902.H2O.WATR
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450 Cowie Hill Road
P.O. Box 8388 RPO CSC
Halifax, Nova Scotia
Canada B3K 5M1

September 18, 2020

Craig MacMullin, MBA, CPA, CGA, Chair
Halifax Water
Halifax, NS

The regular meeting of the Halifax Water Board will be held on Thursday, September 24, 2020 at 9:00 am. In an effort to stem the spread of COVID19, this meeting will take place via web conferencing and will be available on HRWC's website for public viewing following the meeting.

AGENDA

In Camera Reports

1C Approval of Minutes of the In-Camera Meeting held on Thursday, June 25, 2020

2C Business Arising from Minutes
a)

3C-I Security Matter

Information Item & Presentation

4C Land Matter - Verbal

Regular Reports

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

2. a) Approval of Minutes of the Regular Meeting held on Thursday, June 25, 2020

3. Business Arising from Minutes
a)

Financial

4.1 Operating Results for the Five Months Ended August 31, 2020

4.2 Capital Project Spending Summary - 2019/20

Motion: That the Halifax Water Board approve the individual project over expenditures as identified within Attachment 2, "Capital Project Spending Summary, April 1, 2019 – March 31, 2020" and direct staff to forward the subset of projects "over $250,000" to the NSUARB for information and approval.

Capital Approvals

5. ERP Solution Project $16,923,000

Motion: That the Halifax Water Board approve additional funding for the Enterprise Resource Planning (ERP) Solution project in the amount of $16,629,000 for total project funding commitment in the amount of $16,923,200 over three years.

Other Business

6. 2020 Fall Debenture

Motion: That the Halifax Water Board approve the financing of $20,000,000 with a twenty-year amortization term and finance over ten or fifteen years, dependent upon which all-inclusive rate at time of pricing is less than 2%. If both are less than 2%, fifteen year financing will be obtained. The maximum all-inclusive rate is not to exceed 5.5%.

7. Corporate Governance Manual

Motion: That the Halifax Water Board:

1. approve the Corporate Governance Manual, as attached,
2. approve the terms of reference for the Halifax Water Board committees: Executive, Environment Health and Safety, and Audit and Finance, as attached,
3. approve the creation of the Halifax Water Board Enterprise Risk Management Committee and the terms of reference as attached,
4. approve the Commissioner Code of Conduct, as attached,
5. rescind the January 28, 2016 version of the Corporate Governance Manual; the terms of reference for the Board Executive, Environment Health and Safety and Audit and Finance committees; and the Directors' Code of Ethical Conduct and Policy on Conflicts of Interest,
6. rescind the Board Meeting Protocol – Public Meetings approved by the Board on March 20, 2019.

Information Reports

1-I Financial and Operations Monthly Update
2-I Capital Budget Approvals to Date – 2019/20
3-I Bank Balance
4-I 2019/20 Annual Report
5-I Halifax Water Compliance Statement – Quarterly Certification
6-I Halifax Regional Water Commission Employees' Pension Plan Financial Report – Second (Q2) Quarter, 2020
7-I 2020/21 Cost Containment Initiatives
8-I Capital Cost Contribution Charge Areas – Financial Status Report for the Fiscal Year Ended March 31, 2020
9-I General Rate Hearing Decision and Implementation
10-I Cobequid Road/Glendale Avenue Water Main Break
11-I Enhanced Capital Project Reporting

Heidi Schedler

Digitally signed by Heidi Schedler
Date: 2020.09.24 11:52:00 -03'00'

Heidi Schedler
Secretary

Halifax Water
Halifax Regional Water Commission

ITEM # 4.1
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Louis de Montbrun
Digitally signed by Louis de Montbrun
Date: 2020.09.17 16:23:06 -03'00'
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.17 20:38:19 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D
General Manager

DATE: September 16, 2020

SUBJECT: **Operating Results for the five months ended August 31, 2020**

ORIGIN

Financial Information Reporting

BACKGROUND

The Halifax Regional Water Commission (Halifax Water) Board is required to review periodic financial information throughout the year.

DISCUSSION

Attached are the operating results for the five (5) months ending August 31, 2020, with comparative figures for August 31, 2019.

Halifax Water is a fully regulated government business enterprise, falling under the jurisdiction of the NSUARB. The NSUARB requires that Halifax Water file financial statements and rate applications with the Board based on the NSUARB Accounting and Reporting Handbook for Water Utilities (NSUARB Handbook). The Accounting Standards Board (AcSB) requires rate regulated entities to conform to International Financial Reporting Standards (IFRS). Halifax Water maintains the 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 following discussion of the operating results reflect direct operating costs by department and allocations among water, wastewater and stormwater for common costs shared across all the services provided by Halifax Water.

Statement of Financial Position - Page 3 of attachment

Key indicators and balances from the Statement of Financial Position are provided in the following tables. An analysis of assets is as follows:

	August 31, 2020	August 31, 2019	From Prior Year $ Change	From Prior Year % Change
Assets				
Current				
Cash and cash equivalents	$ 64,098	$ 39,220	$ 24,878	63.4%
Receivables				
Customers charges and contractual	15,976	13,174	2,802	21.3%
Unbilled service revenues	18,410	18,792	(382)	(2.0%)
Halifax Regional Municipality	11,597	8,625	2,972	34.5%
Inventory	2,242	1,516	726	47.9%
Prepaids	930	362	568	156.9%
	113,253	81,689	31,564	38.6%
Capital work in progress	35,428	52,178	(16,750)	(32.1%)
Utility plant in service	1,310,373	1,257,411	52,962	4.2%
Total assets	1,459,054	1,391,278	67,776	4.9%
Regulatory deferral account	2,733	2,925	(192)	(6.6%)
Total assets and regulatory deferral account	**$ 1,461,787**	**$ 1,394,203**	**$ 67,584**	**4.8%**

- Cash and cash equivalents consist of cash on hand and balances held within financial institutions reduced by outstanding cheques. It has increased $24.9 million from the prior year largely due to the July debenture issue of $25.0 million.
- Customer charges and contractual receivables have increased $2.8 million from the prior year. The increase is largely a result of an additional billing cycle week on August 31, 2020 and a decrease in collections due to Covid-19.
- Halifax Regional Municipality receivables have increased $3.0 million mainly due to the issuance of the stormwater right of way invoice in full in the current year, the prior year was split between two invoices.
- Inventory has increased $0.7 million as there was a large purchase of meters in the current year of $0.5 million as the vendor indicated their prices were increasing.
- The increase in prepaids of $0.6 million is a result of moving amounts within balance sheet accounts.
- The $16.8 million decrease in capital work in progress relates to expenditures during the current year of $18.4 million offset by projects that were capitalized at March 31, 2020. The top five projects in capital work in progress at month end are detailed below:

Capital Work in Progress	Cumulative '000
Integrate Service Desk & IT Asset Management	$ 871
PS Control Panel/Electrical Replacement	1,066
Infrastructure & IT Ops Governance	1,109
Payroll Replacement Project	1,706
Fairview/Clayton Park/Bridgeview I/I Reduction	1,630
All other projects	29,046
Net capital work in progress	$ 35,428

- Utility plant in service assets total $1.31 billion, an increase of $53.0 million from the prior year. The increase is a result of additions at year end less depreciation expense and disposals.

The changes in liabilities are presented below:

	August 31, 2020	August 31, 2019	From Prior Year $ Change	From Prior Year % Change
Liabilities				
Current				
Payables and accruals				
Trade	$ 16,211	$ 12,569	$ 3,642	29.0%
Interest on long term debt	2,367	2,412	(45)	(1.9%)
Contractor and customer deposits	195	191	4	2.1%
Current portion of long term debt	21,184	24,709	(3,525)	(14.3%)
Unearned revenue	6,767	6,984	(217)	(3.1%)
	46,724	46,865	(141)	(0.3%)
Long term debt	218,549	178,510	40,039	22.4%
Employee benefit obligation	67,543	73,158	(5,615)	(7.7%)
Deferred contributions	46,705	46,168	537	1.2%
Total liabilities	379,521	344,701	34,820	10.1%

- Trade payables and accruals have increased $3.6 million as a result of costs incurred for work completed on several large capital projects.
- Current portion of long term debt has decreased primarily as a result of the final payment for debt relating to Lake Major being paid in January 2019 for $3.7 million.
- Long term debt increased $40.0 million. Since August 31, 2019, new debt of $25.0 million was issued in July 2020 and $30.0 million was issued in November 2019. Long term debt repayments, since August 2019, have been $18.2 million.
- The employee benefit obligation has decreased $5.6 million. The pension expense is accrued based on estimates obtained prior to changes in the market due to Covid-19. The March 31, 2020 year end adjustment resulted in a decrease to the obligation.

Debt servicing ratio is a function of total interest and principal payments (including accrued amounts) plus the amortization of debt issue costs divided by total operating revenue per service.

Debt Servicing Ratio by Service		
	2020/21	2019/20
Water	**12.78%**	11.23%
Wastewater	**25.13%**	23.74%
Stormwater	**23.71%**	20.01%
Combined	**19.95%**	18.35%

- The debt servicing ratio for each service has increased from the prior year as a result of the issuance of new debt.
- The debt servicing ratio of 19.95% is below the maximum 35% ratio allowed under the blanket guarantee agreement with HRM.

Statement of Earnings (UARB) - Page 4 of attachment

Key indicators and balances from the Statement of Earnings are provided in the following tables:

Summarized Statement of Earnings				
	2020/21 '000	2019/20 '000	$ Change	% Change
Operating revenues	**$ 57,667**	$ 58,522	$ (855)	(1.5%)
Operating expenditures	**44,913**	44,736	$ 177	0.4%
Earnings (loss) from operations before financial and other revenues and expenditures	**12,754**	13,786	$ (1,032)	(7.5%)
Financial and other revenues	**332**	695	$ (363)	(52.2%)
Financial and other expenditures	**13,881**	12,881	$ 1,000	7.8%
Earnings (loss) for the year	**$ (795)**	$ 1,600	$ (2,395)	(149.7%)

- Operating revenues of $57.7 million is $0.9 million lower than the prior year. Details to be discussed further in next section.
- Operating expenses of $44.9 million are $0.2 million higher than the prior year. Details to be discussed on page 5.
- Financial and other revenues of $0.3 million are $0.4 million lower than the prior year as a result of the reallocation of interest income to the Regional Development Charge account.
- Financial and other expenditures of $13.9 million are $1.0 million higher than the prior year as a result of higher debt servicing costs and an increase in the dividend/grant in lieu of taxes.

Operating revenues are presented below, broken down by type:

Operating Revenues				
	2020/21 '000	2019/20 '000	$ Change	% Change
Consumption revenue	**$ 35,839**	$ 36,464	$ (625)	(1.7%)
Base charge revenue	**14,018**	13,993	25	0.2%
Wastewater rebate	**(457)**	(418)	(39)	9.3%
Metered sales total	**49,400**	50,039	(639)	(1.3%)
Stormwater site generated charge	**2,605**	2,542	63	2.5%
Stormwater right of way	**1,598**	1,598	-	0.0%
Public fire protection	**2,948**	3,312	(364)	(11.0%)
Private fire protection	**368**	364	4	1.1%
Other operating revenue	**748**	667	81	12.1%
Operating revenue total	**$ 57,667**	$ 58,522	$ (855)	(1.5%)

Operating revenues have decreased $0.9 million as compared to the previous year. Key items of note include:

- Water and wastewater consumption are down 2.02% on a volumetric basis as compared to the previous year. This is mainly due to commercial customers who have had to close offices due to Covid 19. Consumption had been budgeted to remain consistent with the prior year.
- Other operating revenue categories are down $0.3 million. This is a result of a decrease in septage tipping revenues as some haulers have been taking their septage outside of HRM for disposal.

Operating expenditures are presented below:

Operating Expenditures				
	2020/21 '000	2019/20 '000	$ Change	% Change
Water supply and treatment	**$ 4,027**	**$ 3,893**	$ 134	3.44%
Water transmission and distribution	**4,785**	**4,795**	(10)	(0.21%)
Wastewater collection	**5,337**	**5,283**	54	1.02%
Stormwater collection	**1,992**	**1,872**	120	6.41%
Wastewater treatment	**7,959**	**8,276**	(317)	(3.83%)
Engineering and information services	**3,795**	**4,538**	(743)	0.00%
Regulatory services	**1,610**	**1,484**	126	8.49%
Customer services	**1,996**	**2,184**	(188)	(4.14%)
Administration services	**2,430**	**2,618**	(188)	(7.18%)
Depreciation and amortization	**10,982**	**9,793**	1,189	12.14%
	$ 44,913	**$ 44,736**	$ 177	0.40%

Key items to note:

- Operating expenditures of $44.9 million are $0.2 million higher than the prior year.
- This is largely a result of an increase in depreciation as a result of additions to utility plant in service at year end offset by reductions in the following categories:
    - Engineering and information services due to higher consulting costs in the prior year.
    - Wastewater treatment due to a decrease in salaries and benefits as well as expenses incurred for biosolids treatment and chemical costs.

Pages 5 through 7 of the attachment present the Statement of Earnings by service and the table below is a summary:

Operating Results by Service				
	2020/21	2019/20		
	'000	'000	$ Change	% Change
Water	**$ 1,022**	$ 2,243	$ (1,221)	(54.4%)
Wastewater	**(1,384)**	(474)	(910)	192.0%
Stormwater	**(433)**	(169)	(264)	156.2%
Earnings (loss)	**$ (795)**	$ 1,600	$ (2,395)	(149.7%)

Key items to note:

- Water services earnings of $1.0 million have decreased from the prior year by $1.2 million due to the following factors:
    - Decrease in consumption as a result of lower usage by commercial customers.
    - Decrease in late payment fees as a result Covid-19 relief measures.
    - Increase in operating expenditures mainly due to depreciation of new assets offset by a decrease in engineering and information services expenditures due to higher consulting costs in the prior year.
    - Increase in financial and other expenditures due to higher debt servicing costs and an increase in the dividend/grant in lieu of taxes.

- Wastewater services loss of $1.4 million has increased from the prior year by $0.9 million due to the following factors:
    - Decrease in consumption as a result of lower usage by commercial customers.
    - Decrease in late payment fees as a result Covid-19 relief measures.
    - Decrease in operating expenditures mainly due a decrease in engineering and information services due to lower consulting costs. Wastewater treatment services also decreased due to a decrease in salaries and benefits as well as expenses incurred for biosolids treatment and chemicals offset by an increase in depreciation of new assets.
    - Increase in financial and other expenditures due to higher debt servicing costs.

- Stormwater services loss of $0.4 million has increased from the prior year by $0.3 million due to the following factors:
    - Increase in operating expenditures mainly due depreciation of new assets.
    - Increase in financial and other expenditures due to higher debt servicing costs.

Pages 8 through 9 of the attachment present the Statement of Earnings by activity and the table below is a summary:

Results by Activity				
	2020/21	2019/20		
	'000	'000	$ Change	% Change
Regulated activities	**$ (1,187)**	$ 1,331	$ (2,518)	(189.2%)
Unregulated activities	**392**	269	123	45.7%
Earnings (loss)	**$ (795)**	$ 1,600	$ (2,395)	(149.7%)

Key items to note:

- Regulated activities loss of $1.2 million has increased from the prior year by $2.5 million due to the following factors:
    - Decrease in consumption as a result of lower usage by commercial customers.
    - Decrease in late payment fees as a result Covid-19 relief measures.
    - Increase in operating expenditures mainly due to depreciation of new assets offset by a decrease in engineering and information services expenditures due to higher consulting costs in the prior year.
    - Increase in financial and other expenditures due to higher debt servicing costs and an increase in the dividend/grant in lieu of taxes.
- Unregulated activities are consistent with the prior year.

Results under International Financial Reporting Standards as compared to NSUARB Handbook

As noted previously, the AcSB requires Halifax Water, as a rate regulated utility, to report financial results using IFRS. The NSUARB requires Halifax Water to report in accordance with the NSUARB Handbook. The table below reconciles the results between IFRS and the NSUARB Handbook:

Reconcile IFRS to NSUARB				
		2020/21		2019/20
		'000		'000
IFRS comprehensive earnings	**$**	**2,308**	$	5,896
Add non-cash pension expense		**4,251**		2,362
Subtract debt principle appropriation expense		**(8,379)**		(7,633)
Add depreciation expense on contributed assets		**7,826**		7,637
Subtract amorization of contributed capital		**(7,826)**		(7,637)
Add various depreciation adjustments		**1,025**		975
Subtract OCI gain		**-**		-
NSUARB earnings (loss)	**$**	**(795)**	$	1,600

Operating revenues are the same as operating revenues using IFRS and the NSUARB Handbook.

The main differences relate to reporting requirements surrounding the recognition of various expenditures as follows:

- Non-cash pension expense represents the accrued portion of contributions to the pension plan and is not considered an expense for NSUARB Handbook reporting purposes.
- The principle payments on long term debt are recognized as an expense for NSUARB Handbook reporting purposes but are not an expense in IFRS statements.
- Depreciation expense on contributed assets is not an expense for NSUARB Handbook purposes, however, it is offset by the removal of the amortization of contributed capital. IFRS requires contributed capital to be treated as a long term liability and amortized, resulting in higher long term liabilities and lower equity on the statement of financial position.
- The various depreciation adjustments include the add back of losses on the disposal of utility plant in service and IFRS requires componentization of assets and shorter useful lives resulting in higher depreciation than under NSUARB Handbook reporting.

Statement of Earnings and Comprehensive Earnings (IFRS) - Page 2 of attachment

Key indicators and balances from the Statement of Earnings and Comprehensive Earnings are provided in the table below:

Summarized Comprehensive Earnings				
	2020/21 '000	2019/20 '000	$ Change	% Change
Operating revenues	**$ 57,667**	$ 58,522	$ (855)	(1.5%)
Operating expenditures	**58,017**	55,774	2,243	4.0%
Earnings (loss) from operations before financial and other revenues and expenditures	**(350)**	2,748	(3,098)	(112.7%)
Financial and other revenues	**8,159**	8,332	(173)	(2.1%)
Financial and other expenditures	**5,501**	5,184	317	6.1%
Total comprehensive earnings for the year	**$ 2,308**	$ 5,896	$ (3,588)	(60.9%)

- Operating revenues of $57.7 million is $0.9 million lower than the prior year. Details have been discussed in preceding pages.
- Operating expenses of $58.0 million are $2.2 million higher than the prior year. This is a result of the following factors:
    - Increase in depreciation and amortization expense of $1.9 million as a result of additions to utility plant in service.
    - Increase in accrued pension expense as a result of the actuarial revaluation at year end, resulting in a higher estimate for this current fiscal year.
- Financial and other revenues and expenditures have not changed drastically from the prior year, the main increase being the dividend/grant in lieu of taxes increase of $0.2 million.

ATTACHMENTS

Unaudited Operating Results for the five (5) months ended August 31, 2020

Report prepared by: Alicia Scallion

Digitally signed by Alicia Scallion
Date: 2020.09.17 15:48:51 -03'00'

Alicia Scallion, CPA, CA, Manager, Accounting, (902)-490-4814

HALIFAX WATER
UNAUDITED STATEMENT OF FINANCIAL POSITION - IFRS
AUGUST 31, 2020 (in thousands)

ITEM # 4.1
ATTACHMENT

	August 31, 2020	August 31, 2019	March 31, 2020	From Prior Year $ Change	From Prior Year % Change
Assets					
Current					
Cash and cash equivalents	$ 64,098	$ 39,220	$ 49,953	$ 24,878	63.4%
Receivables					
Customers charges and contractual	15,976	13,174	18,405	2,802	21.3%
Unbilled service revenues	18,410	18,792	17,367	(382)	(2.0%)
Halifax Regional Municipality	11,597	8,625	3,668	2,972	34.5%
Inventory	2,242	1,516	1,736	726	47.9%
Prepaids	930	362	1,002	568	156.9%
	113,253	81,689	92,131	31,564	38.6%
Capital work in progress	35,428	52,178	18,104	(16,750)	(32.1%)
Utility plant in service	1,260,548	1,215,025	1,281,010	45,523	3.7%
Total assets	1,427,448	1,363,707	1,410,196	63,741	4.7%
Regulatory deferral account	2,733	2,925	2,812	(192)	(6.6%)
Total assets and regulatory deferral account	**$ 1,430,181**	**$ 1,366,632**	**$ 1,413,008**	**$ 63,549**	**4.7%**
Liabilities					
Current					
Payables and accruals					
Trade	$ 16,211	$ 12,569	$ 28,756	$ 3,642	29.0%
Interest on long term debt	2,367	2,412	2,139	(45)	(1.9%)
Contractor and customer deposits	195	191	197	4	2.1%
Current portion of deferred contributed capital	14,488	13,846	14,488	642	4.6%
Current portion of long term debt	21,184	24,709	21,184	(3,525)	(14.3%)
Unearned revenue	6,767	6,984	760	(217)	(3.1%)
	61,212	60,711	67,524	501	0.8%
Deferred contributed capital	875,872	864,575	879,460	11,297	1.3%
Long term debt	218,549	178,510	197,962	40,039	22.4%
Employee benefit obligation	67,543	73,158	63,365	(5,615)	(7.7%)
Total liabilities	1,223,176	1,176,954	1,208,311	46,222	3.9%
Equity					
Accumulated other comprehensive loss	(26,453)	(41,209)	(26,453)	14,756	(35.8%)
Accumulated surplus	233,458	230,887	231,150	2,571	1.1%
Total equity	207,005	189,678	204,697	17,327	9.1%
Total liabilities and equity	**$ 1,430,181**	**$ 1,366,632**	**$ 1,413,008**	**$ 63,549**	**4.7%**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS AND COMPREHENSIVE EARNINGS - ALL SERVICES - IFRS
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	ACTUAL YEAR TO DATE as % of BUDGET	From Prior Year $ Change	From Prior Year % Change
Operating revenues						
Water	$ 20,140	$ 20,313	$ 48,083	41.89%	$ (173)	(0.85%)
Wastewater	29,260	29,726	70,365	41.58%	(466)	(1.57%)
Stormwater	4,203	4,140	9,882	42.53%	63	1.52%
Public fire protection	2,948	2,948	7,074	41.67%	0	0.00%
Private fire protection	368	364	884	41.63%	4	1.10%
Other operating revenue	748	1,031	2,327	32.14%	(283)	(27.45%)
	57,667	**58,522**	**138,615**	**41.60%**	**(855)**	**(1.46%)**
Operating expenditures						
Water supply and treatment	4,027	3,893	10,590	38.03%	134	3.44%
Water transmission and distribution	4,785	4,795	12,311	38.87%	(10)	(0.21%)
Wastewater collection	5,337	5,283	13,499	39.54%	54	1.02%
Stormwater collection	1,992	1,872	5,821	34.22%	120	6.41%
Wastewater treatment	7,959	8,276	21,413	37.17%	(317)	(3.83%)
Engineering and information services	3,795	4,538	9,204	41.23%	(743)	(16.37%)
Regulatory services	1,610	1,484	4,359	36.94%	126	8.49%
Customer services	1,996	2,184	5,414	36.87%	(188)	(8.61%)
Administration services	2,430	2,618	8,071	30.11%	(188)	(7.18%)
Pension services	4,251	2,362	10,204	41.66%	1,889	79.97%
Depreciation and amortization	19,835	18,469	41,357	47.96%	1,366	7.40%
	58,017	**55,774**	**142,243**	**40.79%**	**2,243**	**4.02%**
Earnings from operations before financial and other revenues and expenditures	**(350)**	**2,748**	**(3,628)**	**9.65%**	**(3,098)**	**(112.74%)**
Financial and other revenues						
Interest	102	464	87	117.24%	(362)	(78.02%)
Amortization of contributed capital	7,826	7,637	13,927	56.19%	189	2.47%
Other	231	231	533	43.34%	0	0.00%
	8,159	**8,332**	**14,547**	**56.09%**	**(173)**	**(2.08%)**
Financial and other expenditures						
Interest on long term debt	3,040	3,031	8,823	34.46%	9	0.30%
Amortization of debt discount	86	74	228	37.72%	12	16.22%
Dividend/grant in lieu of taxes	2,356	2,116	6,114	38.53%	240	11.34%
Other	19	(37)	32	59.38%	56	(151.35%)
	5,501	**5,184**	**15,197**	**36.20%**	**317**	**6.11%**
Total comprehensive earnings for the year	**$ 2,308**	**$ 5,896**	**$ (4,278)**	**(53.95%)**	**$ (3,588)**	**(60.85%)**

