and conditions under which Discharge will be permitted by the Commission and may include a method to allow the Commission to recover its costs resulting from the Discharge.

Discharge into and Obstruction of the Stormwater System

66.(1) No person shall Discharge into a Stormwater System, matter which causes or may cause,

(a) a health or safety hazard;

(b) interference with the operation of a Stormwater System;

(c) obstruction or restriction of a Stormwater System or the flow therein;

(d) damage to a Stormwater System;

(e) impairment to the quality of the water in a Stormwater System; or

(f) the quality of the water Discharged from a Stormwater System owned or operated by the Commission to be in violation of Provincial or Federal Acts or regulations.

(2) No person shall Discharge into a Stormwater System, matter which results in one or more of the following: ~~characteristics,~~

(a) visible sheen, film or discolouration;

(b) two or more separate layers;

(c) a pH less than 6.0 or greater than 9.5;

(d) a temperature greater than 40 degrees Celsius; or

(e) foam or any matter which, by itself or in combination with another substance, is capable of producing foam that will persist for 5 minutes or more.

(3) No person shall Discharge into a Stormwater System,

(a) Hazardous Waste;

(b) Combustible Liquids;

(c) floating debris;

(d) Fuel;

(e) Hauled Waste;

(f) Pathological Waste;

(g) PCB's;

(h) Pesticides;

(i) Reactive Waste;

(j) Toxic Substances;

(k) Waste Radioactive Substances, in excess of concentrations greater than those specified for Release to the environment under the *Nuclear Safety and Control Act* and regulations made thereunder, each as amended from time to time;

(l) E. coli colonies in excess of 200 per 100 mL;

(m) water from sprinkler systems and Non-contact Cooling Water,

(n) water from washing equipment used in the mixing and delivery of concrete and cement based products;

(o) animal ~~offal~~by-product or animal waste;

(p) oil and grease, animal or vegetable in origin;

(q) any substance other than Stormwater or Uncontaminated Water except as authorized in writing by the Commission; or~~.~~

(r) groundwater or surface water used for or caused by a renovation, repair, demolition, maintenance, construction or land development activity, except as authorized in writing by the Commission.

(4) No person shall Discharge into a Stormwater System, matter containing a concentration, expressed in milligrams per litre, in excess of the limits set out in Table 7 as follows:

Table 7. Limits for Discharge to Stormwater System

Parameter	Milligrams per litre
Arsenic, Total	0.02
Benzene	0.002
Biochemical Oxygen Demand	15
Cadmium, Total	0.008
Carbon tetrachloride	0.02
Chloroform	0.002
Chromium, Total	0.02
Copper, Total	0.03
Cyanide, Total	0.02
Ethylbenzene	0.002
Fluoride	1.5
Lead, Total	0.05
Mercury, Total	0.0004
Nickel, Total	0.08
Phenols	0.008
Phosphorus, Total	0.4
Selenium, Total	0.01
Silver, Total	0.001
Suspended Solids, Total	15
Thallium, Total	0.01
Toluene	0.002
1,1,2 - Trichloroethylene	0.0076
Xylene, Total	0.0044
Zinc, Total	0.04
1,2 - Dichlorobenzene	0.0056
1,4 - Dichlorobenzene	0.0056
cis -1,2 - Dichloroethylene	0.0056
trans - 1,3 - Dichloropropylene	0.0056
Methylene chloride	0.0052
1,1,2,2 - Tetrachloroethane	0.017
1,1,2,2 - Tetrachloroethylene	0.0044
Di-n-butyl phthalate	0.015
Bis (2-ethylhexyl) phthalate	0.0088
PAHs	0.002

*Refer to section 66(2) for pH limit

**A reference to "Total" in this table denotes total concentrations of all forms of the metal and ion including both particulate and dissolved species.

(5) No person shall permit erosion or sediment runoff which results in an exceedance

of any of the limits in Table 7 to enter a Stormwater System.

(6) No person shall infill or alter a Stormwater Ditch unless authorized by the Commission in writing.

(7) The Commission may direct and require a person or property owner who infilled or altered a Stormwater Ditch to remove the infill or remediate any alteration.

(8) The cost of removal or remediation of Ditch alterations not authorized by the Commission shall be the responsibility of the person or property owner.

(9) The Commission may prohibit a person or Customer from connecting sump pumps or downspouts to a Stormwater Service Connection and may require a person or a Customer to disconnect sump pumps or downspouts from the Stormwater Service Connection if, in the opinion of the Commission, the Stormwater System may be subject to capacity restrictions as a result of the connection of such sump pumps and downspouts.

Wastewater Discharges to Stormwater Systems

67.(1) The Commission may, from time to time, undertake testing or inspections to identify and locate Wastewater entering into a Stormwater System.

(2) No person or Customer shall connect, cause to be connected, or allow to remain connected to the Stormwater System or plumbing installation, without the express written consent of the Commission, any piping, fixtures, fitting or appliance in a manner which may allow Wastewater or any other liquid not authorized by these Regulations to ingress or flow into the Stormwater System.

(3) No person or Customer shall Discharge Wastewater anywhere except into the Wastewater System, a private on-site Wastewater system or a private central Wastewater collection system and treatment facility.

(4) Where in the opinion of the Commission, there exists a risk of Wastewater or any other liquid not authorized by these Regulations, flowing into a Stormwater System, the Commission may require a Customer, at such Customer's sole cost and expense, to install or remove at any point on a Stormwater System, one or more fittings or appurtenances to prevent such connection.

(5) The Commission may require a Stormwater Service Connection to be inspected and brought into compliance with the provisions of these Regulations, at the property owner's expense, when a new Service account is created.

Swimming Pools and Spas

68.(1) Water from swimming pools, wading pools, whirlpools, hot tubs, spas and other similar facilities may be Discharged into the Wastewater or Stormwater System, subject to compliance with these Regulations, including Part II of these Regulations if the water is Extraneous Water or Wastewater.

PART XII - PRETREATMENT

Pretreatment Facilities

69.(1) Where a Customer installs a Pretreatment Facility, such Facility shall be installed upstream of a Monitoring Access Point, where a Monitoring Access Point exists or is proposed.

(2) An owner or operator of a Pretreatment Facility shall ensure the design, operation and maintenance of a Pretreatment Facility achieves its treatment purpose in accordance with its manufacturer's operating specifications.

(3) An owner or operator of a Pretreatment Facility shall ensure that any waste products recovered from a Pretreatment Facility are not Discharged into the Wastewater or Stormwater System

(4) Maintenance records and waste disposal records respecting a Pretreatment Facility shall be available to the Commission upon request, which records shall be retained by an owner or operator of a Pretreatment Facility for a minimum of two years following the generation of such records.

Food Related Grease Interceptors

70.(1) Any person who has a permit to operate a restaurant or like food service establishment, or an Industrial, Commercial or Institutional premises where food is cooked, processed or prepared, and which premises are connected directly or indirectly to a Wastewater System, shall install a grease Interceptor and comply with these Regulations.

(2) Where a grease Interceptor is installed or is required to be installed pursuant to subsection (1),

(a) the grease Interceptor shall not Discharge to the Stormwater System;

(b) the grease Interceptor shall be installed in compliance with the most current requirements of the Building Code Act, R.S.N.S. 1989, c. 46 and regulations made under the authority of that Act;

(c) the grease Interceptor shall meet the requirements of the most recent ~~version~~ Series of the Canadian Standards Association document B481 ~~Series 12~~, entitled "Grease Interceptors" and unless otherwise permitted by the Commission;

(i) when a grease Interceptor is required to service a dishwasher, it shall be a dedicated grease Interceptor or a bypass of such interceptor as may be approved by the Commission;

(ii) grease Interceptors shall be cleaned by removing 100% of intercepted substances when the thickness of the grease and solids layers therein become

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greater than 25% of the Interceptor volumes with a cleaning frequency of at least once every four weeks;

(iii) during each cleaning grease Interceptors shall be inspected while empty to ensure that the internal components, such as baffles and walls are structurally sound and damaged components will be replaced to ensure that the grease Interceptor will continue to perform as intended;

~~(c)~~(iv) all grease interceptors not approved in accordance with the standard set out in clause (c) shall be replaced with approved grease interceptors meeting the standards set out in clause (c) by January 1, 2024.

(d) maintenance requirements for grease Interceptors shall be posted in the workplace in proximity to the grease Interceptor;

(e) a maintenance schedule and record of maintenance for each grease Interceptor shall be made available to the Commission upon request for each such device installed, and, if requested, such record of maintenance shall include a measurement of the thickness of the grease and solids layer present at each cleaning, expressed as a percentage of the liquid volume of the grease Interceptor, together with an indication of the structural condition of its internal components;

(f) the owner or operator of a premises referred to in subsection (1) shall keep documentation respecting proof of the grease Interceptor clean-out and maintenance and oil and grease disposal for a period of two years following the generation of such a record;

(g) no person shall use enzymes, bacteria, solvents, hot water or other agents to facilitate the conveyance of oil and grease through a grease Interceptor to a sewer system; and

(h) removal of retained or trapped materials from a grease Interceptor shall be accomplished by pumping or other physical means and the resulting recovered material shall be hauled away and disposed in accordance with applicable statutes and regulations.

Vehicle and Equipment Service Oil and Grease Interceptors

71.(1) Every owner or operator of a vehicle or equipment service station, repair shop or garage or of an Industrial, Commercial or Institutional premises or any like establishment where motor vehicles are repaired, lubricated or maintained, and from which premises the Wastewater Discharge is directly or indirectly connected to a sewer, shall comply with these Regulations.

(2) Where an oil and grease Interceptor is installed or is required to be installed pursuant to subsection (1),

(a) the oil and grease Interceptors shall not Discharge to the Stormwater System;

(b) oil and grease Interceptors shall be installed in compliance with the most current requirements of the Building Code Act, R.S.N.S. 1989, c. 46 and regulations made

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under the authority of that Act, and be maintained as recommended by the Canadian Petroleum Products Institute (CPPI);

(c) all oil and grease Interceptors and separators shall be maintained in good working order by the owner or operator of the premises where they are located, according to the product manufacturer's recommendations and shall be inspected regularly to ensure performance of such Interceptors and separators is maintained to the manufacturer's specifications for performance and to ensure surface oil and sediment levels do not exceed the recommended level;

(d) a maintenance schedule and record of maintenance for each oil and grease Interceptor installed shall be available to the Commission upon request;

(e) the owner or operator of a premises referred to in subsection (1) shall keep documentation respecting proof of the Interceptor clean-out and oil and grease disposal for a period of two years following the generation of such a record;

(f) no person shall use enzymes, solvents, hot water or other agents to facilitate the conveyance of oil and grease through an oil and grease Interceptor to a sewer system; and

(g) removal of retained or trapped materials from an oil and grease Interceptor shall be accomplished by pumping or other physical means and the resulting recovered material shall be hauled away and disposed of in accordance with applicable statutes and regulations.

Sediment Interceptors

72.(1) Every owner or operator of a premises from which sediment may directly or indirectly enter the Wastewater System or Stormwater System, including premises using a ramp drain or area drain and including vehicle wash establishments, shall comply with these Regulations.

(2) Where a sediment Interceptor or similar facility is installed or is required to be installed pursuant to subsection (1),

(a) catch basins installed on private property for the purpose of collecting stormwater and carrying it into the storm sewers shall be equipped with an Interceptor, as required by the Commission;

(b) the installation of catch basins referred to in clause (a) shall comply with the Commission's Design and Construction Specifications, as amended from time to time;

(c) all sediment Interceptors shall be maintained in good working order by the owner or operator of the premises, according to the product manufacturer's recommendations and shall be inspected regularly to ensure performance of such Interceptors is maintained to the manufacturer's specifications for performance;

~~(c)~~(d) despite clause (c), sediment or other retained or trapped materials shall be removed from a catchbasin interceptor when the sump basin has been filled or when

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accumulated materials are capable of passing into a Wastewater System or Stormwater System;

~~(d)~~(e) removal of retained or trapped materials from a sediment Interceptor shall be accomplished by pumping or other physical means and the resulting recovered material shall not be Discharged to the Wastewater or Stormwater System;

~~(e)~~(f) the owner or operator of a premises referred to in subsection (1) shall keep documentation respecting proof of the of the Interceptor clean-out and sediment disposal for a period of two years following generation of such a record; and

~~(f)~~(g) a maintenance schedule and record of maintenance for each sediment Interceptor shall be available to the Commission upon its request.

PART XIII - MONITORING, SAMPLING AND REPORTING

Wastewater Service Reporting Requirements

73.(1) No person shall Discharge Wastewater, Stormwater, Non-contact Cooling Water, or any combination thereof, from an Industrial, Commercial or Institutional premises to the Wastewater System without first submitting to the Commission reports in a form prescribed by the Commission, known as Form 1: Abbreviated Discharger Information Report and Form 2: Detailed Discharger Information Report, and as amended from time to time.

(2) A person who files reports with the Commission in Form 1 and Form 2 shall file further reports in Form 1 and Form 2 as information contained in such Forms, as filed, changes.

(3) The Commission may require additional information to that which is contained in either Form 1 or Form 2 at any time.

Wastewater Service Compliance Agreement

74.(1) The Commission may enter into a compliance agreement with a person who Discharges or intends to Discharge into a Wastewater System but who is not in compliance with these Regulations, for the purpose of having such person comply with these Regulations.

(2) A compliance agreement referred to in subsection (1) shall:

(a) be for a fixed term;

(b) contain requirements to report to the Commission on significant stages in a process for a person to comply with these Regulations;

(c) include terms and conditions for Discharges into a Wastewater System during the term of such compliance agreement; and

(d) include a termination clause providing for termination by the Commission where, in the opinion of the Commission, any party to a compliance agreement is not meeting the terms and conditions thereof.

Monitoring, Sampling, and Reporting

75.(1) The Commission may require a person to undertake monitoring, flow metering, or sampling and reporting to the Commission of any Discharge to a Wastewater System or Stormwater System on such terms and conditions as may be required by the Commission.

(2) All sampling and analysis conducted as part of monitoring referred to in subsection (1) shall be carried out in accordance with Standard Methods by an Accredited Laboratory at the expense of the person referred to in subsection (1).

Wastewater and/or Stormwater Service Sampling and Analytical Requirements

76.(1) Where the Commission requires sampling to determine the concentration of substances in Wastewater or Stormwater, the sample may

(a) be collected manually or by using an automatic sampling device;

(b) be collected by Grab Sample or Composite Samples; and

(c) contain additives for its preservation.

(2) All sampling and analysis conducted as part of monitoring referred to in subsection (1) shall be carried out in accordance with Standard Methods and by an Accredited Laboratory.

Wastewater and/or Stormwater Monitoring Access Point

77.(1) The Commission shall require the installation of a Monitoring Access Point or the upgrading of an existing Monitoring Access Point, for each connection to a Wastewater System or a Stormwater System for the purpose of monitoring, flow metering or sampling Discharges, unless exempted by the Commission.

(2) A Monitoring Access Point under this Section shall be

(a) located on the property of the person discharging into a Wastewater System or a Stormwater System, unless the Commission permits an alternate location;

(b) constructed and maintained at the expense of the person referred to in clause (a);

(c) accessible at all times by the Commission;

(d) constructed in a manner which meets the standards of the Commission;

(e) maintained to ensure access and structural integrity;

(f) offset behind the street line, unless otherwise approved by the Commission, or located on the property of the owner or operator of the premises, as close to the property line as possible, unless otherwise permitted by the Commission; and

(g) maintained so as to be free of buildup, deposits, or such other condition as may interfere with monitoring, flow metering or sampling.

Releases

78.(1) In the event of a Release capable of having an Adverse Effect on a Water, Wastewater or Stormwater System or the environment, including the health of humans and reasonable enjoyment of life or property, the person having responsibility for or management or control of such Release or its source shall immediately notify the Commission and provide any requested information with regard to the Release.

(2) A person having responsibility, management or control of a Release referred to in subsection (1) shall report the occurrence of such Release as follows,

(a) If there is any immediate danger to human health and/or safety such person shall contact the Canadian Coast Guard at ~~426-6030 or~~ 1-800-565-1633, Nova Scotia Environment at 902-424-4820~~1-877-936-8476~~ and the Commission at 311;

(b) If there is no immediate danger apparent to such person, that person shall contact the Commission at 311; and

(c) in either circumstance set out in clauses (a) and (b) hereof, such person shall contact the owner or occupant of the premises where the Release occurred.

(3) The person referred to in subsection (1) shall take all reasonable measures to contain the Release, protect the health and safety of citizens, minimize damage to property, protect the environment, clean up the Release and contaminated residue, and restore the affected area to its condition prior to the Release.

(4) The person referred to in subsection (1), or such other person with knowledge of the Release, shall, at the request of the Commission, provide a detailed report on the Release to the Commission within five working days after the request, containing, to the best of his or her knowledge, all of the following:

(a) the location where the Release occurred;

(b) the name and telephone number of the person who reported the Release and the location and time where they can be contacted;

(c) the date and time of Release;

(d) the material Released;

(e) the characteristics and composition of material Released;

(f) the volume of material Released;

(g) the duration of Release event;

(h) the work completed and any work still in progress in the remediation of the Release;

(i) the preventive actions being taken to ensure a similar Release does not occur again;

(j) copies of applicable Release prevention and Release response plans for future events.

(5) The Commission may invoice a person responsible for a Release to recover its costs of time, materials and services as a result of the Commission's response to the effect of such Release on the Commission's Water, Stormwater or Wastewater System, and such person responsible for a Release shall pay the Commission's costs as invoiced.

PART XI~~VIIA~~ – DISPUTE RESOLUTION OFFICER

78A(1) There is established an officer for investigations respecting Service, to be called the Dispute Resolution Officer (DRO).

(2) The DRO shall be appointed by the Commission.

(3) The DRO shall not be a current or former employee of the Commission, a current or former member of the Commission, or a family member of a current employee or member of the Commission.

(4) The DRO shall not divulge any information received under these Regulations except for the purpose of giving effect to these Regulations.

(5) The DRO shall be compensated for hours worked and reasonable disbursements according to an hourly rate to be established by the Commission in consultation with the DRO and to be monitored with reference to rates for consultants and professionals with similar qualifications and experience.

(6) The DRO shall submit to the Commission on a monthly basis invoices for services and claims for expenses and reimbursable disbursements in accordance with the Commission's expense reimbursement policy.

(7) The costs and expenses incurred by the DRO may be paid from the rate regulated revenues of the Commission.

Term of Office

78B(1) Unless the DRO office becomes vacant sooner, the DRO shall hold office for five years from the date of his appointment under Section 78A and, if otherwise qualified, is eligible to be re-appointed.

(2) The DRO may resign by notice in writing to the General Manager of the Commission.

Removal or Suspension

78C. With the approval of the Board, the Commission may remove or suspend the DRO from his office for cause or incapacity.

Extent of Disclosure in Report of DRO

78D. Despite subsection (4) of Section 78A, the DRO may disclose in a report pursuant to these Regulations any matters which are necessary to disclose in order to establish grounds for any conclusions and recommendations.

Refusal or Cessation of Investigation

78E(1) The DRO may refuse to investigate or may cease to investigate a complaint if:

(a) an adequate remedy or right of appeal already exists (not including a direct appeal to the Board) whether or not the complainant has availed himself or herself of such remedy or right of appeal;
(b) the complaint is trivial, frivolous, vexatious or not made in good faith;
(c) having regard to all the circumstances of the case, further investigation is unnecessary;
(d) the complaint relates to any decision, recommendation, act or omission of which the complainant has had knowledge for more than one year before complaining;
(e) the complainant does not have sufficient personal interest in the subject matter of the complaint; or
(f) upon a balance of convenience between the public interest and the complainant the DRO is of the opinion that the complaint should not be investigated.

(2) Where the DRO decides not to investigate, or to cease to investigate a complainant, the complainant and any other interested person shall be informed of such decision and may state reasons therefor.

Notification of Investigation

78F. Where the DRO intends to investigate a complaint under these Regulations, the Director of Corporate Services at the Commission shall be notified.

Nature of Investigation

78G(1) Every investigation under these Regulations is to be conducted in private.

(2) The DRO may hear or obtain information from any person and make inquiries.

(3) The complainant and the Commission shall respond to all reasonable requests of the DRO for information which the DRO considers relevant to his investigation.

(4) The DRO may, at any time during or after an investigation, consult the General Manager or a Director at the Commission or the complainant in the matter of the investigation.

Report of DRO

78H(1) By investigation the DRO shall inquire into a valid customer complaint that the Commission administered or is administering these Regulations in respect of Service:

(a) unreasonably, unjustly, oppressively or in a discriminatory manner, or pursuant to a rule of law, enactment or practice that so results;
(b) under mistake of law or fact, in whole or in part;
(c) wrongly;
(d) contrary to law;
(e) by using a discretionary power for an improper purpose, or on irrelevant grounds, or by taking irrelevant considerations into account, or by failing to give reasons for the use of discretionary power when reasons should have been given.

(2) Wh~~h~~were, upon investigation pursuant to subsection (1), the DRO is of the opinion that

(a) the complaint should be referred to the Commission for further consideration;
(b) an omission should be rectified;
(c) a decision should be cancelled or rectified;
(d) a practice by reason of which the complaint arose or may arise should be altered;
(e) a provision of these Regulations by reason of which the complaint arose or may arise should be reconsidered;
(f) reasons should be given for the use of a discretionary power; or
(g) other steps should be taken,

the DRO shall report to the complainant and the Commission, the reasons therefor and any recommendations for resolution of the complaint.

(3) Upon receipt of the DRO's report referred to in subsection (1) the Commission shall provide such report to the Manager of Customer Service and the Director of Corporate Services to act upon the DRO's recommendations, within 45 days of receipt thereof, should the Commission consider that any such action is warranted.

Order of Dispute Resolution Officer

78I(1) Where, after investigating a matter, the DRO determines that the complainant and the Commission are unlikely to settle the complaint by mediation, or the Commission refuses to follow a recommendation, the DRO shall, within fourteen days, make an order to adjudicate the complaint.

(2) An order of the DRO under subsection (1) shall be binding on the complainant and the Commission.

Appeal from Order of Dispute Resolution Officer

78J(1) Despite subsection 78I(2), the complainant or the Commission may appeal within thirty days of any order of the DRO to the Board.

(2) The Board shall inquire into the matter *de novo* and make such inquiries and receive such information as the Board deems appropriate.

PART XIV - OFFENCES

Offences

79. Where the Commission believes that a person has contravened any provision of these Regulations, it may commence proceedings by issuing a Summary Offence Ticket in accordance with the Nova Scotia Summary Proceedings Act.

ATTACHMENT 1

HALIFAX REGIONAL WATER COMMISSION
PROCEDURE FOR ACCEPTANCE OF
PRIVATE COMMUNITY WATER, WASTEWATER AND STORMWATER SYSTEMS

INTENT:

This procedure sets out the requirements for the Halifax Regional Water Commission (the Commission) to accept existing private community water, Wastewater and Stormwater Systems into the Commission's plant.

SYSTEM DEFINITION:

A private community water, Wastewater or Stormwater System (a community system) is defined as an existing system serving at least ten (10) individual dwellings. The portion of the system eligible for acceptance by the Commission~~Halifax Water~~ includes:

- The treatment plant(s) and/or pumping station(s) within the public road right of way, public easement or community system owned land, and
- The system pipes and appurtenances within the public road right of way or public easement, and
- The portion of the individual service laterals within the public road right of way or public easement.

The portion of the service lateral on private property shall remain the responsibility of the individual property owner.

The Commission~~Halifax Water~~ will not consider acceptance of a standalone community stormwater system. Stormwater systems may be considered for acceptance as an ancillary part of an existing community wastewater system.

INTRODUCTION:

The Commission's infrastructure generally conforms to industry standards and the Commission Design ~~and Construction~~ Specifications. Further, Nova Scotia Environment (NSE) has published its Surface Water Treatment Standard and Groundwater Treatment Standard which identify the acceptable level of treatment for surface and ground waters, respectively. Existing Commission systems meet these standards. For a community system to be accepted into the Commission's plant, the Commission requires that the community system meets or can be upgraded to Commission and Federal/Provincial standards.

PROCEDURES FOR ACCEPTANCE:

A. Pre-Qualification

1. To qualify for consideration of acceptance and subject to all other conditions in this Procedure being met by the applicant, it must be demonstrated by the applicant that the community system will meet, or can be upgraded to meet, the following basic design standards:

   Water System

   a) A reliable source of supply from a quantity point of view.

   b) Compliance with the NSE Groundwater Treatment Standard or Surface Water Treatment Standard, as applicable.

   c) Water meters for each individual customer, and individual service lines with shutoff valves.

   d) Adherence with the Commission's Design ~~and Construction~~ Specifications, where directly applicable.

   e) In addition to the appropriate Treatment Standard, adherence with the health and aesthetic parameters of the Guidelines for Canadian Drinking Water Quality.