HALIFAX WATER
UNAUDITED STATEMENT OF FINANCIAL POSITION - NSUARB
AUGUST 31, 2020 (in thousands)

	August 31, 2020	August 31, 2019	From Prior Year $ Change	From Prior Year % Change
Assets				
Current				
Cash and cash equivalents	$ 64,098	$ 39,220	$ 24,878	63.4%
Receivables				
Customers charges and contractual	15,976	13,174	2,802	21.3%
Unbilled service revenues	18,410	18,792	(382)	(2.0%)
Halifax Regional Municipality	11,597	8,625	2,972	34.5%
Inventory	2,242	1,516	726	47.9%
Prepaids	930	362	568	156.9%
	113,253	81,689	31,564	38.6%
Capital work in progress	35,428	52,178	(16,750)	(32.1%)
Utility plant in service	1,310,373	1,257,411	52,962	4.2%
Total assets	1,459,054	1,391,278	67,776	4.9%
Regulatory deferral account	2,733	2,925	(192)	(6.6%)
Total assets and regulatory deferral account	**$ 1,461,787**	**$ 1,394,203**	**$ 67,584**	**4.8%**
Liabilities				
Current				
Payables and accruals				
Trade	$ 16,211	$ 12,569	$ 3,642	29.0%
Interest on long term debt	2,367	2,412	(45)	(1.9%)
Contractor and customer deposits	195	191	4	2.1%
Current portion of long term debt	21,184	24,709	(3,525)	(14.3%)
Unearned revenue	6,767	6,984	(217)	(3.1%)
	46,724	46,865	(141)	(0.3%)
Long term debt	218,549	178,510	40,039	22.4%
Employee benefit obligation	67,543	73,158	(5,615)	(7.7%)
Deferred contributions	46,705	46,168	537	1.2%
Total liabilities	379,521	344,701	34,820	10.1%
Equity				
Accumulated capital surplus	1,095,665	1,063,432	32,233	3.0%
Accumulated operating surplus	5,720	15,661	(9,941)	(63.5%)
Accumulated other comprehensive loss	(26,453)	(41,209)	14,756	(35.8%)
Operating surplus used to fund capital	12,380	12,380	0	0.0%
Excess (deficiency) of revenues over expenditures	(5,046)	(762)	(4,284)	562.2%
Total equity	1,082,266	1,049,502	32,764	3.1%
Total liabilities and equity	**$ 1,461,787**	**$ 1,394,203**	**$ 67,584**	**4.8%**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - ALL SERVICES - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	Budget to Forecast $ Change	Budget to Forecast % Change
Operating revenues										
Water	$ 20,140	$ 20,313	$ 48,083	$ 47,768	41.89%	42.16%	$ (173)	(0.85%)	$ (315)	(0.66%)
Wastewater	29,260	29,726	70,365	69,834	41.58%	41.90%	(466)	(1.57%)	(531)	(0.75%)
Stormwater site generated service	2,605	2,542	6,047	6,047	43.08%	43.08%	63	2.48%	0	0.00%
Stormwater right of way service	1,598	1,598	3,835	3,835	41.67%	41.67%	0	0.00%	0	0.00%
Fire protection (public and private)	3,316	3,312	7,958	8,672	41.67%	38.24%	4	0.12%	714	8.97%
Other services and fees	568	653	1,416	1,354	40.11%	41.95%	(85)	(13.02%)	(62)	(4.38%)
Late payment and other connection fees	13	193	520	260	2.50%	5.00%	(180)	(93.26%)	(260)	(50.00%)
Miscellaneous	167	185	391	391	42.71%	42.71%	(18)	(9.73%)	0	0.00%
	57,667	**58,522**	**138,615**	**138,161**	**41.60%**	**41.74%**	**(855)**	**(1.46%)**	**(454)**	**(0.33%)**
Operating expenditures										
Water supply and treatment	4,027	3,893	10,590	10,571	38.03%	38.09%	134	3.44%	(19)	(0.18%)
Water transmission and distribution	4,785	4,795	12,311	12,233	38.87%	39.12%	(10)	(0.21%)	(78)	(0.63%)
Wastewater collection	5,337	5,283	13,499	13,139	39.54%	40.62%	54	1.02%	(360)	(2.67%)
Stormwater collection	1,992	1,872	5,821	5,534	34.22%	36.00%	120	6.41%	(287)	(4.93%)
Wastewater treatment	7,959	8,276	21,413	20,559	37.17%	38.71%	(317)	(3.83%)	(854)	(3.99%)
Engineering and information services	3,795	4,538	9,204	9,124	41.23%	41.59%	(743)	(16.37%)	(80)	(0.87%)
Regulatory services	1,610	1,484	4,359	4,165	36.94%	38.66%	126	8.49%	(194)	(4.45%)
Customer services	1,996	2,184	5,414	5,232	36.87%	38.15%	(188)	(8.61%)	(182)	(3.36%)
Administration services	2,430	2,618	8,071	7,806	30.11%	31.13%	(188)	(7.18%)	(265)	(3.28%)
Depreciation and amortization	10,982	9,793	27,430	28,742	40.04%	38.21%	1,189	12.14%	1,312	4.78%
	44,913	**44,736**	**118,112**	**117,105**	**38.03%**	**38.35%**	**177**	**0.40%**	**(1,007)**	**(0.85%)**
Earnings from operations before financial and other revenues and expenditures	**12,754**	**13,786**	**20,503**	**21,056**	**62.21%**	**60.57%**	**(1,032)**	**(7.49%)**	**553**	**2.70%**
Financial and other revenues										
Interest	102	464	87	226	117.24%	45.13%	(362)	(78.02%)	139	159.77%
Other	230	231	533	533	43.15%	43.15%	(1)	(0.43%)	0	0.00%
	332	**695**	**620**	**759**	**53.55%**	**43.74%**	**(363)**	**(52.23%)**	**139**	**22.42%**
Financial and other expenditures										
Interest on long term debt	3,040	3,031	8,823	7,209	34.46%	42.17%	9	0.30%	(1,614)	(18.29%)
Repayment on long term debt	8,379	7,633	21,880	20,894	38.30%	40.10%	746	9.77%	(986)	(4.51%)
Amortization of debt discount	86	74	228	228	37.72%	37.72%	12	16.22%	0	0.00%
Dividend/grant in lieu of taxes	2,356	2,116	6,114	5,953	38.53%	39.58%	240	11.34%	(161)	(2.63%)
Other	20	27	32	42	62.50%	47.62%	(7)	(25.93%)	10	31.25%
	13,881	**12,881**	**37,077**	**34,326**	**37.44%**	**40.44%**	**1,000**	**7.76%**	**(2,751)**	**(7.42%)**
Earnings (loss) for the year	**$ (795)**	**$ 1,600**	**$ (15,954)**	**$ (12,511)**	**4.98%**	**6.35%**	**$ (2,395)**	**(149.69%)**	**$ 3,443**	**(21.58%)**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - WATER - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	Budget to Forecast $ Change	Budget to Forecast % Change
Operating revenues										
Water	$ 20,140	$ 20,313	$ 48,083	$ 47,768	41.89%	42.16%	$ (173)	(0.85%)	$ (315)	(0.66%)
Public fire protection	2,948	2,948	7,074	7,598	41.67%	38.80%	0	0.00%	524	7.41%
Private fire protection	368	364	884	1,074	41.63%	34.26%	4	1.10%	190	21.49%
Bulk water stations	158	161	303	303	52.15%	52.15%	(3)	(1.86%)	0	0.00%
Late payment and other connection fees	15	103	238	119	6.30%	12.61%	(88)	(85.44%)	(119)	(50.00%)
Miscellaneous	68	78	163	163	41.72%	41.72%	(10)	(12.82%)	0	0.00%
	23,697	**23,967**	**56,745**	**57,025**	**41.76%**	**41.56%**	**(270)**	**(1.13%)**	**280**	**0.49%**
Operating expenditures										
Water supply and treatment	4,027	3,893	10,590	10,571	38.03%	38.09%	134	3.44%	(19)	(0.18%)
Water transmission and distribution	4,785	4,795	12,311	12,233	38.87%	39.12%	(10)	(0.21%)	(78)	(0.63%)
Engineering and information services	1,695	2,027	4,162	4,138	40.73%	40.96%	(332)	(16.38%)	(24)	(0.58%)
Regulatory services	428	324	1,195	1,167	35.82%	36.68%	104	32.10%	(28)	(2.34%)
Customer services	1,017	1,113	2,758	2,666	36.87%	38.15%	(96)	(8.63%)	(92)	(3.34%)
Administration services	1,195	1,346	4,112	3,977	29.06%	30.05%	(151)	(11.22%)	(135)	(3.28%)
Depreciation and amortization	4,361	3,801	10,993	11,219	39.67%	38.87%	560	14.73%	226	2.06%
	17,508	**17,299**	**46,121**	**45,971**	**37.96%**	**38.08%**	**209**	**1.21%**	**(150)**	**(0.33%)**
Earnings from operations before financial and other revenues and expenditures	**6,189**	**6,668**	**10,624**	**11,054**	**58.25%**	**55.99%**	**(479)**	**(7.18%)**	**430**	**4.05%**
Financial and other revenues										
Interest	60	209	39	134	153.85%	44.78%	(149)	(71.29%)	95	243.59%
Other	170	188	394	394	43.15%	43.15%	(18)	(9.57%)	0	0.00%
	230	**397**	**433**	**528**	**53.12%**	**43.56%**	**(167)**	**(42.07%)**	**95**	**21.94%**
Financial and other expenditures										
Interest on long term debt	832	738	3,127	2,071	26.61%	40.17%	94	12.74%	(1,056)	(33.77%)
Repayment on long term debt	2,166	1,928	6,465	5,612	33.50%	38.60%	238	12.34%	(853)	(13.19%)
Amortization of debt discount	30	25	84	84	35.71%	35.71%	5	20.00%	0	0.00%
Dividend/grant in lieu of taxes	2,356	2,116	5,654	5,497	41.67%	42.86%	240	11.34%	(157)	(2.78%)
Other	13	15	2	12	650.00%	108.33%	(2)	(13.33%)	10	500.00%
	5,397	**4,822**	**15,332**	**13,276**	**35.20%**	**40.65%**	**575**	**11.92%**	**(2,056)**	**(13.41%)**
Earnings (loss) for the year	**$ 1,022**	**$ 2,243**	**$ (4,275)**	**$ (1,694)**	**(23.91%)**	**(60.33%)**	**$ (1,221)**	**(54.44%)**	**$ 2,581**	**(60.37%)**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - WASTEWATER - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	Budget to Forecast $ Change	Budget to Forecast % Change
Operating revenues										
Wastewater	$ 29,260	$ 29,726	$ 70,365	$ 69,834	41.58%	41.90%	$ (466)	(1.57%)	$ (531)	(0.75%)
Leachate and other contract revenue	158	188	473	473	33.40%	33.40%	(30)	(15.96%)	0	0.00%
Septage tipping fees	248	264	505	505	49.11%	49.11%	(16)	(6.06%)	0	0.00%
Overstrength surcharge	0	13	30	20	0.00%	0.00%	(13)	(100.00%)	(10)	(33.33%)
Airplane effluent	4	27	105	53	3.81%	7.55%	(23)	(85.19%)	(52)	(49.52%)
Late payment and other connection fees	0	78	176	88	0.00%	0.00%	(78)	(100.00%)	(88)	(50.00%)
Miscellaneous	57	66	136	136	41.91%	41.91%	(9)	(13.64%)	0	0.00%
	29,727	**30,362**	**71,790**	**71,109**	**41.41%**	**41.80%**	**(635)**	**(2.09%)**	**(681)**	**(0.95%)**
Operating expenditures										
Wastewater collection	5,337	5,283	13,499	13,139	39.54%	40.62%	54	1.02%	(360)	(2.67%)
Wastewater treatment	7,959	8,276	21,413	20,559	37.17%	38.71%	(317)	(3.83%)	(854)	(3.99%)
Engineering and information services	1,895	2,160	3,769	3,717	50.28%	50.98%	(265)	(12.27%)	(52)	(1.38%)
Regulatory services	563	570	1,537	1,463	36.63%	38.48%	(7)	(1.23%)	(74)	(4.81%)
Customer services	870	921	2,352	2,266	36.99%	38.39%	(51)	(5.54%)	(86)	(3.66%)
Administration services	1,062	1,096	3,405	3,293	31.19%	32.25%	(34)	(3.10%)	(112)	(3.29%)
Depreciation and amortization	6,033	5,562	15,072	15,770	40.03%	38.26%	471	8.47%	698	4.63%
	23,719	**23,868**	**61,047**	**60,207**	**38.85%**	**39.40%**	**(149)**	**(0.62%)**	**(840)**	**(1.38%)**
Earnings from operations before financial and other revenues and expenditures	**6,008**	**6,494**	**10,743**	**10,902**	**55.92%**	**55.11%**	**(486)**	**(7.48%)**	**159**	**1.48%**
Financial and other revenues										
Interest	26	209	39	58	66.67%	44.83%	(183)	(87.56%)	19	48.72%
Other	60	43	139	139	43.17%	43.17%	17	39.53%	0	0.00%
	86	**252**	**178**	**197**	**48.31%**	**43.65%**	**(166)**	**(65.87%)**	**19**	**10.67%**
Financial and other expenditures										
Interest on long term debt	1,925	2,044	4,772	4,436	40.34%	43.39%	(119)	(5.82%)	(336)	(7.04%)
Repayment on long term debt	5,497	5,120	13,442	13,382	40.89%	41.08%	377	7.36%	(60)	(0.45%)
Amortization of debt discount	49	44	124	124	39.52%	39.52%	5	11.36%	0	0.00%
Dividend/grant in lieu of taxes	0	0	398	388	0.00%	0.00%	0	0.00%	(10)	(2.51%)
Other	7	12	30	30	23.33%	23.33%	(5)	(41.67%)	0	0.00%
	7,478	**7,220**	**18,766**	**18,360**	**39.85%**	**40.73%**	**258**	**3.57%**	**(406)**	**(2.16%)**
Loss for the year	**$ (1,384)**	**$ (474)**	**$ (7,845)**	**$ (7,261)**	**17.64%**	**19.06%**	**$ (910)**	**191.98%**	**$ 584**	**(7.44%)**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - STORMWATER - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	Budget to Forecast $ Change	Budget to Forecast % Change
Operating revenues										
Stormwater site generated service	$ 2,605	$ 2,542	$ 6,047	$ 6,047	43.08%	43.08%	$ 63	2.48%	$ -	0.00%
Stormwater right of way service	1,598	1,598	3,835	3,835	41.67%	41.67%	0	0.00%	0	0.00%
Late payment and other connection fees	(2)	12	106	53	(1.89%)	(3.77%)	(14)	(116.67%)	(53)	(50.00%)
Miscellaneous	42	41	92	92	45.65%	45.65%	1	2.44%	0	0.00%
	4,243	**4,193**	**10,080**	**10,027**	**42.09%**	**42.32%**	**50**	**1.19%**	**(53)**	**(0.53%)**
Operating expenditures										
Stormwater collection	1,992	1,872	5,821	5,534	34.22%	36.00%	120	6.41%	(287)	(4.93%)
Engineering and information services	205	351	1,273	1,269	16.10%	16.15%	(146)	(41.60%)	(4)	(0.31%)
Regulatory services	619	590	1,627	1,535	38.05%	40.33%	29	4.92%	(92)	(5.65%)
Customer services	109	150	304	300	35.86%	36.33%	(41)	(27.33%)	(4)	(1.32%)
Administration services	173	176	554	536	31.23%	32.28%	(3)	(1.70%)	(18)	(3.25%)
Depreciation and amortization	588	430	1,365	1,753	43.08%	33.54%	158	36.74%	388	28.42%
	3,686	**3,569**	**10,944**	**10,927**	**33.68%**	**33.73%**	**117**	**3.28%**	**(17)**	**(0.16%)**
Earnings from operations before financial and other revenues and expenditures	**557**	**624**	**(864)**	**(900)**	**(64.47%)**	**(61.89%)**	**(67)**	**(10.74%)**	**(36)**	**4.17%**
Financial and other revenues										
Interest	16	46	9	34	177.78%	47.06%	(30)	(65.22%)	25	277.78%
	16	**46**	**9**	**34**	**177.78%**	**47.06%**	**(30)**	**(65.22%)**	**25**	**277.78%**
Financial and other expenditures										
Interest on long term debt	283	249	924	702	30.63%	40.31%	34	13.65%	(222)	(24.03%)
Repayment on long term debt	716	585	1,973	1,900	36.29%	37.68%	131	22.39%	(73)	(3.70%)
Amortization of debt discount	7	5	20	20	35.00%	35.00%	2	40.00%	0	0.00%
Dividend/grant in lieu of taxes	0	0	62	68	0.00%	0.00%	0	0.00%	6	9.68%
	1,006	**839**	**2,979**	**2,690**	**33.77%**	**37.40%**	**167**	**19.90%**	**(289)**	**(9.70%)**
Loss for the year	**$ (433)**	**$ (169)**	**$ (3,834)**	**$ (3,556)**	**11.29%**	**12.18%**	**$ (264)**	**156.21%**	**$ 278**	**(7.25%)**

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - REGULATED AND UNREGULATED ACTIVITIES - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	From Prior Year $ Change	From Prior Year % Change
REGULATED ACTIVITIES										
Operating revenues										
Water	$ 20,140	$ 20,313	$ 48,083	$ 47,768	41.89%	42.16%	$ (173)	(0.85%)	$ (315)	(0.66%)
Wastewater	29,260	29,726	70,365	69,834	41.58%	41.90%	(466)	(1.57%)	(531)	(0.75%)
Stormwater	4,203	4,140	9,882	9,882	42.53%	42.53%	63	1.52%	0	0.00%
Public fire protection	2,948	2,948	7,074	7,598	41.67%	38.80%	0	0.00%	524	7.41%
Private fire protection	368	364	884	1,074	41.63%	34.26%	4	1.10%	190	21.49%
Other operating revenue	322	536	1,206	936	26.70%	34.40%	(214)	(39.93%)	(270)	(22.39%)
	57,241	**58,027**	**137,494**	**137,092**	**41.63%**	**41.75%**	**(786)**	**(1.35%)**	**(402)**	**(0.29%)**
Operating expenditures										
Water supply and treatment	4,016	3,887	10,562	10,543	38.02%	38.09%	129	3.32%	(19)	(0.18%)
Water transmission and distribution	4,785	4,795	12,311	12,233	38.87%	39.12%	(10)	(0.21%)	(78)	(0.63%)
Wastewater collection	5,328	5,274	13,388	13,028	39.80%	40.90%	54	1.02%	(360)	(2.69%)
Stormwater collection	1,992	1,872	5,821	5,534	34.22%	36.00%	120	6.41%	(287)	(4.93%)
Wastewater treatment	7,774	7,933	20,571	19,892	37.79%	39.08%	(159)	(2.00%)	(679)	(3.30%)
Engineering and information services	3,795	4,538	9,204	9,124	41.23%	41.59%	(743)	(16.37%)	(80)	(0.87%)
Regulatory services	1,610	1,484	4,359	4,165	36.94%	38.66%	126	8.49%	(194)	(4.45%)
Customer services	1,976	2,168	5,374	5,192	36.77%	38.06%	(192)	(8.86%)	(182)	(3.39%)
Administration services	2,421	2,602	8,043	7,778	30.10%	31.13%	(181)	(6.96%)	(265)	(3.29%)
Depreciation and amortization	10,975	9,786	27,412	28,724	40.04%	38.21%	1,189	12.15%	1,312	4.79%
	44,672	**44,339**	**117,045**	**116,213**	**38.17%**	**38.44%**	**333**	**0.75%**	**(832)**	**(0.71%)**
Earnings from operations before financial and other revenues and expenditures	**12,569**	**13,688**	**20,449**	**20,879**	**61.47%**	**60.20%**	**(1,119)**	**(8.18%)**	**430**	**2.10%**
Financial and other revenues										
Interest	102	464	87	226	117.24%	45.13%	(362)	(78.02%)	139	159.77%
Other	3	33	32	32	9.38%	9.38%	(30)	(90.91%)	0	0.00%
	105	**497**	**119**	**258**	**88.24%**	**40.70%**	**(392)**	**(78.87%)**	**139**	**116.81%**
Financial and other expenditures										
Interest on long term debt	3,040	3,031	8,823	7,209	34.46%	42.17%	9	0.30%	(1,614)	(18.29%)
Repayment on long term debt	8,379	7,633	21,880	20,894	38.30%	40.10%	746	9.77%	(986)	(4.51%)
Amortization of debt discount	86	74	228	228	37.72%	37.72%	12	16.22%	0	0.00%
Dividend/grant in lieu of taxes	2,356	2,116	6,114	5,953	38.53%	39.58%	240	11.34%	(161)	(2.63%)
	13,861	**12,854**	**37,045**	**34,284**	**37.42%**	**40.43%**	**1,007**	**7.83%**	**(2,761)**	**(7.45%)**
Earnings (loss) for the year - Regulated	**$ (1,187)**	**$ 1,331**	**$ (16,477)**	**$ (13,147)**	**7.20%**	**9.03%**	**$ (2,518)**	**(189.18%)**	**$ 3,330**	**(20.21%)**

Page 9 of 9

HALIFAX WATER
UNAUDITED STATEMENT OF EARNINGS - REGULATED AND UNREGULATED ACTIVITIES - NSUARB
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
ACTUAL YEAR TO DATE COMPLETE: 41.67%

	ACTUAL YEAR TO DATE THIS YEAR '000	ACTUAL YEAR TO DATE LAST YEAR '000	APR 1/20 MAR 31/21 BUDGET '000	APR 1/20 MAR 31/21 FORECAST '000	ACTUAL YEAR TO DATE as % of BUDGET	ACTUAL YEAR TO DATE as % of FORECAST	From Prior Year $ Change	From Prior Year % Change	From Prior Year $ Change	From Prior Year % Change
UNREGULATED ACTIVITIES										
Operating revenues										
Septage tipping fees	$ 248	$ 264	$ 505	$ 505	49.11%	49.11%	$ (16)	(6.06%)	$ -	0.00%
Leachate and other contract revenue	158	188	473	473	33.40%	33.40%	(30)	(15.96%)	0	0.00%
Airplane effluent	4	27	105	53	3.81%	7.55%	(23)	(85.19%)	(52)	(49.52%)
Miscellaneous	16	16	38	38	42.11%	42.11%	0	0.00%	0	0.00%
	426	**495**	**1,121**	**1,069**	**38.00%**	**39.85%**	**(69)**	**(13.94%)**	**(52)**	**(4.64%)**
Operating expenditures										
Water supply and treatment	11	6	28	28	39.29%	39.29%	5	83.33%	0	0.00%
Wastewater treatment	185	343	842	667	21.97%	27.74%	(158)	(46.06%)	(175)	(20.78%)
Wastewater collection	9	9	111	111	8.11%	8.11%	0	0.00%	0	0.00%
Sponsorships and donations	29	32	68	68	42.65%	42.65%	(3)	(9.38%)	0	0.00%
Depreciation and amortization	7	7	18	18	38.89%	38.89%	0	0.00%	0	0.00%
	241	**397**	**1,067**	**892**	**22.59%**	**27.02%**	**(156)**	**(39.29%)**	**(175)**	**(16.40%)**
Earnings from operations before financial and other revenues and expenditures	**185**	**98**	**54**	**177**	**342.59%**	**104.52%**	**87**	**88.78%**	**123**	**227.78%**
Financial and other revenues										
Other	227	198	501	501	45.31%	45.31%	29	14.65%	0	0.00%
	227	**198**	**501**	**501**	**45.31%**	**45.31%**	**29**	**14.65%**	**0**	**0.00%**
Financial and other expenditures										
Other	20	27	32	42	62.50%	47.62%	(7)	(25.93%)	10	31.25%
	20	27	32	42	**62.50%**	**47.62%**	(7)	**(25.93%)**	10	**31.25%**
Earnings for the year - Unregulated	**$ 392**	**$ 269**	**$ 523**	**$ 636**	**74.95%**	**61.64%**	**$ 123**	**45.72%**	**$ 113**	**21.61%**
Total earnings (loss) for the year (Regulated and Unregulated)	**$ (795)**	**$ 1,600**	**$ (15,954)**	**$ (12,511)**	**4.98%**	**6.35%**	**$ (2,395)**	**(149.69%)**	**$ 3,443**	**(21.58%)**

Halifax Water
Halifax Regional Water Commission

ITEM # 4.2
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Jamie Hannam
Digitally signed by Jamie Hannam
Date: 2020.09.18 08:57:40 -03'00'
Jamie Hannam, P.Eng.
Director, Engineering & Information Services

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.18 11:39:43 -03'00'
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 17, 2020

SUBJECT: **Capital Project Spending Summary – 2019/20**

ORIGIN

NSUARB requirement for reconciliation of Capital Budget expenditures.