   Wastewater and Stormwater Systems

   a) Wastewater and Piped Stormwater Systems Compliance with all applicable Federal and Provincial legislation, regulations and requirements.

   b) Adherence with the Atlantic Canada Wastewater Guidelines Manual for Collection, Treatment and Disposal.

   c) Adherence with the Commission's Design ~~and Construction~~ Specifications, where directly applicable.

2. To qualify for consideration of acceptance, it must be demonstrated by the applicant that the Commission will have the ability to legally take over the system if all other conditions are met.

3. If the above requirements in 1 and 2 above cannot be established, the community system cannot be accepted by the Commission, and the application will proceed no further.

B. Application for Acceptance

If the requirements of 'A' have been met, the application for acceptance of the community system will be made by the community system customers. The cost of the application will be borne by the applicants. The application will consist of:

a) A petition signed by two-thirds of the persons identified by the community system as its customers.

b) The engineering drawings, as available.

c) A System Assessment Report, conducted in accordance with NSE's Terms of Reference for System Assessment Reports, and sealed by a professional engineer.

d) A pre-design report for all required upgrades to the system(s) to meet the Commission design standards including a detailed estimate of costs.

Note - The engineering drawings shall consist of:

a) Record drawings for the water supply or wastewater treatment plant.

b) Layout of the community showing the location of distribution and collection piping and services.

c) Survey plan identifying property parcels and easements necessary for conveyance of the system to the Commission.

C. Commission Board and NSUARB Approval

With receipt of a complete and compliant Application for Acceptance, Commission staff shall prepare a report for recommendation of acceptance of the community system by the Commission Board. Subsequent to Commission Board approval, a request shall be sent to the NSUARB for approval of the community system acceptance.

D. Transfer Agreement

Subsequent to the approval of the NSUARB, an agreement will be executed with the applicant finalizing the transfer.

The terms and conditions of the agreement shall include:

- Requirement to design, construct and commission all required system upgrades by the applicant with all costs paid by the applicant.
- Upon completion of the required upgrade work at no cost to the Commission, certification from the applicant's engineer that all required upgrades have been completed to the required standards.
- Transfer of all assets of the community system, including any land or easements to the Commission with all costs paid by the applicant.

As an alternative mechanism for the payment of the upgrade costs, HRM Council may establish a betterment charge for the utility customers to collect the project costs.

Once the agreement with the applicant has been executed, betterment charge notices will be sent to all customers of the system. The amount of assessment will be based on equivalent units of a 15 mm water meter (or an equivalently equitable means for Wastewater Systems), with all utility customers being responsible for the total cost of the project.

The betterment charges shall be paid in accordance with the HRM Local Improvement By-law Policy and until payment is complete, shall constitute a lien against the property in respect to which the charges levied, as provided for in the Local Improvement By-law, subject to approval by HRM Council.

Upon completion of the project, staff will recommend to HRM Council that the betterment charges be levied.

When all conditions of the agreement have been met, including the full payment of all associated costs (including the final levying of any associated HRM betterment charge), the Commission will take formal ownership of the system(s) and establish customer contracts to provide Service.

E. <u>Rate Structure:</u>

The rate structure for newly accepted community systems will be based on full cost recovery with a cap at 2.5 times the actual urban core rates in effect.

ATTACHMENT 2

HALIFAX REGIONAL WATER COMMISSION

EXTRA STRENGTH WASTEWATER SURCHARGE FORMULA

The Extra Strength Wastewater Surcharge shall be based on the formulas in subsection (f) of this Attachment. The surcharge may apply to one or more of the parameters. Where more than one parameter applies, the surcharge shall be calculated for each parameter separately, and then added together to arrive at the total Extra Strength Wastewater Surcharge.

a) Surcharge Parameters

BOD_5	Biochemical Oxygen Demand
TSS	Suspended Solids, Total

b) Limit Values

Surcharges shall be calculated based on the following limit values:

Parameter	Limit (mg/L)
Biochemical Oxygen Demand (BOD_5)	300
Suspended Solids, Total (TSS)	300

c) Rate

The Extra Strength Wastewater Surcharge rates are set out in subsection 23(2) of these Regulations.

d) Load

The value of the load shall be based on test results from the customer. The testing program to be used to arrive at the limit shall be approved by the Commission.

e) Flow

The flow will be the flow from the Customer measured at the location approved by the Commission. The measurement method and frequency shall be approved by the Commission.

Extra Strength Wastewater Surcharge Formulas

The surcharge shall be calculated for each parameter using the following formulas:

BOD_5 Surcharge	**[Load (mg/L) - Limit (mg/L)] x [Flow (m^3) x Rate ($/kq)] / 1000**
TSS Surcharge	**[Load (mg/L) - Limit (mg/L)] x [Flow (m^3) x Rate ($/kq)] / 1000**

ATTACHMENT 3

HALIFAX REGIONAL WATER COMMISSION

WATER, WASTEWATER AND STORMWATER CAPITAL COST CONTRIBUTION POLICY

PART I:

Introduction

The Water, Wastewater and Stormwater Capital Cost Contribution (WWS CCC) Policy provides for the recovery of costs required to provide oversized water, Wastewater and Stormwater infrastructure within a 'charge area'. The costs of providing this infrastructure are shared by developers, and in some cases, by the Commission. After the completion of a Master Plan Study, a charge area will be established that becomes the basis for the development of a WWS CCC Charge. The WWS CCC Charge shall take into consideration all aspects of the required infrastructure, financial risks to the Commission, timing of contributions, phasing of development and any other considerations that could have a financial impact on the Commission.

Section 1: Master Plan Study Area & Charge Area

a) The Master Plan area and terms of reference for the study as it relates to the Commission must consider such factors as density, existing Water, Stormwater and Wastewater Systems, drainage basins, existing & proposed water service districts, service boundaries, land use development areas, soil conditions, topography, and other factors deemed appropriate. The Master Plan area is not constrained by land ownership.

b) The charge area will generally be the Master Plan study area. However, depending on service considerations, the charge area may also include areas outside the Master Plan area.

c) Oversized water, Wastewater and Stormwater infrastructure will be defined in the Master Plan for the charge area. Notwithstanding, the impact on existing or planned infrastructure outside the Master Plan study area will be taken into account in the Master Plan Study.

The Commission may require information from the developer(s) regarding the planning and system requirements in the preparation of the Master Plan.

Section 2: Oversized Components

a) Oversizing components of a charge area may include, but are not necessarily limited to water distribution and transmission system including pumping stations, pressure reducing chambers and reservoirs, Wastewater collection system including pumping stations and stormwater collection systems including retention ponds. The infrastructure required to service a charge area may be located outside of the charge area and may include land

costs (including easements) associated with providing required infrastructure.

b) Infrastructure which is exterior to a charge area, such as water and Wastewater treatment plants and related infrastructure may be included in the capital cost calculations. In any event, all costs of Oversized Infrastructure to provide service to the charge area will form part of the WWS CCC.

Section 3: Oversized Infrastructure Required to Serve Future Developments

a) Where oversizing of infrastructure within a charge area is identified as providing benefit to future development, the Commission may invest in the Oversized Water, Wastewater and Stormwater Infrastructure required for the future development.

b) The oversizing required to service future development on lands adjacent the charge area, shall be determined, and the investment by the Commission shall be evaluated in accordance with the Funding Criteria defined in Section 18.

Section 4: Drainage from Adjacent Lands

In a Master Plan Area, if drainage from adjacent lands requires the oversizing of storm sewers, the cost of providing the oversizing will form part of the WWS CCC for the charge area.

Section 5: Oversized Infrastructure that Benefits Existing Developed Areas

a) Where an existing developed area receives a direct service benefit from Oversized Water, Wastewater and Stormwater Infrastructure, the Commission may pay a share of the oversized system costs based upon the Capital Costs per acre. The Commission's share is not included in the WWS CCC recovered from new development within the charge area.

b) The Commission will establish the extent to which the existing developed areas receive a benefit from Oversized Water, Wastewater and Stormwater Infrastructure. This benefit will be determined according to the procedures and guidelines of this Policy.

c) Where system capacity provided by new infrastructure within a charge area is used by existing serviced areas, to a degree less than or equal to that existing system capacity used by the charge area, the Oversized Water, Wastewater and Stormwater Infrastructure required for the charge area will not be considered a benefit to the existing area.

d) Existing developed areas may be excluded from a charge area if they are not included in the new infrastructure design calculation, or do not derive a direct benefit from these new systems.

e) Where the Commission has contributed to existing developed areas contained in a charge area, the Commission may recover from WWS CCC from infilling or by way of rezoning, or subdivision, the Equivalent Capital Cost Contributions from new development within the existing community. In effect, the Commission may make payment of water, Wastewater

and Stormwater Capital Cost Contributions in advance for future development in existing areas and recover the contributions when new development occurs.

f) The Commission's expenditures shall be evaluated in accordance with the Funding Criteria defined in Section 18, Funding Criteria.

Section 6: Upfront Payment of Oversized Infrastructure by the Commission

a) To fulfill its leadership role, the Commission may consider it necessary to invest in the oversized and required water, Wastewater and Stormwater infrastructure in a charge area in advance of the revenue stream necessary to construct the systems.

b) The Commission may also decide to facilitate the acquisition of rights-of-ways, land, and other required systems or facilities beyond the control of one or more developers. Commission investments shall be evaluated in accordance with the criteria determined in Section 18, Funding Criteria.

Section 7: Infrastructure Exterior to the Charge Area

a) Oversized and required infrastructure exterior to the charge area will be included in the capital Oversized water, Wastewater and Stormwater Infrastructure for the charge area. The Commission will be required to accurately establish the Oversized Infrastructure that is attributed to a specific charge area.

b) water, Wastewater or Stormwater facilities would only be included in the capital cost if their upgrade or expansion can be directly attributable to a specific charge area.

Section 8: Cost Estimates

a) The basis for the WWS CCC is an estimate of the Oversized Infrastructure required to service the charge area. The estimated costs shall be escalated to account for the year in which the construction takes place and shall include interest during construction. The Commission will use the ENR Canada Indices to estimate costs in the future, in accordance with Section 14, Timing and Sequencing of Development. In addition, the Commission will include appropriate administration costs for the projects.

b) The Commission, in consultation with the developers, will develop the cost estimates for Oversized water, Wastewater and Stormwater Infrastructure, both within and outside the charge area, that will form the basis of the CCC. The Commission will make every effort to establish cost estimates in consultation with the Stakeholders. The Commission may accept the developers' estimates to construct the systems if the developers agree to construct the Oversized water, Wastewater and Stormwater Infrastructure at the estimated cost.

Section 9: Cost Apportionment Criteria

a) The revenue stream arising from cost apportionment will be used in the Financial Plan of the charge area.

b) For water, wastewater and stormwater infrastructure costs, a density factor related to system demand will be utilized to apportion costs.

c) The WWS CCC is based on average density per acre for the entire charge area, adjusted for the actual density or land use within the parcel being subdivided. Actual density of the parcel being subdivided shall be determined at the time of Subdivision Approval using the maximum density which is permitted by the Municipal Planning Strategy or land use permitted by HRM's Land Use Bylaw.

d) If the density in a sub-division is lower than the average, the WWS CCC may be accelerated based on the average, ratio amount until the total WWS CCC for the subdivision is collected from a developer. This process may be applied if cash flow requirements dictate more funds are needed to pay for required infrastructure.

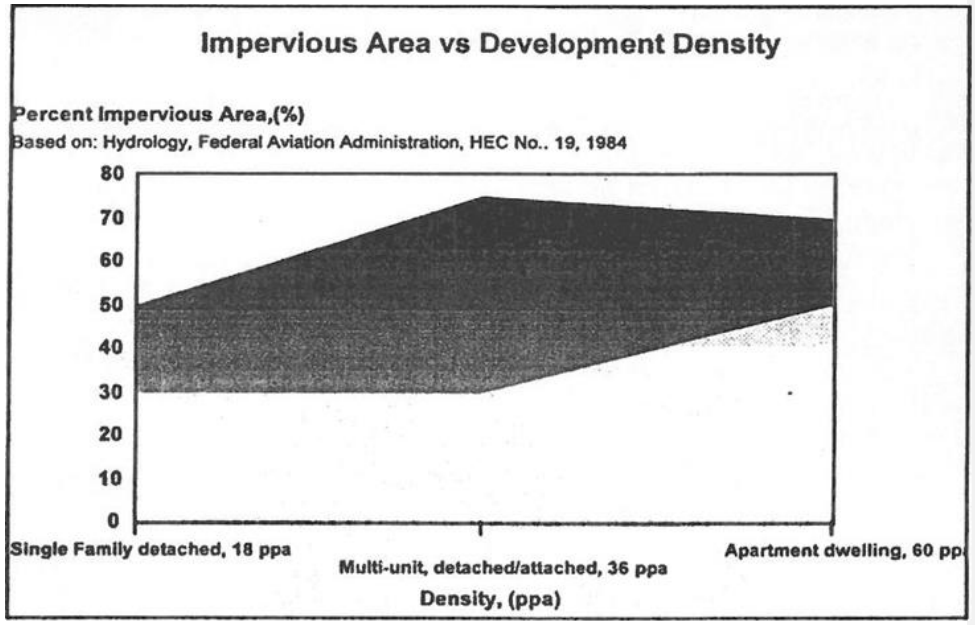
e) In Industrial, Commercial or Institutional zones or uses, the average density for the charge area will apply. The area of the parcel being developed will be adjusted to allow for multiple units or equivalent people.

f) Stormwater Collection Systems are considered in the same manner as Wastewater systems. This approach implies there is a relationship between development density and the amount of Stormwater run-off which is generated. Given the accuracy and factor of safety inherent in estimating run-off, there is a direct relationship between density and run-off for Residential development. (Refer to Figure 1).

g) Although the same relationship does not exist for Industrial, Commercial or Institutional uses, this policy accepts that apportioning Stormwater collection system costs on the basis of density is a reasonable, fair, and equitable approach. This approach is also supported by the fact that storm sewers often share the same trench as other services, and are administered in the same construction contract.

h) The fairness and equity of this approach may be enhanced by implementing design specifications which require run-off levels to be maintained at residential levels. Such policies are easily implemented through the site design specifications.

Figure 1: Impervious Area vs Development Density



Section 10: Charge Area Boundary Changes

After a charge area has been established and phased development has commenced, there may be reasons to increase or decrease the charge area. The Commission may permit a change in the charge area based on the Oversized water, Wastewater and Stormwater Infrastructure capacity to provide service to the new area. Changes to charge area boundaries will be considered as either minor additions or major changes.

a) A minor addition to a charge area may be considered when the infrastructure within the existing charge area is adequate to provide the required service to the additional area. All new development within the adjusted charge area boundary will pay WWS CCCs, based on the same charges that apply to the original charge area.

b) A major change to a charge area is required when the proposed additional area cannot be adequately serviced by the existing infrastructure. New, Oversized water, Wastewater and Stormwater Infrastructure will be required and a new WWS CCC must be calculated. Capital costs collected from the original charge area will be applied to the funding of the new infrastructure.

Where a major change in the charge area is required, a revised Master Plan Study, a new charge area and corresponding WWS CCC will be calculated. These changes may require amendments to the Rules and Regulations or established Charge Area as per NSUARB to the charge area under consideration. Major changes may include expansion or extension of the charge area boundary or; a combination of two existing charge areas requiring a revision to the capital cost

contributions calculated from the area.

A developer in the original charge area will not be required to pay a WWS CCC which exceeds the amount calculated in the original charge area.

Section 11: Combined Charge Areas

Where two charge areas are adjacent and there are valid reasons to share some or all of the entire Oversized water, Wastewater and Stormwater Infrastructure, the Commission may combine the charge areas and recalculate the WWS CCC.

The Commission will determine the components of Oversized water, Wastewater and Stormwater Infrastructure that will be included in the new charge area. WWS CCC collected from the original charge area will be included in the new charge area, and they will be collected on a go forward basis.

Section 12: Cost Exceptions

Costs that will be deducted from the developers' portion of the WWS CCC include the following:

The proportion which is considered to benefit the existing Customers of the Commission, as determined in accordance with Section 5.

Commission investments in infrastructure for future development or another charge area determined in accordance with Section 3.

Section 13: Interest and Risk Mitigation

a) The Commission supports new development; however, it is not prepared to accept the financial risk of new development. As a result, where the Commission decides to invest in the Oversized water, Wastewater and Stormwater Infrastructure before the required contribution is collected, interest will be added to the WWS CCC.

b) In the event that a major component of infrastructure is required before the contributions are collected, the Commission may require the developers to assume the risk and invest in the infrastructure. The developer(s) would be subsequently reimbursed when CCCs are received by the Commission through continued development in the charge area.

c)

(i) The WWS CCC shall be indexed by the Commission on July 1, 2012, and in each subsequent year on April 1, in accordance with the indexing set out in the Consumer Price Index for Halifax, as published by Statistics Canada for the immediately preceding month, when compared to the same month for the immediately preceding year.

(ii) If the Consumer Price Index calculated in (i) is negative, the WWS CCC will not be adjusted if the resulting CCC:

A. is lower than the initial WWS CCC; or

B. results in a cash flow model that does not indicate a full recovery of capital costs within the time period specified in such model.

d) The WWS CCC as indexed in clause (c) shall be:

(i) Reduced to the next nearest dollar where it indicates a part of a dollar less than $0.50; and

(ii) Increased to the next nearest dollar where it indicates a part of a dollar equal to or greater than $0.50.

e) The Commission will revise rates in accordance with the results of the application of calculation in clauses (c) and (d) and shall provide an annual information report of such results to the Board.

Section 14: Timing and Sequencing of Development

a) The development phasing will be taken into consideration when designing and costing oversized infrastructure in the charge area. Since WWS CCCs are calculated on the basis of best estimates, reasonable and appropriate estimates must also be made in respect of development timing and corresponding cost escalators and interest rates that are dependent on the developers' schedule.

b) The infrastructure capital cost estimate will be factored upwards to reflect prudent and appropriate cost escalators based upon interests and escalated cost of servicing, indicated through the ENR Canada index factor.

c) The Commission will track and record all WWS CCC funds and expenditures. Interest will be charged when the account is in deficit and will be credited when the account is in surplus.

d) The Commission may require significant components of infrastructure be built at a predetermined time frame; or based upon system demands or capacity loading arising from new or existing development. The significant components will be constructed within the time frame established by the Commission. As an example, the timing of a major interchange, pumping station or water reservoir which may be required and administered by an outside agency.

e) The timing and sequence of development phasing may also have an impact upon the design capacity (or size) of infrastructure needed to provide adequate interim service standards throughout development stages in the charge area. It would be inappropriate for the Commission to approve the installation of services that did not adequately meet the design guidelines and minimum service standards to provide requisite services to its citizens.

f) Additional Oversized water, Wastewater and Stormwater Infrastructure may be required at interim stages of the development as deemed appropriate by the Commission. Costs associated with interim infrastructure needed to advance the timing of the development

may not be included in the CCC costs if no benefit is achieved by the Commission.

g) The Commission may require security (irrevocable, automatically renewing letter of credit) on the property when a development agreement has been approved by HRM, to indemnify the Commission in the event that the development does not proceed in the prescribed period of time. The amount of the lien will be equal to the WWS CCC that would have been collected from the area in question.

h) The Commission will determine the sequence of oversized system construction, based upon information from the developer, and the requirements of the development. The Commission in consultation with HRM will determine the densities for each phase of the development in the charge area.

i) The Commission may, in some cases, construct infrastructure prior to receiving the necessary WWS CCC; or require the developers to construct the Oversized water, Wastewater and Stormwater Infrastructure. Developers may be required to construct Oversized water, Wastewater and Stormwater Infrastructure in an earlier phase that will be used in latter phases of the development.

Section 15: Developers Acting as Contractors

a) A developer may be allowed to construct some or all of the Oversized water, Wastewater and Stormwater Infrastructure based on the agreed upon estimates in compliance with the Commission's standards and guidelines. In most cases developers will be required to construct Oversized Systems in their development lands, but the Commission reserves the right to construct oversized or required infrastructure for the charge area.

b) When the Developer is acting as a contractor, the Commission will inspect service system construction to ensure the system(s) meet Commission Design Guidelines. The developer will be required to build the infrastructure as required by the phased development determined in the Master Plan Study.

c) Cost estimates for Oversized Systems and associated payment schedules will require a WWS Service Agreement to determine & implement WWS CCCs. The payment to the developer is based upon agreed cost estimates amongst the participating Stakeholders and approved by the Board.

d) The Commission will inspect the system construction to ensure it meets its guidelines. The Developer will provide full inspection services and certification by a consultant for design compliance.

Section 16: Specific Infrastructure Components

a) Specific components of Water, Wastewater and Stormwater Systems such as Wastewater pumping stations and Stormwater storage facilities will form part of the Capital Cost if they provide a Direct Benefit to more than one developer within the charge area. In this instance, the costs will be apportioned in accordance with the WWS CCC Policy using the appropriate design criteria, and may include land costs

b) Components that provide only local benefits, and service a part of one development within the charge area, are solely the responsibility of the developer of the parcel.

c) The Commission may require the developer who first requires a pumping station to build the Oversized Infrastructure and subsequently reimburse oversizing costs when the Commission has collected from future developments or apply a WWS CCC credit to the developer for the Oversized water, Wastewater and Stormwater Infrastructure investment.

Section 17: Oversized Infrastructure Criteria

a) Oversizinq Criteria

The cost of providing Oversized water, Wastewater and Stormwater Infrastructure will be funded through the WWS CCCs levied in a charge area.

The cost of providing Oversized water, Wastewater and Stormwater Infrastructure may also include discrete upgrades of, or new connections to, existing systems outside of the charge area.

There are several methods of calculating the oversize cost, which generally fall into one of the following categories:

i. Incremental basis:

Where the oversize cost would be calculated by determining the incremental or marginal cost of up-sizing to the required Oversized water, Wastewater and Stormwater Infrastructure defined in the Master Plan. This method is most fairly applied if there is a base value or benefit associated with providing the minimum service requirements without considering oversizing. For the purpose of oversizing, minimum service requirements would be those necessary to provide service to an area being developed and may be based on minimum pipe sizes and local road standards .

ii. Flow Proportioning:

The incremental costs of the oversized component(s) in a Master Plan Area may be distributed amongst the land owners on a flow proportionate basis as determined by their allowable densities noted in the Municipal Planning Strategies or land use in the Land Use Bylaws.

iii. Capacity basis:

Where the oversize cost is determined on the basis of capacity allocated to the charge area. The cost to be recovered through a WWS CCC would be calculated by pro-rating total cost on the basis of capacity. This method is most fairly applied for a discrete upgrade of an existing system outside of the charge area.

b) Water, Wastewater and Stormwater Systems within a Charge Area

The oversized costs to provide Water, Wastewater and Stormwater Systems within a charge area will be determined on an incremental basis. There are various methods for

calculating incremental costs of piped systems:

i. Dual Design Method:

Where the oversize cost is determined by deducting the total cost of the minimum required pipe size from the total cost of the oversized pipe.

ii. Cost Ratio Method:

This method assumes a direct relationship between the cost of providing a service and the size of the pipe. A cost factor can be determined and applied similar to the Cost Sharing Policy of the former City of Halifax, or a simple percentage based on nominal dimensions may be applied.

c) Infrastructure Exterior to a Charge Area

The portion of the cost of an upgrade, expansion, or provision of a discrete component of water, Wastewater and Stormwater infrastructure to be recovered through a WWS CCC will be determined on the basis of capacity allocated to the charge area.

Section 18: Funding Criteria

a) Opportunity costs should be considered and calculated in an effort to prioritize the Commission's investment. These costs may be used to compare and contrast the investment potential in one charge area versus another request for funding. Opportunity costs may include consideration of existing system capacities, potential diversion of demand and capacity allocations, or mitigation of future capital expenditures arising from strategic Commission investments from a regional perspective. Other cost factors for consideration include treatment plants, trunk piping systems and other support services including operations and maintenance.

b) The Commission in consultation with the HRM may opt to encourage development and growth in strategic areas by supporting Master Plan funding on a priority basis. The Commission may initially invest in comprehensive Master Plan studies where it wishes to promote growth and development optimizing use of existing systems and services.

c) Inevitably, the demand for the Commission's and the HRM's contributions and investments for Capital Cost Contribution Policy may require priority decisions from the Commission's Board and Council. A balance of strategic master planning will mitigate future capital costs through good planning and optimized infrastructure utilization.

d) The Commission may determine the risk too high in consideration of upfront payments for Oversized water, Wastewater and Stormwater Infrastructure. In this case, development may proceed if the developers build the required infrastructure. The developers may be given water, Wastewater and Stormwater Capital Cost credits to future contributions or may be re-paid when the Commission collects future WWS CCC from subsequent development utilizing these Oversized water, Wastewater and Stormwater Systems.