RECOMMENDATION

It is recommended that the Halifax Water Board approve the individual project over expenditures as identified within Attachment 2, "*Capital Project Spending Summary, April 1, 2019 – March 31, 2020*" and direct staff to forward the subset of projects "over $250,000" to the NSUARB for information and approval.

BACKGROUND

The Halifax Water Board and the NSUARB approve annual Capital Budget plans for required capital projects and equipment. The specific funding for individual projects are further approved by the General Manager, Halifax Water Board, and the NSUARB as required based on total project cost, as per the Capital Funding Approval Policy.

DISCUSSION

During the 2019/20 fiscal year, a series of capital projects were completed, placed in service, and "closed out" from a fiscal work order perspective. These projects were funded from the 2019/20 Capital Budget and previous years' capital budgets for projects with multi-year delivery time-lines.

The first attached report entitled, "Capital Spending Summary, April 1, 2019 to March 31, 2020", identifies all capital projects funded from the Halifax Water Capital Budget that were completed prior to March 31, 2020. For water projects, the total expenditure for these completed projects totals $56,871,372 with an aggregate net surplus of $250,840 (0.4%) relative to the total funding approvals. For wastewater projects, the total expenditure for these completed projects totals $17,908,048, with an aggregate net surplus of $1,284,984 (7.2%). For stormwater projects, the total expenditures for these completed projects totals $16,845,241, with an aggregate net deficit of $840,045 (5.0%).

The second attached report entitled, "Capital Project Spending Summary – Projects Over $250,000, April 1, 2019 to March 31, 2020", identifies all capital projects funded from the Halifax Water Capital Budget that were completed prior to March 31, 2020 that required specific NSUARB approval based on the $250,000 threshold. For water projects, the total expenditure for these completed projects totals $52,160,905, with an aggregate net surplus of $18,091. For wastewater projects, the total expenditure for these completed projects totals $12,226,776, with an aggregate net surplus of $665,724. For stormwater projects, the total expenditure for these completed projects totals $13,979,755, with an aggregate net deficit of $1,103,053. The "Projects Over $250,000" will be forwarded to the NSUARB as part of our annual financial submission requirements.

Halifax Water's Capital Funding Policy requires all material funding increases for capital projects to be approved at the time of the funding need. This process promotes fiscal accountability and improves management of available funds. It should be noted that the threshold for NSUARB approval increased from $250,000 to $1,000,000 on October 30, 2019.

The Board will note that a variety of the projects from the 2019/20 Summary Report were completed with final expenditures greater than the original budget. Staff is seeking Halifax Water Board approval for these expenditures with funding available from the identified surpluses as per the BUDGET IMPLICATIONS section of this report.

BUDGET IMPLICATIONS

Water capital projects closed during the fiscal year 2019/20 represent an approved total budget of $57,122,212 and when compared to the actual total project costs of $56,871,372, results in a net surplus of $250,840. This aggregate net difference represents a surplus which

can be utilized for capital funding sources in future years, and for funding 2019/20 and previous years' projects not yet completed.

Wastewater capital projects closed during the fiscal year 2019/20 represent an approved total budget of $19,193,033, and when compared to the actual total project costs of $17,908,048 results in a net surplus of $1,284,984. This aggregate net difference represents a surplus which can be utilized for capital funding sources in future years, and for funding 2019/20 and previous years' capital projects not yet completed.

Stormwater capital projects closed during the fiscal year 2019/20 represent an approved total budget of $16,005,197, and when compared to the actual total project costs of $16,845,241 results in a net difference of $840,044. This aggregate net difference represents a deficit. The deficit will be funded from surpluses in previously closed projects or projects that have been deferred or cancelled.

ATTACHMENTS

Attachment 1 - Capital Spending Summary, April 1, 2019 – March 31, 2020

Attachment 2 - Capital Project Spending Summary
Projects over $250,000, April 1, 2019 - March 31, 2020

Attachment 3 - Capital Budget 2019-2020 – Cancelled or Deferred Project List

Financial Review By: Louis de Montbrun Digitally signed by Louis de Montbrun Date: 2020.09.18 11:04:33 -03'00'
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

Capital Project Spending Summary

April 1, 2019 - March 31, 2020

ITEM # 4.2
HRWC BOARD
September 24, 2020
ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Project Budget	Over Budget	(Under Budget)
300001809	JD KLINE WSP FILTRATION REPLACEMENT PROG	6-Jun-13	13-Apr-17	10,299,180.41	9,922,060.00	$377,120.41	$0.00
300001925	LAKE MAJOR DAM REPLACE CONCEPT DESIGN	27-Mar-13	4/10/2017 & 6/16/20	9,079,505.40	9,119,391.00	$0.00	($39,885.60)
300002355	LM WSP New Raw Water Low Lift Pump	28-Mar-17	n/a	200,627.95	200,000.00	$627.95	$0.00
300002503	AMI - ITRON CANADA SOFTWARE & SYSTEM	6-Oct-16	6-Oct-16	9,049,962.76	9,051,245.00	$0.00	($1,282.24)
300002506	AMI - HW INTERNAL PROJECT COSTS	6-Oct-16	6-Oct-16	985,115.48	989,015.00	$0.00	($3,899.52)
300002521	CORONATION AVE 2017 IP (W)	18-Jan-17	21-Mar-17	611,074.44	625,000.00	$0.00	($13,925.56)
300002570	WATER SAMPLING STN RELOCATION PROGRAM	29-Mar-17	n/a	24,550.49	30,000.00	$0.00	($5,449.51)
300002576	BLUE MOUNTAIN METER REPLACEMENT	28-Mar-17	n/a	12,520.27	20,000.00	$0.00	($7,479.73)
300002578	PRATT & WHITNEY PRV COMM UPGRADE	29-Mar-17	n/a	7,470.56	10,000.00	$0.00	($2,529.44)
300002584	EFFLUENT VALVE ACTUATOR REPLACEMENT PROG	28-Mar-17	n/a	300,882.59	350,000.00	$0.00	($49,117.41)
300002586	LIME FEED AND DELIVER SYSTEM-JDK	9-Jan-18	19-Jan-18	406,190.13	600,000.00	$0.00	($193,809.87)
300002599	TREATMENT TRAIN ISOLATION	28-Mar-17	n/a	82,137.83	90,000.00	$0.00	($7,862.17)
300002603	PLC UPGRADE	21-Nov-17	6-Dec-17	373,245.73	390,000.00	$0.00	($16,754.27)
300002632	GIS DATA PROGRAM 17/18 (W)	10-Jul-18	n/a	63,255.28	107,250.00	$0.00	($43,994.72)
300002640	HEATING/VENTILATION-450 COWIE 17/18 (W)	6-Jun-17	n/a	262,625.89	285,000.00	$0.00	($22,374.11)
300002664	BENNERY LAKE MCC UPGRADE STUDY	10-Nov-17	n/a	41,077.68	75,000.00	$0.00	($33,922.32)
300002680	INFRASTRUCTURE MASTER PLAN	22-Sep-17	23-Nov-17	1,881,023.05	1,871,045.00	$9,978.05	$0.00
300002682	LAKE MAJOR-REPL LIME FEED/DEL SYS-PUMPS	3-Jan-18	n/a	218,765.07	180,000.00	$38,765.07	$0.00
300002685	COBURG RD WM RENWAL 18/19	2-Jan-18	5-Apr-18	429,414.48	411,000.00	$18,414.48	$0.00
300002688	REXDALE/EASTVIEW WM RENEWAL 18/19	2-Jan-18	5-Apr-18	219,125.23	229,300.00	$0.00	($10,174.77)
300002691	QUINPOOL RD BRIDGE WM RENEWAL 18/19	2-Jan-18	4/5/2018 & Dec 21/18	675,300.23	707,000.00	$0.00	($31,699.77)
300002720	BLUEWATER PRV CHAMBER CSE RETROFIT	22-Feb-18	n/a	57,774.50	43,000.00	$14,774.50	$0.00
300002724	GOLF VIEW DR PRV CHAMBER REHABILITATION	22-Feb-18	n/a	14,333.42	18,000.00	$0.00	($3,666.58)
300002725	EAGLEWOOD PS UPGRADES	22-Feb-18	n/a	1,426.63	9,000.00	$0.00	($7,573.37)
300002731	STEEL RESERVOIR INSP & ASSESS STUDY	20-Feb-18	n/a	190,686.92	205,000.00	$0.00	($14,313.08)
300002746	JDK FILTER GALLERY ELECT WIRING UPGRADES	26-Feb-18	n/a	30,350.51	55,000.00	$0.00	($24,649.49)
300002748	JDK REPL WESTINGHOUSE ELECTRICAL PANELS	26-Feb-18	n/a	5,005.73	10,000.00	$0.00	($4,994.27)
300002750	LM REPLACE CONTACTORS IN THE MCC	26-Feb-18	n/a	91,863.43	68,000.00	$23,863.43	$0.00
300002754	LM IMPROVED ACCESS TO PIPE GALLERY	28-Feb-18	n/a	69,389.38	73,000.00	$0.00	($3,610.62)
300002757	LM YARD DRAINAGE & PARKING AREA IMPROV	22-Feb-18	n/a	143,466.32	160,000.00	$0.00	($16,533.68)
300002758	LM EAST LAKE DAM REPAIRS	28-Feb-18	n/a	53,113.68	65,000.00	$0.00	($11,886.32)
300002766	MILLER LK SM SYS SUPPLY TREATMENT IMPROV	10-Sep-18	12-Apr-19	786,137.96	730,000.00	$56,137.96	$0.00
300002772	SECURITY UPGRADE PROGRAM 18/19 (W)	10-Dec-18	n/a	53,008.98	50,000.00	$3,008.98	$0.00
300002773	MISC EQUIPMENT REPLACEMENT 18/19 (W)	1-Apr-18	25-Apr-18	41,466.59	40,000.00	$1,466.59	$0.00
300002779	ASSET REGISTRY BUILD (W) 18/19	5-Apr-18	13-Jul-18	317,603.62	335,000.00	$0.00	($17,396.38)
300002785	INTRANET (W) 18/19	16-Apr-19	n/a	149,033.81	115,000.00	$34,033.81	$0.00
300002787	EDW FOUNDATION	15-May-18	n/a	137,599.10	120,000.00	$17,599.10	$0.00
300002790	DATA GOVERNANCE (W) 18/19	28-May-19	n/a	23,761.73	75,000.00	$0.00	($51,238.27)
300002791	GIS / CITYWORKS UPGRADE (W) 18/19	12-Jul-18	n/a	176,251.35	166,666.50	$9,584.85	$0.00
300002794	CAD DRAWING DATABASE (W) 18/19	17-Jul-18	n/a	12,393.87	15,000.00	$0.00	($2,606.13)
300002795	INTEGRATED RESOURCE PLAN UPDATE (W)	12-Sep-18	12-Sep-18	612,000.00	612,000.00	$0.00	$0.00
300002796	HYDRAULIC WATER MODEL BUILD	15-Oct-18	n/a	29,776.54	50,000.00	$0.00	($20,223.46)
300002804	AMI-SAP INTEGRATION ADDITIONAL FUNDING	8-Jan-18	n/a	236,893.26	220,000.00	$16,893.26	$0.00

Capital Project Spending Summary

April 1, 2019 - March 31, 2020

ITEM # 4.2
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ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Project Budget	Over Budget	(Under Budget)
300002811	NORTH END FEEDER REPL-DESIGN/ROUTE SEL	5-Apr-18	n/a	109,838.54	115,000.00	$0.00	($5,161.46)
300002821	LUCASVILLE TRANS MAIN TWINNING - DESIGN	22-May-18	15-Apr-19	6,397,730.26	6,435,000.00	$0.00	($37,269.74)
300002832	SILVER SANDS-SAFETY/ELECTRICAL MODIF	7-Sep-18	n/a	4,536.44	5,000.00	$0.00	($463.56)
300002843	DND FACILITIES - SCADA INSTALLATIONS	4-Oct-18	n/a	51,989.38	50,000.00	$1,989.38	$0.00
300002880	ROBIE CONTROL-INT ZONE METER REPL	31-Dec-18	n/a	10,108.86	20,000.00	$0.00	($9,891.14)
300002881	WIFI INFRASTRUCTURE - JD KLINE WTP	10-Jan-19	n/a	37,280.55	50,000.00	$0.00	($12,719.45)
300002900	CHADWICK ST W/M IP 19/20	1-Feb-19	3-May-19	607,485.28	624,500.00	$0.00	($17,014.72)
300002902	QUARRY RD IP 19/20	1-Feb-19	3-May-19	452,153.00	464,000.00	$0.00	($11,847.00)
300002903	PERCY ST / ANDREW ST IP 19/20	1-Feb-19	3-May-19	508,518.78	525,000.00	$0.00	($16,481.22)
300002904	MISC EQUIPMENT REPLACEMENTS (W) 19/20	1-Apr-19	3-May-19	61,340.89	50,000.00	$11,340.89	$0.00
300002905	MATADOR CRT IP 19/20	1-Feb-19	3-May-19	212,814.57	217,500.00	$0.00	($4,685.43)
300002917	VALVE RENEWALS 19/20	1-Apr-19	3-May-19	170,928.08	125,000.00	$45,928.08	$0.00
300002918	HYDRANT RENEWALS 19/20	1-Apr-19	3-May-19	55,610.31	75,000.00	$0.00	($19,389.69)
300002919	SERVICE LINE RENEWALS 19/20	1-Apr-19	3-May-19	87,156.48	100,000.00	$0.00	($12,843.52)
300002920	LEAD SERVICE LINE RENEWALS 19/20	1-Apr-19	3-May-19	917,917.25	1,000,000.00	$0.00	($82,082.75)
300002921	AUTOMATED FLUSHING PROGRAM 19/20	13-Mar-19	3-May-19	7,568.91	20,000.00	$0.00	($12,431.09)
300002930	CAUSTIC TANK LINER REPLACEMENTS-JDK	13-Mar-19	n/a	39,132.80	16,000.00	$23,132.80	$0.00
300002932	ROOF REPLACEMENT - JDK	9-Apr-19	1-May-19	246,558.05	270,000.00	$0.00	($23,441.95)
300002934	NEW ALUM CHEMICAL SUPPLY - JDK	13-Mar-19	n/a	4,085.42	15,000.00	$0.00	($10,914.58)
300002935	PURCHASE NEW MICROSCOPE - JDK	13-Mar-19	n/a	15,146.02	17,000.00	$0.00	($1,853.98)
300002949	PURCHASE SPECTROPHOTOMETER - LM	13-Mar-19	n/a	13,140.32	15,000.00	$0.00	($1,859.68)
300002950	PURCHASE TURBIDIMETER - LM	13-Mar-19	n/a	24,914.70	18,000.00	$6,914.70	$0.00
300002959	CHLORINE ANALYZER REPL PROGRAM 19/20	13-Mar-19	n/a	14,771.46	16,000.00	$0.00	($1,228.54)
300002961	PURCH/INSTALL TOC ANALYZERS-FACILITIES	13-Mar-19	n/a	103,049.72	90,000.00	$13,049.72	$0.00
300002962	PURCH/INSTALL WATER QUALITY SONDE EQUIP	19-Mar-19	n/a	43,203.16	70,000.00	$0.00	($26,796.84)
300002966	SECURITY UPGRADE PROGRAM (W) 19/20	31-Jul-19	n/a	62,956.46	50,000.00	$12,956.46	$0.00
300002967	DESKTOP COMPUTER REPL PROG 19/20	1-Apr-19	n/a	148,517.54	145,000.00	$3,517.54	$0.00
300002968	IT NETWORK UPGRADES (SERVER HOSTING)	10-Feb-20	n/a	122,081.19	120,000.00	$2,081.19	$0.00
300002974	NEPTUNE OPS DEPOT-NEW GARAGE LIGHTING	22-Mar-19	n/a	5,200.71	6,000.00	$0.00	($799.29)
300002993	BUILDING CAPITAL IMPROVEMENTS	12-Sep-19	n/a	82,894.48	98,500.00	$0.00	($15,605.52)
300002994	GPS UNITS - REPLACEMENT	21-Feb-19	n/a	66,341.39	67,000.00	$0.00	($658.61)
300002996	METERS 19/20	1-Apr-19	3-May-19	486,515.74	460,000.00	$26,515.74	$0.00
300002998	FLEET UPGRADE PROGRAM (W) 19/20	1-Apr-19	3-May-19	557,351.43	560,000.00	$0.00	($2,648.57)
300003041	SCOTIA DR/DUFFUS DR WM INTERCONNECTION	14-Jun-19	n/a	34,380.66	26,000.00	$8,380.66	$0.00
300003081	GOTTIGEN ST WM IP 2019/2020	28-Aug-19	n/a	20,417.46	50,000.00	$0.00	($29,582.54)
300003082	GPS UNITS (4) SERVICE CONNECTION INSP	19-Sep-19	n/a	108,741.52	108,000.00	$741.52	$0.00
300003083	FALL RIVER WATERMAIN EXT - ADDT'L COSTS	24-Sep-19	n/a	63,829.29	60,000.00	$3,829.29	$0.00
300003087	LM WSP-PURCHASE NEW MICROSCOPE	1-Nov-19	n/a	15,489.05	20,000.00	$0.00	($4,510.95)
300003111	JDK PURCH 369 MOTOR PROTECTION RELAY SYS	31-Oct-19	n/a	13,118.73	14,000.00	$0.00	($881.27)
300003113	PURCHASE HYDRAULIC POWER SAWS	28-Oct-19	n/a	38,866.35	40,000.00	$0.00	($1,133.65)
300003236	SACKVILLE RIVER CROSSING WM REPLACEMENT	20-Feb-20	n/a	58,898.76	65,000.00	$0.00	($6,101.24)
300003249	AMI METERS 19/20	29-Apr-19	6-Oct-16	6,332,403.86	6,332,740.00	$0.00	($336.14)

Capital Project Spending Summary

April 1, 2019 - March 31, 2020

ITEM # 4.2
HRWC BOARD
September 24, 2020
ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Project Budget	Over Budget	(Under Budget)
	Water Capital Difference			$56,871,372.13	$57,122,212.50	$782,646.41	($1,033,486.78)
						($250,840.37)	
600000121	ELLENVALE RUN - LEGAL SERVICES	10-Sep-08	21-Apr-09	122,037.39	130,000.00	$0.00	($7,962.61)
600001045	SERVICE LATERAL PROJECT PH 2 DATA ENTRY	15-Apr-14	27-Jun-14	189,936.28	300,000.00	$0.00	($110,063.72)
600001115	LATERAL CARD DATABASE CONVERSION (WW)	15-Apr-16	n/a	19,062.56	125,000.00	$0.00	($105,937.44)
600001510	SHIPYARD RD PS UPGRADE	26-Jun-17	21-Jun-18	1,186,901.20	1,190,000.00	$0.00	($3,098.80)
600001531	MCC VENTILATION UPGRADES-DARTMOUTH	31-Mar-17	n/a	70,886.20	100,000.00	$0.00	($29,113.80)
600001540	CORONATION WW IP 17/18	6-Mar-17	21-Mar-17	235,994.64	244,000.00	$0.00	($8,005.36)
600001664	MCWWTF SECONDARY CLARIFIER REHAB	8-Feb-18	n/a	16,271.42	20,000.00	$0.00	($3,728.58)
600001666	ROACH'S POND PS-CATWALK/STAIRS REPLAC	8-Feb-18	n/a	143,814.51	150,000.00	$0.00	($6,185.49)
600001686	BAYERS RD PH 1 - SEWER SEPARATION	16-Jul-18	n/a	80,212.63	75,000.00	$5,212.63	$0.00
600001691	WW PS COMPONENT REPL PROGRAM-EAST	23-Jul-18	n/a	201,317.63	200,000.00	$1,317.63	$0.00
600001700	HALIFAX CSO SURVEYING	21-Mar-18	n/a	25,406.11	45,000.00	$0.00	($19,593.89)
600001709	MCWWTF COMPACTOR/CONVEYOR REPLACEMENT	28-Feb-18	25-May-18	367,023.30	383,000.00	$0.00	($15,976.70)
600001724	SECURITY UPGRADE PROGRAM 18/19 WW	10-Jan-19	3-May-19	203,276.94	200,000.00	$3,276.94	$0.00
600001741	CHADWICK ST WW IP 1819	5-Feb-18	3-May-19	484,136.86	598,000.00	$0.00	($113,863.14)
600001743	ATHORPE DR WW IP 1819	5-Feb-18	3-May-19	117,931.81	116,000.00	$1,931.81	$0.00
600001746	COBURG RD WW IP 1819	5-Feb-18	3-May-19	506,032.71	517,500.00	$0.00	($11,467.29)
600001755	QUINPOOL RD BRIDGE WW IP 1819	5-Feb-18	4/5/2018 & Dec 21/18	1,360,011.31	1,423,000.00	$0.00	($62,988.69)
600001801	ROACH'S POND PS - TRASH RACK	2-Oct-18	n/a	18,451.75	30,000.00	$0.00	($11,548.25)
600001803	EMERGENCY PS PUMP REPL-JAMIESON ST WW PS	1-Oct-18	n/a	113,102.54	79,600.00	$33,502.54	$0.00
600001810	MAIN ST SEWER MAIN REPL - DESIGN	13-Nov-18	n/a	40,635.40	50,000.00	$0.00	($9,364.60)
600001811	BEAVER CRES PS FORCEMAIN REPL - DESIGN	13-Nov-18	23-May-19	463,388.76	464,000.00	$0.00	($611.24)
600001846	SACKVILLE TRUNK SEWER-CONDITION ASSESS	26-Jun-19	n/a	149,323.16	155,000.00	$0.00	($5,676.84)
600001849	MANHOLE RENEWAL WW EAST 19/20	1-Apr-19	3-May-19	0.00	7,000.00	$0.00	($7,000.00)
600001850	MANHOLE RENEWAL WW WEST 19/20	1-Apr-19	3-May-19	0.00	7,000.00	$0.00	($7,000.00)
600001851	MANHOLE RENEWAL WW CENTRAL 19/20	1-Apr-19	3-May-19	8,678.53	6,000.00	$2,678.53	$0.00
600001852	LATERAL REP (non-tree root) WW E 19/20	1-Apr-19	3-May-19	473,575.09	685,000.00	$0.00	($211,424.91)
600001853	LATERAL REP (non-tree root) WW W 19/20	1-Apr-19	3-May-19	879,376.42	500,000.00	$379,376.42	$0.00
600001854	LATERAL REP (non-tree root) WW C 19/20	1-Apr-19	3-May-19	166,857.56	500,000.00	$0.00	($333,142.44)
600001855	LATERAL REPL (tree roots) WW EAST 19/20	1-Apr-19	3-May-19	126,290.36	176,000.00	$0.00	($49,709.64)
600001856	LATERAL REPL (tree roots) WW WEST 19/20	1-Apr-19	3-May-19	276,919.42	175,000.00	$101,919.42	$0.00
600001857	LATERAL REPL (tree roots) WW CTRL 19/20	1-Apr-19	3-May-19	5,010.49	175,000.00	$0.00	($169,989.51)
600001858	WET WEATHER MANAGEMENT PROGRAM 19/20	27-May-19	3-May-19	158,600.31	250,000.00	$0.00	($91,399.69)
600001862	CALDWELL RD ARV/MH REPLACEMENT	27-Feb-19	n/a	58,332.39	59,000.00	$0.00	($667.61)
600001867	PUMP STN ELIMINATION-CONCEPT DESIGN	13-Mar-19	n/a	25,147.86	25,000.00	$147.86	$0.00
600001872	PLANT OPTIMIZATION AUDIT PROGRAM	22-May-19	n/a	178,040.44	180,000.00	$0.00	($1,959.56)
600001875	OUTFALL INSPECTION PROG/WARNING SIGNAGE	18-Apr-19	n/a	20,959.57	21,000.00	$0.00	($40.43)
600001876	HHSP-OCS WET SCRUBBER CHLORINE ANALYZERS	28-May-19	n/a	113,588.32	115,000.00	$0.00	($1,411.68)
600001877	HWWTF-DUCT WORK REPLACEMENT 19/20	2-Apr-19	n/a	56,703.97	57,000.00	$0.00	($296.03)
600001878	HWWTF-NEW RAW WATER PUMPS 19/20	6-Jun-19	n/a	97,922.60	150,000.00	$0.00	($52,077.40)
600001879	HWWTF-AHU COIL REPLACEMENT 19/20	14-Jun-19	n/a	38,669.73	39,000.00	$0.00	($330.27)