The requirement for security would reduce the risk to the Commission if development does not proceed. Time will be the essence of any agreement and may determine the type and condition

of the security required to mitigate the Commission's financial risk.

Section 19: WWS CCC Payment

The applicable WWS CCC shall be payable to the Commission at:

a) the issuance of a subdivision approval; or

b) where development is permitted to occur without a subdivision approval, prior to connection by the Commission of a water meter.

PART II:

WWS CCC Policy Templates

The capital cost templates and supporting notes will be used to calculate Water, Wastewater and Stormwater Capital Cost Contributions.

WATER, WASTEWATER AND STORMWATER CAPITAL COST CONTRIBUTION FORMULAS

Water, Wastewater and Stormwater		
A	Total cost of Oversized Infrastructure and other required infrastructure (Wastewater, Stormwater)	
B	Total cost of Oversized Infrastructure and other required infrastructure(water)	
C	Interest during construction	
D	Total cost of infrastructure	(A + B + C)
E	Deduct infrastructure that benefits the Commission	
F	Deduct fire protection charges paid by the HRM - From water Infrastructure only (Item "B" above)	
G	Total Capital Cost Contribution	(D - E - F)
H	Gross area (acres) in charge area	
I	Area of land that cannot be developed	
J	Area of land that can be developed	(H - I)
K	Development charge per acre	(G / J)
L	Average Density (ppa) of charge area	

Adjustments for Density of the Parcel being Subdivided		
M	Area of Parcel Being Subdivided	
N	Density (ppa) for parcel being subdivided	
O	Capital Cost Contribution per Acre	K x (N / L)
P	Total Capital Cost Contribution	O x M

Notes to Capital Cost Formula

1. The cost of Oversized Infrastructure and other required infrastructure is based on an estimate of construction that includes engineering design. Other items to be included are planning studies, land purchases, surveying costs, legal costs and Commission audit inspection costs. The costs will be escalated based on the ENR index to the year costs are incurred for each component of the infrastructure.

2. The interest rate shall be the prime bank rate plus one percent. The construction period is assumed to be two years.

3. Benefits to the Commission may include infrastructure costs that benefit the existing population of the Commission.

   a) If there is an area within the charge area that benefits the Commission and the Commission pays a portion of the oversized and other infrastructure costs, any vacant land within the area that is developed shall pay a WWS CCC equal to cost per acre paid by the Commission.

4. The fire protection charge paid by HRM to the Commission is a percentage of the cost of the oversized water related infrastructure. The current 29% has been calculated based on the fire protection component of the demand assets of the utility as contained in the current rate study. Future rate studies may result in a change in the percentage.

5. Gross area includes all land, including streams and lakes within the charge area.

6. Area that cannot be developed will include streams, lakes, flood plains and any other land deemed non-developable by the Commission.

7. Average density shall be established by the Commission or HRM.

8. For Industrial, Commercial or Institutional uses with multiple storeys, the area of the parcel being sub-divided shall be increased by an amount equal to the *allowable* floor space of the additional storeys.

   For the purpose of this calculation, underground parking is considered an additional storey.

9. Development of a parcel of land within a charge area that has density below the average may be required to accelerate contributions on the basis of the average density, until the total required WWS CCC for the original parcel has been made.

   For Industrial, Commercial and Institutional uses, density shall be taken as the average density for the charge area.

Halifax Water
Halifax Regional Water Commission

ITEM # 7
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, ICD.D
Director, Corporate Services

APPROVED: *Original Signed By:*
Carl Yates, M.A.Sc., P.Eng., General Manager

DATE: March 28, 2019

SUBJECT: **Halifax Water Fraud Policy**

ORIGIN

Halifax Water Audit and Finance Committee

RECOMMENDATION

It is recommended the Board:

1. Approve the Fraud Policy as attached, with implementation effective May 1, 2019.

2. Approve a revision of the threshold for gifts in the Conflict of Interest Policy from $125 to $250 to align with Section 16 of the Conflict of Interest Act; and revise process around annual Conflict of Interest Statements as described in this report.

3. Educate all staff on the Conflict of Interest Policy in conjunction with the Fraud Policy, and implement a process to ensure annual policy reminders occur.

BACKGROUND

There are two converging initiatives that prompted development of a Fraud Policy for Halifax Water. In March 2018 the Halifax Water Board approved a framework for Enterprise Risk Management (ERM). As part of the initial work on ERM it was noted that Fraud Risk is a common and significant category of risk for organizations and Halifax Water did not have a Fraud Policy.

As a result of the preliminary ERM work which identified there was no Fraud Policy, an education session on Fraud was conducted by the external auditors Grant Thornton with the Halifax Water Board in June 2018. Halifax Water planned to develop a Fraud Policy in fiscal year 2018/19 and indicated that it would also include establishment of a whistleblower process.

In the Fall of 2018 the Halifax Water Board asked for an analysis of how Halifax Water's financial management, governance and control environment compared to the IWK Health Centre, in the context of the December 2018 report from the Provincial Office of the Audit General (OAG) "IWK Health Centre – Financial Management Controls and Governance". The analysis was conducted and a memo with recommendations was presented at a January meeting of the Halifax Water Audit and Finance Committee. The memo noted that a Fraud Policy was being developed and would serve to strengthen the financial management, governance and control environment.

The Audit and Finance Committee directed staff to return with an Action Plan to address the recommendations. That plan was presented at an Audit and Finance Committee meeting on March 25, 2019 along with the attached Fraud Policy.

DISCUSSION

Fraud Policy

The attached policy is applicable to Halifax Water Employees, however it is recommended the Halifax Water Board should also be subject to this policy. Halifax Water developed this policy based on a Fraud Policy template provided by the external auditors Grant Thornton.

The Fraud Policy defines fraud in the Halifax Water context, and sets out a reporting policy. Any Employee who discovers or suspects fraudulent activity will immediately contact the Director of Corporate Services, the Corporate Legal Counsel or General Manager. The Employee or other complainant will remain anonymous.

Individuals that are not comfortable reporting suspected fraud through the Halifax Water reporting process may report to the Halifax Municipal Auditor General.

The Halifax Municipal Auditor General has a Taking Improvement & Performance Seriously (TIPS) hotline and online form that can be used to report suspected fraud. It is not intended to replace the normal business processes already established by Halifax Water to address current or ongoing issues of an operational nature.

Conflict of Interest, Outside Employment, and Gifts

Under Policy#8.17 Conflict of Interest, Outside Employment, and Gifts, accepting nominal gifts of estimated value less than $125 is currently permitted; however gifts of cash are strictly prohibited. The dollar value threshold had not been reviewed since 2006. The original intent of the threshold, was meant to allow staff to accept invitations to attend conferences, networking and educational events. There is an organization benefit to allow staff to attend events that further their professional development, and help build relationships between Halifax Water staff, stakeholders, and the business community.

The dollar value threshold for Acceptance of Gifts under Section 16 of the Nova Scotia Conflict of Interest Act which applies to public servants is $250.

All new Halifax Water Employees are asked to sign the Conflict of Interest Policy as part of their on-boarding process. When reviewing the Conflict of Interest Policy, which has been in effect since September 5, 2006, it was noted that each officer or Employee shall at the direction of the General Manager annually complete (at the end of the fiscal year), execute and return a "Conflict of Interest" statement to the General Manager, and in the case of the General Manager to the Chair of the Board on a confidential basis. This has not occurred. Putting such a system in place would be administratively arduous. It is recommended the Conflict of Interest Policy be amended to state that all new Halifax Water Employees are asked to sign the Conflict of Interest Statement as part of their on-boarding process, and a policy reminder will be provided to employees on an annual basis.

ATTACHMENT

Fraud Policy

Report Prepared by: *Original Signed By:*
Cathie O'Toole, MBA, CPA/CGA, ICD.D
Director of Corporate Services, 902-490-3685

Halifax Water
Fraud Policy #TBD

1 – Policy Name

Halifax Water's Fraud Policy (the "Policy").

2 – Purpose

The Halifax Water Fraud Policy is established to facilitate the development of controls that will aid in the detection and prevention of fraud against Halifax Water. It is the intent of Halifax Water to promote consistent organizational behavior by providing guidelines and assigning responsibility for the development of controls and conduct of investigations.

Related/Relevant Halifax Water Policies:
#8.17 Conflicts of Interest, Outside Employment, and Gifts
#8.24 Code of Conduct

3 – Definition

In this Policy "**Fraud**" means the intentional, false representation or concealment of a material fact for the purpose of inducing another to at upon it, or deliberate deception to secure unfair or unlawful gain or to deprive a victim of a legal right or personal benefit.

4 – Scope & Applicability

This policy applies to any irregularity, or suspected irregularity, involving Employees or Board members, as well as consultants, vendors, contractors, outside agencies doing business with Employees of such agencies and/or any other parties in a business relationship with Halifax Water.

Any investigating activity required will be conducted without regard to the suspected wrongdoer's length of service, position/title, or relationship to Halifax Water.

5 - Policy

Employer is responsible for the detection and prevention of fraud, misappropriations, and other irregularities. Each member of the management team will be familiar with the types of improprieties that might occur within their area of responsibility, and be alert for indication of irregularities.

Any irregularity that is detected or suspected must be reported immediately to the Director of Corporate Services, Corporate Legal Counsel, or General Manager who will coordinate all investigations both internal and external.

Actions Constituting Fraud:

- Any dishonest or fraudulent act
- Misappropriation of funds, supplies, equipment, or other Halifax Water assets

- Misrepresentation of employment related expenses, hours worked, absences or leaves
- Impropriety in the handling or reporting of money or financial transactions
- Profiteering or benefiting as a result of insider knowledge of company activities
- Disclosing confidential and proprietary information to outside parties
- Accepting or seeking anything of material value from contractors, vendors, or persons providing services/materials to Halifax Water, for personal use or gain. Exception: Accepting nominal gifts of estimated value less than $250 is permitted under Policy#8.17 Conflict of Interest, Outside Employment, and Gifts; however gifts of cash are strictly prohibited.
- Destruction, removal, or inappropriate use of records, furniture, fixtures, and equipment and/or
- Any similar or related irregularity

Other Irregularities:

Irregularities concerning an Employee's moral, ethical, or behavioral conduct should be considered under other relevant Halifax Water Policies depending upon the irregularity. Such irregularities should be resolved by departmental management and Human Resources. If there is any question whether an action constitutes fraud, contact the Director of Corporate Services, Corporate Legal Counsel, or General Manager for guidance.

6 – Roles and Responsibilities

Investigation

Corporate Services has the primary responsibility for the investigation of all suspected fraudulent acts as defined in the policy. If the investigation substantiates that fraudulent activities have occurred, Corporate Services will issue reports to appropriate designated personnel and, if appropriate, to the Board of Directors through the Audit and Finance Committee.

Decisions to prosecute or refer the examination results to the appropriate law enforcement and/or regulatory agencies for independent investigation will be made by the Director of Corporate Services, Corporate Legal Counsel and the General Manager, as will final decisions on disposition of the case.

Employer

Halifax Water is responsible to:

a) Protect Halifax Water assets, reputation, and private information;

b) Educate Employees about the Policy;

c) Provide supervisor training where appropriate, on prevention and detection of fraud;

d) Monitor and evaluate the Policy for currency, relevance and adherence to best practices.

Supervisor

Supervisors are responsible for and expected to:

a) Be knowledgeable about and communicate this Policy to all Employees and contractors;

b) Ensure they monitor their operations for fraud and irregular activities;

c) Report potential fraud and irregular activities to the business unit Director and the Director of Corporate Services

Employee

The Employee is fully responsible and expected to:

a) Know and understand this Policy as part of their obligation to perform work in a manner that protects the assets and reputation of Halifax Water;

b) Take every reasonable precaution in all circumstances to avoid fraud.

7 – Reporting and Confidentiality

All information received or collected with respect to suspected fraud will be treated confidentially.

Any Employee who discovers or suspects fraudulent activity will immediately contact the Director of Corporate Services, the Corporate Legal Counsel or General Manager and should not attempt to personally conduct investigations or interviews related to any suspected fraudulent act. The Employee or other complainant may remain anonymous.

Great care must be taken in the investigation of suspected improprieties or irregularities so as to avoid mistaken accusations or alerting suspected individuals that an investigation is underway.

All inquiries concerning the activity under investigation from the suspected individual, their attorney or representative, or any other inquirer should be directed to the Director of Corporate Services or Corporate Legal Counsel. No information concerning the status of an investigation will be given out.

The reporting Employee will be informed of the following:

- Do not contact the suspected individual in an effort to determine facts or demand restitution
- Do not discuss the case, facts, suspicions, or allegations with anyone unless specifically asked to do so by the Director of Corporate Services, Corporate Legal Counsel, or General Manager.

8 – Authorization for Investigating Suspected Fraud

Upon receipt of a report of suspected fraud, the Director of Corporate Services will arrange for an investigation. Depending upon the nature and potential materiality, the investigation may be carried out by internal staff, external resources, or may be reported to the Halifax Regional Police.

For investigations carried out by Halifax Water or contract resources such as external auditors:

- member of the investigation team will have free and unrestricted access to all Halifax Water records and premises relevant to the investigation, whether owned or rented; and
- The authority to examine, copy, and/or remove all or any portion of the contents of files, desks, cabinets, and other storage facilities on the premises without prior knowledge or consent of any Employee who might use or have custody of any such items or facilitates when it is within the scope of their investigation.

9- Termination

Fraud is viewed as a serious offence on the Halifax Water Discipline Policy #8.01. If an investigation results in a recommendation to terminate an Employee, the recommendation will be reviewed for approval by the Director of Corporate Services, Corporate Legal Counsel, and General Manager, and if necessary, by outside counsel, before any such action is taken. The recommendation to terminate an Employee is made by the Employee's business unit; however, approval by the General Manager or Director of Corporate Services is required pursuant to the Halifax Water Signing Authority Policy.

10 – Administration

The Director of Corporate Services is responsible for the administration, revision, interpretation and application of this policy. The policy will be reviewed periodically and revised as needed.

11 – Whistleblowing

Individuals that are not comfortable reporting suspected fraud through the Halifax Water reporting process, may report to the Halifax Municipal Auditor General.

The Halifax Municipal Auditor General has a Taking Improvement & Performance Seriously (TIPS) hotline and online form that can be used to report suspected fraud. It is not intended to replace the normal business processes already established by Halifax Water to address current or ongoing issues of an operational nature. Report concerns by calling 902-490-1144 or at https://apps.halifax.ca/auditor-general.

ITEM # 8
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: March 20, 2019

SUBJECT: **Corporate Balanced Scorecard - 2019/20 Program**

ORIGIN:

Annual Corporate Performance Measurement.

RECOMMENDATION:

The Board approve:

1. Corporate Balanced Scorecard targets for the 2019/20 fiscal year as detailed in the attached presentation.

2. The Organizational Award Program tied to the outcomes of 12 Organizational Indicators as detailed in the attached presentation.

BACKGROUND:

Halifax Water has been utilizing a Corporate Balanced Scorecard (CBS) to measure performance since 2001. At that time, the CBS was viewed to be an excellent framework to connect the mission of the utility with the everyday activities of staff. The CBS development was very inclusive in 2001 and followed a process to identify Critical Success Factors (CSFs) in support of the mission, establish Organizational Indicators (OIs) to measure performance and set targets for continuous improvement. In March 2002, the Board approved an organizational award program tied to eight OIs which were the most objective and outward looking. This program was well received by staff and ensured that rewards were linked to strategic outcomes.

DISCUSSION:

With the transfer of wastewater/stormwater assets from HRM to Halifax Water on August 1, 2007, it was evident that a new mission, vision and CBS would need to be developed to ensure we were inclusive of all services provided by the utility. Building on the success of the process utilized in 2001 to develop the CBS, a similar process was established in the fall of 2007, with the selection of a steering committee to oversee the CBS development. The steering committee consisted of the executive staff, two non-union employees from middle management, two employees from CUPE Local 227, and two employees from CUPE Local 1431. As part of the process, the steering committee engaged a broader audience of staff and conducted two major workshops to ensure direct input from all levels of the organization. As a result of this process, a consensus was developed on the mission, vision, critical success factors, and OIs. The mission of Halifax Water is **"*to provide world class services to our customers and our environment*"**. The statement is simple, recognizes the connection between customers and the environment with our expanded mandate, and places the responsibility on employees to make Halifax Water a world class utility.

The vision statement for Halifax Water is:

- ***We will provide our customers with high quality water, wastewater, and stormwater services.***

- ***Through adoption of best practices, we will place the highest value on public health, customer service, fiscal responsibility, workplace safety and security, asset management, regulatory compliance, and stewardship of the environment.***

- ***We will fully engage employees through teamwork, innovation, and professional development***

The vision statement expanded on the values and principles of a world class utility in fulfilling its mission and captures the medium to long-term aspirations of Halifax Water. With the vision statement developed, staff then selected the critical success factors that support the mission, and through an interactive process, settled on the following:

1. **High Quality Drinking Water**
2. **Service Excellence**
3. **Responsible Financial Management**
4. **Effective Asset Management**
5. **Safety and Security**
6. **Regulatory Compliance**
7. **Environmental Stewardship**
8. **Motivated and Satisfied Employees**

With the CSFs established, staff set about the task of developing OIs under each CSF to enable performance measurement and establishment of targets. Each year, the OIs are reviewed and refined based on operational objectives and approved budgets. Of note, this year's CBS includes a continued focus on safety with four OIs included in the CBS. Notwithstanding this approach, one of the safety OIs will be switched to place more emphasis on proactive measures. To that end, a new lead indicator, average internal safety audit score, is included for 2019/20.

A revised OI for Asset Management has been developed in recognition that our Wet Weather Management Program is at a mature state, whereby a specific metric to measure inflow and infiltration is included. Staff are expecting a definitive outcome in the reduction of inflow and infiltration to facilitate growth and/or increase the level of service to our customers and protect the environment For the fourth year running, staff recommend the inclusion of an OI to track the capital budget spend rate to ensure we optimize available funding and close the gap on capital investments.

Similar to last year, two indicators related to our annual customer survey positions the utility for high performance, namely, customer perception of water quality and service. The OIs for these indicators have a range of outcome with the water quality OI target pegged at 80 to 85% of customers rating water quality as good or excellent and the service OI set at 85 to 90% of customers being satisfied or very satisfied with our service.

The attached presentation provides detail on the process including identification of CSFs and OIs for 2019/20.

Similar to the past process, the most objective OIs have been considered for the organizational award program. Of the 29 OIs detailed in the attachment, 12 are recommended for inclusion in the award program. These 12 OIs are reflective of seven CSFs which are critical to our mission and the most objective and outward looking. Again, similar to the previous process, the recognition of an organizational award hinges on a minimum score of 7.0 to give a passing grade out of a maximum score of 12.0. Funds for the award program are connected to the operating expense to revenue ratio being below the target for the fiscal year. In this regard, if the operating expense to revenue ratio is met, funds are already embedded in the operational budget. The Operating Expense to Revenue ratio OI has been modified this year to reflect a target that incorporates the equivalent of $2 million in expense reduction, an additional 1 million reduction compared to the target in 2018/19.

It should also be recognized that the targets for these OIs are meant to be stretch goals, such that the utility is pushing for both efficiency and effectiveness in its service delivery. In many cases, the improvements in efficiency will realize enough savings to pay for the award program itself. The water loss control initiative is a prime example of how the utility has realized gains in efficiency with financial savings in the order of $650,000 per year. In keeping with the cost containment theme, water and wastewater service cost measures under Responsible Financial Management have targets to realize 3% savings compared to

the approved operations budget. In addition, under the Environmental Stewardship theme, the utility is expected to reduce energy consumption as a result of capital improvements. Staff are confident that the continued implementation of the organization award tied to the outcomes of the CBS will realize future savings for the utility.

BUDGET IMPLICATIONS

Funds for the Award Program are available with the realization of the operating expense to revenue ratio below the target amount. In this regard, funds would be embedded within the 2019/20 Operations Budget. In many cases, meeting the OI targets will realize direct savings to the utility, improved operational effectiveness, and/or improved customer service.

ALTERNATIVES

None recommended.

ATTACHMENT

Presentation - Measuring Performance through a Corporate Balanced Scorecard, dated March 28, 2019

Report Prepared by:	*Original Signed By:* Carl Yates, M.A.Sc., P.Eng., General Manager, (902)490-4840
Financial Reviewed by:	*Original Signed By:* Cathie O'Toole, MBA, CPA, CGA, Director, Finance and Customer Service, 902-490-3572

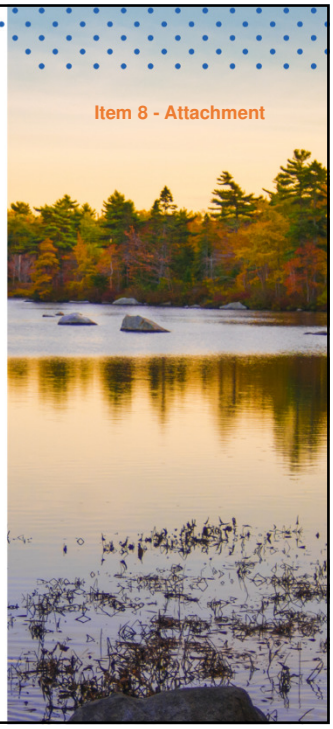
Halifax Water

Corporate Balanced Scorecard 2019/20 Program

Presented to Halifax Water Board
March 28, 2019

Carl D. Yates, M.A.Sc., P.Eng.
General Manager

STRAIGHT from the SOURCE



Background of Corporate Balanced Scorecard

- HRWC embarked on a Continuous Improvement Program in 1999
- In 2000, HRWC looking for methodology to measure organizational performance that was meaningful
- Introduced to concept of Corporate Balanced Scorecard [CBS] through association with Bridgeport Hydraulics, Connecticut
- HRWC Board approved CBS in 2001 and Organizational Award Program on March 28, 2002
- CBS ensured all employees focused on strategic outcomes
- After the wastewater merger on August 1/07, recognition that CBS should be expanded to include wastewater/stormwater performance measures and opportunity to recalibrate water measures

The Process

- In late fall 2007, struck a steering committee and selected a group of forty employees to review the utility mission, vision and develop expanded scorecard
- Good cross section of employees representing all departments, all levels, union and management [front line to General Manager]
- Three steering committee meetings and two staff workshops held with facilitation by an outside consultant, Jack Duffy

The Process

- Developed a new mission statement which had to change as a result of the merger in 2007
- Identified critical success factors [CSFs] in support of the new mission
- Developed organizational indicators [OIs] to measure performance
- Received approval of the revised CBS from the Halifax Water Board and a revised organizational award program on March 6, 2008

The Mission of Halifax Water

"To provide world class services for our customers and our environment"

The Vision of Halifax Water

- We will provide our customers with high quality water, wastewater, and stormwater services.
- Through adoption of best practices, we will place the highest value on public health, customer service, fiscal responsibility, workplace safety and security, asset management, regulatory compliance, and stewardship of the environment.
- We will fully engage employees through teamwork, innovation, and professional development.

Critical Success Factors

- High Quality Drinking Water
- Service Excellence
- Responsible Financial Management
- Effective Asset Management
- Workplace Safety and Security
- Regulatory Compliance
- Environmental Stewardship
- Motivated and Satisfied Employees

Organizational Indicators

- Organizational Indicators (OI's) are the measures of our performance within each CSF and provide the definition and detail to best understand them. The OI's are organizational, not individual measures.
- The OI's provide both a detailed clarification of the CSF and allow a target or goal for performance to be established and tracked.

Organizational Performance Award Program

- Based on a subset [12] of our strategic OI's which are the most objective.
- Program pays for itself by meeting operating expense to revenue ratio target; ratio is reduced from approved budget to accommodate the award program potential.
- It is not a given; a threshold of 7.0 in scoring must be reached in a given year.
- To be eligible for the award, employees must work a minimum of nine months during the fiscal year [April 1st to March 31st]

The CBS Targets for 2019/20 Fiscal Year

- Organizational Indicators with a star * are tied to the Award Program

CSF: High Quality Drinking Water

Organizational Indicator: *

- Adherence with 5 objectives from the Water Quality Master Plan for all water systems; we must own system for one year to include results.

Objective	Total Sites	Result to March 31/20 (% of Sites Achieving Target)	Target	Distrib. Pts.
Disinfection – Chlorine Residual	**65**		**80 – 100%**	**/20**
Disinfection By-products (THMs)	**24**		**< 80 ug/l**	**/20**
Disinfection By-products (HAAs)	**25**		**< 60 ug/l**	**/20**
Particle Removal	**5**		**<0.2 &< 1.0 NTU**	**/20**
Corrosion Control	**n/a**		**Lead; <10 ug/l**	**/20**
Summary Total				**/100**

Disinfection – Achieve 0.2 mg/L at all sites (100% of sites achieving residual of 0.2 on 95% of tests)
THMs – Annual Avg. of < 80 ug/L at all THM sampling sites
HAAs - Annual Avg. of < 60 ug/L at all HAA sampling sites
Particle removal – Surface water plant achieves turbidity of <0.2 NTU 95% of the time and <1.0 100% of the time
Corrosion Control – Achieve 90th percentile standing lead sample of <10 ug/L for all sample sites

CSF: High Quality Drinking Water

Organizational Indicator:

- Bacteriological tests [monthly target of 99.3% free of Total Coliform]

	% Samples Free of Coliform	Target
2019/20		**99.3%**

CSF: High Quality Drinking Water

Organizational Indicator: *

- Customer satisfaction about water quality [Target of 85% rating water quality as good to excellent]

	Survey Results (actual)	Target
From Fall 2019 Survey		**89%** *(previously 80% - 85%)*

CSF: Service Excellence

Organizational Indicator: *

- Customer satisfaction with service [Target of 90% satisfied or very satisfied]

	Survey Result (actual)	Target
From Fall 2019 Survey	**%**	**96%** *(previously 85% - 90%)*

CSF: Service Excellence

Organizational Indicator:

- Service outages of water [# connection hours / 1000 customers]

	Hours (actual)	Target
2019/20		**200**

CSF: Service Excellence

Organizational Indicator:

- Service outages of wastewater [# connection hours / 1000 customers]. (N.B. the clock starts after we know it is our problem)

	Hours (actual)	Target
2019/20		**8**

CSF: Service Excellence

Organizational Indicator:

- Average speed of answer; 60 – 65% of calls are answered within 20 seconds

	Percent	Target
2019/20		**60 – 65%** *(Previously 70 seconds)*

CSF: Responsible Financial Management

Organizational Indicator: *

- Operating Expense/Revenue Ratio [based on annual operating budget]

	Exp/Rev ratio (actual)	Target
2019/20		**0.815** *(previously 0.797)*

CSF: Responsible Financial Management

Organizational Indicator:

- Annual Cost per Customer Connection [Water]

	Cost/connection	Target
2019/20		**$517** *(previously $482)*

CSF: Responsible Financial Management

Organizational Indicator:

- Annual Cost per Customer Connection [Wastewater]

	Cost/connection	Target
2019/20		**$708** *(previously $687)*

CSF: Effective Asset Management

Organizational Indicator:

*

- Water Loss Control; target leakage allowance of 180 Litres/Service Connection/Day

	Leakage Actual	Target
2019/20		180 - 190

CSF: Effective Asset Management

Organizational Indicator:

- Inflow and Infiltration [I&I] Reduction; # of inspections on private property in relation to discharge of stormwater into the wastewater system.

	I&I Inspections	Target
2019/20		900

CSF: Effective Asset Management

Organizational Indicator:

New OI *

- Peak flow reduction in the Fairview area after 7km of mainlining project:

	Flow Reduction Actual	Target
2019/20		34 - 38 l/sec

CSF: Effective Asset Management

Organizational Indicator:

*

- Percentage of time GIS and CityWorks is in service based on a 24/7 operational protocol

  (Previously: Hours of unplanned outages of GIS and CityWorks)

	Percentage of Time	Target
2019/20		95% - 97% *(Previously *90% to 85% of 17/18 actual)*

Actual number pending post fiscal year-end report from HRM

CSF: Effective Asset Management

Organizational Indicator

- Capital Budget Expenditures – Maximize annual funds spent by end of fiscal year

	Maximize Annual Capital Budget Expenditures	Target
2019/20		80% to 90% approved

CSF: Workplace Safety & Security

Organizational Indicator:

- Average score on internal Safety Audits
  (Previously: # of Incidents with written Compliance Orders received from NS Labour and Advanced Education)

	Labour Infractions	Target
2019/20		85% - 95% *(previously 0 - 2 (max.)*

CSF: Workplace Safety & Security

Organizational Indicator: *

- Lost Time Accidents [# of accidents resulting in lost time per 100 employees (FTE pro-rated)]

	Lost time accidents	Target
2019/20		**2.0 – 3.0 per 100 employees** *Previously 2.5 – 3.5* *(with a maximum of 4.5)*

CSF: Workplace Safety & Security

Organizational Indicator: *

- # of Traffic Accidents per 1,000,000 km

	Traffic Accidents / 1,000,000 Kms	Target
2019/20		**4.0 per 1,000,000 km (maximum of 5)**

CSF: Workplace Safety & Security

Organizational Indicator:

- Employees are retrained or recertified before due date

	% of Employees Retrained or Recertified Before Due Date	Target
2019/20		80% - 90%

CSF: Workplace Safety & Security

Organizational Indicator:

- Supervisors complete weekly or bi-weekly safety talks

	% of Completed Safety Talks	Target
2019/20		80% - 90%

CSF: Regulatory Compliance

Organizational Indicator:

- # of public health and environmental regulatory infractions resulting in an Environmental Warning Report, Summary Offence Ticket, Ministerial Order or prosecution.

	Public Health & Env. Infract.	Target
2019/20		0 - 2 (max.)

CSF: Regulatory Compliance

Organizational Indicator: *

- % of WWTFs complying with NSE approval permits.

	% of WWTF samples meeting NSE discharge limits	Target
2019/20		95% - 100% *(prev. 93% - 98%)*

CSF: Environmental Stewardship

Organizational Indicator:

- # of ICI properties in HRM inspected by Pollution Prevention [P2] Section each year

	Actual Inspected	Target
2019/20		500

CSF: Environmental Stewardship

Organizational Indicator: *

- Energy/GHG Emission Reduction. % reduction in Energy/GHG from corporate-wide initiatives (capital and operational)

  (Previously: Energy Management [kwh/m3]; % energy reduction associated with capital projects)

	% Energy/GHG Reduction	Target
2019/20		3%

CSF: Environmental Stewardship

Organizational Indicator: *

- Bio-solid Residuals Handling; % of sludge meeting solids concentration target - 97% of samples meet a minimum solids concentration of:
  - **25% from HHSP plants**
  - **18% from Aerotech Dewatering Facility**

	% Meet Solids Concentration Target	Target
2019/20		92% - 97 %

CSF: Motivated and Satisfied Employees

Organizational Indicator:

- # of arbitrations divided by total # of grievances.

	Arbitrations/Grievances	Target
2019/20		0 Arbitrations

CSF: Motivated and Satisfied Employees

Organizational Indicator:

- % of jobs filled from within Halifax Water [excluding entry level jobs].

	% Jobs filled within	Target
2019/20		80%

CSF: Motivated and Satisfied Employees

Organizational Indicator:

- Employee satisfaction survey. [2009 was the benchmark year with a B result].

	Survey Result (actual)	Target
Survey in 2019		B *(previously A-)*

CSF: Motivated and Satisfied Employees

Organizational Indicator:

- Average number of days of absenteeism

	Avg. No. of days absenteeism	Target
2019/20		< 7 days

Based on a subset of 12 OIs which are the most objective:

Organizational Indicator	Max. Score
Water Quality Master Plan Objectives	1.0
Customer Water Quality Survey Results	1.0
Customer Service Survey Results	1.0
Operating Expense/Revenue Ratio *[Gateway Indicator]*	1.0
Water Loss Control Reduction	1.0
Peak Flow Reduction *(new)*	1.0
Percentage of Time GIS and CityWorks are Operational	1.0
# of Lost Time Accidents per 100 Employees	1.0
# of Traffic Accidents per 1,000,000 km	1.0
Percentage of WWTFs Compliant with NS Environment Permits	1.0
Energy Management – Water & Wastewater	1.0
Biosolids Residual Handling	1.0
TOTAL MAXIMUM SCORE	12.0

Employees Organizational Award

The highest possible score is 12.0 [1.0 for each OI]. If HRWC performs well, then everyone should be rewarded as follows:

Total OI Score	OP Award Amount
≥11.0	$1,000
10.0	$900
9.0	$800
8.0	$700
7.0	$600
< 7.0	$0

These values will be pro-rated if a score falls between them.

Example: For the total OP Award score of 8.5, each employee will get an organizational award of $750.

Summary

- The track record of the CBS at Halifax Water has been very positive; it has made us a better utility.
- The CBS process continues to be an inclusive and consensus building exercise for employees.
- Staff obtains Board approval of the Organizational Award Program on an annual basis
- Organizational Award Program funding is available by meeting the Operating Expense to Revenue Ratio Target.
- The Organizational Award Program is not a given; the organization must score at least 7.0 to have an award.
- Financial targets are consistent with approved annual operating budget.

Questions or Comments?

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY:

Original Signed By:
Cathie O'Toole, MBA, CPA, CGA, ICD.D, Director, Corporate Services

Original Signed By:
Reid Campbell, P.Eng. Director, Water Services

Original Signed By:
Susheel Arora, M.A.Sc., P.Eng. Director, Wastewater & Stormwater Services

Original Signed By:
Kenda MacKenzie, P.Eng. Director, Regulatory Services

APPROVED: *Original Signed By:*
Carl D. Yates, M.A.Sc., P.Eng. General Manager

SUBJECT: **Financial and Operations Information Report**

INFORMATION REPORT

ORIGIN:

Regular update.

This report provides a high level overview of financial and operational performance for the utility. Financial results are presented first, followed by indicators and statistics for water and wastewater.

FINANCIAL

HALIFAX WATER
UNAUDITED FINANCIAL INFORMATION
APRIL 1/18 - FEBRUARY 28/19 (11 MONTHS)
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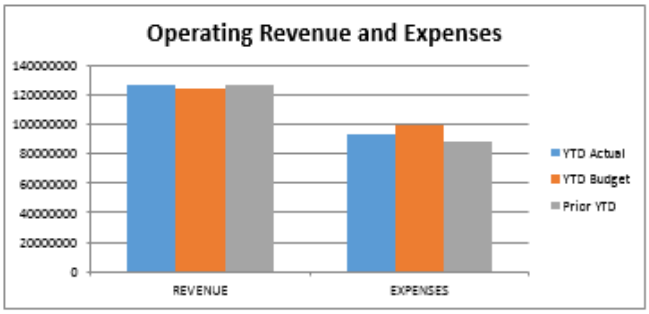
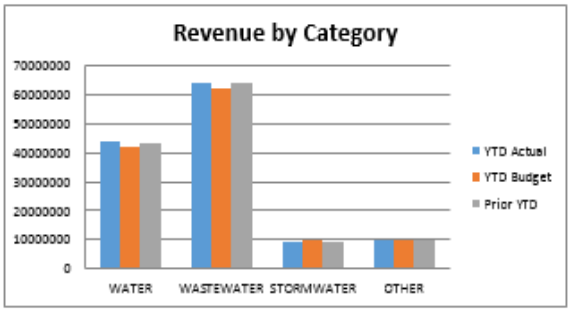


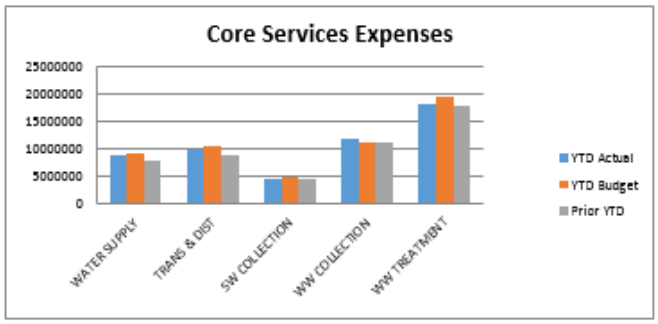


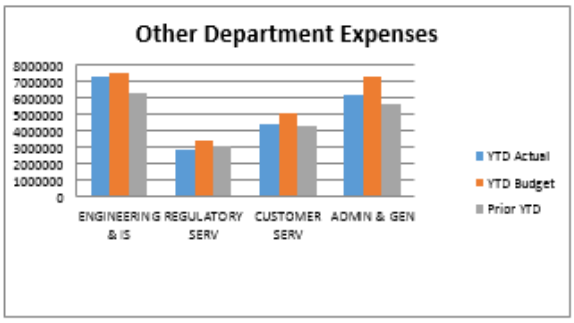
OPERATING REVENUE AND EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
REVENUE	$126,854	$123,317	$126,478	93.84%
EXPENSES	$93,913	$99,706	$87,896	86.34%
	$32,941	**$24,211**	**$38,582**	**124.72%**

REVENUE BY CATEGORY

	YTD Actual	YTD Budget	Prior YTD
WATER	$44,036	$42,306	$43,209
WASTEWATER	$63,378	$61,968	$63,980
STORMWATER	$9,150	$9,705	$9,357
OTHER	$9,689	$9,338	$9,932
	$126,854	**$123,317**	**$126,478**



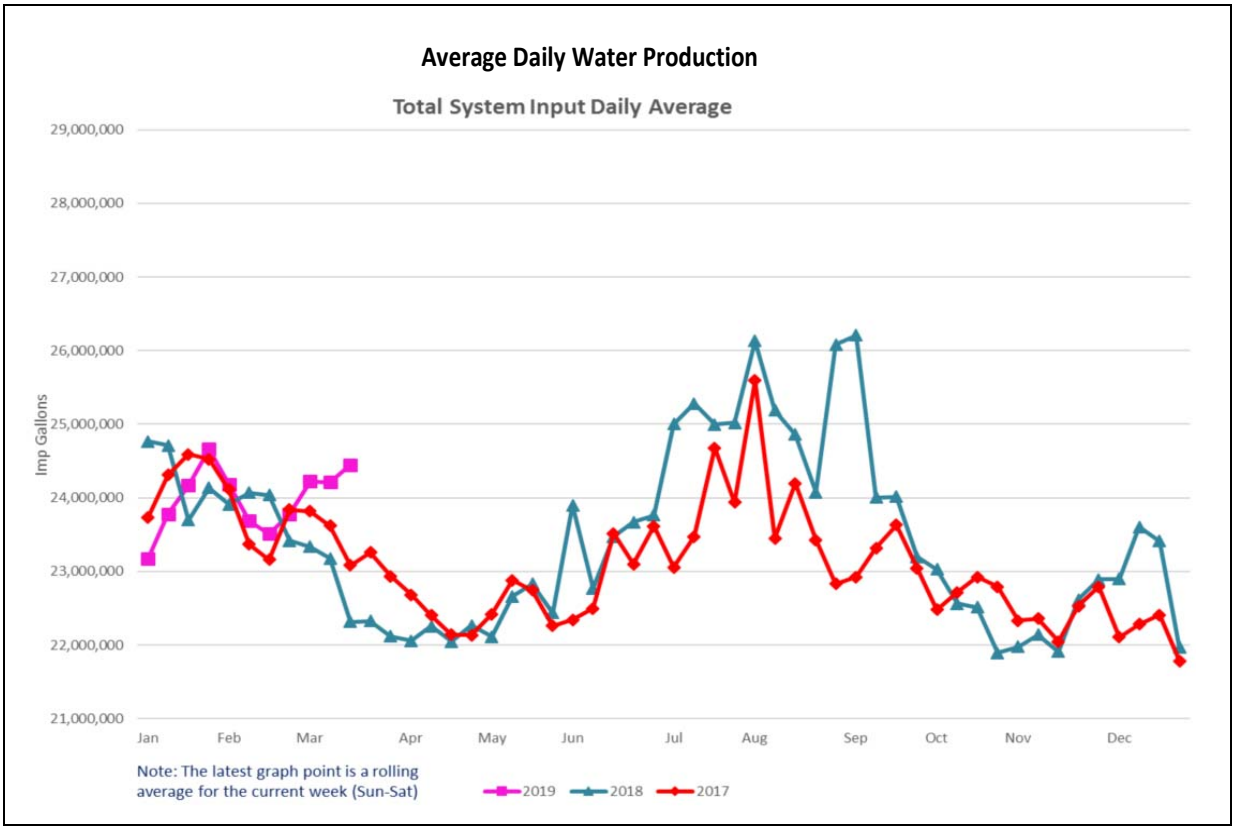


CORE SERVICES EXPENSES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
WATER SUPPLY	$8,825	$9,115	$7,921	88.75%
TRANS & DIST	$9,941	$10,347	$8,750	88.07%
SW COLLECTION	$4,348	$4,837	$4,478	82.41%
WW COLLECTION	$11,782	$11,170	$11,300	96.69%
WW TREATMENT	$18,035	$19,481	$17,816	84.87%
	$52,932	**$54,950**	**$50,264**	**88.30%**

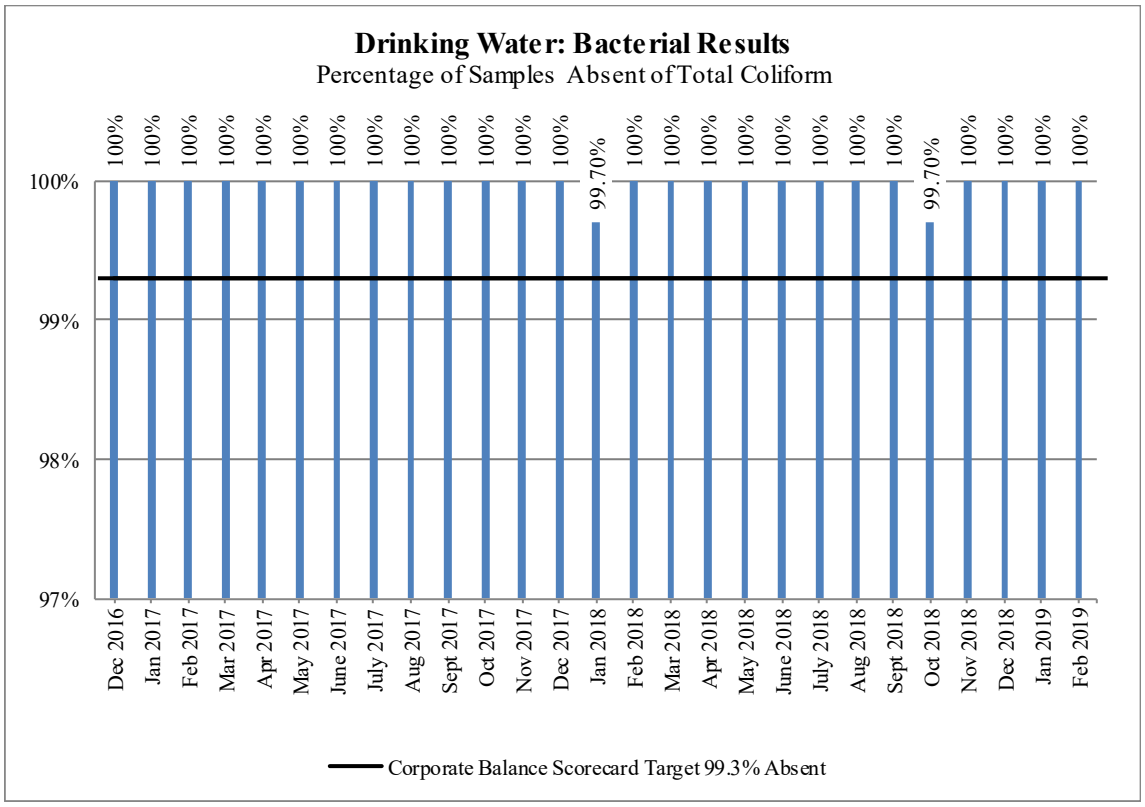
OTHER DEPARTMENT EXPENSES

	YTD Actual	YTD Budget	Prior YTD
ENGINEERING & IS	$7,358	$7,496	$6,316
REGULATORY SERV	$2,898	$3,450	$3,042
CUSTOMER SERV	$4,463	$5,062	$4,374
ADMIN & GEN	$6,257	$7,268	$5,661
	$20,975	**$23,275**	**$19,392**



Regional Water Main Break/Leak Data		
Year	**Total Breaks/Leaks**	**Current 12 Month Rolling Total *(up to March 2019)***
2017/18	206	224
2016/17	216	
2015/16	226	
2014/15	210	
2013/14	213	
Total	**1071**	
Yr. Avg.	**214.2**	

Water Accountability
Losses per Service Connection/Day (International Water Association Standard)
Period Ending December 31, 2018
Real Losses: 197 litres CBS Target: 180



Water Quality Master Plan Objectives 2018-2019 Q3				
Objective	Total Sites	% of Sites Achieving Target	All Sites: 90th Percentile < 15 µg/L	CBSC Awarded Points
Disinfection	64	95%	---	15
Total Trihalomethanes	25	64%	---	0
Haloacetic Acids	21	86%	---	8
Particle Removal	5	96%	---	16
Corrosion Control	69	---	3.96	20
TOTAL				59

In this report each facility is assessed using monthly or quarterly averages, depending on the averaging period specified in its Approval to Operate.

Wastewater Treatment Facility	**Wastewater Treatment Facility Compliance Summary** Rolling Averages - December 2018, January and February 2019																Toxicity	Trend
	$CBOD_5$ (mg/L)		TSS (mg/L)		E. coli (counts/ 100mL)		pH		Ammonia (mg/L)		Phosphorous (mg/L)		TRC (mg/L)		Dissolved Oxygen (mg/L)			
	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.	NSE Limit	Avg.		
Halifax	50	37	40	26	5000	135	6-9	6.9	-		-		-		-		Not acutely lethal	Continued
Dartmouth	50	35	40	30	5000	78	6-9	7.0	-		-		-		-		Not acutely lethal	Continued
Herring Cove	50	23	40	19	5000	87	6-9	7.1	-		-		-				Not acutely lethal	Continued
Eastern Passage	25	8	25	9	200	33	6-9	7.1	-		-		-		-		Not acutely lethal	Continued
Mill Cove	25	13	25	17	200	19	6-9	6.7	-		-		-		-		Not acutely lethal	Continued
Springfield	20	11	20	42	200	62	6-9	6.7	-		-		-		-		-	Declined
Frame	20	4	20	1	200	10	6-9	7.2	-		-		-		-		-	Continued
Middle Musq.	20	8	20	4	200	28	6-9	7.3	-		-		-		-		-	Continued
Uplands	20	13	20	13	200	389	6-9	7.0	-		-		-		-		-	Continued
Aerotech	5	4	5	1	200	10	6-9	7.1	5.7 W 1.2 S	0.2	0.13	0.10	-		6.5	8.2	Not acutely lethal	Continued
North Preston	10	8	10	13	200	10	6-9	7.0	3	1.2	1.5	0.3	-		-		-	Continued
Lockview	20	8	20	16	200	128	6.5-9	7.0	8.0 S	9.4	1.2 S	0.6	-		-		-	Continued
Steeves (Wellington)	20	5	20	10	200	10	6.5-9	7.5	14.4 S	0.1	1.0 S	0.3	-		-		-	Continued
BLT	15	6	20	15	200	14	6-9	7.0	5 W 3 S	4	3 W 1 S	2	0.02 *	0.10	-		Not acutely lethal	Continued
Avg. of all Facilities	13		15		72		7.0		3.0		0.6		0.18		8.2			

NOTES & ACRONYMS:

LEGEND

$CBOD_5$ - Carbonaceous 5-Day Biochemical Oxygen Demand

TSS - Total Suspended Solids

NSE Compliant

NSE Non-Compliant

* TRC - Total Residual Chlorine - Maxxam can only measure 0.10 mg/L residual; results of 0.1 mg/L are compliant

BDL - Below Detection Limit

W / S - Winter / Summer compliance limits

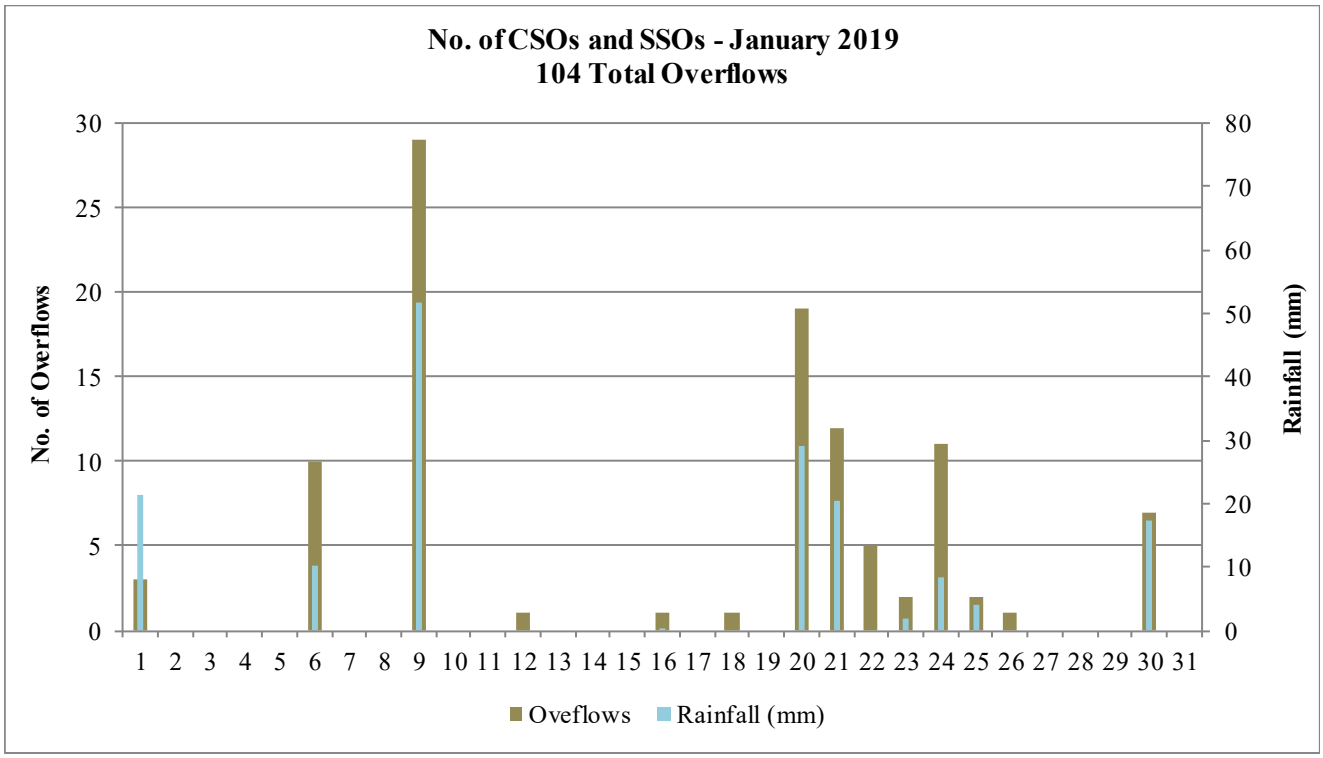
NSE requires monthly averages be less than the NSE Compliance Limit for each parameter (Dartmouth, Eastern Passage, Halifax, Herring Cove, Mill Cove)