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600001880	HWWTF-GRIT PUMP REPLACEMENT	8-Apr-19	n/a	38,811.25	37,500.00	$1,311.25	$0.00
600001881	DWWTF-DUCT WORK REPLACEMENT 19/20	2-Apr-19	n/a	76,070.99	84,500.00	$0.00	($8,429.01)
600001884	HCWWTF-DUCT WORK REPLACEMENT PROG 19/20	2-Apr-19	n/a	45,852.02	45,500.00	$352.02	$0.00
600001885	MC-SOUTH SECONDARY SPLITTER BOX REHAB	16-May-19	n/a	20,317.94	20,500.00	$0.00	($182.06)
600001887	MC-DIGESTER MIXERS-FAILURE ANALYSIS	16-May-19	n/a	21,936.72	20,000.00	$1,936.72	$0.00
600001892	EPWWTF-REBUILD CENTRIFUGE 802	8-Apr-19	n/a	48,114.80	50,000.00	$0.00	($1,885.20)
600001894	EPWWTF-PRIMARY SLUDGE PUMPS-SPARE PARTS	8-Apr-19	n/a	3,986.13	4,000.00	$0.00	($13.87)
600001895	EPWWTF-ATLAS COPCO BLOWERS-SPARE VFD	8-Apr-19	n/a	16,012.84	20,000.00	$0.00	($3,987.16)
600001900	SPRINGFIELD LK & NORTH PRESTON-DRIVEWAY	22-May-19	n/a	11,216.10	11,500.00	$0.00	($283.90)
600001906	SIR PROGRAM FLOW METERS/REL EQUIP 19/20	1-Apr-19	n/a	19,980.88	25,000.00	$0.00	($5,019.12)
600001907	WW MISC EQUIPMENT 19/20	1-Apr-19	3-May-19	53,194.83	92,000.00	$0.00	($38,805.17)
600001920	FLEET UPGRADE PROGRAM WW 19/20	1-Apr-19	3-May-19	1,485,223.10	1,485,000.00	$223.10	$0.00
600001923	QUARRY RD WW IP 19/20	1-Feb-19	3-May-19	432,524.58	434,000.00	$0.00	($1,475.42)
600001924	PERCY ST WW IP 19/20	1-Feb-19	3-May-19	373,188.68	373,000.00	$188.68	$0.00
600001925	MURRAY PLACE WW IP 19/20	1-Feb-19	3-May-19	43,505.36	53,000.00	$0.00	($9,494.64)
600001926	MATADOR CRT WW IP 19/20	1-Feb-19	3-May-19	17,979.25	19,000.00	$0.00	($1,020.75)
600001927	MULBERRY CRT/RAYMOND DR WW IP 19/20	1-Feb-19	3-May-19	11,302.77	34,000.00	$0.00	($22,697.23)
600001931	NSPI METER RELOCATIONS	3-Apr-19	n/a	14,686.95	36,000.00	$0.00	($21,313.05)
600001932	WW SEWER CONDITION ASSESSMENT	21-May-19	n/a	38,637.08	37,000.00	$1,637.08	$0.00
600001933	CORPORATE FLOW MONITORING PROGRAM	22-May-19	20-Jun-19	1,639,586.15	1,640,000.00	$0.00	($413.85)
600001935	MCINTOSH RUN EST-EXISTING WW MAIN REPL	12-Feb-19	n/a	71,623.62	71,000.00	$623.62	$0.00
600001936	DWWTF NEW TRUCK BAY DOOR	27-Mar-19	n/a	33,241.35	39,000.00	$0.00	($5,758.65)
600001953	EMERG PS PUMP REPL-DUFFUS ST	8-Apr-19	n/a	109,643.95	110,000.00	$0.00	($356.05)
600001960	EMERG PUMP REPL-ROACH'S POND WW PS	23-May-19	n/a	61,578.09	64,000.00	$0.00	($2,421.91)
600001963	DWWTF GRIT PUMP REPLACEMENT	14-Jun-19	n/a	37,555.53	37,500.00	$55.53	$0.00
600001964	COMM WWTFs PERSONAL MONITORING DEVICES	18-Jun-19	n/a	10,425.45	10,500.00	$0.00	($74.55)
600001965	DWWTF NEW AIR COMPRESSORS	20-Jun-19	n/a	52,910.44	55,000.00	$0.00	($2,089.56)
600001982	EPWWTF - PLANT OPTIMIZATION (PART 2)	24-Jul-19	n/a	48,847.09	30,000.00	$18,847.09	$0.00
600001983	CHISHOLM AVE SEWER REPL	23-Jul-19	12-Jul-19	1,477,897.05	1,530,000.00	$0.00	($52,102.95)
600001984	AT BPF - LIVE BOTTOM BIN AUGER REPL	24-Jul-19	n/a	103,999.51	130,000.00	$0.00	($26,000.49)
600001987	HWWTF SOUTH ACCESS GATE REHAB	30-Jul-19	n/a	16,128.00	16,000.00	$128.00	$0.00
600002001	MILL COVE WWTF-NORTH SIDE RAS PUMP REPL	22-Aug-19	n/a	20,275.80	20,500.00	$0.00	($224.20)
600002003	HWWTF / DWWTF DENSADEG FLOW METERS	25-Sep-19	n/a	5,796.68	5,800.00	$0.00	($3.32)
600002004	DWWTF-NEW CSA APPROVED RAW WATER PUMPS	11-Sep-19	n/a	167,918.71	225,000.00	$0.00	($57,081.29)
600002006	HHSP VARIOUS EMERGENCY EQUIP REPLACMENTS	13-Sep-19	n/a	458,912.63	458,000.00	$912.63	$0.00
600002008	MC WWTF - NEW YARD TRACTOR	23-Sep-19	n/a	9,062.45	10,000.00	$0.00	($937.55)
600002009	ATWWTF-ELECTRICAL-NEW LOAD REACTORS	8-Oct-19	n/a	25,454.28	28,500.00	$0.00	($3,045.72)
600002010	HWWTF-ADMIN HVAC-CONDENSING UNIT REPL	7-Oct-19	n/a	28,073.79	35,000.00	$0.00	($6,926.21)
600002011	DWWTF-OLD RAW WATER PUMP REBUILD/STORAGE	22-Oct-19	n/a	35,347.30	30,000.00	$5,347.30	$0.00
600002020	HC/H WWTF-REPL CARBON SCRUBBER CANISTERS	15-Nov-19	n/a	347,600.94	375,000.00	$0.00	($27,399.06)
600002024	WW MODEL LICENSE UPGRADE	2-Dec-19	n/a	55,424.23	53,000.00	$2,424.23	$0.00
600002029	EMERGENCY PS PUMP REPL - DUFFUS ST	28-Nov-19	n/a	113,799.27	126,000.00	$0.00	($12,200.73)

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600002030	HWWTF - HEAT EXCHANGER REFURBISHMENT	6-Jan-20	n/a	39,247.62	39,000.00	$247.62	$0.00
600002031	HCWWTF - NEW AIR COMPRESSORS	14-Jan-20	n/a	51,058.43	60,000.00	$0.00	($8,941.57)
600002032	HHSPs SPARE DENSADEG BOXES	1-Oct-20	n/a	120,041.10	130,000.00	$0.00	($9,958.90)
600002033	AERO WWTF - UNLOADING AREA CATCH BASIN	7-Jan-20	n/a	43,066.72	33,500.00	$9,566.72	$0.00
600002035	SPRINGFIELD LAKE WWTF SCREEN/RAKE REFURB	28-Jan-20	n/a	51,378.98	51,000.00	$378.98	$0.00
600002148	ASSET REGISTRY BUILD (WW) 18/19	5-Apr-18	13-Jul-18	254,082.90	268,000.00	$0.00	($13,917.10)
600002149	HERRING COVE WTTF - BOILER REHAB	14-Feb-20	n/a	25,856.53	26,000.00	$0.00	($143.47)
600002150	HALIFAX WWTF DENSADEG DIVERSION VANES	5-Mar-20	n/a	72,203.82	85,000.00	$0.00	($12,796.18)
600002152	EMERG PS PUMP REPL-DUFFUS ST SEAL REPL	13-Mar-20	n/a	28,835.08	32,000.00	$0.00	($3,164.92)
600002153	HC NEW TURBIDITY METERS	31-Jan-20	n/a	12,255.61	13,000.00	$0.00	($744.39)
600002154	INTRANET - WW	16-Apr-19	n/a	104,786.92	92,000.00	$12,786.92	$0.00
600002155	EDW FOUNDATIONS - WW	15-May-18	n/a	102,700.77	96,000.00	$6,700.77	$0.00
600002156	DESKTOP COMPUTER REPL PROGRAM 1920 WW	1-Apr-19	n/a	118,814.03	116,000.00	$2,814.03	$0.00
600002157	EP WWTF-UV SYSTEM REPL PARTS	3-Mar-20	n/a	32,862.67	21,000.00	$11,862.67	$0.00
600002158	IT NETWORK UPGRADES (SERVER HOSTING) WW	10-Feb-20	n/a	97,664.96	96,000.00	$1,664.96	$0.00
600002159	DATA GOVERNANCE - WW	28-May-19	n/a	17,919.28	60,000.00	$0.00	($42,080.72)
600002160	GIS/CITYWORKS UPGRADE PROJECT - WW	12-Jul-18	n/a	141,001.07	133,333.20	$7,667.87	$0.00
600002161	WIFI INFRASTRUCTURE IN PLANTS-WW	10-Jan-19	n/a	29,824.43	40,000.00	$0.00	($10,175.57)
600002166	DRAWING DATABASE PLANNING - WW	17-Jul-18	n/a	9,915.09	12,000.00	$0.00	($2,084.91)
600002167	GIS DATA PROG 1819 Cdn Schem Retire - WW	10-Jul-18	n/a	51,060.22	85,800.00	$0.00	($34,739.78)
	Wastewater Capital Difference			**$17,908,048.98**	**$19,193,033.20**	**$617,041.57**	**($1,902,025.79)**
							($1,284,984.22)
700000140	TOBIN DRIVE CULVERT UPGRADE PROJECT	27-Jul-08	2-Sep-08	126,436.51	131,000.00	$0.00	($4,563.49)
700000185	LUCASVILLE RD CULVERT REPLACEMENT PROG.	28-May-09	11-Jun-09	156,220.46	202,115.00	$0.00	($45,894.54)
700000285	IDLEWYLDE RD. STORM SEWER STABILIZATION	30-Jun-11	n/a	1,816.60	29,000.00	$0.00	($27,183.40)
700000694	LATERAL CARD DATABASE CONVERSION (SW)	15-Apr-16	n/a	19,062.55	125,000.00	$0.00	($105,937.45)
700000881	HAMMONDS PLAINS RD FLOOD INVESTIGATION	7-Jan-16	n/a	22,812.43	50,000.00	$0.00	($27,187.57)
700001036	CULVERT REPLACEMENT JOHN CROSS DR	31-Mar-17	15-Apr-19	288,074.89	309,000.00	$0.00	($20,925.11)
700001043	CULVERT REPLACEMENT WAVERLEY RD	28-Feb-17	n/a	5,479.80	115,000.00	$0.00	($109,520.20)
700001048	ELLENVALE RUN RETAINING WALL SYS-REPLMT	24-Apr-17	17-May-17	6,027,316.64	6,049,000.00	$0.00	($21,683.36)
700001054	CORONATION (HILLCREST TO ALEX) IP 17/18	6-Mar-17	n/a	68,097.36	53,000.00	$15,097.36	$0.00
700001081	PERCY ST STORM SEWER REPLACEMENT	16-May-17	n/a	183,758.17	203,000.00	$0.00	($19,241.83)
700001158	CULVERT REPL-RITCEY CRES near civic 1	8-Aug-18	n/a	90,045.02	44,597.00	$45,448.02	$0.00
700001159	STORMWATER BILLING SUPPORT 18/19	26-Mar-19	n/a	117,466.51	200,000.00	$0.00	($82,533.49)
700001161	DRIVEWAY CULVERT DATA COLLECTION PROG	21-Mar-18	n/a	84,475.32	80,000.00	$4,475.32	$0.00
700001172	CHADWICK ST SW IP 1819	1-Apr-08	3-May-19	4,080.99	28,000.00	$0.00	($23,919.01)
700001173	ALLISON DR SW IP 1819	1-Apr-08	3-May-19	45,391.08	49,000.00	$0.00	($3,608.92)
700001179	COBURG RD SW IP 1819	1-Apr-08	3-May-19	84,498.91	47,000.00	$37,498.91	$0.00
700001187	ALLAN / MONASTARY ST SW IP 1819	1-Apr-08	3-May-19	165,991.81	164,000.00	$1,991.81	$0.00
700001197	CELTIC DR STORM SEWER RENEWAL	11-May-18	3-May-19	337,832.21	342,000.00	$0.00	($4,167.79)
700001223	CULVERT REPLACEMENT PROG 19/20 DESIGN	17-Oct-18	n/a	79,103.06	60,000.00	$19,103.06	$0.00

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700001280	STORM SEWER CONDITION ASSESSMENT	22-May-19	n/a	57,144.89	60,000.00	$0.00	($2,855.11)
700001282	SARAH CRES/TANTLING CRES SW IP 19/20	1-Feb-19	3-May-19	17,712.99	18,000.00	$0.00	($287.01)
700001283	QUARRY RD SW IP 19/20	1-Feb-19	3-May-19	59,993.16	57,000.00	$2,993.16	$0.00
700001284	FLEET UPGRADE PROGRAM SW 19/20	1-Apr-19	3-May-19	328,362.04	330,000.00	$0.00	($1,637.96)
700001285	MURRAY PLACE SW IP 19/20	1-Feb-19	3-May-19	8,004.89	7,000.00	$1,004.89	$0.00
700001288	MATADOR CRT SW IP 19/20	1-Feb-19	3-May-19	80,924.59	100,000.00	$0.00	($19,075.41)
700001289	MULBERRY/RAYMOND/SYCAMORE SW IP 19/20	1-Feb-19	3-May-19	287,824.11	118,000.00	$169,824.11	$0.00
700001290	700001290 DARTMOOR CRES SW IP 19/20	1-Feb-19	2/28/2019 & 10/3/19	381,394.56	380,000.00	$1,394.56	$0.00
700001293	WANDA LANE DEEP STORM SEWER	16-May-19	5-Jun-19	4,934,568.31	4,558,702.00	$375,866.31	$0.00
700001300	CATCHBASIN RENEWALS SW EAST	1-Apr-19	3-May-19	0.00	20,000.00	$0.00	($20,000.00)
700001301	CATCHBASIN RENEWALS SW WEST	1-Apr-19	3-May-19	60,728.74	20,000.00	$40,728.74	$0.00
700001302	CATCHBASIN RENEWALS SW CENTRAL	1-Apr-19	3-May-19	0.00	20,000.00	$0.00	($20,000.00)
700001303	LATERAL REPLACEMENTS SW EAST	1-Apr-19	3-May-19	0.00	4,000.00	$0.00	($4,000.00)
700001304	LATERAL REPLACEMENTS SW WEST	1-Apr-19	3-May-19	0.00	4,000.00	$0.00	($4,000.00)
700001305	LATERAL REPLACEMENTS SW CENTRAL	1-Apr-19	3-May-19	4,869.43	4,000.00	$869.43	$0.00
700001309	DRIVEWAY CULVERT REPL EAST 19/20	15-Apr-19	3-May-19	261,710.30	272,000.00	$0.00	($10,289.70)
700001310	DRIVEWAY CULVERT REPL WEST 19/20	15-Apr-19	3-May-19	721,094.22	270,000.00	$451,094.22	$0.00
700001311	DRIVEWAY CULVERT REPL CENTRAL 19/20	15-Apr-19	3-May-19	606,177.65	270,000.00	$336,177.65	$0.00
700001317	HWY #2, near civic 1380	24-Jun-19	n/a	183,396.24	200,000.00	$0.00	($16,603.76)
700001321	LUCASVILLE RD, near civic 1155	15-Mar-19	15-Apr-19	114,977.41	115,000.00	$0.00	($22.59)
700001322	700001322 LUCASVILLE RD, at Third St	15-Mar-19	15-Apr-19	62,475.94	62,000.00	$475.94	$0.00
700001323	LUCASVILLE RD, near civic 758	15-Mar-19	15-Apr-19	58,253.27	58,000.00	$253.27	$0.00
700001324	LUCASVILLE RD, near civic 749 & 743	15-Mar-19	15-Apr-19	64,495.34	64,000.00	$495.34	$0.00
700001360	JOE ST SW IP 1920	14-Jun-19	3-May-19	104,217.88	109,000.00	$0.00	($4,782.12)
700001361	PERNIX CRT SW IP 1920	14-Jun-19	3-May-19	6,294.40	17,000.00	$0.00	($10,705.60)
700001362	ATHORPE ST SW IP 1920	14-Jun-19	3-May-19	7,812.71	10,000.00	$0.00	($2,187.29)
700001363	FORESTGLEN DR SW IP 1920	20-Mar-17	3-May-19	52,178.03	44,000.00	$8,178.03	$0.00
700001364	LAKEVIEW DR SW IP 1920	14-Jun-19	3-May-19	26,869.86	31,000.00	$0.00	($4,130.14)
700001365	GOTTIGEN ST SW IP 1920	14-Jun-19	3-May-19	39,179.35	43,000.00	$0.00	($3,820.65)
700001366	EASTVIEW DR SW IP 1920	14-Jun-19	3-May-19	12,350.65	15,000.00	$0.00	($2,649.35)
700001367	QUAKER CRES SW IP 1920	14-Jun-19	3-May-19	15,079.10	23,000.00	$0.00	($7,920.90)
700001382	KINGSWOOD DR, near civic 10-CULVERT REPL	29-Jul-19	n/a	22,572.06	34,000.00	$0.00	($11,427.94)
700001383	KINGSWOOD DR, near civic 60-CULVERT REPL	29-Jul-19	n/a	37,820.07	35,000.00	$2,820.07	$0.00
700001384	SETH AARON DR, near civic 40-CULVERT REP	29-Jul-19	n/a	20,013.95	37,000.00	$0.00	($16,986.05)
700001421	PAULA DRIVE CULVERT REPLACEMENT	15-Jan-20	n/a	66,842.90	65,000.00	$1,842.90	$0.00
700001466	ASSET REGISTRY BUILD (SW) 18/19	5-Apr-18	13-Jul-18	63,520.72	67,000.00	$0.00	($3,479.28)
700001469	INTRANET - SW	31-Mar-20	n/a	26,196.74	23,000.00	$3,196.74	$0.00
700001470	EDW FOUNDATIONS - SW	31-Mar-20	n/a	25,675.20	24,000.00	$1,675.20	$0.00
700001471	DESKTOP COMPUTER REPL PROGRAM 1920 SW	31-Mar-20	n/a	29,703.51	29,000.00	$703.51	$0.00
700001472	NETWORK UPGRADES (SERVER HOSTING) SW	31-Mar-20	n/a	24,416.24	24,000.00	$416.24	$0.00
700001473	DATA GOVERNANCE - SW	28-May-19	n/a	4,479.82	15,000.00	$0.00	($10,520.18)
700001474	GIS/CITYWORKS UPGRADE PROJECT - SW	12-Jul-18	n/a	35,250.28	33,333.30	$1,916.98	$0.00

Capital Project Spending Summary

April 1, 2019 - March 31, 2020

ITEM # 4.2
HRWC BOARD
September 24, 2020
ATTACHMENT 1

Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Project Budget	Over Budget	(Under Budget)
700001475	WIFI INFRASTRUCTURE IN PLANTS-SW	10-Jan-19	n/a	7,456.11	10,000.00	$0.00	($2,543.89)
700001476	DRAWING DATABASE PLANNING - SW	17-Jul-18	n/a	2,478.78	3,000.00	$0.00	($521.22)
700001477	GIS DATA PROG 1819 Cdn Schem Retire - SW	10-Jul-18	n/a	12,765.06	21,450.00	$0.00	($8,684.94)
Stormwater Capital Difference				**$16,845,241.82**	**$16,005,197.30**	**$1,525,541.77**	**($685,497.25)**
						$840,044.52	

Net Difference	**$91,624,662.93**	**$92,320,443.00**	**$2,925,229.75**	**($3,621,009.82)**
			($695,780.07)	