NSE requires quarterly averages be less than the NSE Compliance Limit for each parameter (Aerotech, Lockview, Mid. Musq., Frame, BLT, Uplands, North Preston, Steeves, Springfield)

Continued - All parameters remain essentially unchanged since the last report

Improved - One or more parameter(s) became compliant since the last report

Declined - One or more parameters(s) became non-compliant since the last report



NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

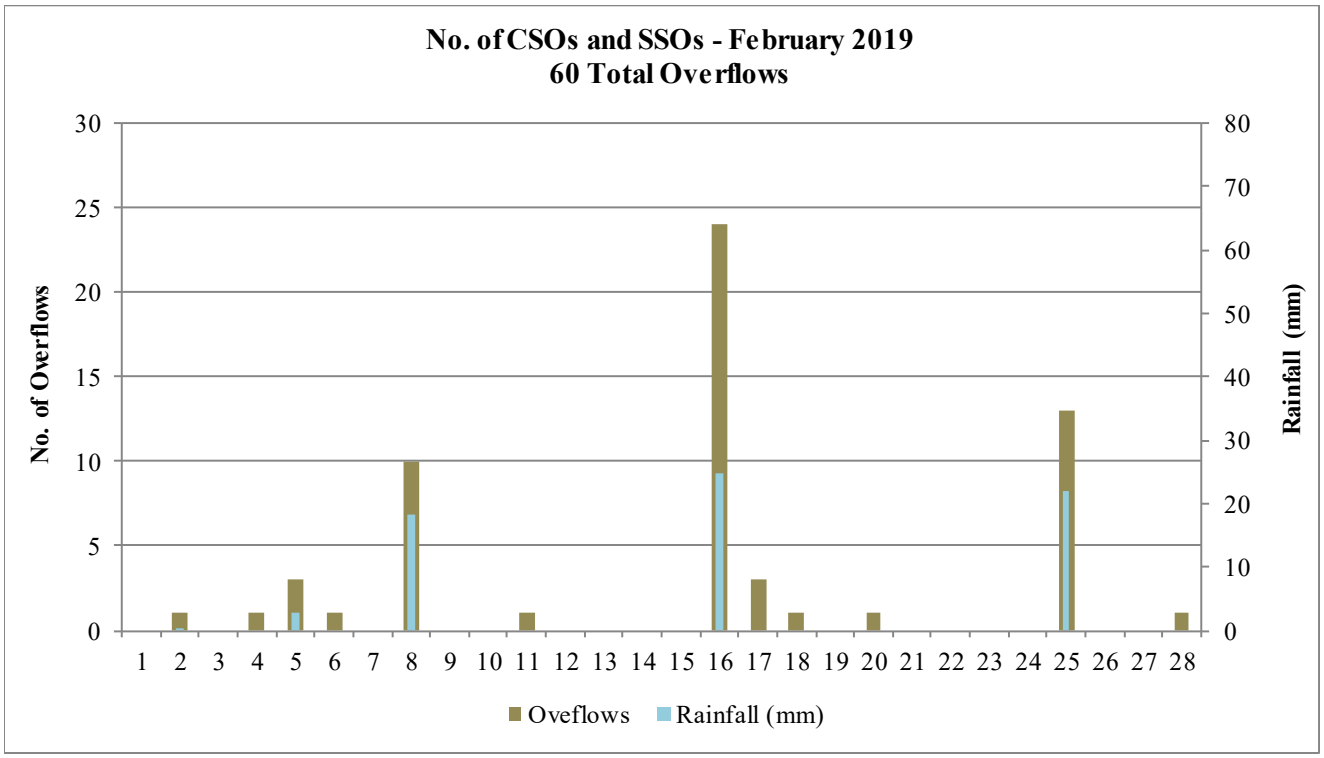
- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were eight overflows on days when there was no recorded rainfall, as follows:

1. January 12: The CSO at the Melva St PS & CSO was the result of a pump inhibit initiated by the Dartmouth WWTF.

2. January 18: The CSO at the Lyle St CSO was the result of an automatic 24 hour maintenance pump flush cycle at the CSO.

3. January 22: The SSOs at Springfield PS #1, Springfield PS #3, Springfield PS #5, Springfield PS #8 and Springfield PS #10 occurred due to rain on the previous day. These flows were diverted using a jet truck and were not released to the environment.

4. January 26: The CSO at the Duffus St PS was due to rain on previous days and snow melt.



NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were nine overflows on days when there was no recorded rainfall, as follows:

1. February 4: The CSO at the Lyle St CSO was the result of an automatic 24 hour maintenance pump flush cycle at the CSO.

2. February 6: The CSO at the Grove St CSO occurred as a result of a blockage caused by debris.

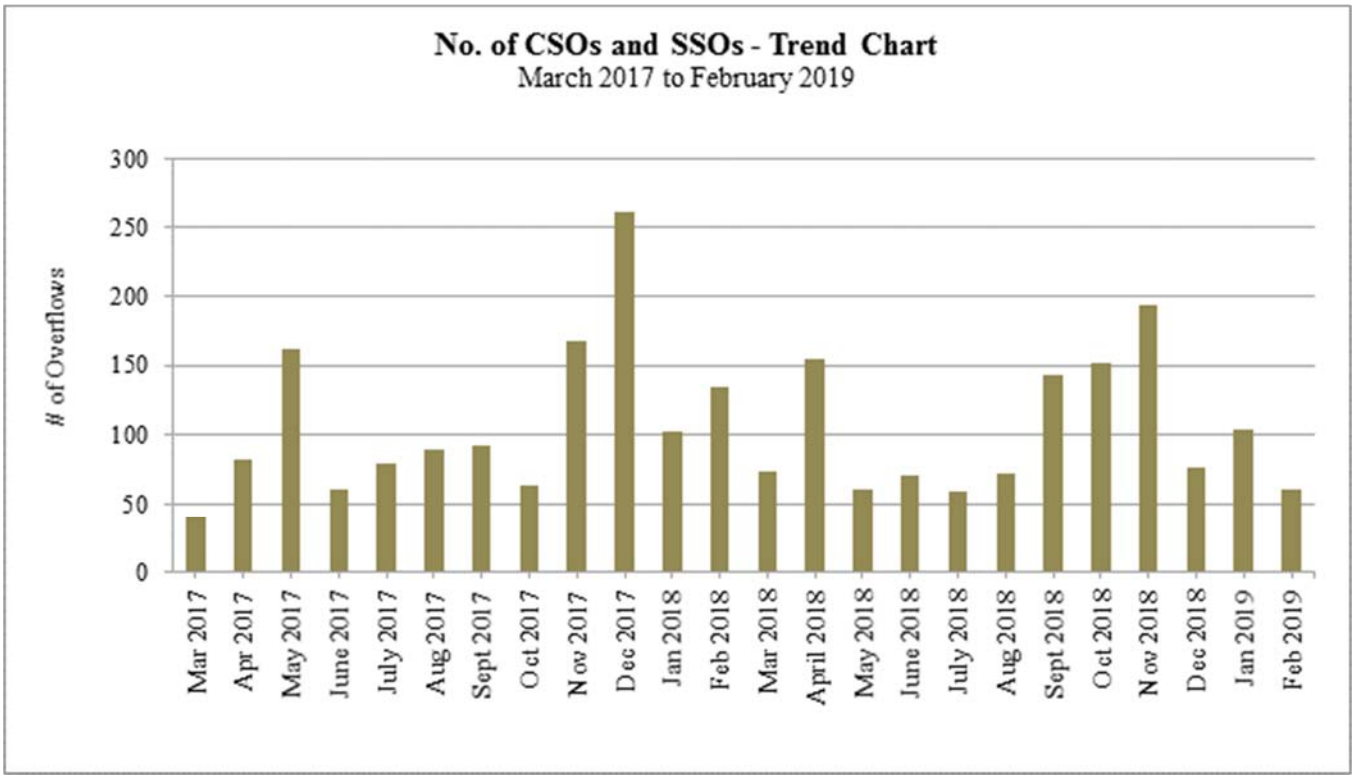
3. February 11: The CSO at the Lyle St CSO was the result of an automatic 24 hour maintenance pump flush cycle at the CSO.

4. February 17: The three CSOs at the Maitland St PS & CSO occurred as a result of blockages caused by debris.

5. February 18: The CSOs at the Maitland St PS & CSO occurred as a combined of blockages caused by debris.

6. February 20: The CSO at the Lyle St CSO was the result of an automatic 24 hour maintenance pump flush cycle at the CSO.

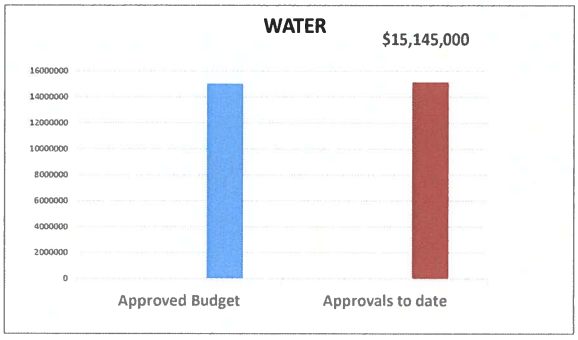
7. February 28: The CSO at the Lyle St CSO was the result of an automatic 24 hour maintenance pump flush cycle at the CSO.

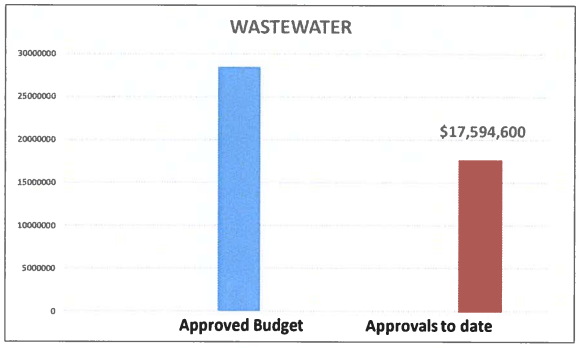

No. of CSOs and SSOs - Trend Chart
March 2017 to February 2019
# of Overflows
300
250
200
150
100
50
0
Mar 2017
Apr 2017
May 2017
June 2017
July 2017
Aug 2017
Sept 2017
Oct 2017
Nov 2017
Dec 2017
Jan 2018
Feb 2018
Mar 2018
April 2018
May 2018
June 2018
July 2018
Aug 2018
Sept 2018
Oct 2018
Nov 2018
Dec 2018
Jan 2019
Feb 2019

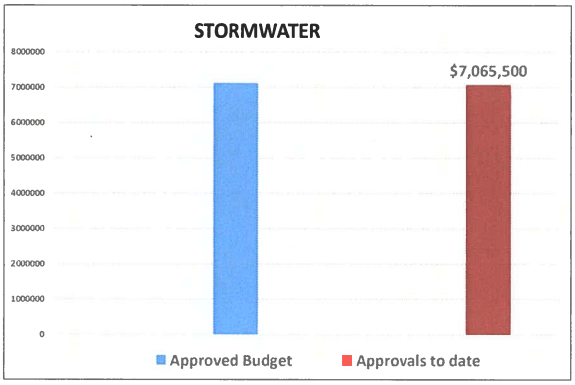
Halifax Water
Halifax Regional Water Commission

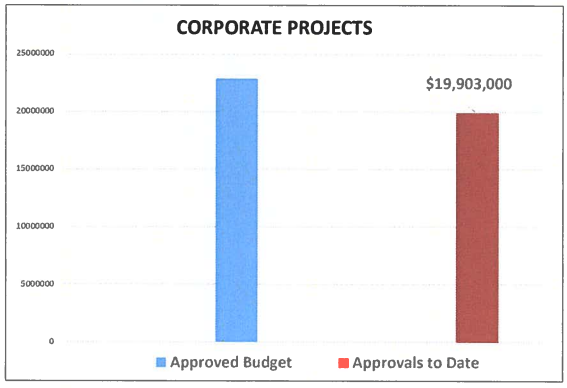
ITEM 2-I
HRWC Board
March 28, 2019

CAPITAL BUDGET APPROVALS TO DATE - 2018 - 2019









WATER

Approved Budget	$15,011,000
Approvals to date	$15,145,000

WASTEWATER *

Approved Budget	$28,471,000
Approvals to date	$17,594,600

STORMWATER

Approved Budget	$7,111,000
Approvals to date	$7,065,500

CORPORATE PROJECTS

Approved Budget	$22,855,000
Approvals to date	$19,903,000

Total Budget:	**$73,448,000**
Total To Date:	**$59,708,100**
Total %	**81%**

*** Note: The majority of the current gap between "Budget" and "To Date" for Wastewater relates to the deferrel of the development driven regional wastewater infrastructure proposed for the West Bedford area. The Kearney Lake Road Wastewater Sewer Upgrades ($1..2M) Kearney Lake Road Forcemain Extension ($1.253M) and the Weybridge Lane Pump Station ($5.06M) have been deferred several years based on preliminary design work showing actual flows from new development not triggered expansion requirements in the time frame originally estimated. The funds not being spent are mostly from the RDC and CCC reserve accounts.**

Mar 19/19

Report Approved: **Date**
Jamie Hannam

HRWC Board Report 2- I - 2018/19
Capital Budget Approvals to Date -March 28, 2019

Category	Sum of Total	Net Impact on 2018/2019	Final
Water			
Collection System			
Coburg Road Water - Integrated project/Cogburg Road Wastewater IP	$522,000	$522,000	10/4/2018
Robie Control Chamber - Intermediate Zone Meter Replacement	$20,000	$20,000	1/2/2019
Marlborough Woods Bridge Watermain Crossing Design Costs	$40,000	$0	1/15/2019
Distribution			
Water Distribution Main Renewal Program	$3,500,000	$3,500,000	4/5/2018
Valve Renewals	$125,000	$125,000	4/25/2018
Hydrant Renewals	$75,000	$75,000	4/25/2018
Service Line Renewals	$100,000	$100,000	4/25/2018
Lead Service Line Replacement Program	$600,000	$600,000	4/25/2018
Automated Flushing Program	$20,000	$20,000	2/20/2018
Water Sampling Station Relocation Program	$30,000	$30,000	2/23/2018
Watermain Renewal Stand Alone Projects, Catamaran Road ($220K), Parkmoor Avenue ($246K) and Wright Avenue Watermain ($85K)	$551,000	$0	7/16/2018
North End Feeder Replacement Concept Design Route Selection Funding Increase	$40,000	$0	7/12/2018
Energy			
JD Kline WSP - 2nd Boiler Replacement	$100,000	$100,000	2/6/2018
Lake Major WSP - Process Area HVAC Upgrades			
Equipment			
Miscellaneous Equipment Replacement	$50,000	$50,000	4/23/2018
JD Kline Purchase of Bosun Chair Lifting Safety Equipment	$9,000	$0	8/17/2017
Facilities			
JD Kline WSP Underdrains and Filter Media Replacement Program	$4,100,000	$4,100,000	1/19/2018
JD Kline WSP Raw Water Intake Travelling Screen Replacement Program	$905,000	$905,000	4/17/2018
JD Kline WSP Replace Filter Isolation Gates	$50,000	$50,000	2/23/2018
JD Kline WSP Storage Building Improvements	$76,000	$76,000	2/23/2018
JD Kline WSP Purchase New Boat for Lake sampling	$32,000	$32,000	2/20/2018
JD Kline WSP Replace Existing 4160 Transformer in Low lift Station	$26,000	$26,000	2/23/2018
JD Kline WSP New Grounding Bar for Crane	$17,000	$17,000	3/5/2018
JD Kline WSP Caustic Tank liner Replacements	$26,500	$13,000	10/8/2136
JD Kline WSP Effluent Valve Actuator Replacement Program	$100,000	$100,000	2/20/2018
JD Kline WSP Replace CO2 Feeders	$70,000	$70,000	2/23/2018
JD Kline WSP Upgrades to the Process Wastewater Lagoons	$50,000	$50,000	2/23/2018
JD Kline WSP Replace Turbidity Meters	$50,000	$50,000	2/23/2018
JD Kline WSP Ampgard III to Vacuum Contactor Conversion	$40,000	$40,000	2/20/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
JD Kline WSP Filter Gallery Electrical Wiring Upgrades	$55,000	$55,000	2/23/2018
JD Kline WSP Pilot Plant PLC Upgrade	$19,000	$19,000	2/20/2018
Lake Major WSP - Replace Raw Water Pumping Station Design	$250,000	$250,000	5/1/2018
Lake Major WSP - Replace Contactors in the MCC	$34,000	$34,000	2/23/2018
Lake Major WSP - Butterfly valve replacement program	$100,000	$100,000	2/28/2018
Lake Major WSP - Clarifier Repair	$285,000	$285,000	
Lake Major WSP - New Alum and Fluoride Tanks	$145,000	$145,000	3/5/2018
Lake Major WSP - Improved access to pipe gallery	$50,000	$50,000	3/5/2018
Lake Major WSP - Purchase H-frame for fall arrest system	$9,000	$9,000	2/23/2018
Lake Major WSP - Pre-Oxidation Strategy Study	$120,000	$120,000	3/5/2018
Lake Major WSP - Yard Drainage and Parking Area Improvements	$160,000	$160,000	2/23/2018
Lake Major WSP - East Lake Dam Repairs	$65,000	$65,000	3/5/2018
Lake Major WSP - Dechlorination System Design	$75,000	$75,000	3/5/2018
Lake Major WSP - Motor Protection Relays	$60,000	$60,000	3/5/2018
Bennery Lake WSP - Access Road Improvements Study Phase Only	$130,000	$130,000	2/20/2018
Bennery Lake WSP - Sludge Valve Replacement Program	$7,000	$7,000	2/20/2018
Bennery Lake WSP - New Low Lift VFD pump Replacement Program	$110,000	$110,000	2/20/2018
Bennery Lake WSP - Manganese Removal Strategy Study	$60,000	$60,000	2/20/2018
NON-URBAN Core WSP			
Miller Lake Small System - Supply Treatment Improvements	$50,000	$235,000	9/13/2018
Miller Lake Small System - Water storage Tank	$16,000	$16,000	
Collins Park WSP - Air Exchange System	$26,000	$26,000	2/20/2018
Lake Lamont - Replace Suction Piping and Chlorine Injection	$72,000	$72,000	6/6/2018
Chlorine Analyzer Replacement Program	$23,000	$23,000	2/20/2018
JD Kline WSP Replace Westinghouse Electrical Panel	$5,000	$5,000	2/23/2018
Bennery Lake WSP - Actuator for Backwash Control Valve	$13,000	$13,000	2/20/2018
Collin's Park WSP Ventilation System Upgrades	$35,000	$0	5/9/2018
Middle Musquodoboit WSP Ventilation System Upgrades	$35,000	$0	6/18/2018
Collin's Park WSP Raw Water Intake Strainer Replacement	$16,000	$16,000	5/1/2018
Aerotech Park Fire Flow and Distribution System Assessment Study	$60,000	$0	9/7/2018
450 Cowie Hill Road HVAC Controls Upgrade Project	$125,000	$0	12/13/2018
Lake Major Pipe Gallery Door Modifications	$23,000	$0	3/12/2019
Facility			
Geizer 158 Reservoir - Mechanical Mixer	$50,000	$0	10/2/2018
Land			
Watershed Land Acquisition			
SCADA & Other Equipment			
Purchase Hand held water quality Sonde equipment	$17,000	$0	10/10/2018
DND Facility SCADA Installation	$50,000	$0	10/10/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Security			
Security Upgrades	$50,000	$50,000	12/10/2018
Structures			
Beaver Bank Reservoir Meter Upgrade	$35,000	$35,000	2/20/2018
Bedford South (Hemlock) Reservoir CCC	$250,000	$250,000	4/17/2018
Bluewater PRV Chamber CSE Retrofit	$76,000	$76,000	2/20/2018
Brunello Booster Station - Pump Control Modifications	$27,000	$27,000	2/20/2018
Cowie Hill Reservoir Rehabilitation	$100,000	$100,000	10/10/2018
Eaglewood Pumping Station - Upgrades	$9,000	$9,000	2/20/2018
Golf View Drive PRV Chamber Rehabilitation	$18,000	$18,000	2/20/2018
Leiblin Drive Booster Station - Replacement of Diesel Fire Pump	$510,000	$395,000	9/27/2018
Lyle Street Pumping Station Upgrades	$235,000	$235,000	3/5/2018
Main Control Chamber Annubar Meter Replacement	$55,000	$55,000	3/5/2018
Parkdale Booster Station Decommissioning	$22,000	$22,000	2/23/2018
Ritcey Crescent PRV - New Meter	$11,000	$11,000	2/23/2018
Robie 2 Emergency Pump - Pump Control Review and Optimization	$105,000	$105,000	2/23/2018
Sampson and Stokil Reservoirs Rechlorination System	$390,000	$390,000	4/23/2018
Steel Reservoir Inspection and Assessment Study	$175,000	$175,000	2/20/2018
Bulk Fill Service Connection for the Cowie Hill Operations Depot	$51,000	$51,000	2/20/2018
Port Wallace Transmission Main Caledonia Section	$120,000	$120,000	5/23/2018
Macdonald PRV Chamber - Confined Space Entry Retrofit	$110,000	$0	3/5/2018
AMI - SAP Integration additional Funding	$220,000	$0	2/26/2018
Windsor Junction Road Railway Crossing - Watermain Lining	$100,000	$0	9/21/2018
Blowers and Grafton Intersection Watermain Replacement	$130,000	$0	10/26/2018
Meter Replacements - South Park Street and Bilby Street	$27,000	$0	9/24/2018
Transmission			
Critical Valve Replacement Program - Gottingen Street	$175,000	$210,000	9/14/2018
Bedford West CCC - Various Phases			
Regional Development Charge Studies			
Treatment Facilities			
Leiblin Drive Booster Station - Replacement of Diesel Fire Pump	$55,000	$0	11/1/2018
Lake Major - Dedicated Service Water Pumping Project	$135,000	$0	9/14/2018
JD Kline Raw Water Intake Traveling Screen Replacement Program	$1,230,000	$0	9/27/2018
Structure			
Concrete Gunite Reservoir Assessment	$110,000	$0	4/5/2018
Governor's Brook Phase 3 oversizing	$116,000	$0	4/10/2018
AMI - SAP Integration additional	$20,000	$0	4/5/2018
North End Feeder Replacement Concept Design Route Selection	$75,000	$0	4/6/2018
JD Kline Access Road Bridge Replacement Funding Increase (2015/16 CB)	$60,000	$0	6/20/2018
Steel Reservoir Inspection & Assessment Study Funding Increase	$30,000	$0	7/17/2018
East Harbour Solutions SCADA Redesign and Upgrade	$60,000	$0	9/7/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Geizer 158 Reservoir Perimeter Drainage	$95,500	$0	9/7/2018
Geizer 158 Reservoir Mechanical Mixer	$50,000	$0	9/7/2018
Geizer 158 Reservoir Tank Shark Pilot	$40,000	$0	4/23/2018
Warren St., $20K, Woodcrest Watermain - $32K, Sumac Watermain - $78K, Bedford Waterfront Interonnection $21K, Prince Arthur Watermain - $43K, Catamaran Watermain, $47K, Parkmoor Watermain, $65K, Wright Avenue Watermain $15K, and Windsor Jtc. Watermain, $23K (total amount $344,000)	$344,000	$0	3/15/2019
Water Total	**$19,096,000**	**$15,145,000**	
Wastewater			
Collection System			
Regional Development Charge Studies		$0	
Integrated Wastewater Projects - Program	$1,915,000	$1,915,000	4/5/2018
Wastewater System - Trenchless Rehabilitation Program	$1,490,000	$1,490,000	4/18/2018
Fairview Clayton Park Bridgeview I/I Reduction	$2,880,000	$2,880,000	4/18/2018
Inglis Street Sewer/Pier A PS Ventilation/Odour Control Modifications	$80,000	$80,000	11/29/2018
Wanda Lane Sanitary Sewer Replacement		$0	
Auburn Avenue Sanitary Sewer	$25,000	$25,000	5/4/2018
Glendale Drive to Sackville Trunk Sewer - System Upgrade	$500,000	$400,000	4/16/2018
Lateral Replacements WW (non tree roots)	$1,650,000	$1,650,000	4/23/2018
Lateral Replacements WW (tree roots)	$520,000	$520,000	4/23/2018
Wet weather management program	$225,000	$225,000	6/4/2018
Bedford West Collection System CCC		$0	
Young Street Sewer Separation	$100,000	$100,000	7/17/2018
Kempt Road Phase 1 - Sewer Separation		$0	
Bayer's Road Phase 1 Sewer Separation	$75,000	$75,000	7/17/2018
Joseph Howe Drive Sewer Separation	$75,000	$75,000	7/17/2018
Romans Federal Avenues Sewer Separation	$170,000	$170,000	7/17/2018
Gottingen/North Flow Split - Alteration to Combined Sewer	$50,000	$50,000	3/5/2018
Wastewater Lateral Lining	$2,100,000	$2,100,000	5/2/2018
High Street WW IP 2018/19 and High Street SW IP 2018/19	$26,000	$0	5/1/2018
Glendale Drive to Sackville Trunk Sewer WWS Upgrade Funding Increase	$246,000	$0	6/5/2018
Coronation Wastewater Lateral Replacement	$100,000	$0	6/18/2018
WW System - Trenchless Rehabilitation Program Phase 2	$248,000	$0	6/29/2018
Bissett Forcemain Replacement - AC Pipe Removal - Funding Increase	$64,000	$64,000	10/31/2018
Manhole Renewals WW East/West/Central	$25,000	$25,000	4/23/2018
Wastewater System Fairview, Clayton Park and BridgeviewInflow/Infiltration Phase 2	$244,000	$0	6/29/2018
Dartmouth WWTF - CN Driveway Crossing Renewal	$17,200	$0	11/27/2018
Catamaran Drive WW IP 2018/19	$18,000	$0	11/27/2018
Munroe Subdivision Sewer Main Replacement	$50,000	$0	12/28/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Energy			
Pump Station HVAC Retro-Commissioning Program		$0	
HHSP - BAS-HVAC Recommissioning	$50,000	$50,000	11/13/2018
Dartmouth WWTF - UV Channel/Densadeg Gate Actuators	$155,000	$155,000	10/18/2018
Halifax WWTF - UV Channel/Densadeg Gate Actuators	$120,000	$120,000	1/31/2018
Halifax Harbour Solutions Plants (HHSPS) Main Wastewater Influent GatActuators	$80,000	$0	1/31/2018
Cogswell District Energy System - Engineering Consulting Services	$60,000	$0	7/18/2018
Wastewater Pump Stations - Nova Scotia Power Meter Relocations	$50,000	$50,000	2/12/2018
Equipment			
Miscellaneous Equipment Replacement	$70,000	$70,000	4/23/2018
I&I Reduction (SIR)Program Flow Meters and Related Equipment	$25,000	$25,000	4/23/2018
Facilities			
HHSP Surge Suppression Investigation	$30,000	$0	9/6/2018
Facility			
Cogswell District Energy System - Engineering Consulting Services	$40,000	$0	1/18/2019
Roach's Pond Pumping Station - Trash Rack	$30,000	$0	10/2/2018
Emergency Pumping Station Pump Replacements - Jamieson Street	$79,600	$0	10/2/2018
Bayers Lake Phase V Wastewater Pumping Station	$198,000	$0	10/5/2018
Emergency Pumping Station Pump Replacements - Herring Cove	$73,000	$0	10/2/2018
Fleet			
AWWTF Sludge Trailer Funding	$215,000	$0	9/21/2018
Forcemains		**$0**	
Pipes			
Mill Cove WWTF Emergency Overflow Outfall Pipe Replacement	$2,090	$0	7/17/2018
Security			
Security Upgrade Program	$200,000	$200,000	1/15/2019
Structures			
Emergency Pumping Station Pump Replacements	$250,000	$250,000	8/28/2018
Wastewater Pumping Station Component Replacement Program - East Region	$200,000	$200,000	7/23/2018
Wastewater Pumping Station Component Replacement Program - Central Region	$150,000	$150,000	9/21/2018
Weybridge Lane Pump Station CCC	$5,060,000	$506,000	11/22/2018
Bissett PS Component Upgrade		$0	
Shipyard Road PS	$915,000	$915,000	6/21/2018
Windmill Road PS Replacement - used for Northwest Arm Sewer Rehab and $90K for the Roach's Pump Station Catwalk/Stair Replacement Project and $246,000 was used for the Glendale Drive to Sackville Drive Trunk Sewer	$1,455,000	$1,455,000	
PS Control Panel/Electrical Replacement	$100,000	$100,000	5/14/2018
CSO Upgrade Program	$102,100	$102,100	10/22/2018
Halifax CSO Surveying	$45,000	$45,000	3/22/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Emergency Pumping Station Pump Replacements - Mann Street	$250,000	$20,000	9/21/2018
Emergency Pumping Station Pump Replacements - Duffus Street	$250,000	$72,500	9/21/2018
Emergency Pumping Station Pump Replacements Atlantic School of Theology Pumping Station	$55,000	$0	10/29/2018
Roach's Pond PS Component Upgrade	$275,000	$275,000	11/29/2018
Treatment Facilities			
Plant Optimization Audit Program	$125,000	$125,000	5/22/2018
Emergency Wastewater Treatment Facility equipment replacements		$0	
HWWTF - Duct Work Replacements	$50,000	$50,000	5/9/2018
HWWTF - New Raw Water Pumps		$0	
DWWTF - Duct Work Replacement	$25,000	$25,000	5/9/2018
HCWWTF - Duct Work Replacement Program	$25,000	$25,000	5/9/2018
HCWWTF - Densadeg Flow Meters	$20,000	$20,000	5/11/2018
Mill Cove WWTF - Civil Asset Condition Assessment		$0	
Mill Cove WWTF - Compactor/Conveyor Replacement	$375,000	$300,000	5/25/2018
Mill Cove WWTF - RAS Piping Replacement	$200,000	$200,000	3/5/2018
Mill Cove WWTF - Process Upgrade Conceptual Design		$0	
Eastern Passage WWTF - Process Upgrade Program		$0	
Eastern Passage WWTF - Secondary Launder Covers	$150,000	$150,000	
Aerotech WWTF - Process Upgrade Program	$50,000	$32,000	2/14/2019
Timberlea WWTF - Asset Renewal Program		$0	
Uplands WWTF - New Screening Facility		$0	
Fall River/Lockview WWTF Waterline Replacement	$25,000	$25,000	6/21/2018
Fall River/Lockview WWTF Driveway Replacement	$38,000	$38,000	10/1/2018
Biosolids Processing Facility - Asset Renewal Program	$95,000	$0	7/25/2018
Biosolids Processing Facility - Dryer Bypass Conveyor		$0	
Timberlea Wastewater Treatment Facility Rotating Biological Contactor (RBC) Repairs	$120,000	$0	2/23/2018
Mill Cove WWTF Laboratory Dishwasher Replacement	$12,000	$0	9/14/2018
HWWTF New Air Compressors	$70,000	$0	10/22/2018
Halifax Harbour Solutions Plants (HHSPs) & Eastern Passage WWTF Surge Protective Device (SPD) Installation	$150,000	$0	3/29/2018
Trunk Sewer			
Kearney Lake Road Wastewater Sewer Upgrades			
Bedford to Halifax Trunk Sewer Upgrade			
Northwest Arm Sewer Rehabilitation Additional work	$119,702	$0	5/29/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Structure			
Bissett Forcemain Replacement - AC Pipe Removal	$240,000	$0	4/11/2018
Mill Cove WWTF - PS Siding and Asphalt	$50,000	$0	4/27/2018
Roach's Pump Station Catwalk Stair Replacement	$90,000	$0	5/30/2018
Coburg Road WW IP 2018/19	$119,000	$0	6/26/2018
Emergency Pumping Station Pump Replacements - Greenwood Ave and Village Road WW Pumping Station	$14,000	$0	6/28/2028
South Park St. WW IP 2018	$10,000	$0	9/6/2018
Coburg Road @ Robie Street WW IP 2018/19 and Coburg Road Robie Street SW IP 18/19	$177,000	$0	8/14/2018
Emergency Pumping Station Pump Replacements -Fish Hatchery Wastewater PS WW Pumping Station	$28,000	$0	8/28/2018
Emergency Pumping Station Pump Replacement - Pier A Wastewater Pumping Station	$73,000	$0	9/6/2018
Main Street Sewer Main Replacement - Design	$10,000	$0	11/16/2018
Beaver Crescent PS Forcemain Replacement Design	$10,000	$0	11/16/2018
Woodcrest Avenue WW IP (18/19)	$12,000	$0	11/21/2018
Sinclair Street/Lorne Avenue WW IP 18/19	$31,000	$0	11/21/2018
Ridgeview Drive WW IP 18/19	$7,000	$0	11/21/2018
Emergency Pumping Station Pump Replacement Central (Kearney Lake, Chandler Drive, and Cavalier Drive)	$22,100	$0	1/31/2019
McIntosh Estates - Existing WW Main Replacement	$71,000	$0	2/14/2019
Wastewater Total	**$26,091,792**	**$17,594,600**	
Stormwater			
Collection System			
Doyle Street Storm Sewer - Phase 2	$311,000	$0	11/2/2018
Homecrest Terrace SW IP 18/19	$22,000	$0	11/27/2018
Sinclair Street SW IP 18/19	$80,000	$0	11/29/2018
Mansion Avenue Storm Sewer Renewal	$28,000	$0	1/3/2019
Culverts/Ditches			
Driveway Culvert Replacements	$795,000	$795,000	7/25/2018
Street Specific Culvert Replacements:			
St. Margarets Bay Road 2797	$82,000	$82,000	10/18/2018
Lake Major Road 190	$77,000	$54,500	8/13/2018
Clarence St near civic 4	$80,000	$80,000	9/13/2018
Windgate Dr near civic 107	$80,000	$80,000	8/13/2018
Nottingham Drive near civic 53	$90,000	$90,000	6/6/2018
Penny Lane at Windsor Drive	$90,000	$90,000	8/13/2018
Knight Bridge Drive at Buckingham Drive	$81,000	$81,000	6/6/2018
Allenby Drive near civic 34	$83,000	$83,000	6/6/2018
Allenby Dr near civic 2	$83,000	$83,000	6/6/2018

Category	Sum of Total	Net Impact on 2018/2019	Final
Minna Drive near civic 6	$85,000	$85,000	6/6/2018
St. Margarets Bay Road near civic 2916	$91,000	$91,000	6/6/2018
Stella Crt near civic 1	$76,000	$76,000	10/18/2018
Ramar Dr near civic 6	$93,000	$93,000	8/13/2018
St. Margarets Bay Road near Second Chain Lake	$91,000	$91,000	6/6/2018
Ross Road near civic 241	$74,000	$74,000	6/6/2018
Clarence Avenue at Howard Ave	$76,000	$76,000	8/13/2018
Clarence Avenue near Morris Avenue	$69,000	$69,000	8/13/2018
Braeside Ave near civic 2	$105,000	$105,000	6/6/2018
Cow Bay Road near civic 1174	$76,000	$76,000	5/14/2018
Shore Rd near civic 1796	$88,000	$88,000	8/13/2018
Hines Road near civic 195	$82,000	$82,000	6/6/2018
Ritcey Cres near civic 1	$90,000	$90,000	8/13/2018
Orchard Dr near civic 32	$88,000	$88,000	8/13/2018
Culvert Replacement Program 2019/20) Design Phase	$60,000	$60,000	10/22/2018
Miller Lake Road Stormwater Sewer Upgrade	$28,000	$0	10/22/2018
Various Culvert Replacement Projects: 1) Stella Court at Kingswood Drive $27K; 2) Bristol Avenue near Civic 47 $25K; 3) Buckingham Drive near 115 $27K; 4) Kingswood Drive near civic 370 - $5K; 5) Sherwood Drive near civic 15 $26K	$150,000	$0	10/18/2018
Pipes			
Doyle Street Storm Sewer	$250,000	$250,000	8/30/2018
Integrated Stormwater Projects - Program	$1,442,000	$1,442,000	4/5/2018
Manhole Renewals SW	$21,000	$21,000	4/23/2018
Catchbasin Renewals SW	$50,000	$50,000	4/23/2018
Lateral Replacements SW	$15,000	$15,000	4/23/2018
Drainage Remediation Program - Survey/Studies			
White Birch Drive SW IP 2017/18 (additional funding $100,000)	$100,000	$0	5/1/2018
Chalamont Drive SW IP 2018/19	$50,000	$0	5/1/2018
Structures			
Culvert Replacement Program Engineering Services	$249,000	$0	9/21/2018

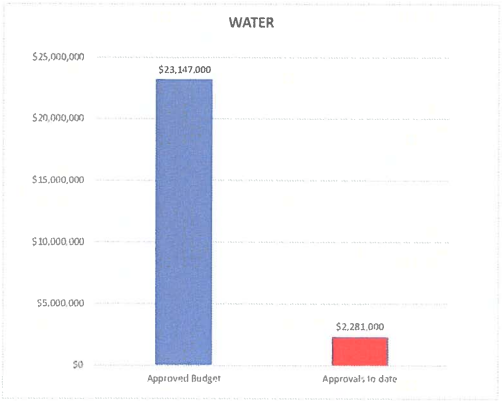
Category	Sum of Total	Net Impact on 2018/2019	Final
Structure			
Ellenvale Run Retaining Wall System - Replacement	$2,525,000	$2,525,000	7/9/2018
Ellenvale Run Retaining Wall System Structure 2017/18 (additional funding from2018/19)	$846,000	$0	7/9/2018
Celtic Drive Storm Sewer Renewal - Construction	$200,000	$0	8/13/2018
Cliff Street SW IP 17/18	$8,500	$0	3/12/2019
Badger Avenue SW IP 17/18	$38,500	$0	3/12/2019
Culvert/Ditches			
Rhondora Drive Cross Culvert Replacement and Ditching Project	$57,500	$0	3/19/2018
Stormwater Total	**$9,256,500**	**$7,065,500**	
Corporate			
Asset Management			
Integrated Resource Plan Update	$500,000	$500,000	9/12/2018
Sewer Condition Assessment	$170,000	$170,000	9/6/2018
Storm Sewer Condition Assessment	$110,000	$110,000	9/6/2018
Driveway Culvert Data Collection Program	$80,000	$80,000	3/22/2018
Corporate Flow Monitoring Program	$1,700,000	$1,700,000	4/16/2018
Hydraulic Water Model Build	$50,000	$50,000	10/16/2018
450 - 455 Cowie Hill Road Office Space Additional work stations	$25,000	$0	4/25/2018
Facilities			
IT Foundations ($100,000) Wifi Infrastructure in Plants JD Kline Water Treatment	$100,000	$0	1/15/2019
Facility			
East/Central Regional Operational Facility			
Building Capital Improvements	$100,000	$100,000	11/15/2018
Fleet			
Fleet Upgrade Program - stormwater	$271,000	$271,000	4/23/2018
Fleet Upgrade Program - wastewater	$1,084,000	$1,084,000	4/23/2018
Fleet Upgrade Program - water	$755,000	$755,000	4/23/2018
GIS			
GIS Application Support Program			
Dashboard Replacement	$200,000	$200,000	11/20/2018
Data Governance			
GIS Upgrade/Cityworks Upgrade	$350,000	$350,000	7/17/2018
Desktop Progression Plan	$100,000	$100,000	11/29/2018
GIS Data Build - Services			
CAD Drawing Database	$30,000	$100,000	11/13/2018
2018/19 GIS Data Program	$250,000	$0	7/12/2018
GIS Change Datum and Projection Project	$25,000	$0	2/14/2019

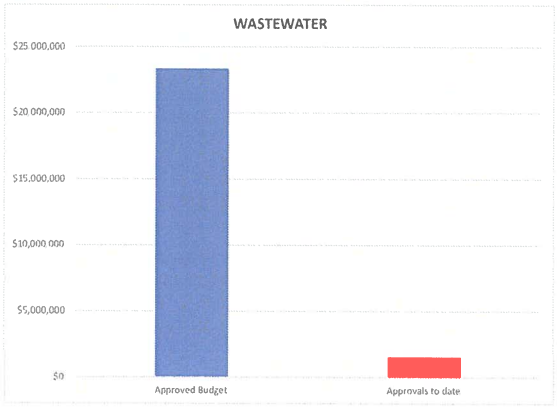
Category	Sum of Total	Net Impact on 2018/2019	Final
Information Technology			
Desktop Computer Replacement Program	$290,000	$290,000	4/23/2018
Network Infrastructure Upgrades	$220,000	$220,000	4/23/2018
Document Management Program	$100,000	$100,000	12/17/2018
Computerized Maintenance Management System Enhancements			
SharePoint Implementation			
AMI/ARM Meter System Upgrades	$9,730,000	$9,730,000	4/28/2016
SAP Rate Structure Support	$220,000	$220,000	7/26/2018
Asset Registry Build	$100,000	$50,000	4/6/2018
Halifax Water Website	$500,000	$500,000	5/4/2018
Wi-Fi Design and Build			
Cayenta Optimization			
Intranet			
Permit Approvals			
Stormwater Billing Support			
Portfolio and Project Lifecycle (50,000 + 330,000) Portfolio and Project Lifecycle Project Execution of Project	$380,000	$380,000	4/16/2018
Host Static Website Project (2016/17)	$100,000	$0	5/4/2018
Telephony	$120,000	$120,000	7/23/2018
Payroll Replacement Project	$220,000	$0	7/26/2018
Analytics and Dashboards Enterprise Data Warehouse (EDW) Foundations	$240,000	$213,000	2/7/2019
IT Foundations ($71,000) Helpdesk Replacement Project - Planning Phase($45,500) IT Infrastructure Project - Planning Phase Funding Increase ($85,500) IT Foundations Program (CMMS Enhancements Planning Phase $246K) Feb 6, 2019 IT Foundations Security - $100,000 Feb 27, 2019	$2,000,000	$2,000,000	5/30/2018
SCADA & Other Equipment			
GPS Units - Replacement	$42,000	$42,000	2/28/2018
Large and New Customer Meters	$460,000	$460,000	4/23/2018
GNSS Receiver for Asset Management Data Collection	$8,000	$8,000	4/6/2018
Corporate Total	**$20,630,000**	**$19,903,000**	
Grand Total	**$75,074,292**	**$59,708,100**	

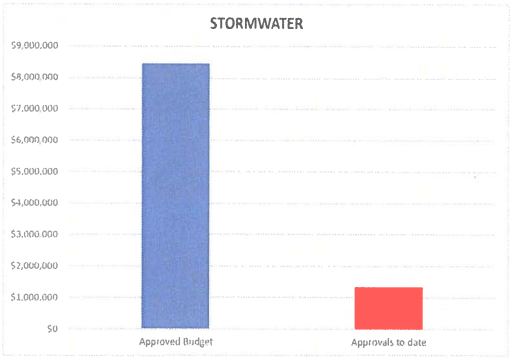
Halifax Water
Halifax Regional Water Commission

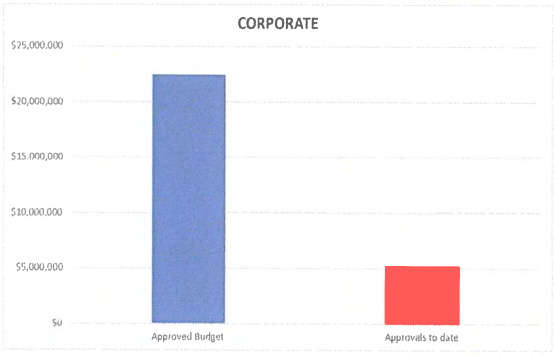
ITEM 2-I
HRWC Board
March 28, 2019

CAPITAL BUDGET APPROVALS TO DATE - 2019 -2020









WATER

Approved Budget	$23,147,000
Approvals to date	$2,281,000

WASTEWATER

Approved Budget	$23,336,000
Approvals to date	$1,540,000

STORMWATER

Approved Budget	$8,438,000
Approvals to date	$1,320,000

CORPORATE PROJECTS

Approved Budget	$22,427,000
Approvals to date	$5,208,000

Total Budget:	$77,348,000
Total To Date:	$10,349,000
Total %	**13%**

Mar 19/19

Report Approved: **Date**
Jamie Hannam

HRWC Board Report #2-1
Capital Projects Funding Approvals 2019-2020
March 28, 2019

Category	Total Approved	Net Impact on Budget	Approval Date
Water			
Distribution			
Automated Flushing Program	$20,000	$20,000	18-Mar-19
Coburg Road Bridge Watermain Replacement			
Hydrants			
Lead Service Line Replacement Program			
Service Lines Renewals			
Valve Renewal			
Water Distribution - Main Renewal Program	$1,839,000	$1,839,000	28-Feb-19
Energy			
Bennery Lake WSP - Tank Insulation Repairs			
Bennery Lake WSP MCC Replacement			
Lake Major WSP Process Area HVAC Upgrades			
Equipment			
Miscellaneous Equipment Replacement			
Land			
Bennery Lake Watershed Land			
Lake Major Watershed - Glasgow Lands			
Watershed Land Acquisition			
Security			
Security Upgrade Program			
Structures			
Dam Safety Review			
Lake Major Dam Monitoring Program			
Robie 2 Emergency Pump Meter Installation			
Transmission			
Bedford West CCC - Various Phases			
Cogswell Interchange Water Transmission Main Realignments			
Critical Valve Replacements 2019	$225,000	$225,000	18-Mar-19
Halifax Peninsula Transmission Main Project			
Lakeside Timberlea CCC			
Lucasville Road Transmission Main - Phase 1			
MacIntosh Estates Phase 1 Oversizing			
Port Wallace Transmission Main - Caledonia Section			
Treatment Facilities			
Aerotech Booster Station Capital Upgrades			
Bennery Lake Access Road Upgrade			
Bennery Lake Filter Influent Valves	$64,000	$64,000	18-Mar-19
Bennery Lake Sludge Valve Replacement Program	$7,000	$7,000	18-Mar-19
Bennery Lake Surge Anticipator Valve Replacement	$20,000	$20,000	18-Mar-19
Chlorine Analyzer Replacement Program	$16,000	$16,000	18-Mar-19
JD Kline Back Up Power Supply Study			
JD Kline Building Envelope Upgrades			
JD Kline Caustic Tank Liner Replacements			
JD Kline Effluent Valve Actuator Replacement Program			
JD Kline Low Lift Pump #3			
JD Kline Low Lift Station Crane Renewal			
JD Kline Low Lift Station Roof Fan Shroud Replacement			
JD Kline New Alum Chemical Supply			
JD Kline New Lime Blower System			
JD Kline Pilot Plant Upgrades			
JD Kline Pre-Mix Area Mixers Upgrade			
JD Kline Process Upgrades			
JD Kline Purchase New Microscope			
JD Kline Raw Water Intake Traveling Screen Replacement Program			
JD Kline Raw Water Pump Station Electrical Room Ventilation			
JD Kline Raw Water Pump Station Window/Wall/Building Envelope			
JD Kline Replace C02 Feeders			
JD Kline Replace Floc Tank Valve			
JD Kline Replace Westinghouse Electrical Panels			
JD Kline Roof Replacement			
JD Kline Upgrade the PCL			
JD Kline Upgrades to the Process Wastewater Lagoons			
Lake Major Butterfly Valve Replacement Program			
Lake Major C02 System Replacement Construction			
Lake Major Clarifier Repair			
Lake Major Dry Polymer Feed System			
Lake Major Filtration System Replacement			
Lake Major Lab Relocation			