Capital Project Spending Summary
April 1, 2019 - March 31, 2020

Tab #	Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Staged Approvals		Total Project Budget	Project Adjustments	Revised Total Project Budget	Over Budget	(Under Budget)
						Design	Tender / Construction					
1	300001809	JD KLINE WSP FILTRATION REPLACEMENT PROG	6-Jun-13	13-Apr-17	10,299,180.41	$0	$0	$8,547,060.00	$1,375,000	$9,922,060	$377,120	$0
2	300001925	LAKE MAJOR DAM REPLACE CONCEPT DESIGN	27-Mar-13	4/10/2017 & 6/16/20	9,079,505.40	$600,000	$8,519,391	$9,119,391.00	$0	$9,119,391	$0	($39,886)
3	300002503	AMI - ITRON CANADA SOFTWARE & SYSTEM	6-Oct-16	6-Oct-16	9,049,962.76	$0	$0	$9,156,245.00	($105,000)	$9,051,245	$0	($1,282)
4	300002506	AMI - HW INTERNAL PROJECT COSTS	6-Oct-16	6-Oct-16	985,115.48	$0	$0	$999,015.00	($10,000)	$989,015	$0	($3,900)
5	300002521	CORONATION AVE 2017 IP (W)	18-Jan-17	21-Mar-17	611,074.44	$0	$0	$650,000.00	($25,000)	$625,000	$0	($13,926)
6	300002586	LIME FEED AND DELIVER SYSTEM-JDK	9-Jan-18	19-Jan-18	406,190.13	$0	$0	$300,000.00	$300,000	$600,000	$0	($193,810)
7	300002603	PLC UPGRADE	21-Nov-17	6-Dec-17	373,245.73	$0	$0	$360,000.00	$30,000	$390,000	$0	($16,754)
8	300002680	INFRASTRUCTURE MASTER PLAN	22-Sep-17	23-Nov-17	1,881,023.05	$0	$0	$1,854,610.00	$16,435	$1,871,045	$9,978	$0
9	300002685	COBURG RD WM RENWAL 18/19	2-Jan-18	5-Apr-18	429,414.48	$0	$0	$220,000.00	$191,000	$411,000	$18,414	$0
10	300002691	QUINPOOL RD BRIDGE WM RENEWAL 18/19	2-Jan-18	4/5/2018 & Dec 21/18	675,300.23	$0	$0	$197,000.00	$510,000	$707,000	$0	($31,700)
11	300002766	MILLER LK SM SYS SUPPLY TREATMENT IMPROV	10-Sep-18	12-Apr-19	786,137.96	$0	$0	$235,000.00	$495,000	$730,000	$56,138	$0
12	300002779	ASSET REGISTRY BUILD (W) 18/19	5-Apr-18	13-Jul-18	317,603.62	$0	$0	$335,000.00	$0	$335,000	$0	($17,396)
13	300002795	INTEGRATED RESOURCE PLAN UPDATE (W)	12-Sep-18	12-Sep-18	612,000.00	$0	$0	$500,000.00	$112,000	$612,000	$0	$0
14	300002821	LUCASVILLE TRANS MAIN TWINNING - DESIGN	22-May-18	15-Apr-19	6,397,730.26	$0	$0	$6,435,000.00	$0	$6,435,000	$0	($37,270)
15	300002900	CHADWICK ST W/M IP 19/20	1-Feb-19	3-May-19	607,485.28	$0	$0	$465,500.00	$159,000	$624,500	$0	($17,015)
16	300002902	QUARRY RD IP 19/20	1-Feb-19	3-May-19	452,153.00	$0	$0	$271,000.00	$193,000	$464,000	$0	($11,847)
17	300002903	PERCY ST / ANDREW ST IP 19/20	1-Feb-19	3-May-19	508,518.78	$0	$0	$460,000.00	$65,000	$525,000	$0	($16,481)
18	300002920	LEAD SERVICE LINE RENEWALS 19/20	1-Apr-19	3-May-19	917,917.25	$0	$0	$1,000,000.00	$0	$1,000,000	$0	($82,083)
19	300002932	ROOF REPLACEMENT - JDK	9-Apr-19	1-May-19	246,558.05	$0	$0	$270,000.00	$0	$270,000	$0	($23,442)
20	300002967	DESKTOP COMPUTER REPL PROG 19/20	1-Apr-19	3-May-19	148,517.54	$0	$0	$145,000.00	$0	$145,000	$3,518	$0
21	300002996	METERS 19/20	1-Apr-19	3-May-19	486,515.74	$0	$0	$460,000.00	$0	$460,000	$26,516	$0
22	300002998	FLEET UPGRADE PROGRAM (W) 19/20	1-Apr-19	3-May-19	557,351.43	$0	$0	$385,000.00	$175,000	$560,000	$0	($2,649)
23	300003249	AMI METERS 19/20	29-Apr-19	6-Oct-16	6,332,403.86	$0	$0	$6,332,740.00	$0	$6,332,740	$0	($336)
		Water Capital Difference			**$52,160,905**	**$600,000**	**$8,519,391**	**$48,697,561**	**$3,481,435**	**$42,422,256**	**$491,684**	**($509,775)**
											($18,091)	
24	600001045	SERVICE LATERAL PROJECT PH 2 DATA ENTRY	15-Apr-14	27-Jun-14	189,936.28	$0	$0	$300,000.00		$300,000	$0	($110,064)
25	600001510	SHIPYARD RD PS UPGRADE	26-Jun-17	21-Jun-18	1,186,901.20	$0	$0	$1,090,000.00	$100,000	$1,190,000	$0	($3,099)
26	600001709	MCWWTF COMPACTOR/CONVEYOR REPLACEMENT	28-Feb-18	25-May-18	367,023.30	$0	$0	$300,000.00	$83,000	$383,000	$0	($15,977)
27	600001741	CHADWICK ST WW IP 1819	5-Feb-18	3-May-19	484,136.86	$0	$0	$497,000.00	$101,000	$598,000	$0	($113,863)
28	600001746	COBURG RD WW IP 1819	5-Feb-18	3-May-19	506,032.71	$0	$0	$517,500.00	$0	$517,500	$0	($11,467)
29	600001755	QUINPOOL RD BRIDGE WW IP 1819	5-Feb-18	4/5/2018 & Dec 21/18	1,360,011.31	$0	$0	$1,006,000.00	$417,000	$1,423,000	$0	($62,989)
30	600001811	BEAVER CRES PS FORCEMAIN REPL - DESIGN	13-Nov-18	23-May-19	463,388.76	$0	$0	$510,000.00	($46,000)	$464,000	$0	($611)
31	600001852	LATERAL REP (non-tree root) WW E 19/20	1-Apr-19	3-May-19	473,575.09	$0	$0	$685,000.00	$0	$685,000	$0	($211,425)
32	600001853	LATERAL REP (non-tree root) WW W 19/20	1-Apr-19	3-May-19	879,376.42	$0	$0	$500,000.00	$0	$500,000	$379,376	$0
33	600001854	LATERAL REP (non-tree root) WW C 19/20	1-Apr-19	3-May-19	166,857.56	$0	$0	$500,000.00	$0	$500,000	$0	($333,142)

Capital Project Spending Summary
April 1, 2019 - March 31, 2020

	Tab #	Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Staged Approvals		Total Project Budget	Project Adjustments	Revised Total Project Budget	Over Budget	(Under Budget)
							Design	Tender / Construction					
*	34	600001855	LATERAL REPL (tree roots) WW EAST 19/20	1-Apr-19	3-May-19	126,290.36	$0	$0	$176,000.00	$0	$176,000	$0	($49,710)
	35	600001856	LATERAL REPL (tree roots) WW WEST 19/20	1-Apr-19	3-May-19	276,919.42	$0	$0	$175,000.00	$0	$175,000	$101,919	$0
*	36	600001857	LATERAL REPL (tree roots) WW CTRL 19/20	1-Apr-19	3-May-19	5,010.49	$0	$0	$175,000.00	$0	$175,000	$0	($169,990)
*	37	600001920	FLEET UPGRADE PROGRAM WW 19/20	1-Apr-19	3-May-19	1,485,223.10	$0	$0	$1,180,000.00	$305,000	$1,485,000	$223	$0
	38	600001923	QUARRY RD WW IP 19/20	1-Feb-19	3-May-19	432,524.58	$0	$0	$474,000.00	($40,000)	$434,000	$0	($1,475)
*	39	600001924	PERCY ST WW IP 19/20	1-Feb-19	3-May-19	373,188.68	$0	$0	$373,000.00	$0	$373,000	$189	$0
*	40	600001933	CORPORATE FLOW MONITORING PROGRAM	22-May-19	20-Jun-19	1,639,586.15	$0	$0	$1,760,000.00	($120,000)	$1,640,000	$0	($414)
*	41	600001983	CHISHOLM AVE SEWER REPL	23-Jul-19	12-Jul-19	1,477,897.05	$0	$0	$1,530,000.00	$0	$1,530,000	$0	($52,103)
	42	600002148	ASSET REGISTRY BUILD (WW) 18/19	5-Apr-18	13-Jul-18	254,082.90	$0	$0	$268,000.00	$0	$268,000	$0	($13,917)
	43	600002156	DESKTOP COMPUTER REPL PROGRAM 1920 WW	1-Apr-19	3-May-19	118,814.03	$0	$0	$116,000.00	$0	$116,000	$2,814	$0
						$12,266,776	**$0**	**$0**	**$12,132,500**	**$800,000**	**$12,932,500**	**$484,522**	**($1,150,245)**
			Wastewater Capital Difference									***($665,724)***	

Capital Project Spending Summary
April 1, 2019 - March 31, 2020

	Tab #	Project Number	Project Name	HRWC Board Approval Date	NSUARB Approval Date	Amount Spent: Cumulative to March 31/20	Staged Approvals		Total Project Budget	Project Adjustments	Revised Total Project Budget	Over Budget	(Under Budget)
							Design	Tender / Construction					
*	44	700001036	CULVERT REPLACEMENT JOHN CROSS DR	31-Mar-17	15-Apr-19	288,074.89	$0	$0	$200,000.00	$109,000	$309,000	$0	($20,925)
*	45	700001048	ELLENVALE RUN RETAINING WALL SYS-REPLMT	24-Apr-17	17-May-17	6,027,316.64	$0	$0	$5,911,000.00	$138,000	$6,049,000	$0	($21,683)
*	46	700001197	CELTIC DR STORM SEWER RENEWAL	11-May-18	3-May-19	337,832.21	$0	$0	$397,000.00	($55,000)	$342,000	$0	($4,168)
*	47	700001284	FLEET UPGRADE PROGRAM SW 19/20	1-Apr-19	3-May-19	328,362.04	$0	$0	$295,000.00	$35,000	$330,000	$0	($1,638)
	48	700001290	DARTMOOR CRES SW IP 19/20	1-Feb-19	2/28/2019 & 10/3/19	381,394.56	$0	$0	$246,000.00	$134,000	$380,000	$1,395	$0
*	49	700001293	WANDA LANE DEEP STORM SEWER	16-May-19	5-Jun-19	4,934,568.31	$0	$0	$4,345,658.00	$213,044	$4,558,702	$375,866	$0
	50	700001309	DRIVEWAY CULVERT REPL EAST 19/20	15-Apr-19	3-May-19	261,710.30	$0	$0	$272,000.00	$0	$272,000	$0	($10,290)
*	51	700001310	DRIVEWAY CULVERT REPL WEST 19/20	15-Apr-19	3-May-19	721,094.22	$0	$0	$270,000.00	$0	$270,000	$451,094	$0
*	52	700001311	DRIVEWAY CULVERT REPL CENTRAL 19/20	15-Apr-19	3-May-19	606,177.65	$0	$0	$270,000.00	$0	$270,000	$336,178	$0
*	53	700001466	ASSET REGISTRY BUILD (SW) 18/19	5-Apr-18	13-Jul-18	63,520.72	$0	$0	$67,000.00	$0	$67,000	$0	($3,479)
*	54	700001471	DESKTOP COMPUTER REPL PROGRAM 1920 SW	31-Mar-20	3-May-19	29,703.51	$0	$0	$29,000.00	$0	$29,000	$704	$0
			Stormwater Capital Difference			**$13,979,755**	**$0**	**$0**	**$12,302,658**	**$574,044**	**$12,876,702**	**$1,165,236**	**($62,183)**
												$1,103,053	
			Net Difference			**$78,407,436**	**$600,000**	**$8,519,391**	**$73,132,719**	**$4,855,479**	**$68,231,458**	**$2,141,442**	**($1,722,204)**
												$419,238	

CANCELLED OR DEFERRED PROJECTS

CAPITAL BUDGET 2019 / 2020

ITEM # 4.2
HRWC BOARD
September 24, 2020
ATTACHMENT 3

Project Name	Budget	Reasons for Cancellation / Deferral
Water		
Treatment Facilities		
JD Kline WSP - Raw Water Pump Station Window/Wall/Building Envelope	$50,000	Intergrated into future WSP Upgrade project
JD Kline WSP - Back-up Power Supply Study	$50,000	Intergrated into future WSP Upgrade project
Non-Urban Core WSP		
Silverands WSP - Electrical/Architectural Upgrades	$150,000	Cancelled as not cost effectvie for facility - additional maintenance added
Energy		
Bennery Lake WSP - MCC Replacement	$150,000	Cancelled as not cost effective for facility - additional maintenance added
Wastewater		
Wastewater - Structures		
CSO Upgrade Program	$125,000	Deferred to future years
Wastewater - Mill Cove		
South Secondary Clarifier - Recoat/Replace Mechanisms	$100,000	To be integrated into future Mill Cove Upgrade and Expansion project
Civil Asset Condition Assessment	$75,000	To be integrated into future Mill Cove Upgrade and Expansion project
Lining of Supernatent Pump Station Croc	$50,000	Cancelled as completed with operational repair
Replace Oxygen Analyzer	$75,000	Managed with maintenacne actiivity
Wastewater - Eastern Passage		
Process Upgrade Program	$50,000	No prioity project identifed within fiscal year
Yard Lighting	$35,000	Cancelled as completed with operational repair
Wastewater - Community		
Easement for Sewer and Access	$15,000	No identified easement needs during fiscal year
Wastewater - Biosolids Facility		
Building Cleaning and Corrosion Protection	$250,000	Not required subsequent to facility study completion
Wastewater - Energy		
PS HVAC Retro-Commissioning Program	$100,000	Reprioritized and finds allocated to other WWTF projects
PS Performance Testing	$250,000	Reprioritized and finds allocated to other WWTF projects
Stormwater		
Pipes		
Everette Street at Bonnie Brae Drive Drainage Upgrade	$75,000	Deferred based on Operations prioirties
Drainage Remediation Program Surveys/Studies	$25,000	None required in fiscal year
National Disaster Mitigation Program	$50,000	Deferred as HRM has not yet porceeded with this program
Culverts/Ditches		
Stormwater Survey and Studies Program	$60,000	Completed requireed work within specifc porject work orders
Millers Road, near civic 1	$38,000	Cancelled and managed with maintenance activiites
GRAND TOTAL	**$1,773,000**	

Halifax Water
Halifax Regional Water Commission

ITEM # 5
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Jamie Hannam — Digitally signed by Jamie Hannam Date: 2020.09.18 13:59:00 -03'00'

Jamie Hannam, MBA, P.Eng., Director, Engineering and IS

Louis de Montbrun — Digitally signed by Louis de Montbrun Date: 2020.09.18 14:47:46 -03'00'

Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

APPROVED: Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.18 14:03:13 -03'00'

Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 18, 2020

SUBJECT: **ERP Solution Project**

ORIGIN

IT Strategy Five Year Roadmap 2020/21 - 2023/24

RECOMMENDATION

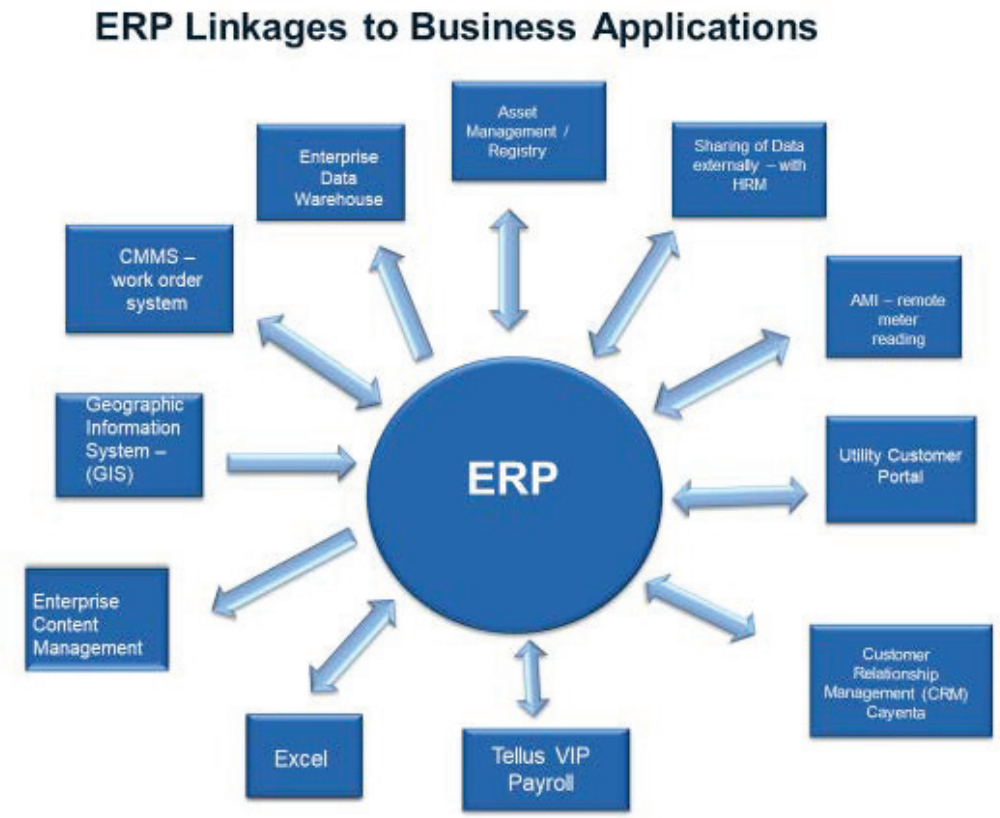
It is recommended the Halifax Water Board approve additional funding for the Enterprise Resource Planning (ERP) Solution project in the amount of $16,629,000 for total project funding commitment in the amount of $16,923,200 over three years.

BACKGROUND

An ERP Solution is the system used to manage the core financial and reporting requirements of an organization. For Halifax Water this includes financial accounting and reporting for operating and capital activities, payroll, customer care and billing, inventory

and procurement. The ERP system also provides important operational functions such as management of stores and inventory, asset accounting, and enables activity-based costing through work orders and capital orders.

The current ERP solution is SAP, hosted by the Province of Nova Scotia and supported by IBM. While SAP has provided Halifax Water the core capabilities required, it is nearing end of life and the Province has proposed a migration path to the next generation in the product line, SAP S/4 HANA. The ERP system is the backbone of "the digital utility" and all other corporate systems interface with the ERP either directly, or through an enterprise data warehouse (EDW).



The ERP Solution was identified in the Five-Year IT Strategic Plan under Secure IT Foundation (initially as SAP S/4 HANA Upgrade).

DISCUSSION

SAP was implemented at Halifax Water in 2004 and a number of additional modules and upgrades have been added in the years since. Over that same time, Halifax Water has undergone numerous significant regulatory and technological changes including the Wastewater transfer from HRM, the separation of Stormwater as a separate regulated

service, the addition of International Financial Reporting Standards as an audit requirement, and the implementation of Automated Metering Infrastructure (AMI) for meter reading and billing.

The current SAP environment leaves significant room for improvement. The cost of improving the current SAP environment and to implement the additional modules and programming changes required is costly and must be coordinated with the Province and IBM. Without these improvements, Halifax Water has implemented work arounds and relies very heavily on EXCEL spreadsheets.

The limitation and difficulty in making improvements for SAP payroll prompted Halifax Water to implement a new payroll system, TELUS Human Capital Management (HCM).

SAP has notified the Province and all users, they will be no longer supporting the current version and users. The initial estimates from the Province to implement SAP's new system, SAP S/4 HANA, suggested the cost of operating SAP S/4 HANA will be more than double the current operating costs of SAP.

Advice from External Consultants

Given the anticipated cost increase to move to SAP S/4 HANA, Halifax Water engaged KPMG to conduct an ERP Assessment to answer the question: "*Is SAP the right ERP for a Water Utility our size*".

Based on the current ERP requirements, KPMG identified viable alternative solutions that provide better capabilities with comparable pricing. KPMG recommended Halifax Water release a Request For Proposals (RFP) for a replacement ERP solution. The RFP was issued in Fall 2019 and four responses were evaluated along with the implementation of SAP S/4 HANA through the Province. The alternative solutions were evaluated based on a technical score and, if they met the technical requirements, the combined cost of implementation and five years of operation.

Vendor	Rank	Technical Score (out of 75)	Financial Score (out of 25)	Total Score (out of 100)
Cayenta	1	67.90	25.00	92.90
KPMG	2	65.13	15.60	80.73
TELUS	3	59.44		59.44
Cogsdale	4	58.45		58.45

The preferred proponent's solution met Halifax Water's requirements at a lower cost than other alternatives, including the implementation of SAP S/4 HANA.

Key benefits that will be realized through the new ERP solution include providing:

- Enhanced customer utility billing functionality that will streamline business processes and data collection while reducing or eliminating current manual processes such as customer moves between existing serviced locations (move-in-move-out); setting up new customer accounts and recording deposits; equalized payment plans billing, and posting of customer credit balances to the Accounts Payable ledger to initiate refunds;
- Enhanced customer experience when making payments in person by utilizing an integrated point of sale system to eliminate duplication of data entry, enable timely application of payments to accounts, and allow staff to provide up-to-date account balances;
- Enhanced capital project management including improved portfolio management for project managers, management of internal and external funding of projects, and project forecasting to enhance cash flow forecasts and identification of residual available funds;
- Enhanced reporting and analytics through the use of tools such as dashboards that will allow management to better monitor and act upon operational results including cash balances and cash flow to minimize interest costs, accounts receivable balances to reduce the risk of bad debts, un-utilized capital to re-assign available funds to other opportunities, and changing revenue and expense results to prepare more accurate budgets and forecasts;
- Reduced reliance on data exports, analysis in Excel spreadsheets, manual entries and the associated risk of spreadsheet errors;
- Better integration with existing and planned supporting services including payroll, Enterprise Data Warehouse, Advanced Metering Infrastructure, Computerized Maintenance Management System, Customer Relationship Management system and the Customer Portal;
- Mobile technology that will allow service requests to flow from the Customer Care call centre to operational staff without the use of paper-based work tickets;
- Enhanced support for dual reporting standards - the NSUARB Handbook for Water Utilities and International Financial Reporting Standards (IFRS);
- Streamlined standardized workflows and business processes to improve collaboration and deliver consistent and timely results;
- Halifax Water already uses other modules supplied by the vendor of the selected solution. This will provide further opportunities for enhanced integration with the ERP Solution.

ERP Solution project falls under the strategic theme *"Secure IT Foundation"* in the IT Strategic Plan.

A detailed project management framework has been initiated (as detailed within the attached ***Project Charter*** document). Upon approval of the project, the implementation process can begin and will take approximately 18 months. It is expected that implementation will be completed in the Spring/Summer of 2022.

BUDGET IMPLICATIONS

A detailed project budget has been developed and the total project cost is $16,923,200 including contingencies.

The cost is broken down as follows:

Item	Total	Funding Status
ERP Assessment	46,200	Approved/Complete
ERP RFP	248,000	Approved/Complete
Total Approved/Completed	**294,200**	
ERP Solution Implementation Costs	6,547,000	Pending
ERP Halifax Water Implementation Costs	8,570,000	Pending
Project Contingency (10%)	1,512,000	Pending
Total Pending	**16,629,000**	Additional funding required
Total Project	**16,923,200**	

The project cost by fiscal year is as follows:

Category	Item	2019-20	2020-21	2021-22	2022-23	Total
External Supplier	Software and system setup		1,846,000	4,270,000	431,000	**6,547,000**
External Staffing	Project management, change management, system integration	229,005	2,395,000	1,975,000	73,000	**4,672,005**
Internal Staffing	Subject matter experts, system testing		1,009,000	817,000	25,000	**1,851,000**
External Consulting	KPMG - ERP Assessment	46,200				**46,200**
External Consulting	IBM - SAP transition and data conversion		230,000	536,000		**766,000**
External Consulting	Threat Risk Assessment		100,000			**100,000**
External Consulting	Privacy Impact Assessment		100,000			**100,000**
External Consulting	Gartner IT Consulting		50,000			**50,000**
Other Expenses	Supplies, travel, meals, etc.		50,000	50,000		**100,000**
Other Expenses	Administrative overhead	2,310	58,000	77,000	6,000	**143,310**
Other Expenses	IT Facility overhead	6,870	174,000	230,000	16,000	**426,870**
Other Expenses	Net HST	9,815	248,000	328,000	23,000	**608,815**
Implementation Total		**294,200**	**6,260,000**	**8,283,000**	**574,000**	**15,411,200**
Contingency 10%						**1,512,000**
Total						**16,923,200**

Halifax Water anticipates utilizing up to twelve resources at various stages of the project for project management, business analysis, data conversion, report development, systems integration, testing, training and change management.

Halifax Water anticipates utilizing up to six individuals from various user departments as subject matter experts and for system design and testing plus others that will provide technical and other support.

Funding for this implementation is available in:

- The 2019/20 Capital Budget identified $1,900,000 in Capital Project SAP S/4 HANA Upgrade (renamed to ERP Solution):
- Underspending on various projects in the amount of $2,024,200:
- The 2020/21 Capital Budget identified $2,630,000 for Capital Project Enterprise Resource Planning Solution; and,
- The 2021/22 and 2022/23 Capital Budgets will include a total of $10,369,000 in Capital Project Enterprise Resource Planning Solution.

ALTERNATIVES

The Board may choose to remain on the current ERP system for the time being and reassess alternatives later. This is not recommended because the Province has begun the process of migrating to SAP S/4 HANA and is expected to convert all its business units and partners before the current SAP's end of service life, scheduled for 2027. Halifax Water is required to move to either SAP S/4 HANA or another solution before that time. Furthermore, the above noted benefits would not be realized, integration with other projects in the IT Strategic Plan may be delayed and Halifax Water does not anticipate delaying the current project will reduce the cost of moving to a new ERP.

ATTACHMENT

1) Final Project Report – Halifax Water ERP Assessment – June 2019
2) Business Case – ERP Solution Implementation
3) Project Charter – ERP Solution Implementation

Report Prepared by: Warren Brake
Digitally signed by Warren Brake
Date: 2020.09.18 14:50:08 -03'00'
Warren Brake, Manager of Accounting, 902-719-4814

Financial Reviewed by: Louis de Montbrun
Digitally signed by Louis de Montbrun
Date: 2020.09.18 14:48:29 -03'00'
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO, 902-490-3685

ITEM # 5
HRWC Board
September 24, 2020
ATTACHMENT 1

KPMG

Halifax Water ERP Assessment

Final project report

June 2019

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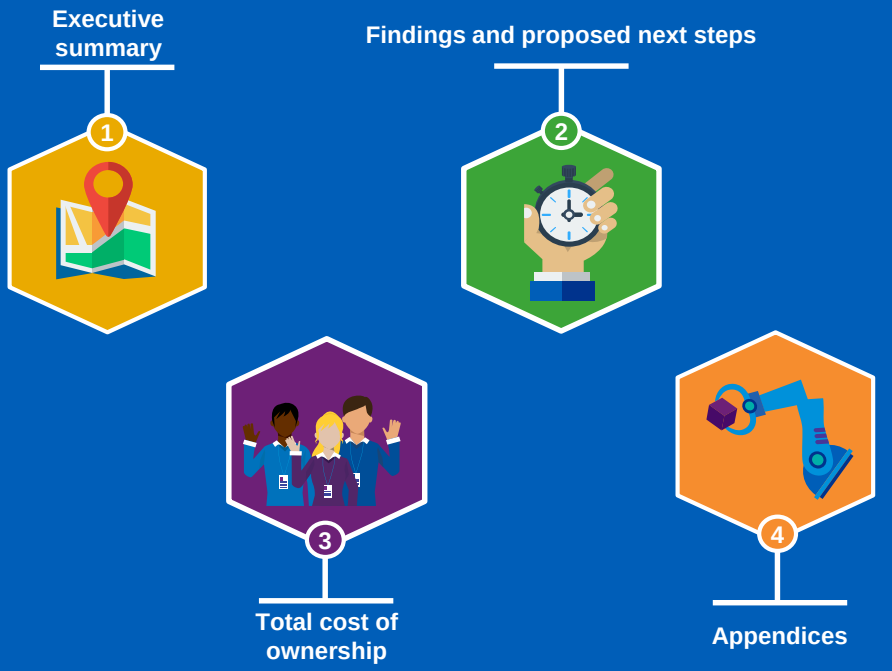
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Executive summary

Project context

Scope

This project had the following scope as defined in the agreed engagement contract dated March 18 2019:

- **Validate current SAP environment**

  Brief assessment of HRWC's current use of SAP with respect to functionality, number of users, frequency of use, challenges faced in the current environment, and HRWC's general satisfaction with SAP and SAP services provided by the Province of Nova Scotia (PNS)

- **Analyze ERP options and calculate Total Cost of Ownership (TCO) and benefits of switching**

  Conduct a brief analysis of ERP solutions in use by HRWC's peer group, identified by HRWC project stakeholders, identify ERP options, and calculate TCO based on mutually agreed principles and criteria.

Objectives

This project had the following objectives:

- Identify whether SAP is the right tool for HRWC based on its current use
- Calculate a TCO that compares HRWC's existing SAP environment with the available future option from the Province and also with select ERP solutions available in the market today.

Assumptions

We performed our analysis under the following assumptions:

- We relied on the completeness and accuracy of information received from HRWC
- With revenue of ~$100M and employees between 100 and 500, HRWC is considered a mid-size enterprise
- Oracle Cloud and Microsoft Cloud based ERP solutions were considered by HRWC as comparator ERP solutions for analysis
- All costs have been defined in CA$. For the purpose of currency conversion, some US$ have been converted to CA$ as per the rate of 1 US$ = 1.3 CA$
- All indicative comparator ERP prices are retail prices, without accounting for discounted values which will be unique to HRWC's needs and will be based on discussions between HRWC and vendor representatives.

Limitations

Please note the following limitations in the scope of the report:

- All costs provided for the Total cost of ownership analysis are indicative and have been sourced either from HRWC or from KPMG's own analysis. Actual costs may differ when HRWC seeks direct information from ERP solution providers and Original Equipment Manufacturers (OEMs)
- We understand the current SAP environment is hosted in the Province of Nova Scotia (PNS) data center, managed and maintained by IBM
- This project covers TCO analysis for multiple comparator ERP solutions as mutually agreed to between KPMG and HRWC, and does not require choosing or recommending any specific ERP solution.

Key findings and proposed next steps

We summarize our findings below:

HRWC recognizes that its current SAP environment leaves significant room for improvement specifically in functionality used, costing, and services to support their business. Based on HRWC's current ERP use case we have identified viable alternative solutions that provide similar and/or better capabilities with comparable pricing. These alternative solutions contain a number of additional features bundled in their product portfolio that HRWC can explore for its future needs. Additionally, HRWC's peer utilities have either chosen or are in the process of choosing similar alternative solutions.

We have provided details for individual findings and recommendations, as presented below, in the subsequent sections of the report:

S No.	Finding	Proposed next steps
1	There are viable alternative solutions available in the market that provide similar and/or better capabilities to match HRWC's current ERP use at comparable operating costs	Understand future state requirements for HRWC and pursue a formal selection process to evaluate available best-fit ERP solutions
2	Inability for PNS to provide implementation and managed services costs prevents HRWC from completing a complete TCO comparative analysis	Continue working with PNS to gather implementation and managed services costs for a complete TCO comparative analysis
3	Other water utilities use 1 of 3 ERP solutions analyzed in this project	Consider ERP vendors that are leaders, or are close to being leaders, in Gartner's mid-size enterprise ERP magic quadrant
4	The alternative ERP solutions analyzed have bundled features that are provided as standard functionalities in addition the current like-for-like HRWC ERP needs	Consider additional functionalities like a customer portal, analytics / business intelligence, etc., that may be available as a bundled product within the ERP solutions being considered
5	HRWC does not currently utilize most of the available SAP modules and functions for its purpose	Consider standard out of the box features such as approval workflows when considering a future ERP solution

Comparative annual estimated operating costs

The following table provides a summary of the estimated operating costs conducted across select ERP solutions:

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS	S4/HANA by PNS	SAP by PNS (current state)
Software	$0.85	$0.44	$0.82	$0.90	$0.70
Managed Services	0.30	0.50	0.40	<unknown>	
Annual	$1.15	$0.94	$1.22	$0.90	$0.70

All figures in CA$ Millions

Points to consider:

- While the Software costs are considered after signing of contract with the preferred solutions vendor, the managed services are considered only post go-live
- All indicative SaaS ERP costs for each of Oracle, Microsoft, SAP, are retail prices without consideration of potential discounts obtained in a more fulsome negotiation process
- The costs for 'SAP by PNS' current state includes $250K system operation costs and $85K licensing costs. The system operation costs have not been considered for the comparators given the opportunity to include this service in the contract with the solutions vendor
- The costs for 'S4/HANA by PNS' assumes the proposed costs include user licenses only. The managed services costs have not been provided by PNS after repeated attempts.

Comparative implementation costs

The following table provides a summary of the estimated implementation costs across the select ERP solutions:

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS	S4/HANA by PNS
Implementation costs (one-time)	$6-8	$4-5	$7-9*	Yet to be discovered

All figures in CA$ Millions

Implementation costs include the following indicative scope:

Title	Description
Business process design	Requirement gathering, high level / low level designs
Application configuration	ERP modules implementation – configuration
Application access and security	Application roles, compliance, application controls
Application customization	Application extensions (if required), custom fields, etc.
Data integration / interfaces	Interfaces with other hardware systems
Data conversion / migration	Convert 2 years + current year ERP data; archive historical data
Training	Training plan and end-user training
Testing	Solution testing, quality assurance, etc
Change management	Communications and change management
Project management	Project management oversight

An indicative breakdown of costs for the considered ERP options have been provided in Appendix B.

* We assumed a green field implementation of S4/HANA, which is the cloud version. This assumption is supported by the many fundamental business changes required for the new solution, such as chart of accounts change, support of stormwater, etc., and also the on-premise to cloud migration.

The costs for the S4/HANA implementation seem to be higher because of the fact that the Utilities component of S4/HANA is currently limited and requires complex extensions and integrations.

Findings and proposed next steps

Detailed findings and proposed next steps

S No.	Finding	Proposed next step
1	There are viable alternative solutions available in the market that provide similar and/or better capabilities to match HRWC's current ERP use at comparable operating costs	Understand future state requirements for HRWC and pursue a formal selection process to evaluate available best-fit ERP solutions

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS	S4/HANA by PNS	SAP by PNS (current state)
Software	$0.85	$0.44	$0.82	$0.90	$0.70
Managed Services	0.30	0.50	0.40	<unknown>	
Annual	$1.15	$0.94	$1.22	$0.90	$0.70

All figures in CA$ Millions

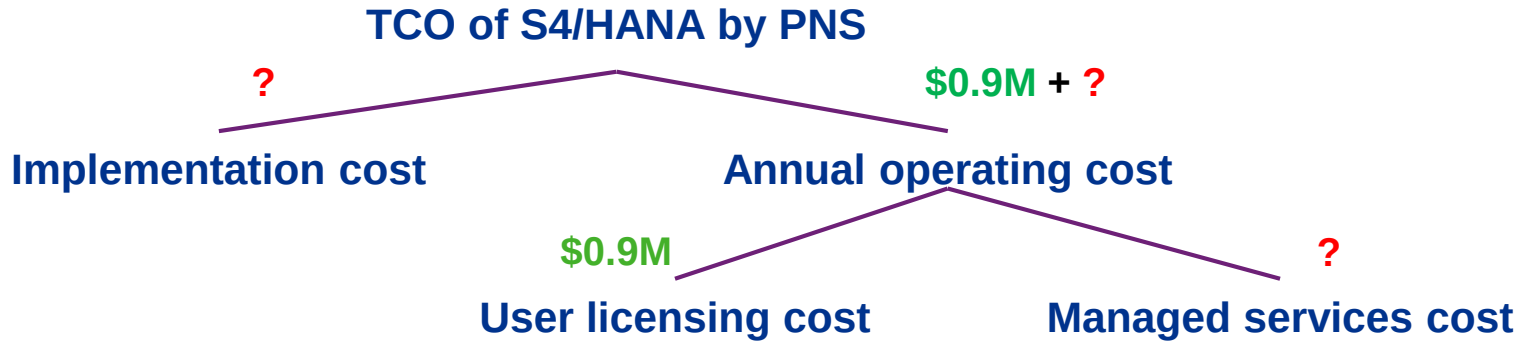
Points to consider:

- While the Software costs are considered after signing of contract with the preferred solutions vendor, the managed services are considered only post go-live
- All indicative SaaS ERP costs for each of Oracle, Microsoft, SAP, are retail prices without consideration of potential discounts obtained in a more fulsome negotiation process
- The costs for 'SAP by PNS' current state includes $250K system operation costs and $85K licensing costs. The system operation costs have not been considered for the comparators given the opportunity to include this service in the contract with the solutions vendor
- The costs for 'S4/HANA by PNS' assumes the proposed costs include user licenses only. The managed services costs have not been provided by PNS after repeated attempts.

Detailed findings and proposed next steps

S No.	Finding	Proposed next step
2	Inability for PNS to provide implementation and managed services costs prevents HRWC from completing a complete TCO comparative analysis	Continue working with PNS to gather implementation and managed services costs for a complete TCO comparative analysis

TCO costs comprise of implementation and annual operating costs. We understand that PNS is yet to provide the implementation and managed services costs for the S4/HANA upgrade.



Detailed findings and proposed next steps

S No.	Finding	Proposed next step
3	Other water utilities use 1 of 3 ERP solutions analyzed in this project	Consider ERP vendors that are leaders, or are close to being leaders, in Gartner's mid-size enterprise ERP magic quadrant

Most peer water utilities identified by HRWC use Oracle or Microsoft based ERP solutions for their corporate functions similar to the functions used by HRWC.

While Epcor, WSSC, and HRSD use Oracle ERP, Ontario Clean Water Agency uses Dynamics GP. DC Water is currently pursuing an open tender process to select an ERP solution. There was no publicly available information for Clean Water Services.

We also observed that while some water utilities recently upgraded their existing ERP to newer versions, others enhanced their current ERPs with additional modules like reporting, online procurement, and analytics.

Details of each utility is provided in Appendix A.

Detailed findings and proposed next steps

S No.	Finding	Proposed next step
4	The alternative ERP solutions analyzed have bundled features that are provided as standard functionalities in addition the current like-for-like HRWC ERP needs	Consider additional functionalities like a customer portal, analytics / business intelligence, etc., that may be available as a bundled product within the ERP solutions being considered

Current SAP solution	Oracle SaaS	Microsoft SaaS	SAP
Finance and Controller (FI and CO)	Cloud Oracle ERP Financials	Dynamics 365 Finance and Operations	SAP S4/HANA Enterprise Management Cloud
Material Management (MM)	Cloud Oracle ERP Inventory Management, Cloud Oracle ERP Purchasing		
Utilities (IS-U)	Oracle Utility Customer Cloud Services (CCS)	CIS (third party)	SAP cloud for Utilities
Additional modules available within the product bundle			
NA	Cloud analytics, meter data management	Dynamics 365 Talent, Retail, Power Business Intelligence, CSR 360 (third party), Customer service portal (third party)	SAP Analytics Cloud for Business Intelligence, predictive edition, and public option (user)

We observe that there is no clear like-for-like product portfolio available that compares with HRWC's existing SAP solution. While Comparator ERPs have modules that provide Financial and Utilities capabilities, the standard product bundles of those ERPs also provide additional features within the same pricing.

Detailed findings and proposed next steps

We have identified the following detailed findings and recommendations based on our project analysis:

S No.	Finding	Proposed next step
5	HRWC does not currently utilize most of the available SAP modules and functions for its purpose	Consider standard out of the box features such as approval workflows when considering a future ERP solution

HRWC uses four key modules within its SAP environment hosted in the Provincial data centre, as below:

Finance	• AR / AP, budgeting and variance analysis • Moderate use • 107 users
Controller	• GL • Moderate use • Users – included with FI
Materials Management	• Inventory control and year-end count • Light use • 9 users
IS-Utilities	• Billing and customer care centre • Regular use • 41 users

License and service utilization

- There are approximately 90,000 active customer accounts served by HRWC
- There are 157 internal HRWC users that use SAP
- HRWC has raised 714 service tickets in the last 5 years, of which:
  - 95% have been service requests
  - 20% of service requests have been password resets
  - 5% have been incidents

Approximate annual expenditure incurred by HRWC for SAP (~$900K)

Operational (~$700K):

± $360K SAP support and maintenance (PNS)

± $85K additional licenses (HRM)

± $250K system operation

Capital (~$200K):

± $110K Nova Scotia Utility and Review Board (NSUARB) rate revisions ($220K capital /2 years)

± $100K NSUARB special projects

Detailed findings and proposed next steps

We have identified the following detailed findings and recommendations based on our project analysis:

S No.	Finding (contd..)	Proposed next step (contd..)
5	HRWC does not currently utilize most of the available SAP modules and functions for its purpose	Consider standard out of the box features such as approval workflows when considering a future ERP solution

Strengths	Weaknesses
• Full spectrum of managed services from PNS/IBM available for HRWC • Additional SAP modules available for HRWC to use • Adequate user licenses available • Engaged workforce • Executive support • Availability of project managers and subject matter experts (SMEs)	• Absence of workflows – largely used for record keeping and preparing financial statements • Existing solution bugs, e.g., Stormwater billing • Appointment scheduling overlaps • Long turnaround times for service requests • Inconsistent quality results from service requests • Low overall user adoption within HRWC • Reporting functionality with PNS / IBM
Opportunities	**Threats**
• Option to continue with the current contract and SAP environment until 2025 • 18-month window opportunity until conclusion of the current contract in December 2020 • Requisitions and work orders functionality available in MM module of SAP • Cloud based Tier1 and Tier2 ERPs are available to address mid-size enterprises like HRWC	• Inflexible service environment between HRWC, PNS, and IBM • Additional cost of integrations and change management • SAP rate change process every two years is cumbersome and expensive ($220K) • SAP base operating costs estimated at $900K per year

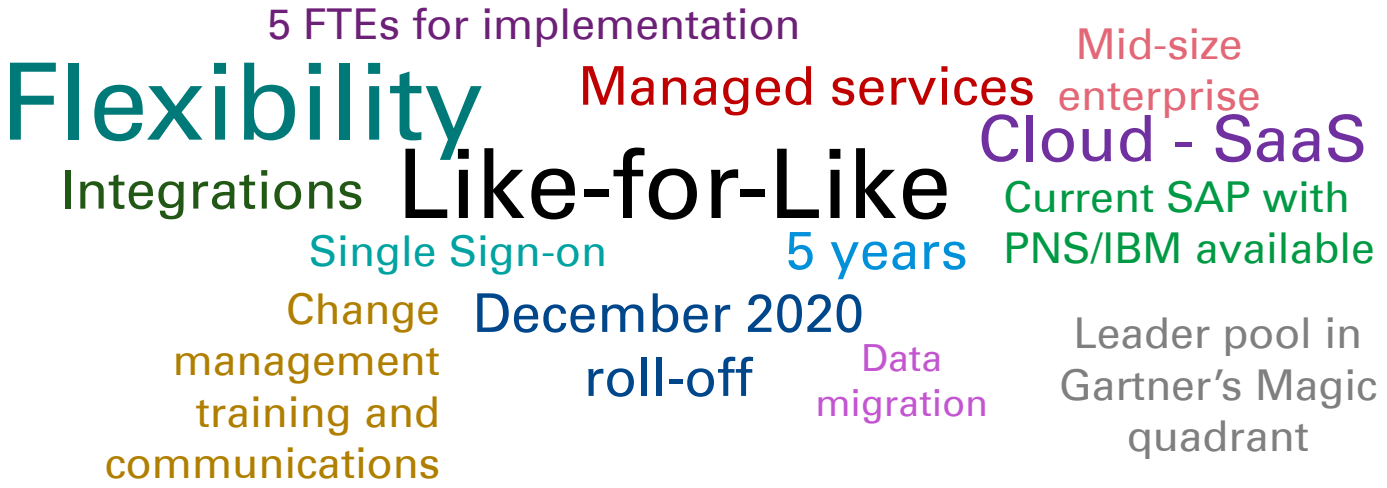
Total cost of ownership

TCO principles

We understand HRWC has the following four options for its future ERP solution. While options 1 and 2 are available to HRWC as its current options through PNS, we considered Oracle, Microsoft and SAP SaaS based solutions for our analysis under options 3 and 4.

#1	SAP contract with PNS up to December 2025
#2	SAP upgrade with PNS after December 2020
#3	Tier 1 Cloud ERP for midsize enterprise
#4	Tier 2 Cloud ERP for midsize enterprise

The following word cloud defines the TCO principles we have considered for the purpose of our TCO analysis. The subsequent slide provides a brief description of each.

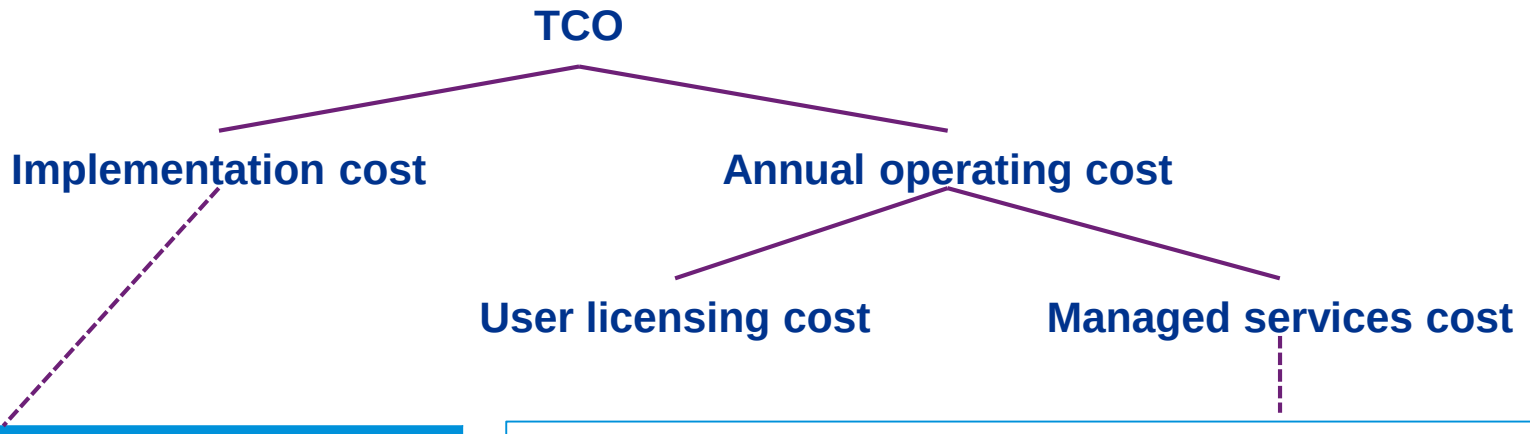


TCO principles

The following table describes the selected TCO principles in detail:

Title	Remarks
Flexibility	HRWC requires flexibility in non-functional aspects such as release cycles for the ERP solutions. We don't see a material financial impact for this requirement.
Single Sign On	HRWC requires Single Sign On for the ERP integrated with its existing Active Directory. Vendors typically capture this requirement in the implementation costs.
Like-for-Like	HRWC requires a TCO analysis for ERP comparators that have similar functionalities to the ones used by HRWC today namely, Finance, Controller, Material Management, and Utilities Billing. The modules captured in the analysis for Oracle Microsoft and SAP solutions reflect this like-for-like requirement.
Change management training and certifications	HRWC recognizes that for all ERP options there will be a change management component which may include modification of job descriptions of users, training for users and admins, and specialized certifications for select super users. These costs may be similar across all ERP options and thus have not been considered for TCO analysis.
5 FTEs for implementation	HRWC estimates that for all ERP options it will deploy 5 full time equivalent resources towards ERP implementation, and a similar amount of resources for ongoing management (such as vendor management, license utilization tracking, etc.). These costs may be similar across all ERP options and thus have not been considered for TCO analysis.
December 2020 roll off	HRWC is already bound in a contractual relationship with PNS for SAP services and support up to December 2020. It is assumed that HRWC will conclude the current contract up to its existing deadline before moving to the future ERP solution.
Integrations	HRWC is in the midst of implementing many IT solutions that may need a data or workflow integration with the future ERP solution. Vendors typically capture this requirement in the implementation costs.
5 years	HRWC estimates its TCO calculations to consider a period of 5 years of ERP use post-implementation go-live.
Mid-size enterprise	As defined by Gartner and preferred by HRWC, HRWC is considered a mid-size enterprise with revenue in the range of $100M-$1B and user base in the range of 100-500.
Current SAP with PNS available	HRWC recognizes that apart from the TCO analysis conducted in this project HRWC has the option of continuing with its existing SAP environment up to 2025 by way of either extending its existing contract with PNS or signing a separate agreement with a third party solutions provider.
Cloud SaaS	HRWC aspires to be a modern enterprise and considers SaaS cloud based solutions in its target IT architecture. The TCO analysis considers Cloud SaaS based ERP solutions for Oracle, Microsoft, and SAP.
Managed services	HRWC is on an existing Managed services contract with PNS and considering the current skills gap in HRWC internal resources the TCO analysis contains indicative costing of a 'Like-for-Like' managed services for the comparator ERP solutions.
Data migration	As per legal and regulatory directions, HRWC requires 7 years of historical data to be migrated for the future ERP solution. Vendors typically capture this requirement in the implementation costs.
Leader pool in Gartner's magic quadrant	HRWC and KPMG mutually agreed to consider only solutions that are considered leaders or close to being leaders in the Gartner mid-size enterprise ERP magic quadrant. The solutions chosen, e.g., Oracle ERP and Microsoft Dynamics, are within those agreed parameters.