Category	Total Approved	Net Impact on Budget	Approval Date
Lake Major Overall Process and Design Study			
Lake Major Purchase Spectrophotometers			
Lake Major Purchase Turbidimeters			
Lake Major Replace Contactors in the MCC			
Lake Major Replace the Lime Feed and Delivery System			
Miller Lake Small System Public Main Extension Miller Lake Road			
Purchase and Install TOC Analyzers WSP Facilities	$90,000	$90,000	18-Mar-19
Purchase and Install Water Quality Sonde Equipment			
Reservoir Mixing and Residual Management Upgrade Program			
Silversands WSP - Electrical/Architectural Upgrades			
Water Total	**$2,281,000**	**$2,281,000**	
Wastewater			
Collection System			
Bayers Rd Phase 2 - Sewer Separation			
Bedford West Collection System CCC			
Cogswell Redevelopment Sewer Relocation			
Fairview, Clayton Park Bridgeview I/I Reduction			
Integrated Wastewater Projects Program	$1,315,000	$1,315,000	28-Feb-19
Lateral Replacements WW (non-tree roots)			
Lateral Replacements WW (tree roots)			
Main Street Sewer Main Replacement	$100,000	$100,000	19-Feb-19
Manhole Renewals WW			
Romans - Federal Avenues Sewer Separation			
Sewer Relocation at South Street CN Bridge			
Wanda Lane Sanitary Sewer Replacement			
Wastewater System Trenchless Rehabilitation Program			
Wet Weather Management Program			
WRWIP Project Bayers Rd Phase 1 - Sewer Separation			
Energy			
HHSP - BAS+ HVAC Recommissioning			
NSPI Meter Relocations			
Pump Station HVAC Retro-Commissioning Program			
Wastewater Pumping Station Performance Testing			
Equipment			
I&I Reduction (SIR) Program Flow Meters and Related Equipment			
Miscellaneous Equipment Replacement			
Forcemains			
Beaver Crescent PS - FM Replacement			
Caldwell Road ARV/MH Replacement	$75,000	$75,000	28-Feb-19
Security			
Security Upgrade Program			
Structures			
Autoport Pleasant Street PS Replacement			
CSO Upgrade Program			
Duffus PS CSO - Modification			
Emergency Pumping Station Pump Replacements			
Fairfield Holding Tank Rehabilitation			
Fish Hatchery FM - ARV Chamber Water Proofing	$25,000	$25,000	28-Feb-19
Pump Station Elimination - Concept Design	$25,000	$25,000	12-Mar-19
Russell Lake PS Upgrade			
Upper Water Street PS CSO Replacement			
Wastewater Pumping Station Component Replacement Program - Central			
Wastewater Pumping Station Component Replacement Program - East			
Wastewater Pumping Station Component Replacement Program - West			
Windmill Road PS Replacement			
Treatment Facilities			
Aerotech WWTF Asset Renewal Program			
Aerotech WWTF Upgrade and Expansion Project Extra Cost			
Building Cleaning and Corrosion Protection			
Carbon Media Replacement			
Dartmouth WW Treatment Facility Coagulant Dosing Pump Replacements			
Dartmouth WW Treatment Facility Densadeg Flow Meters			
Dartmouth WW Treatment Facility Duct Work Replacement			
Easement for Sewer and Access			
Eastern Passage WWTF Rebuild Centrifuge 802			
Eastern Passage WWTF Atlas Copco Blowers Spare VFD			
Eastern Passage WWTF Drum Thickener Overhaul Spare Parts			
Eastern Passage WWTF Outfall Inspection and Warning Signage			
Eastern Passage WWTF Primary Sludge Pumps Spare Parts			
Eastern Passage WWTF Process Upgrade Program			
Eastern Passage WWTF RAS Pumps Spare Parts			
Eastern Passage WWTF Yard Lighting			

Category	Total Approved	Net Impact on Budget	Approval Date
Emergency Wastewater Treatment Facility equipment replacements			
Grit Pump Replacement			
Halifax WWTF AHU Coil Replacement			
Halifax WWTF Duct work Replacement			
Halifax WWTF New Raw Water Pumps			
Herring Cove Wastewater Treatment Facility Duct Work Replacement Program			
HHSP - OCS Wet Scrubber Chlorine Analyzers			
HSPs - Outfall Inspection Program			
Management Plan			
Mill Cove WW Treatment Facility Digester Mixers Failure Analysis			
Mill Cove WW Treatment Facility Lining of Supernatant Pump Croc			
Mill Cove WW Treatment Facility New Lab Cabinets and Countertops			
Mill Cove WW Treatment Facility Process Upgrades - Preliminary & Detailed Design			
Mill Cove WW Treatment Facility Replace Oxygen Analyzer			
Mill Cove WW Treatment Facility South Secondary Clarifier Recoat/Replace Mechanisms			
Mill Cove WW Treatment Facility South Secondary Splitter Box Rehabilitation			
Plant Optimization Audit Program			
Springfield Lake and North Preston - Driveway Replacement			
Timberlea WWTF Asset Renewal Program			
Trunk Sewers			
Fairview Cove Trunk Sewer			
Sackville Trunk Sewer - Condition Assessment			
Wastewater Total	**$1,540,000**	**$1,540,000**	
Stormwater			
Culverts/Ditches			
Bundy Lane near civic 79			
Coronet Avenue driveway culvert replacement project			
Driveway Culvert Replacements			
Frederick Drive at Dyke Road			
Highway 2, near civic 1380			
Lucasville Road Sta 0+910 near civic 1155			
Lucasville Road Sta 1+595 at Third Street			
Lucasville Road Sta 2+695 near civic 758			
Lucasville Road Sta 2+850 near civic 749 and 743			
Millers Road near civic 1			
Murray Road at Caldwell Road			
Parkway Drive and Atholea Drive			
Stormwater Survey and Studies Program			
Yankeetown Road near civic 16			
Pipes			
Catchbasin Renewals SW			
Celtic Drive Storm Sewer Renewal		$120,000	22-Feb-19
Cogswell Redevelopment SW Sewer Relocation			
Drainage Remediation Program Surveys/Studies			
Everette Street at Bonnie Brae Drive Drainage Upgrade			
Integrated Stormwater Projects	$1,200,000	$1,200,000	28-Feb-19
Lakecrest Drive CMP Replacement			
Lateral Replacements SW			
Manhole Renewals SW			
National Disaster Mitigation Program			
Stormwater Pipe Condition Inspections (CSP)			
Wanda Lane Deep Storm Sewer			
Wanda Lane Storm System Upgrade			
Structures			
Clement St. Berm			
Ellenvale Run Retaining Wall System Phase 2			
Ellenvale Run Retaining Wall System Phase 3 (Wanda Lane)			
Stormwater Total	**$1,200,000**	**$1,320,000**	
Corporate			
Assett Management			
Corporate Flow Monitoring Program			
Hyrdaulic Water Model Build			
Storm Sewer Condition Assessment			
Vulnerability to Climate Change Risk Assessment - Asset Call Pilot			
Wastewater Sewer Condition Assessment			
Facility			
Building Capital Improvements			
East/Central Regional Operational Facility			
Fleet			
Fleet - Stormwater			
Fleet - Wastewater			
Fleet - Water			

Category	Total Approved	Net Impact on Budget	Approval Date
GIS			
Engineering Drawing Database			
GIS Application Support Program			
GIS Data Build			
GIS Data Project			
GIS Hardware/Software Program			
Sewer Service Entry			
Water Data Base Model			
Information Technology			
Analytics Decision Support System			
Approval Forms Framework			
Asset Registery			
Computer Maintenance Management System (CMMS) Enhancements			
Customer Portal			
Customer Transactional Site			
Data Governance			
Desktop Computer Replacement Program			
Document/Content Management			
IT Foundations			
IT Server Hosting			
Migrate to Office 365			
Mobile Devices and Applications			
New payroll System			
Permit Approvals			
Regulatory Reporting			
SAP S4 Hana Upgrade			
Stormwater Billing Support			
Telephony			
Water/Wastewater Data Quality Software Replacement			
SCADA & Other			
GPS Units - Replacement	$67,000	$67,000	22-Feb-19
Large and New Customer Meters			
Meter Deployment			
SCADA Control System Enhancements			
Water			
Central SCADA System Redesign/Relocation	$90,000	$0	18-Mar-19
Corporate Total	**$157,000**	**$67,000**	
Grand Total	**$5,178,000**	**$5,208,000**	2-Mar-28

Item 3-I

12-Jun-19

FINANCIAL REPORT

Consolidated balance of the four operating accounts maintained by the Commission as of:	12-Jun-19	$56,875,490
Rate of interest on the above balance - Investment Rate of Return	0.182%	$56,875,489.74

Halifax Water
Halifax Regional Water Commission

ITEM # 4-I
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services
Allan Campbell, B.Comm, CPA, CMA, Manager, Finance

APPROVED: *Original Signed By:*
Carl Yates, M.A.Sc., P. Eng., General Manager

DATE: March 15, 2019

SUBJECT: **Halifax Regional Water Commission Employees' Pension Plan Financial Report – 4th Quarter (Q4), 2018**

INFORMATION REPORT

ORIGIN

Financial reporting for the Halifax Regional Water Commission Employees' Pension Plan (hereinafter called the "Plan").

BACKGROUND

The Board is required to review the periodic (quarterly) financial results of the Plan throughout the year.

DISCUSSION

The attached statement of changes in net assets available for benefits (Appendix A) outlines the annual budget for the Plan and actual financial performance to Q4 (January 1 to December 31, 2018). Favourable or unfavourable variances reported compare actual results to prorated budget amounts (100% = 12 months/12 months), which serves as a benchmark for the twelve (12) month period in 2018. Yearend audited results for 2016 and 2017 are shown for comparative purposes.

As shown on the statement of changes in net assets available for benefits, net assets available for benefits have increased by $7.0 million for the twelve (12) month period ending December 31, 2018. The annual budget for 2018 forecasted an increase in net assets available of $10.3 million. Actual results for the period of $7.0 million compared to the benchmark of $10.3 million results in an unfavourable variance in the amount of $3.3 million.

The annual budget forecasted revenue of $8.8 million. Revenue for the period totaled $4.8 million, which when compared to the benchmark of $8.8 million, results in an unfavourable variance of $4.0 million. Revenue is affected largely by the performance of the HRM Master Trust, and change tends to be more volatile compared to contributions and expenses of the Plan. This variance is attributed directly to the fact the actual increase in the fair value of the investment assets was lower than expected. The increase for the period totaled $2.0 million compared to the benchmark of $6.6 million, a difference of $4.5 million or 69%. Investment income for the period performed above expectations, showing a favorable variance of $0.6 million or 26%.

Contributions of $6.2 million are tracking as expected, showing a small, favourable variance of $51.8 thousand.

Expenses of $4.1 million for the period are lower than the benchmark of $4.6 million resulting in a favourable variance of $0.6 million or 12%. The main contributor to this favourable variance is termination benefit payments of $79.8 thousand for the year to date, which came in considerably lower than the benchmark of $700.0 thousand. The remainder of the variance is due to the timing of administrative expenses, which totaled $127.6 thousand for the period compared to the benchmark of $177.0 thousand.

SERVICE STANDARDS

Tracking of Regulatory Filing Requirements, Administrative Reporting Requirements and Service Standards for actuarial calculation requests is ongoing. The reports for Regulatory Filing Requirements and Administrative Reporting Requirements are attached as Appendix B and Appendix C respectively, and document administrative compliance within the various levels of reporting for the period.

Service Standard results to December 31st, 2018 have been attached as Appendix D. The intent of the Service Standards Report is to set a standard number of days for which calculations can be provided to Members when actuarial calculations are requested. The service standard includes both estimated number of days required by the current actuarial services provider, Eckler Partners Ltd., as well as estimated Halifax Water staff time.

The overall results outlined for Q4 as reported in Appendix D show, out of 6 Member requests, none were delivered within the standard days proposed under the threshold limits. Response time of the actuary was inconsistent throughout the period ranging from

11 – 24 days compared to the benchmark of 11 days for the categories reported. For the actuary, average service days for Retirement Estimates and Termination Estimates (standard) were 15.3 days and 21.5 days respectively. Likewise for administrative staff, response time ranged from 10 - 29 days compared to the benchmark of 7 days for the categories reported, with an average response time of 18 days for Retirement Estimates, and 21.5 days for Termination Estimates (standard).

Results will continue to be monitored and evaluated over the coming months to obtain a larger data sample with standards being adjusted if necessary, to reflect the realities and special circumstances factoring into processing Member requests. Emphasis will be placed on working with the actuaries to ensure timely responses to calculation requests.

ATTACHMENTS

APPENDIX A – Financial Report:
Statement of changes in net assets available for benefits, for the twelve (12) month period ended December 30, 2018.

APPENDIX B – Regulatory Filing Requirements – 2018

APPENDIX C – Administrative Reporting Requirements – 2018

APPENDIX D – Service Standards Report - 2018

Report Prepared by: *Original Signed By:*

Michelle Bennett, B.Comm, Accountant 902-490-5242
Heather Britten, B.Comm, Quality Assurance Officer 902-490-1895

Halifax Regional Water Commission Employees' Pension Plan
Statement of changes in net assets available for benefits
For the twelve (12) month period ended
Benchmark *100%*

	December 31, 2018						
				Variance			
			Prorated	*Actual versus Prorated Budget*			
	2018		*Budget*	*Favourable (Unfavourable)*		**Actual**	**Actual**
	Budget	**Actual**	*100%*	*$*	*%*	**2017**	**2016**
Revenue[1]							
Net investment income:							
Total investment income	$2,340,000	$2,939,026	*$2,340,000*	*$599,026*	*26%*	$2,622,024	$2,389,377
Investment manager fees	($166,000)	($165,670)	*-$166,000*	*$330*	*0%*	($146,420)	($138,922)
Increase (decrease) in the fair value of investment assets	$6,590,000	$2,040,089	*$6,590,000*	*-$4,549,911*	*-69%*	$8,712,459	$4,056,258
	$8,764,000	**$4,813,445**	*$8,764,000*	*-$3,950,555*	***-45%***	**$11,188,063**	**$6,306,713**
Contributions[2]							
Participants:							
Current service (inc AVC's)	$2,801,000	$2,833,288	*$2,801,000*	*$32,288*	*1%*	$2,665,078	$2,484,448
Sponsors:							
Current service (inc LTD)	$2,548,000	$2,567,278	*$2,548,000*	*$19,278*	*1%*	$2,422,527	$2,265,591
Unfunded liability	$825,000	$825,200	*$825,000*	*$200*	*0%*	$825,200	$825,200
	$6,174,000	**$6,225,766**	*$6,174,000*	*$51,766*	***1%***	**$5,912,805**	**$5,575,239**
Expenses[3]							
Benefit payments:							
Benefit payments	$3,754,000	$3,848,218	*$3,754,000*	*-$94,218*	*-3%*	$3,738,659	$3,536,894
Termination payments	$700,000	$79,849	*$700,000*	*$620,151*	*89%*	$314,591	$992,572
Death benefit payments	$0	$0	*$0*	*$0*	*n/a*	$242,767	$509,236
Administrative:							
Actuarial & consulting fees	$100,000	$45,756	*$100,000*	*$54,244*	*54%*	$67,394	$128,676
Audit & accounting fees	$9,000	$8,235	*$9,000*	*$765*	*8%*	$9,283	$15,999
Bank custodian fees	$22,000	$32,303	*$22,000*	*-$10,303*	*-47%*	$20,132	$26,511
Insurance	$9,000	$8,347	*$9,000*	*$653*	*7%*	$8,347	$7,950
Miscellaneous	$15,000	$17,167	*$15,000*	*-$2,167*	*-14%*	$18,965	$14,433
Professional fees	$15,000	$13,440	*$15,000*	*$1,560*	*10%*	$14,623	$12,845
Registration fees	$2,000	$2,337	*$2,000*	*-$337*	*-17%*	$2,221	$2,158
Training (Trustees/ Administration/ Pension Committee)	$5,000	$0	*$5,000*	*$5,000*	*100%*	$0	$1,127
	$4,631,000	**$4,055,652**	*$4,631,000*	*$575,348*	***12%***	**$4,436,982**	**$5,248,400**
Increase (decrease) in net assets available for benefits	**$10,307,000**	**$6,983,559**	*$10,307,000*	*-$3,323,441*	***-32%***	**$12,663,886**	**$6,633,551**
Net assets available for benefits, beginning of period	**$112,657,705**	**$119,731,881**				**$107,067,995**	**$100,434,444**
Increase (decrease) in net assets available for benefits	**$10,307,000**	**$6,983,559**				**$12,663,886**	**$6,633,551**
Net assets available for benefits, end of period	**$122,964,705**	**$126,715,440**				**$119,731,881**	**$107,067,995**

For the purposes of this statement, expenses are reported on a cash basis. Comparative years are reported on an accrual basis as that is how they are reported on the financial statements.

Halifax Regional Water Commission Employees' Pension Plan
Regulatory Filing Requirements - 2018
as at December 31, 2018

	Report	Regulatory Body	Filing Deadline	Date last filed		Comments
1	Annual Form 3 - Summary of Contributions	Superintendent of Pensions	60 days after the beginning of each fiscal year	February 11, 2019	DB Plan	Filed directly with the Trustee, Northern Trust, for the DB Plan.
				February 11, 2019	DC Plan	Filed directly with the Trustee, Industrial Alliance, for the DC Plan.
2	Pension Plan Income Tax Return (T3)	Canada Revenue Agency	March 31st	February 26, 2019	DB Plan	CRA requires Northern Trust as the custodian to prepare and file T3 Income Tax Returns each year. Information obtained from HRM Pension Plan quarterly report.
3	Pension Plan Audited Financial Statements	Superintendent of Pensions	6 months after the Plan's fiscal year end	July 11, 2018	DB Plan	Audited financial statements were completed but not approved by the HW Board until after the June 30th deadline. The regulatory body was notified prior to June 30th that the financial statements would be submitted once they were approved by the Board.
				April 13, 2018	DC Plan	Audited financial statements are not prepared for this pension plan. However, Industrial Alliance provieds a Financial Report detailing all pertinant details of the plan. This report was submitted to the regulatory body.
4	Annual Information Returns (AIR)	Superintendent of Pensions	June 30th	April 13, 2018	DB Plan	
				April 13, 2018	DC Plan	
5	Actuarial Valuation*	Superintendent of Pensions Canada Revenue Agency	September 30th	August 26, 2016		
6	Plan Amendments	Superintendent of Pensions Canada Revenue Agency	60 days after the amendment approved by the Board	April 4, 2018	DB Plan	Amendment #11 approved by the Board in March 29, 2018; Submitted to the Superintendent April 4, 2018
		Superintendent of Pensions Canada Revenue Agency	60 days after the amendment approved by the Board	n/a	DC Plan	All documents relating to the registration of the DC Plan were received by the Superintendent October 6, 2017. Amendment #11 was prepared November 17, 2017 by the Administrator pursuant to changes requested to the Plan Text by the Regulator, and filed.

* Actuarial Valuations are required at a minimum every three (3) years.
** Notional Agreements were implemented during 2017 with an effective date for January 1, 2017. Notional Agreements are not registered therefore not subject to reporting requirements to a regulatory body.

Halifax Regional Water Commission Employees' Pension Plan
Administrative Reporting Requirements - 2018
as at December 31, 2018

	Report	Filing Deadline/ Recurrance	Date last filed/ Performed		Comments
1	Pensioners' Payroll	Monthly	March 1, 2019		Pensioners are paid the 1st of each month; no exceptions to report for 2018
2	Contributions to the Trustee	Monthly	March 13, 2019	DB Plan	Remittances due to Northern Trust within 30 days of monthend; no exceptions to report for 2018.
			January 9, 2019	DC Plan	Remittances due to Industrial Alliance within 30 days of monthend; no exceptions to report for 2018.
			n/a	Notional Agreement*	
3	Pension Plan Financial Statements	Quarterly	November 16, 2018	DB Plan	3rd Quarter (January - September 2018)
			n/a	DC Plan	Quarterly statements are not prepared for the DC Plan. A financial report is prepared by Industrial Alliance and that report is filed with the AIR to the regulator.
			n/a	Notional Agreement*	Financial statements not required.
4	Investment Performance Review & Compliance with SIP&P	Quarterly	December 7, 2018	DB Plan	3rd Quarter (January - September 2018) Report prepared quarterly by administration staff for the HW Board of Directors, in conjunction with the quarterly HRM Pension Plan Committee meeting documentation.
5	Annual Pension Statements to Members	June 30th	June 18, 2018	DB Plan	
			June 18, 2018	DC Plan	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018. Members also have access to online, real-time reporting.
			June 18, 2018	Notional Agreement*	Statements issued annually in conjuction with the DB Plan statements, commencing in 2018.
6	Fiduciary Liability Insurance	Annually	November 15, 2018	DB Plan	Reviewed and renewed annually by administration staff. The policy period expires November 30 each year.

* Notional Agreements were implemented during 2017 with an effective date for January 1, 2017. Notional Agreements are not registered therefore not subject to reporting requirements to a regulatory body.

Halifax Regional Water Commission Employees' Pension Plan
Service Standards Report - 2018

Quarter 4 (as at November 24, 2017)			Eckler				HW Staff				
Transaction	**Standard**		**Total # Completed**	**# Past Standard**	**% with Standard**	**Average Service Days**	**Total # Completed**	**# Past Standard**	**% with Standard**	**Average Service Days**	**Total Average Service Days**
Retirement Estimates	18	Business Days	4	3	25%	15.3	4	4	0%	18.0	33.3
Marriage Breakdown Calculations	28	Business Days	0	0			0	0			0.0
Post-Retirement Death Letter	10	Business Days	0	0			0	0			0.0
0 Pre-Retirement Death Benefit	28	Business Days	0	0			0	0			0.0
Termination Estimates/ Calculations											
- Standard	18	Business Days	2	2	0%	21.5	2	2	0%	21.5	43.0
- Non Standard (incl RTAs)	28	Business Days	0	0			0	0			0.0
Volume-Weighted Average			**6**	**5**	**17%**	**36.8**	**6**	**6**	**0%**	**39.5**	

	Total # Completed	**# Past Standard**	**% within Standard**
Combined Volume-Weighted Average	**6**	**6**	**100.0%**

Halifax Water
Halifax Regional Water Commission

ITEM 5-I
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Cathie O'Toole, MBA, CPA, CGA, Director, Corporate Services
Allan Campbell, BComm, CPA, CMA, Manager, Finance

APPROVED: *Original Signed By:*
Carl Yates M.A.Sc., P.Eng., General Manager

DATE: March 15, 2019

SUBJECT: **HRM Pension Plan Investment Performance – 4th Quarter (Q4), 2018**

INFORMATION REPORT

ORIGIN

The Pension Plan investment performance is reported to the Commission periodically throughout the year.

BACKGROUND

None

DISCUSSION

The tables below and the attached Investment Report provide a performance update for Q4 of 2018 (October to December) for the Halifax Regional Municipality (HRM) Pension Plan Master Trust, of which Halifax Regional Water Commission (HRWC) is a part. The fair value of the investment in the Master Trust is determined and updated at year-end, and HRWC's share of the total HRM Master Trust at December 31, 2018 was 6.2%, and totaled $126.4 million.

The total fund returned 0.57% in the 4th Quarter, which outperformed the policy benchmark of -2.23% by 2.80%. The return for the one-year period ended December 31, 2018 is 3.81%, outperforming the policy benchmark of 0.96% by 2.85%. Other historical returns are provided in Table 1 below:

Table 1 - Returns

	Current Quarter (Oct to Dec)	1-Year	3 - Year Annualized	4 - Year Annualized	Since Inception (Oct 1999)
Fund Return	0.57%	3.81%	6.55%	7.55%	7.00%
Policy Benchmark	-2.23%	0.96%	5.09%	5.14%	5.47%
Excess Return	2.80%	2.85%	1.46%	2.41%	1.53%

The total fund return is subject to investment management fees and plan expenses. The HRM Pension Plan performs an analysis with respect to the Master Trust to show the potential downside return risk under different scenarios. The most recent scenarios analyzed showing the greatest potential risk, are identified in Table 2 following:

Table 2 – Stress Testing (as at December 31, 2018**)**

Scenario:	Projected Return of Master Trust
Equities down by 5%	-2.04%
CAD increase by 10% compared to the USD	-1.92%
US interest rates decrease by 0.25%	-0.55%
Oil prices drop by 10%	-0.14%

As at December 31, 2018 the Master Trust was in compliance with the Statement of Investment Policies and Procedures (SIP&P), and a summary of the asset mix is provided in Table 3 below:

Table 3 – Asset Mix, as at December 31, 2018

Asset:	Actual	Policy
Cash & Equivalents	0.60%	0.00%
Canadian Equity	4.60%	5.80%
Global Equity	30.10%	30.10%
Bonds	29.30%	34.90%
Minimum Target Return	35.40%	29.20%

ATTACHMENT

Halifax Regional Municipality Pension Plan Investment Report Q4, 2018

Report Prepared by: *Original Signed By:*
Michelle Bennett, BComm, Accountant 902-490-5242
Heather Britten, BComm, Quality Assurance Officer
902-490-1895

ITEM # 5-I
HRWC Board
March 28, 2019
ATTACHMENT

Consent Agenda Item No. 1

HRM PENSION PLAN

Investment Report

Q4 2018

Executive Summary

Compliance

- As at December 31, 2018, the Master Trust (MT) was in compliance with the SIP&P.

Funded Status

- As at December 31, 2017, the going concern funded ratio and transfer ratio were 90.6% and 63.1% respectively.*
- The December 31, 2018 funded status to be discussed with Eckler.

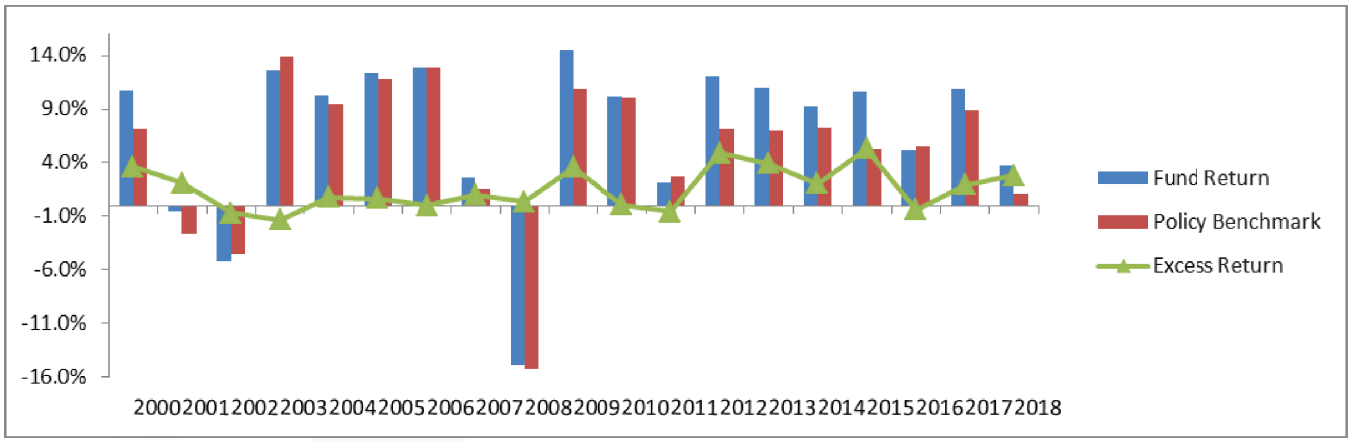
Master Trust Performance (net of fees)

- In Q4, the MT earned 0.57%, outperforming the policy benchmark return by 2.80%.
- For the one-year period ending December 31, 2018, the MT earned 3.81% outperforming the policy benchmark by 2.85%.
- The MT earned an annualized return of 7.55% over the 4-year period ending December 31, 2018, outperforming the policy benchmark by 2.41% annualized.
- Since inception (October 1999), the MT earned 7.00% annualized, outperforming the Plan's long-term rate objective of 6.20%. The table on the next slide summarizes the calendar year returns for the MT.

*Per Eckler Valuation Report as at December 31, 2017. Assumes a going concern discount rate of 6.20%.

Executive Summary – Cont.

Calendar Returns (net of fees)



	2000	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018
Fund Return	10.71%	-0.56%	-5.21%	12.60%	10.27%	12.38%	12.88%	2.60%	-14.83%	14.47%	10.12%	2.11%	12.01%	10.94%	9.27%	10.59%	5.13%	10.85%	3.81%
Policy Benchmark	7.12%	-2.64%	-4.50%	13.91%	9.50%	11.76%	12.85%	1.58%	-15.20%	10.92%	10.08%	2.71%	7.12%	7.01%	7.24%	5.27%	5.55%	8.91%	0.96%
Excess Return	3.59%	2.08%	-0.71%	-1.31%	0.77%	0.62%	0.03%	1.02%	0.37%	3.55%	0.04%	-0.60%	4.89%	3.93%	2.03%	5.32%	-0.42%	1.94%	2.85%

Executive Summary – Cont.

Added Value

- In Q4 of 2018, the MT outperformed its policy benchmark by 2.80%. Attribution: Minimum Target Return +2.51%, World Equity +0.20%, Emerging Market Equity +0.13% , US Equity +0.11%, EAFE Equity +0.01%. Universe Bonds -0.07% and Global Credit -0.09%.

Q4 Updates

- Rebalanced CAD $10 million from a public global fixed income fund to a North American corporate private debt fund.
- Committed CAD $40 million to a private Canadian Commercial Mortgage fund
- Committed USD $25 million to a private equity fund focused on GP-led restructurings. This represents our second fund investment with this Manager.
- Co-invested USD $7.5 million in an Asian GP-led restructuring deal. Diversified transaction with 31 portfolio companies purchased at 25.5% discount.
- Co-invested USD $2 million in a branded children's beverage company that sells fruit & vegetable juice and fortified water.

Total Fund Net Returns

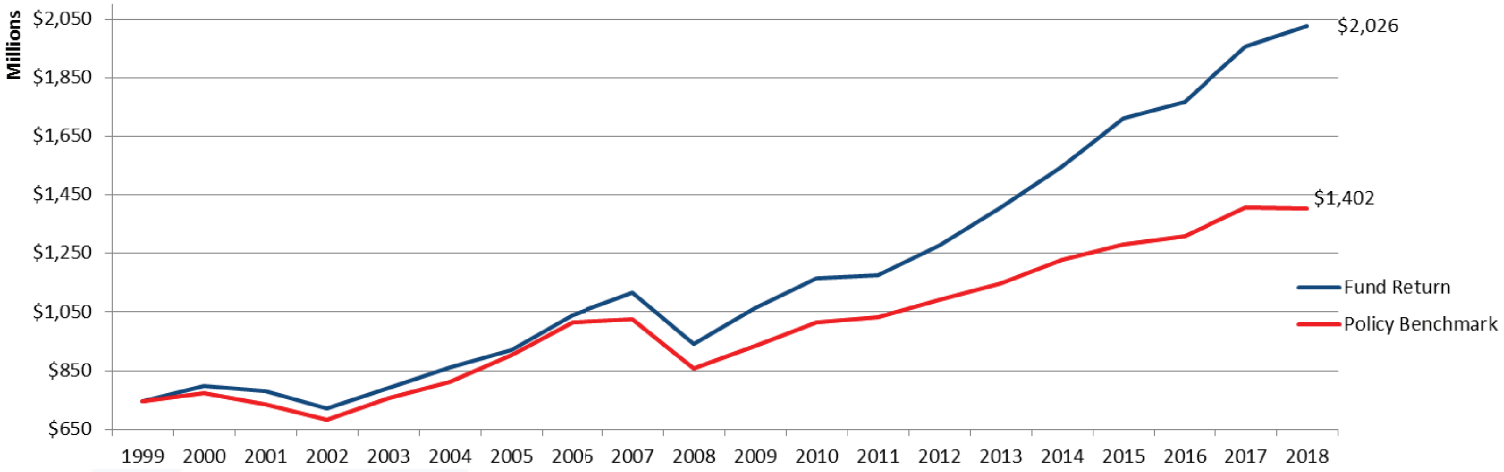
As of December 31, 2018

	Q4	1-Year	3-Year Annualized	4-Year Annualized	Since Inception (Oct 1999)
Fund Return	0.57%	3.81%	6.55%	7.55%	7.00%
Policy Benchmark*	-2.23%	0.96%	5.09%	5.14%	5.47%
Excess Return	2.80%	2.85%	1.46%	2.41%	1.53%

*Effective December 31, 2018, the Policy Benchmark is 3.3% S&P/TSX Index + 2.5% S&P/TSX 60 + 5.3% S&P 500 Index ($USD) + 8.9% MSCI EAFE Index ($CAN) + 4.4% MSCI Emerging Markets ($CAN) + 11.5% MSCI World ($CAN) +15.6% FTSE TMX Canada Universe Bond + 19.3% 3 Month Bankers Acceptance + 29.2% Minimum Target Return.

Fund returns are shown net of fees and expenses

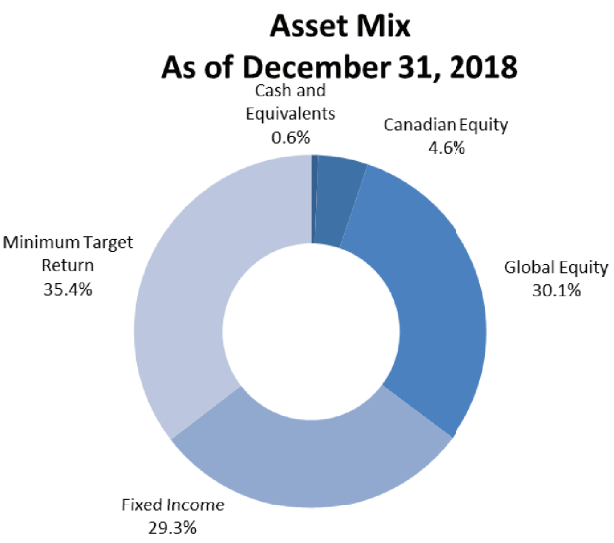
Since Inception Performance

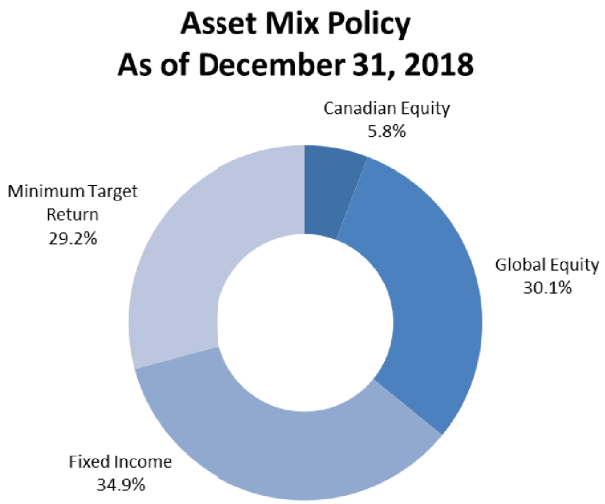


In dollar terms, the fund has grown $624 million in excess of the policy benchmark since inception.

Fund returns are shown net of fees and expenses

Asset Mix





*Effective December 31, 2018, the Policy Benchmark is 3.3% S&P/TSX Index + 2.5% S&P/TSX 60 + 5.3% S&P 500 Index ($USD) + 8.9% MSCI EAFE Index ($CAN) + 4.4% MSCI Emerging Markets ($CAN) + 11.5% MSCI World ($CAN) +15.6% FTSE TMX Canada Universe Bond + 19.3% 3 Month Bankers Acceptance + 29.2% Minimum Target Return.

Fund returns are shown net of fees and expenses

Equity Market Index Returns

As of December 31, 2018

Index	Q4	1-Year	3-Year Annualized	4-Year Annualized
Canadian Equity (S&P/TSX Composite Index)	-10.11%	-8.89%	6.37%	2.49%
US Equity (S&P 500 C$)	-8.62%	4.23%	8.64%	11.74%
US Equity (S&P 500 U$)	-13.52%	-4.38%	9.26%	7.23%
EAFE Equity (MSCI EAFE C$)	-7.58%	-6.03%	2.29%	6.23%
Emerging Markets (MSCI EM C$)	-2.22%	-6.87%	8.64%	6.95%
World Equity (MSCI World C$)	-8.51%	-0.49%	5.71%	8.86%

*Source: Northern Trust

In the fourth quarter:

- All stock markets had negative returns due to monetary policy uncertainty, interest rate volatility, slower earnings and trade tensions between the U.S. and China.
- Canadian equities declined 10.11% over the period, with energy stocks under severe pressure.
- Emerging market equities outperformed developed markets.

Equity – Q4 Summary

- The MT's Equity portfolio returned -7.08% during the quarter, outperforming the equity policy benchmark return of -8.43% by 1.35%, primarily due to outperforming US, Emerging Market and World equities.

As of December 31, 2018

MT Equity	Q4	Benchmark	Relative Performance
Canadian Equity (S&P/TSX Composite Index)**	-11.69%	-9.60%	-2.09%
US Equity (S&P 500)	-12.70%	-13.52%	0.82%
EAFE Equity (MSCI EAFE)	-7.51%	-7.58%	0.07%
Emerging Markets (MSCI EM)	1.44%	-2.22%	3.66%
World Equity (MSCI World)	-6.04%	-8.51%	2.47%
MT Equity Total	**-7.08%**	**-8.43%**	**1.35%**

*Source: Northern Trust
**Canadian Equity is a blended index of S&P TSX 60 and S&P/TSX Composite

Equity – 1 Year Summary

- The MT Equity portfolio returned -4.24% outperforming its benchmark return of -4.49% by 0.25% primarily due to the outperformance of World, EAFE and US Equities.

As of December 31, 2018

MT Equity	1 Year	Benchmark	Relative Performance
Canadian Equity (S&P/TSX Composite Index)**	-12.27%	-8.32%	-3.95%
US Equity (S&P 500)	-3.81%	-4.38%	0.57%
EAFE Equity (MSCI EAFE)	-5.70%	-6.03%	0.33%
Emerging Markets (MSCI EM)	-9.38%	-6.87%	-2.51%
World Equity (MSCI World)	1.36%	-0.49%	1.85%
MT Equity Total	**-4.24%**	**-4.49%**	**0.25%**

*Source: Northern Trust
**Canadian Equity is a blended index of S&P TSX 60 and S&P/TSX Composite

Bond Market Index Returns

As of December 31, 2018

Index	Q4	1-Year	3-Year Annualized	4-Year Annualized
Canadian Universe Bonds (FTSE TMX Canada Universe Bond)	1.76%	1.41%	1.86%	2.27%
Canadian Government Bonds (FTSE TMX Canada Universe Government)	2.12%	1.53%	1.53%	2.11%
Canadian Corporate Bonds (FTSE TMX Canada Universe Corporate)	0.86%	1.10%	2.73%	2.73%

*Source: Northern Trust

- Government bonds have outperformed Corporate bonds and the broader Universe over Q4 and 1-year periods.
- Corporate bonds have outperformed Government bonds and the broader Universe over the 4-year periods.
- Q4 had a decline in interest rates across the entire yield curve in both Canada and the U.S with the biggest decline occurring in December.

Fixed Income – Q4 Summary

- The MT's diversified Fixed Income portfolio earned 1.07%, which underperformed its benchmark return of 1.10% by -0.03%.

As of December 31, 2018

MT Fixed Income	Q4	Benchmark	Relative Performance
Canadian Corporate Bond	0.06%	0.86%	-0.80%
Government Bond	3.10%	2.12%	0.98%
Global Credit Absolute Return	0.69%	0.56%	0.13%
MT Fixed Income Total	**1.07%**	**1.10%**	**-0.03%**

*Source: Northern Trust

- Weak performance by our Canadian corporate bond portfolio reduced returns relative to the overall fixed income benchmark.

Fixed Income – 1 Year Summary

- The MT's Fixed Income portfolio returned 2.51%, which outperformed its benchmark return of 1.70% by 0.81%.

As of December 31, 2018

MT Fixed Income	1 Year	Benchmark	Relative Performance
Canadian Corporate Bond	1.52%	1.10%	0.42%
Government Bond	3.20%	1.53%	1.67%
Global Credit Absolute Return	2.75%	1.94%	0.81%
MT Fixed Income Total	**2.51%**	**1.70%**	**0.81%**

*Source: Northern Trust

MTR – Summary

- The Minimum Target Return portfolio (private investment portfolio) returned 9.38% in Q4, versus a benchmark of 1.51%, outperforming by 7.87%. This was mainly due to the adjustment in Q4 of valuations to their year end estimated values as provided by the managers.

As of December 31, 2018

	Q4	1-Year	3-Year Annualized	4-Year Annualized	Since Inception (Oct 1999)
MTR Return	9.38%	15.44%	11.37%	12.87%	13.34%
Policy Benchmark	1.51%	6.20%	6.37%	6.42%	6.54%
Excess Return	7.87%	9.24%	5.00%	6.45%	6.80%

The policy benchmark for the private investment portfolio is the Going Concern Discount rate. The 2018 rate is 6.2%, 2017 is 6.4%, 2016 is 6.5%, 2015 is 6.55%, 2014 is 6.5%, 2013 is 6.25%, 2007-2012 is 6.75% and prior to 2007 is 7.4% respectively.

Stress Testing

Scenario Analysis

- Of the scenarios we analyze, the four that show the greatest potential downside return risk to the Master Trust include:

As of December 31, 2018

Scenario	Projected Return of Master Trust
Equities Down 5%	-2.04%
CAD increase by 10% vs USD	-1.92%
US interest rates decrease by 0.25%	-0.55%
Oil price drops by 10%	-0.14%

Liquidity

	Actual 2018 Amounts ($ mln)
Contributions	$ 97.1
Dividend & Distribution Income	$ 17.2
Interest Income	$ 10.6
Other Income	$ 0.4
Benefit Payments	-$ 101.1
Expenses	-$ 6.8
Total Annual Net CF	**$ 17.4**
Liquid Investments*	$ 1,267.3
Actual Net Distributions	$ 47.2
Actual Net Capital Calls	-$ 29.4
Total CF + Liquid Investments + Private Sales – Capital Calls	**$ 1,302.5**

** Liquid investments as at December 31, 2018. Includes all publicly traded equity and fixed income investments*

Halifax Water
Halifax Regional Water Commission

ITEM #6-I
HRWC Board
March 28, 2019

TO: Russell Walker, Vice Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: *Original Signed By:*
Jamie Hannam, P. Eng., Director, Engineering & IS

APPROVED BY: *Original Signed By:*
Carl Yates, M.A.Sc., P. Eng., General Manager

DATE: March 20, 2019

SUBJECT: **Cogswell Redevelopment Project**

INFORMATION REPORT

ORIGIN

1. Halifax Regional Municipality Cogswell Redevelopment project initiation.
2. Halifax Water Board Report, Item 6-I, June 21, 2018
3. Halifax Water Board Report, Item 9-I, January 19, 2019

BACKGROUND

The Halifax Regional Municipality is planning the redevelopment of the Cogswell Interchange area located in downtown Halifax. The Municipality is well underway with the Cogswell Redevelopment project having completed their 60% design submission to Regional Council on June 5, 2018 and their 90% design submission on February 26, 2019. Regional Council subsequently approved authorization to proceed with procurement of construction services based on the 90% design submission.

Halifax Water is engaged in this project in two distinct areas. Firstly, Halifax Water is proposing the installation and operation of an Ambient Temperature District Energy System (ATDES) within the new Cogswell area; and secondly, Halifax Water has a significant volume of existing and proposed water, wastewater and stormwater infrastructure to be relocated or constructed within the project limits.

DISCUSSION

District Energy System:

A Feasibility Study was completed in June 2016 to determine the feasibility of an ATDES for the Cogswell area. The study concluded that an ATDES would be the most economical and energy efficient system, with sufficient capacity to provide heating and cooling to the proposed new developments within the Cogswell redevelopment area of downtown Halifax.

As a natural progression from this earlier feasibility study, and to keep pace with HRM's Cogswell Redevelopment design work, Halifax Water, working with our consultant's - Pinchin/WSP - is completing the 100% detailed design for the linear infrastructure (ATDES piping and building interconnection stations), updating the business case and financial review, has completed a Municipal By-Law Review, and is developing an ATDES information document to be used to promote the project to stakeholders.

Detailed Design - The 100% design for the underground linear infrastructure (ATDES piping and building interconnection stations) is being completed and fully integrated into HRM's design submission for the overall Cogswell Redevelopment project in time for HRM's procurement of construction services tender package release expected in April 2019.

Update Business Case and Financial Review – The original business model was completed as part of the original Feasibility Study in 2016. Since that time, a more accurate and detailed business model has been built and updated to accurately assess various financial parameters such as the Net Present Value (NPV), Internal Rate of Return (IRR), Ownership and Debt Financing options, Depreciation, and Capital and Operating costs. The business case and financial model will be updated in parallel with the completion of the 100% detailed design of the linear infrastructure to incorporate any recent changes to the capital cost models. No changes have occurred since the last information report issued in January 2019.

Municipal By-Law Review - A review of other Canadian municipal DES projects has been completed to determine how other municipalities and/or utilities have developed, integrated and completed DES projects into their local communities. A draft version of this report has been submitted for Halifax Water review and comment. The final version is expected to be issued in early April 2019.

ATDES Information Package Development - Development of an information package has begun, which will be utilized to educate stakeholders on DESs in general, and specifically communicate the many benefits of an ATDES (e.g. socio-economic, environmental, energy security, community, etc.) for the Cogswell project. Stakeholders include Provincial and Municipal governments, potential commercial and residential developers, potential tenants and residents, local businesses and related service providers, other utilities (e.g. electrical,

natural gas), and the public at large. The Information Package document was expected to be completed by Mid-March of 2019 but has been delayed due to the progression of detailed design work on the ATDES Distribution Piping System.

Funding for the DES project is being sought from a number of Federal agencies. To date, applications have been made to the Federation of Canadian Municipalities (FCM) Green Municipal Fund (GMF), and Canada's *Low Carbon Economy Challenge Fund (LCECF)*. The initial FCM GMF application was made in July 2017, but is currently on hold, pending HRMs final approval (i.e. construction approval) to move forward with the Cogswell Redevelopment Project. Additional funding sources being considered, include the federal governments *Investing in Canada Infrastructure Program*, under the *Green Infrastructure - Climate Change Mitigation* sub-stream.

Subsequent to Regional Council approval of the Cogswell Redevelopment project at the 90% design submission, the next steps for Halifax Water relative to the DES include:

1. Update and evaluate the DES Business Case – In conjunction with the completion of the detailed design of the linear infrastructure, revise the business case to include any updated cost information coming from the completion of the existing and future detailed design work. Based on the updated business case, Halifax Water staff will evaluate and provide direction to the Halifax Water Board to proceed, reevaluate and/or cancel further pursuit of the DES as a regulated service.

2. Preliminary & Detailed Design for the Remaining ATDES Components – Pending HRM Council and Halifax Water Board direction, release a Request for Proposal (RFP) for the preliminary and detailed design work on the Energy Center, Energy Transfer Stations, Building Mechanical Rooms, development of the required building specifications, and business case updates and reevaluations as required.

3. Utility Development and Formation – Subject to a positive business case for the development and formation of the proposed ATDES Utility, seek Halifax Water Board and NSUARB approvals as necessary. Any expenditures above the $250,000 threshold would require explicit NSUARB approval.

4. Cost of Service/Rate Structure – Begin discussions around the development of a base/consumption cost of service model, and setting of the required base and energy consumption rates for the ATDES.

It is anticipated that a report will be brought to the Board at the June 2019 meeting with recommendations on the proposed direction of the DES Project.

Infrastructure Relocations:

The municipality, via their consultant WSP, completed detailed designs for all water, wastewater and stormwater infrastructure relocations and/or new installations required to facilitate the Cogswell project as part of the 90% detailed design process.

Halifax Water staff will continue to review the engineering design as it progresses to the 100% detailed design and tender document stage.

Consistent with standard municipal subdivision processes, the municipality will be responsible for net new water, wastewater or stormwater infrastructure required to service new streets and building lots. The municipality has advised Halifax Water that all existing water, wastewater and stormwater infrastructure required to be relocated due to street realignment (vertical or horizontal) will be Halifax Water's financial responsibility in accordance with the provisions of the Municipal Street By-Law.

The Cogswell design team are continuing to fine tune cost and schedule estimates within the 100% design process. The cost estimates presented to the Halifax water Board in January remain unchanged at approximately $6M for water infrastructure and $4.7M for Wastewater/Stormwater infrastructure.

BUDGET IMPLICATIONS

The overall feasibility for the DES project is contingent on the development of a positive business case, approval of the Halifax Water Board, and regulatory oversight by the NS Utility and Review Board. The business case could be improved by securing funding through various federal/provincial programs. If the project does not proceed, any soft costs for work completed will not qualify as regulated capital as there will be no resulting addition to plant in service. If this occurs, the soft costs would result in an unbudgeted unregulated operating expense in the year it becomes apparent that the project is not proceeding. The total approved expenditures to date are approximately $246,000, including the original Feasibility Study completed in 2016, the current 100% detailed design work, the Municipal By-Law review, the Stakeholder Information documentation, staff time, and net HST and Overheads. If a decision is taken not to proceed, the amounts expended will be written off as an expense to unregulated business. If the project proceeds, the amount that has been expended to date will be capitalized as part of a rate regulated asset subject to NSUARB approval of a regulated DES utility service.

The required Halifax Water cost for infrastructure relocations will be finalized as the project proceeds and would affect the 2019/20, 2020/21 and 2020/2021 capital budgets, with no anticipated impact on the current 2018/19 capital budget.

ALTERNATIVES

N/A

ATTACHMENTS

N/A

REFERENCES

1. February 26, 2019 Cogswell Redevelopment Project - Presentation to Council - https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/190226rc1516pres.pdf

2. February 26, 2019 Cogswell Redevelopment Project – Report to Council – https://www.halifax.ca/sites/default/files/documents/city-hall/regional-council/190226rc1516.pdf

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