TCO criteria



Title	Description
Business process design	Requirement gathering, high level / low level designs
Application configuration	ERP modules implementation – configuration
Application access and security	Application Roles, Compliance, Application Controls
Application customization	Application extensions (if required), custom fields, etc.
Data integration / interfaces	Interfaces with other HW Systems
Data conversion / migration	Convert 2 years + current year; archive historical data
Training	Training plan and end-user training
Testing	Solution testing, Quality assurance, etc
Change management	Communications and Change management
Project management	Project Management oversight

- 90,000 active customer accounts
- 157 users
- Service desk, functional support, technical support, hosting, backup and consulting services are included in the definition of managed services
- Daily and weekly data cleansing and reporting services (such as daily account clearing, invoice generation, printer file creation)
- Service desk – 9*5; telephone and email
- Level 1,2,3 incident and request support
- System uptime – 98.5%
- Incident response time – Critical (1 hour); High (4 hours); medium (1 business day) during business hours
- Incident resolution time – Critical (1 hour); High (4 hours); medium (2 business days) during business hours
- Relaxed emergency based support during non-business hours (evenings and weekends)
- Enhancement services – data, functionality, reporting (paid in addition to managed services as per efforts)
- Server and data backup
- All batch jobs
- Manage user security, e.g., account creation / modification / deletion, reset passwords, etc.
- Quarterly client satisfaction surveys

Oracle SaaS

The following table provides an indicative TCO for the Oracle SaaS ERP option considered, as per the formula:

TCO = (A) Implementation costs (one-time) + (B.1) annual licensing * 5 + (B.2) managed services * 4,

considering that managed services will be in effect only post go-live, assuming 12 months of implementation period.

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS
(A) Implementation costs (one-time)	6-8	4-5	7-9
(B) Annual operating costs for 5 years	5.45	4.2	5.7
(B.1) Annual licensing	0.85	0.44	0.82
(B.2) Managed Services	0.30	0.50	0.40
Total TCO (A + B)	**11.45 to 13.45**	**8.2 to 9.2**	**12.7 to 14.7**

All figures in CA$ Millions

Software module	Implementation cost	Annual licensing cost	Annual managed services cost
Cloud Oracle ERP Financials	$6-8M	$0.85M	$0.30M
Cloud Oracle ERP Inventory Management			
Cloud Oracle ERP Purchasing			
Oracle Utility Customer Cloud Services (CCS)			
Cloud analytics			
Meter data management			

Microsoft SaaS

The following table provides an indicative TCO for the Microsoft SaaS ERP option considered, as per the formula:

TCO = (A) Implementation costs (one-time) + (B.1) annual licensing * 5 + (B.2) managed services * 4,

considering that managed services will be in effect only post go-live, assuming 12 months of implementation period.

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS
(A) Implementation costs (one-time)	6-8	4-5	7-9
(B) Annual operating costs for 5 years	5.45	4.2	5.7
(B.1) Annual licensing	0.85	0.44	0.82
(B.2) Managed Services	0.30	0.50	0.40
Total TCO (A + B)	**11.45 to 13.45**	**8.2 to 9.2**	**12.7 to 14.7**

All figures in CA$ Millions

Software module	Implementation cost	Annual licensing cost	Annual managed services cost
Dynamics 365 Finance and Operations	$4-5M	$0.24M	$0.50M
Dynamics 365 Talent			
Dynamics 365 for Retail			
Microsoft Power BI			
Meter to cash (third party)		$0.20M	
CSR 360 portal (third party)			
Customer service portal (third party)			

SAP SaaS

The following table provides an indicative TCO for the SAP SaaS ERP option considered, as per the formula:

TCO = (A) Implementation costs (one-time) + (B.1) annual licensing * 5 + (B.2) managed services * 4,

considering that managed services will be in effect only post go-live, assuming 12 months of implementation period.

Criteria	Oracle SaaS	Microsoft SaaS	SAP SaaS
(A) Implementation costs (one-time)	6-8	4-5	7-9*
(B) Annual operating costs for 5 years	5.45	4.2	5.7
(B.1) Annual licensing	0.85	0.44	0.82
(B.2) Managed Services	0.30	0.50	0.40
Total TCO (A + B)	**11.45 to 13.45**	**8.2 to 9.2**	**12.7 to 14.7**

All figures in CA$ Millions

Software module	Implementation cost	Annual licensing cost	Annual managed services cost
SAP S4/HANA enterprise management cloud	$7-9M	$0.57M	$0.40M
SAP Analytics Cloud for Business Intelligence, predictive edition, and public option (user)			
SAP cloud for Utilities		$0.25M	

* We assumed a green field implementation of S4/HANA, which is the cloud version. This assumption is supported by the many fundamental business changes required for the new solution, such as chart of accounts change, support of stormwater, etc., and also the on-premise to cloud migration.

The costs for the S4/HANA implementation seem to be higher because of the fact that the Utilities component of S4/HANA is currently limited and requires complex extensions and integrations.

Appendices

Appendix A

Peer utilities

Epcor, Edmonton, Alberta	EPCOR currently utilizes the Oracle Business Intelligence Enterprise Edition (OBIEE) software as its primary business intelligence application. As EPCOR also utilizes the Oracle eBusiness Suite, the company uses the pre-built Data Marts and the pre-packaged Export/Transform/Load (ETL) toolsets that are referred to as Oracle Business Intelligence Applications (OBIA). EPCOR also utilizes an Oracle reporting tool (Discover) to provide ERP based reports to its multiple business units from the ERP system. Most of these toolsets are on versions that are already, or coming up to, 'out of support' status from Oracle.
Ontario Clean Water Agency	OCWA uses Dynamics GP and extends its service to other utilities within Ontario. They are upgrading to Dynamics GP 2018.
DC Water, Washington DC	DC Water is currently pursuing procurement of Cloud based ERP solutions restricted within Infor, Oracle, SAP, Workday across Finance, Human Capital Management (HCM) and Supply Chain Management (SCM) functions.
Washington Suburban Sanitary Commissions (WSSC), Laurel, Maryland	A broad set of Oracle tools are in place at WSSC such as Oracle BI suite and Oracle eBusiness Suite, with Oracle Utilities a new addition as a robust and flexible billing and customer service platform.
Hampton Roads Sanitation District Virginia Beach, VA	HRSD uses Oracle customer care and billing system, and iSupplier portal for Procurement and Account Payables.

Appendix B

Indicative breakdown of implementation costs

The following table provides an indicative breakdown of implementation costs HRWC may incur for implementation of the future ERP solution:

	Percentage break-up			Costing in CA$ Millions					
Stream	**Oracle**	**MSFT**	**SAP**	**Oracle (Low)**	**Oracle (High)**	**MS (Low)**	**MS (High)**	**SAP (Low)**	**SAP (High)**
Business process design	10%	10%	10%	0.6	0.8	0.4	0.5	0.7	0.9
Application configuration	15%	15%	15%	0.9	1.2	0.6	0.75	1.05	1.35
Application access and security	3%	3%	3%	0.18	0.24	0.12	0.15	0.21	0.27
Application customization / development	5%	5%	5%	0.3	0.4	0.2	0.25	0.35	0.45
Integration	10%	12%	15%	0.6	0.8	0.48	0.6	1.05	1.35
Data migration	15%	15%	12%	0.9	1.2	0.6	0.75	0.84	1.08
Training	7%	5%	5%	0.42	0.56	0.2	0.25	0.35	0.45
Testing	15%	15%	15%	0.9	1.2	0.6	0.75	1.05	1.35
Change management	15%	15%	15%	0.9	1.2	0.6	0.75	1.05	1.35
Project management	5%	5%	5%	0.3	0.4	0.2	0.25	0.35	0.45
Total	**100%**	**100%**	**100%**	**6**	**8**	**4**	**5**	**7**	**9**

Points to note:

- Oracle refers to the Oracle SaaS solution
- MSFT refers to the Microsoft SaaS solution
- SAP refers to the SAP SaaS solution

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This final project report is submitted to HRWC as part of the scope of work signed as per agreement signed between KPMG and HRWC on March 18, 2019, on a confidential basis and may not be disclosed to any other person or entity without the express written consent of KPMG. KPMG neither warrants nor represents that the information contained in this report is accurate, complete, sufficient or appropriate for use by any person or entity other than HRWC who understands this information is of a general nature. This final report may not be relied upon by any person or entity other than HRWC and KPMG hereby expressly disclaims any and all responsibility or liability to any person or entity in connection with their use of this final report.

ITEM # 5
ATTACHMENT 2

ERP Solution

Business Case

Version: 1.0

Updated: September 18, 2020

Project Identification

Project Title	ERP Solution	**Date Prepared**	2020-09-03
Executive Sponsor	Cathie O'Toole	**Project Owner**	Warren Brake
Project Sponsor	Louis de Montbrun	**Project Manager**	Tim Roberts
Project Repository	http://projects.halifaxwater.ca/project/erpsolution		

Revision History

#	Date	Author	Description of Change
0.1	2020-09-03	Tim Roberts	Initial draft
1.0	2020-09-09	Tim Roberts	1st draft reviewed by the project team
1.1	2020-09-11	Warren Brake	Revised draft

Reference Documentation

	Date

Approvals

Name	Title	e-signature
Cathie O'Toole	General Manager	
Louis de Montbrun	Director, Corporate Services/CFO	
Jamie Hannam	Director Engineering and IS	
Warren Brake	Manager Accounting	

Table of Contents

Table and Figures

1. Overview

An Enterprise Resource Planning (ERP) Solution is the system used to manage the core financial and reporting requirements of an organization. For Halifax Water this includes financial accounting and reporting for operating and capital activities, payroll, customer care and billing, inventory and procurement.

The current ERP solution is SAP ECC, hosted by the Province of Nova Scotia and supported by IBM. While SAP has provided Halifax Water the core capabilities required, it is nearing end of service life (EOSL). The province has proposed a migration path to the next generation in the product line, SAP S/4 HANA. It should be noted S/4HANA is not an upgrade, but a migration/conversion.

The ERP Solution was identified in the Five-Year IT Strategic Plan under Secure IT Foundation (initially as SAP S/4 HANA Upgrade).

1.1 Opportunity / Problem Statement

SAP was implemented at Halifax Water in 2004. Several additional modules and upgrades have been added in the years since. Over that same time, Halifax Water has undergone numerous significant regulatory and technological changes including the Wastewater transfer from the Halifax Regional Municipality, the separation of Stormwater as a separate regulated service, the addition of International Financial Reporting Standards as an audit requirement, and the implementation of Automated Metering Infrastructure (AMI) for meter reading and billing.

The current SAP environment leaves significant room for improvement. The cost of improving the current SAP environment and to implement the additional modules and programming changes required is burdensome and must be coordinated with the province and IBM. Due to the significant costs involved, many of these improvements have not taken place resulting in Halifax Water implementing work arounds, which rely heavily on manual processes and Microsoft Excel spreadsheets.

As a result of the preponderance of manual work arounds the current state of the ERP system is in disrepair and not sustainable. Components of the ERP system have already moved from SAP. For example, the limitation and difficulty in making improvements for SAP payroll prompted Halifax Water to implement a new payroll system, TELUS Human Capital Management (HCM).

In addition to the current state of the ERP, SAP has notified the province, and its users, the currently installed version of SAP is nearing end of service life (EOSL). Once EOSL is reached SAP will no longer support the current installed version and users. The initial estimates from the province to implement SAP's new system, SAP S/4 HANA, suggested the cost of operating SAP S/4 HANA will be more than double the current operating costs of SAP and triple the extrapolated cost after the TELUS HCM implementation and the decommissioning of SAP HCM.

As the cost increase to move to SAP S/4 HANA is significant, Halifax Water engaged KPMG to conduct an ERP Assessment to answer the question: "*Is SAP the right ERP for a Water Utility our size"*.

Based on the current ERP requirements, KPMG identified viable alternative solutions that provide better capabilities with comparable pricing. KPMG recommended Halifax Water release a Request for Proposals (RFP) for a replacement ERP solution. The RFP was issued in Fall 2019 and four responses were evaluated along with the implementation of SAP S/4 HANA through the province. The selected alternative (Cayenta) met Halifax Water's requirements at a lower cost than other alternatives, including the implementation of SAP S/4 HANA.

1.2 Recommendation

It is recommended the Halifax Water Board approve additional funding for the Enterprise Resource Planning (ERP) Solution project in the amount of $16,629,000 for total project funding in the amount of $16,923,200 over three years.

1.2.1 Alternatives

Halifax Water may choose to remain on the current ERP system for the time being and reassess alternatives later. This is not recommended as the province has begun the process of migrating to SAP S/4 HANA and is expected to convert all its business units and partners before the current end of service life for SAP ECC, scheduled for 2027.

Halifax Water is required to move to either SAP S/4 HANA or another solution before that time. Should Halifax Water delay migrating to the proposed replacement ERP, the benefits noted in this document will not be realized, and integration with other projects in the IT Strategic Plan delayed. In addition, delaying the current project to a later time will not reduce the cost of moving to a new ERP.

2. RFP Process

In June 2019 an assessment was completed that recommended issuing an RFP for a replacement ERP solution. An analysis of the technical and business requirements was prepared and an RFP was issued in the fall of 2019.

2.1 ERP Solution – RFP Results

Alternative solutions to SAP were evaluated based on a technical score. A minimum technical score of 60 points was required for the proponent to be considered further. If the solution met the technical requirements, they were then evaluated on their proposal/demonstration and the combined cost of implementation and five years of operation.

ERP Solution - Vendor Evaluation Matrix

Vendor	Rank	Overall Score	Technical 75%	Technical Project Team	Team Results Rank	Team Results Proposal	Team Results Rank	Team Results FR	Team Results Rank	Team Results NFR
Cayenta	1	67.90	67.90	90.54	1	26.25	1	45.95	1	18.34
KPMG	2	65.13	65.13	86.84	2	24.00	2	45.51	2	17.33
TELUS	3	59.44	59.44	79.25	3	18.73	3	43.89	4	16.63
Cogsdale	4	58.45	58.45	77.94	4	17.72	4	43.54	3	16.69

Table 1: ERP Technical Scoring - Round 1

ERP Solution - Vendor Demo Evaluation Matrix

	Final Proposal Score *(Based on Demo Score)*				Demo Score	Round #1 - Initial Score			
Vendor	Proposal Rank	Overall Score	Financial 25%	Technical 75%	Demo Score	Initial Review	Proposal Score	FR Score	NFR Score
Cayenta	1	90.14	25.00	65.14	86.85	90.54	26.25	45.95	18.34
KPMG	2	78.85	15.60	63.26	84.34	86.84	24.00	45.51	17.33
GAP		11.29							

ERP Solution - Vendor Demo Evaluation Matrix

	Final Proposal Score *(Based Revised Proposal Score)*				Demo Score	Round #1 - Initial Score			
Vendor	Proposal Rank	Overall Score	Financial 25%	Technical 75%	Demo Score	Initial Review	Proposal Score	FR Score	NFR Score
Cayenta	1	94.93	25.00	69.93	86.85	90.54	26.25	45.95	18.34
KPMG	2	83.81	15.60	68.22	84.34	86.84	24.00	45.51	17.33
GAP		11.12							

Legend

Presentation: Quality of the overall presentation
Scenario: Ability of the vendor to successfully demonstrate the solution's ability to address ERP scenarios
FR: Functional Requirements
NFR: Non-Functional Requirements

Table 2: ERP Scoring - Final Round

The selected alternative (Cayenta) met Halifax Water's requirements at a lower cost than other alternatives, including the implementation of SAP S/4 HANA.

3. Quantitative Analysis

3.1 Current SAP Cost Model

Halifax Water's annual cost of operations for its current ERP is:

SAP Operating Costs - Province	Annual
SAP CCS Maintenance	$103,077
Data Center	$220,000
SAP HCM	$150,000
SAP Sybase SUP Mobile Support	$10,296
IS-U Software Maintenance	$20,817
Sandbox Infrastructure	$7,200
Sub Total	**$511,390**
SpinifexIT Annual Maintenance	$10,000
Total	**$521,390**

Table 3: Current State - SAP Cost Model

SAP HCM is being replaced by TELUS ViP. Once complete annual operating costs for the ERP will reduce to[1]:

Future Operating Costs - Current Platform	Annual
SAP CCS Maintenance	$103,077
Data Center	$220,000
SAP Sybase SUP Mobile Support	$10,296
IS-U Software Maintenance	$20,817
Sandbox Infrastructure	$7,200
Total	**$361,390**

Table 4: Revised Current State - SAP Cost Model - SAP HCM Removed

3.2 Projected SAP S/4 Hana Cost Model

Based on Halifax Water's use case for ERP, IBM has provided an estimate[2] to migrate to and operate S/4 Hana of:

Description	Min Cost	Max Cost
IBM Implementation	$10,140,000	$12,340,000
Operating Costs (5 years)	$8,750,000	$8,750,000
Total Cost of Ownership	**$18,890,000**	**$21,090,000**

Table 5: Current Future State - SAP S/4 Hana Cost Model

Moving from SAP to SAP S/4 Hana increases Halifax Water's annual operating by a multiple of 4.8.

[1] This is an estimate. Data Center costs may also reduce due to the removal of SAP HCM.

[2] Final HRWC HANA Impact Assessment and Options Report.pdf, January 2020

3.3 Total Cost of Ownership: Province/IBM vs. Cayenta

Total cost of ownership (TCO) comparison between Cayenta and province/IBM is:

Total Implementation Costs	IBM Min Cost	IBM Max Cost	Cayenta Cost
Vendor	$10,140,000	$12,340,000	$6,547,000
Halifax Water	$9,069,000	$9,069,000	$10,082,000[3]
Total	**$19,209,000**	**$21,409,000**	**$16,629,000**

Total Cost of Ownership	IBM Min Cost	IBM Max Cost	Cayenta Cost
Total Implementation Costs	$19,209,000	$21,409,000	$16,629,000
Operating Costs (5 years)	$8,750,000	$8,750,000	$4,933,000
Total Cost of Ownership	**$27,959,000**	**$30,159,000**	**$21,562,000**

A savings of $6,397,000 to $8,597,000 is realized if Halifax Water moves from SAP to Cayenta.

3.4 Implementation Cost Breakdown

A detailed project budget has been developed and the total project cost is $16,923,200, including contingencies, broken down as follows:

Item	Total	Funding Status
ERP Assessment	46,200	Approved/Complete
ERP RFP	248,000	Approved/Complete
Total Approved/Completed	**294,200**	
ERP Solution Implementation Costs	6,547,000	Pending
ERP Halifax Water Implementation Costs	8,570,000	Pending
Project Contingency	1,512,000	Pending
Total Pending	**16,629,000**	Additional funding required
Total Project	**16,923,200**	

Halifax Water implementation costs include Halifax Water employees, supplemental staff, vendor conversion/integration support (IBM, Esri), privacy impact assessment, threat risk assessment, facilities and other overheads.

[3] ERP Process expert added to the Cayenta project to ensure best practices are adopted; IBM costs required to migrate off SAP

3.5 Budget Implications

Funding requirements for this project are based on the proposed schedule above. The project cost by fiscal year is as follows:

Category	Item	2019-2020	2020-2021	2021-2022	2022-2023	Total
External Supplier	Software and System Setup		1,846,000	4,270,000	431,000	**6,547,000**
External Staffing	PM, Change Mgmt, System Integration	229,005	2,395,000	1,975,000	73,000	**4,672,005**
Internal Staffing	Subject Matter Experts, System Testing		1,009,000	817,000	25,000	**1,851,000**
External Consulting	KPMG ERP Assessment	46,200				**46,200**
External Consulting	IBM - SAP Transition and Data Conversion		230,000	536,000		**766,000**
External Consulting	Threat Risk Assessment		100,000			**100,000**
External Consulting	Privacy Impact Assessment		100,000			**100,000**
External Consulting	HW - Gartner		50,000			**50,000**
Other Expenses	Supplies, Travel, Meals, etc.		50,000	50,000		**100,000**
Other Expenses	Administrative Overhead	2,310	58,000	77,000	6,000	**143,310**
Other Expenses	IT Facility Overhead	6,870	174,000	230,000	16,000	**426,870**
Other Expenses	Net HST	9,815	248,000	328,000	23,000	**608,815**
Implementation Total		**294,200**	**6,260,000**	**8,283,000**	**574,000**	**15,411,200**
					Contingency	**1,512,000**
Grand Total						**16,923,200**

Funding for this implementation is available in:

Source	Work Order	Item	Amount
Previous Approval	3-2979	2019-20 Capital Budget	$294,200
Pending Approval	3-3211	2019-20 Capital Budget	$1,605,800
Pending Approval	3-3211	2020-21 Capital Budget	$2,630,000
Pending Budget	Future	2021-22 Capital Budget	$8,283,000
Pending Budget	Future	2022-23 Capital Budget	$2,086,000
Re-Allocation	3-3248	AMI Additional Costs	$1,150,000
Re-Allocation	3-2633	GIS Hardware/Software Program	$100,000
Re-Allocation	3-2634	GIS Application Support Program	$250,000
Re-Allocation	3-2642	Total Station Survey Prisms	$32,000
Re-Allocation	3-2643	SCADA Control System Enhancements	$200,000
Re-Allocation	7-1327	Stormwater Billing Support	$225,000
Re-Allocation	3-3210	SAP Rate Structure Support	$67,200
Total			**$16,923,200**

Funds identified for the years of 2021/22 and 2022/23 will be included in the Capital Budgets for those years.

4. Project Approach

A detailed project management framework has been initiated. Upon approval of the project, the implementation process can begin and will take approximately 18 months. It is expected that implementation will be completed in the Spring/Summer of 2022.

The following process areas, and associated business processes are considered in scope:

PROCESS AREAS				
Process Level 0	**Billing / Customer Management**	**Financial**	**General**	**Supply Chain**
Process Level 1	o Customer Management o Payment Processing o Utility Billing o Collections	o Accounts Payable o Accounts Receivable o Budgeting o Financial Reporting o Fixed Assets o General Ledger o Project Accounting o Service Orders o Treasury Operations o Capital Funds Management o Unregulated Revenues	o Analytics and Reporting o General Functionality	o Contract Management o Expenses Management o Inventory Management o Procurement o Procurement Cards o Vendor Management o Warehousing

Table 6: Identified In-Scope Process Areas

In addition to implementing these modules the project will:

- o Deliver a Logical Architecture that supports Halifax Water's Target State
- o Complete a Privacy Impact Assessment
- o Complete a Threat Risk Assessment
- o Complete data migration from SAP to Cayenta
- o Provide change management: Stakeholder assessments, change management planning, transition, and training
- o Develop integrations between Halifax Water's core systems (e.g. ViP, EDW) and Cayenta CIS/FMS
- o Manage any changes required to other systems as a result of migrating from SAP to Cayenta. For example, a major change to the GL structure will require a reconfiguration of the ViP (payroll) system to support the new structure.
- o Deliver hosting and management services for Cayenta's CIS and FMS applications
- o Identify/inventory SAP Data not being ported to Cayenta's CIS and FMS
- o Put a plan in place to decommission SAP prior to contract renewal

4.1 Proposed Schedule

The following schedule is preliminary view. It is split into two parallel implementations Customer Information and Financial. They have a staggered start so both areas come online in the same go-live event.

Project implementation start date is expected to be October 2020

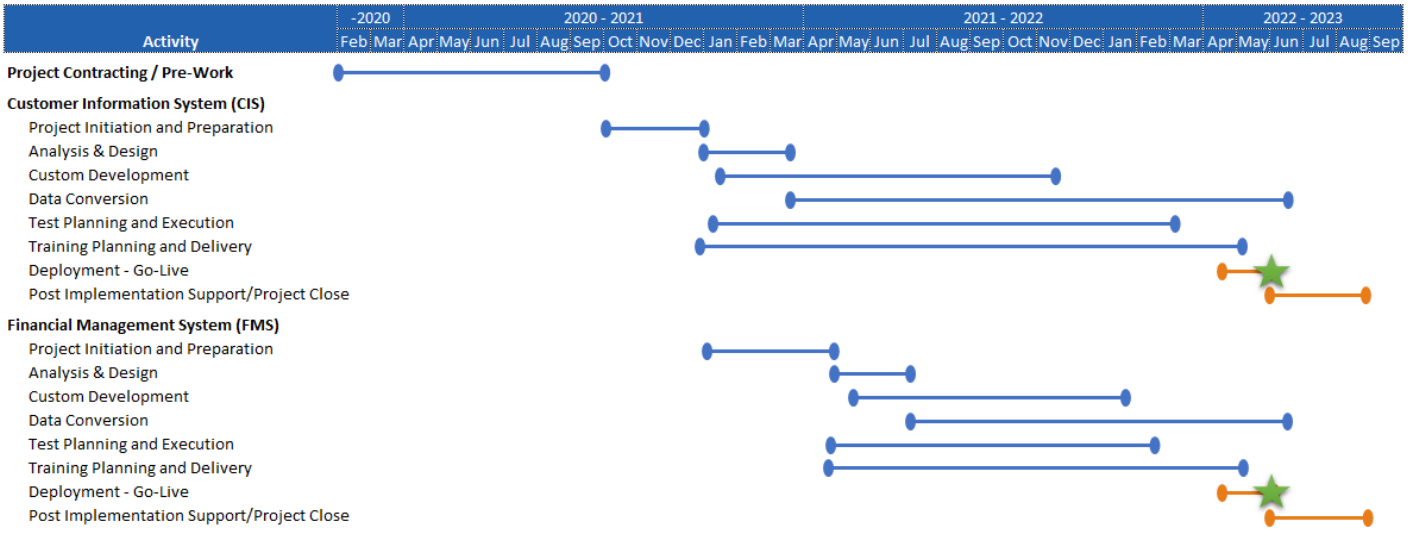


Figure 1: Proposed Project Timeline

4.2 Project Resourcing

Halifax Water anticipates utilizing up to twelve resources at various stages of the project for project management, business analysis, data conversion, report development, systems integration, testing, training and change management.

Halifax Water anticipates utilizing six individuals from various user departments as subject matter experts and for system design and testing plus others that will provide technical, change management and other support.

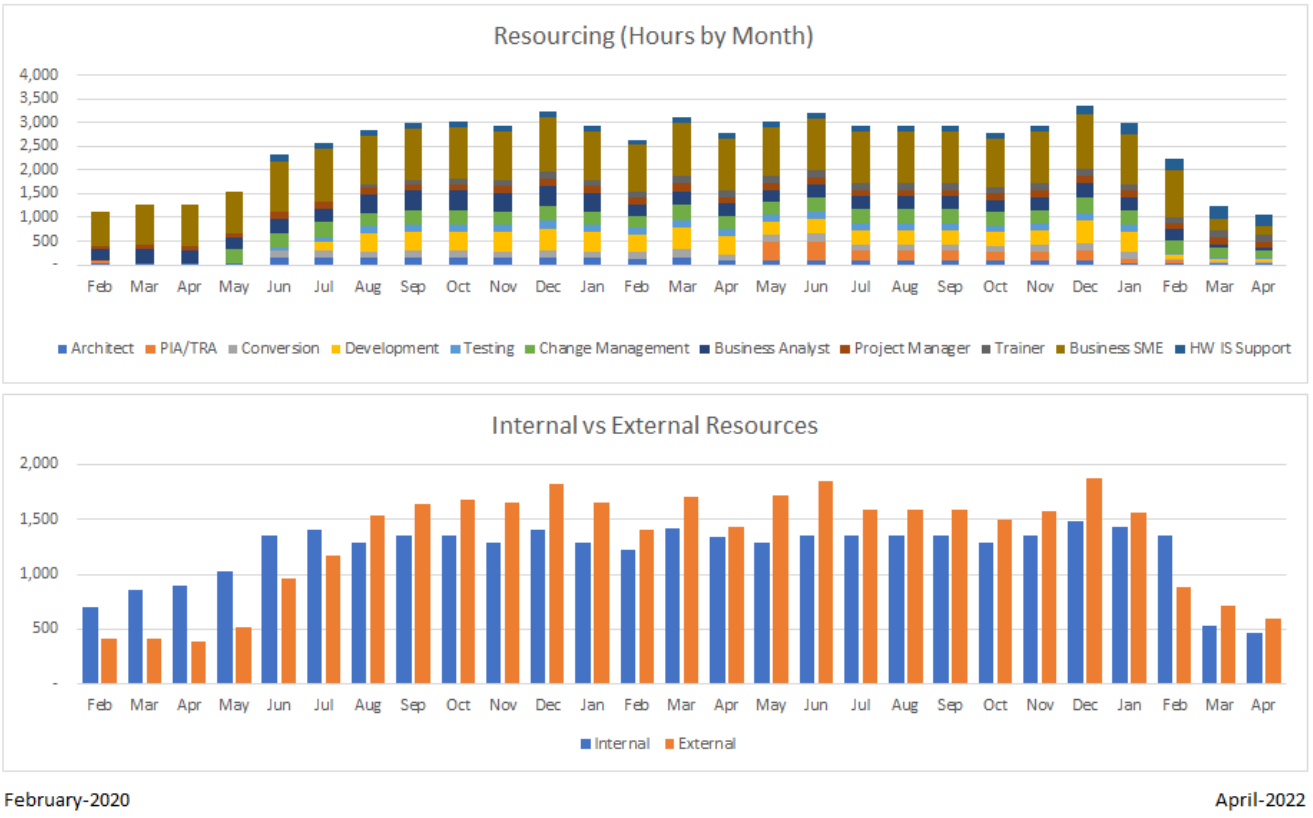


Figure 2: Project Resourcing

4.3 Organizational Impact

The implementation of a new ERP system will have a deep impact on Halifax Water and its workforce. With the adoption of any new system comes a change in current processes and procedures as even when shifting from an existing system no two systems are identical. The introduction of Cayenta will not only improve operational efficiency, encourage collaborative integration of activities and simplify business processes, it will generally make life easier for Halifax Water Employees.

4.4 Technology Impact

Adopting Cayenta enables Halifax Water's strategic vision for its future. Satellite systems have already been replaced. Halifax Water has already replaced its work order management system, payroll system, installed enhanced metering throughout its customer base, and initiated a customer portal project. All in support of modernizing its operations and its ability to support its customer's ongoing and future requirements. At the core of this is the ERP. An ERP that has limited integration and manual work arounds does not support Halifax Water's strategic vision.

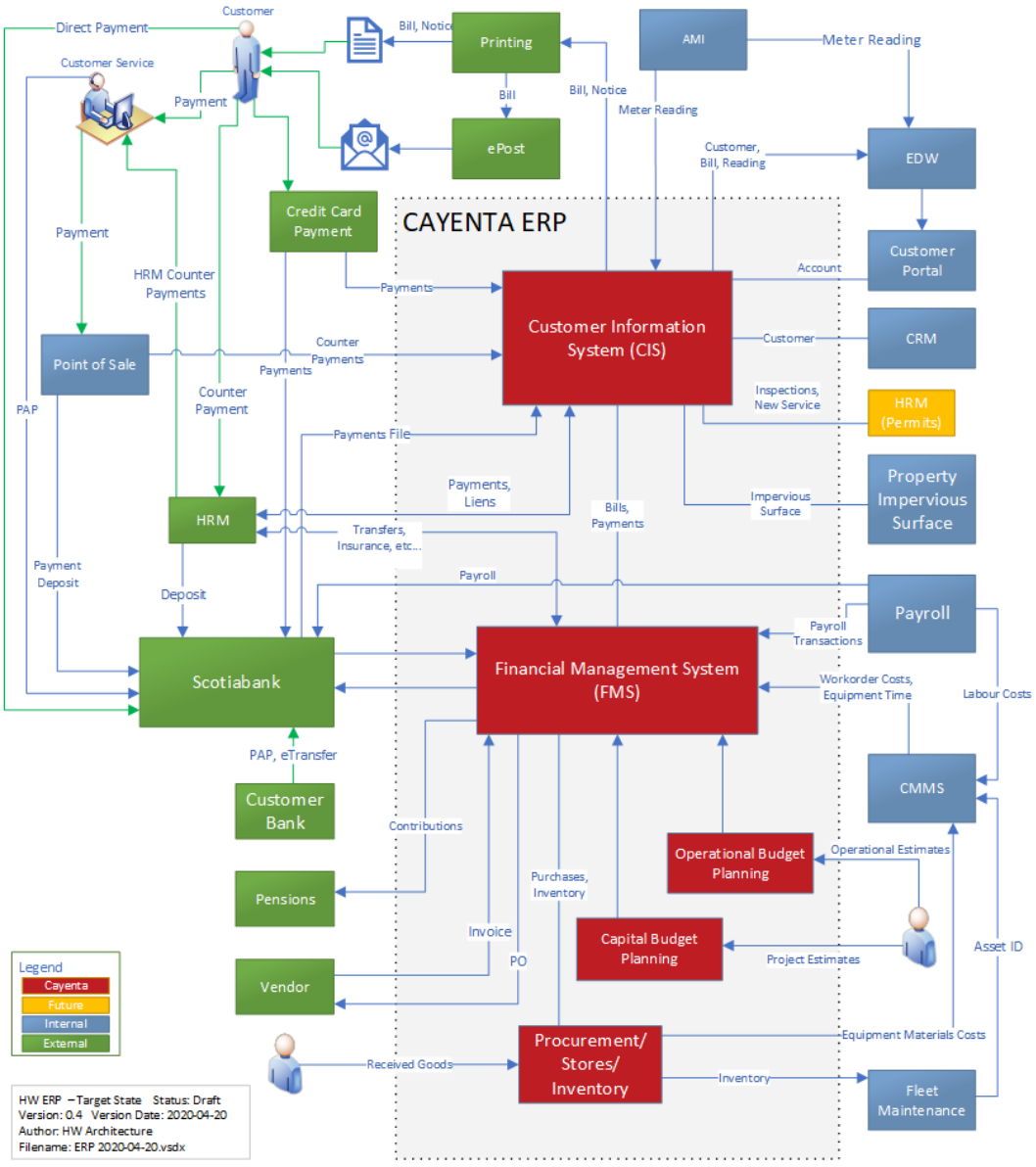
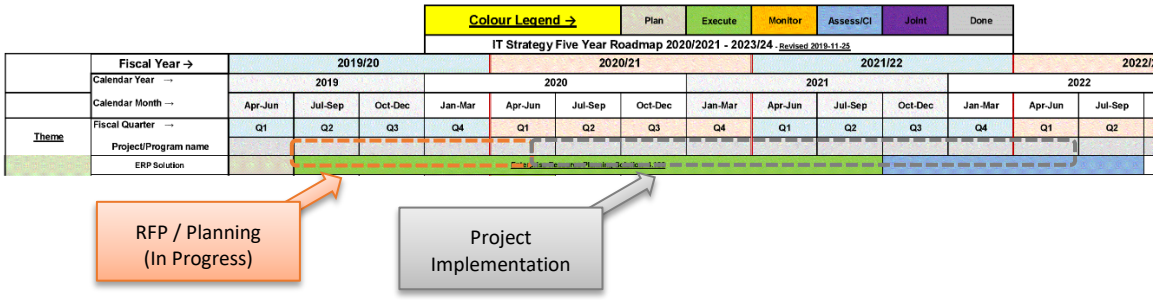


Figure 3: Halifax Water ERP: Target State

5. Strategic Alignment

ERP Solution project falls under the strategic theme *"Secure IT Foundation"* in the IT Strategic Plan.

The IT Strategic Plan shows the ERP Solution project in the context of the plan, where the RFP process is complete, and continuation of the project with the execution of implementation is ready, pending approval.



Implementation of the solution includes integrations with numerous Halifax Water systems along with training for impacted staff and management.

6. Project Success

Project success is traditionally defined as the project meeting its objectives on time, within budget. However, many factors contribute to the successful implementation of an ERP project.

6.1 Project Success Factors

Project success will be evident when:

- The ERP Solution project and supporting integrations/interfaces are developed within the identified budget and schedule
- Corporate Services employees are proficient in their use of the Cayenta CIS/FMS systems
- Redesigned/future state business processes are fully adopted within 18 months of the Cayenta CIS/FMS systems being implemented
- Halifax Water vendors can sign-up for access to the Vendor Portal and manage their passwords and other security processes without any human intervention by Halifax Water staff
- Halifax Water employees begin using the Employee Self Service Portal to enter expenses in Cayenta
- Benefits realization measures will be evaluated and tracked by the Benefits Realization Owner(s) and reported to organizational leadership for a minimum of 3 years, or until the target benefits have been achieved

If these factors are met as a result of the project activities, the project will be deemed to be successful.

6.2 Critical Success Factors

The following factors have been identified as critical to achieving project success[4]:

1. **Clear Understanding of Strategic Goals:** Halifax Water needs to understand what they are trying to achieve and how they are trying to achieve it. To do this Halifax Water needs to understand its strategic goals.
2. **Commitment by Top Management:** It is essential that project support and sponsorship is maintained. Timely review of project artifacts and decision making is vital to the project's success in meeting timeline requirements.
3. **Excellent Project Management:** Successful implementation requires excellent project management practices, processes and tools. This includes a clear definition of scope, budget, resourcing and schedule. To support this, it requires timely participation and completion of work by project representatives from the business in order to maintain the project schedule.
4. **Organizational Change Management:** Replacing an ERP comes with change. The new ERP will drive change to current processes and introduce new processes. This may drive realignment of organizational controls and impact functional areas. Implementing a new ERP may change employee roles. Change management is a vital component in the success of any ERP implementation.
5. **A Great Implementation Team:** This team is responsible for the delivery of the ERP to the business. It is critical that adequate internal subject expertise be included as part of the team to ensure a comprehensive list of requirements is developed. A strong vendor who has implemented the selected solution is vital for project success.
6. **Data Accuracy:** Moving data from SAP to Cayenta cleanly and accurately is a vital factor in the success of this project. Failure to do so will cause significant issues and impact many. This item is significant enough it has its own stream in the overall project plan.

[4] Umble, E. J., Haft, R. R., & Umble, M. M. (2003). Enterprise resource planning: Implementation Procedures and Critical Success Factors. European Journal of Operational Research, 146(2), 241-257.

7. **Extensive Education and Training:** This ties into #4 above. Extensive training and awareness are necessary in order to reduce user resistance to adopting the new system. With training and awareness comes understanding and desire to support the change to the new system.
8. **Focused Performance Measures:** Was the project successful? How will it be measured? It is vital that project evaluation measures are developed at the beginning of the project. Often referred to as benefits realization, it is the pre-planning for, and ongoing management of benefits promised to be enabled by the successful implementation of the project.
9. **Interdependency Management:** Since the solution being sourced will be deployed into a complex operating environment, and will have to interface with other systems, it is imperative that the technical architecture group be engaged early in the project.

6.3 Business Benefits

A successful project will deliver benefits to the business and it is expected that a wide range of business benefits will be achieved. Some of these benefits are in areas with KPIs that are being measured today and will have a baseline for comparison, while others will be new measures where the trending data will define the amount of benefit being realized. There will also be a range of less-tangible benefits that are harder to measure. For these, approaches will be established to quantify the impact (e.g. positive or negative). Key benefits that will be realized through the new ERP solution include providing:

- Enhanced customer utility billing functionality that will streamline business processes and data collection while reducing or eliminating current manual processes such as customer moves between existing serviced locations (move-in-move-out); setting up new customer accounts and recording deposits; equalized payment plans billing, and posting of customer credit balances to the Accounts Payable ledger to initiate refunds;
- Enhanced customer experience when making payments in person by utilizing an integrated point of sale system to eliminate duplication of data entry, enable timely application of payments to accounts, and allow staff to provide up-to-date account balances;
- Enhanced credit and collections management functionality including automatic triggering of collection events, customer credit rating profiles which can be viewed across all their accounts to provide ‘credit at a glance’, and the ability to integrate with an automatic dialer for assistance with outgoing collection calls
- Enhanced vendor experience by accessing the Vendor Portal and managing their passwords and other security processes without any human intervention by Halifax Water staff
- Better procurement controls when managing inventory and non-inventory items
- Enhanced capital project management including improved portfolio management for project managers, management of internal and external funding of projects, and project forecasting to enhance cash flow forecasts and identification of residual available funds;
- Enhanced reporting and analytics through the use of tools such as dashboards that will allow management to better monitor and act upon operational results including cash balances and cash flow to minimize interest costs, accounts receivable balances to reduce the risk of bad debts, un-utilized capital to re-assign available funds to other opportunities, and changing revenue and expense results to prepare more accurate budgets and forecasts;
- Reduced reliance on data exports, analysis in Excel spreadsheets, manual entries and the associated risk of spreadsheet errors;
- Better integration with existing and planned supporting services including payroll, Enterprise Data Warehouse, Advanced Metering Infrastructure, Computerized Maintenance Management System, Customer Relationship Management system and the Customer Portal;

- Mobile technology that will allow service requests to flow from the Customer Care call centre to operational staff without the use of paper-based work tickets;
- Enhanced support for dual reporting standards - the NSUARB Handbook for Water Utilities and International Financial Reporting Standards (IFRS);
- Streamlined standardized workflows and business processes to improve collaboration and deliver consistent and timely results;
- Halifax Water already uses other modules supplied by the vendor of the selected solution. This will provide further opportunities for enhanced integration with the ERP Solution.

Project Charter - ERP Solution Implementation

PROJECT IDENTIFICATION			
Project Name:	ERP Solution – Implementation Phase		
Project Description:	SAP ERP Replacement (Vendor Hosted/Software as a Solution)		
Client Name:	Corporate Services		
Executive Sponsor:	Cathie O'Toole	**Project Owner:**	Warren Brake
Project Sponsor:	Louis de Montbrun	**Project Manager:**	Tim Roberts

REVISION HISTORY			
Revision #	**Date**	**Author**	**Brief Description of Change**
1.0	2019-04-01	Tim Roberts	Initial Draft
1.1	2019-05-01	Tim Roberts	Edits, post peer review

REFERENCE DOCUMENTATION	
Document	**Date**
Final Project Report - Halifax Water ERP Assessment - June 2019. pdf	2019-06-23
GM Report - ERP Solution Project Request for Prop $248K.pdf	2019-07-24
ERP Solution RFP Phase - Charter-PM Plan.pdf	2019-08-15

BACKGROUND AND PROJECT PURPOSE

Halifax Water's current ERP solution is SAP, hosted and supported by the Province of Nova Scotia. While SAP has provided Halifax Water the core capabilities required, it is nearing end of life and the province has proposed a migration path to S/4 Hana. It should be noted that S/4HANA is not an upgrade, but a migration/conversion.

Halifax Water recognizes that its current SAP environment leaves significant room for improvement specifically in functionality used, costing, and services to support their business.

Initial estimates from the Province suggested the cost of operating S/4 Hana will be more than double the current operating costs of SAP and triple the extrapolated cost after the TELUS HCM implementation (*via the New Payroll System project*).

Given the current cost of SAP and the anticipated cost increase to move to S/4 Hana, Halifax Water engaged KPMG to conduct an ERP Assessment to answer the question: "*Is SAP the right ERP for a Water Utility our size"*.

Based on Halifax Water's current ERP use case, KPMG identified viable alternative solutions that provide similar and/or better capabilities with comparable pricing[1]. These alternative solutions contain several additional features bundled in their product portfolio that Halifax Water can explore for its future needs. Additionally, Halifax Water's peer utilities have either chosen to, or are in the process of choosing, similar alternative solutions. KPMG recommended Halifax Water release an RFP for a replacement ERP solution.

Following the KPMG review/recommendation, Halifax Water initiated its RFP process to find and recommend a replacement for SAP that supports its future requirements and is capable of existing in a heterogeneous environment.

Subsequent to KPMG's review/recommendation and during the RFP process, IBM provided Halifax Water an estimate that indicated implementation and ongoing operating of S4/Hana would be significantly more than the initial estimate provided by the province. This further validated the need to seek an alternative solution.

At the conclusion of the RFP process Cayenta was selected as the preferred proponent to move forward into the negotiation phase.

The purpose of the **ERP Solution Project – Implementation Phase** is to implement the Cayenta Customer Information System (CIS) and Financial Management System (FMS) into the Halifax Water environment replacing its current ERP solution (SAP ECC), which is on a path to end of service life.

[1] KPMG Final Project Report - Halifax Water ERP Assessment - June 2019

PROJECT OBJECTIVES AND BUSINESS BENEFITS

Halifax Water has acquired an ERP Solution (Cayenta) that addresses its business and functional requirements. The Cayenta solution has two key elements

- Cayenta Customer Information System (CIS) – a comprehensive and flexible customer relationship management and utility billing system
- Cayenta Financial Management System (FMS) – a highly scalable financial management system that addresses the specific needs of the utility industry

The Project has the following objectives

- Implement technology to make Halifax Water future-ready in terms of their ERP:
  - Implement an ERP solution that provides finance and accounting, procurement and customer utility billing functionality
  - Implement an ERP solution that incorporates industry-leading training documentation, "best in class" business processes, and seamlessly supports evolving business needs in the future
  - Deliver a more modern REST based, web service architecture to support existing and future integrations
  - Deliver a secure role-based environment to maintain data security and data integrity
  - Deliver a solution that has an intuitive and user-friendly interface
  - Deliver the ability to perform Disaster Recovery activities quickly and easily
  - Deliver a solution consistent with Halifax Water's data and information security policies and procedures
  - Reduce the number of legacy systems, including Excel spreadsheets and Access databases
  - Seamlessly integrate with existing supporting services (e.g. Payroll, data warehouse, meter reading, GIS, CMMS, CRM and future Customer Portal)

- Provide better cost management:
  - Keep the overall annual cost of operating the new ERP to a minimum; reduce the overall annual cost of operating the CIS/FMS when compared to SAP S/4 Hana
  - Increase availability of Customer Service, Billing, Procurement and Finance Staff to work on other activities due to process improvement
  - Improve the development of budgets with workflow and real-time forecasting
  - Support the automation of the cost allocation process

- Support other areas of operations within Halifax Water:
  - Support energy management
  - Support management of small equipment and bulk materials like chemicals
  - Improve asset accounting and capital funds management

- Standardize and improve business processes:
  - Streamline business processes and data collection in order to reduce manual processes and cycle times
  - Introduce standardized workflows and business processes to improve collaboration and deliver consistent results
  - Reduce the closing time for financial periods/books
  - Improve business adoption and acceptance through regular communications and a focused business change management plan

- Improve reporting and analytics:
  - Maintain a single Chart of Accounts across all operational departments in order to track financial information easily and accurately
  - Provide real-time visibility at the detailed transactional and summary levels to improve decision making
  - Improve reporting and analytics through the use of business intelligence and dashboards
  - Improve support for dual reporting (NSUARB & IFRS)

PROJECT OBJECTIVES AND BUSINESS BENEFITS

The following factors have been identified as critical to achieving project success:

- **Strong Ownership and Commitment to the Project:** It is essential that project support and sponsorship is maintained. Timely review of project artifacts and decision making is vital to the project's success in meeting timeline requirements.

- **Subject Matter Expert Availability:** It is critical that adequate internal subject expertise be included as part of the team to ensure a comprehensive list of requirements is developed.

- **Availability and Participation of Key Project Stakeholders:** The timely participation and completion of work by project representatives from the business will be critical to maintaining the project schedule.

- **Interdependency Management:** Since the solution being sourced will be deployed into a complex operating environment, and will have to interface with other systems, it is imperative that the technical architecture group be engaged early in the project.

By realizing these project objectives and critical success factors, it is expected that a wide range of business benefits will be achieved. Some of these benefits are in areas with KPIs that are being measured today and will have a baseline for comparison, while others will be new measures where the trending data will define the amount of benefit being realized. There will also be a range of less-tangible benefits that are harder to measure. For these, approaches will be established to quantify the impact (e.g. positive or negative).

The key business benefits expected to be achieved through the adoption of the Cayenta CIS/FMS include:

- Improved customer management, billing, support for monthly billing, collation of bills for large customers, collections
- Improved procurement, vendor relationship management, inventory and stores management
- Increased level of customer satisfaction relating to service interactions and billing inquiries
- Improved/streamlined internal workflows related to customer service within the Customer Care Centre and other customer-serving operational business units
- Improved supply chain management with enhanced procurement, vendor relationship management,
- Improved efficiency with the elimination of repetitive highly manual tasks and reduction in use of legacy systems such as Excel spreadsheets and Access databases
- Improved data interfaces for processes and tools related to capital funds management
- Improved reporting and analytics to improve decision making
- Improved security over access to the data with reduction on reliance on spreadsheets and improved integrations with other systems
- Improved data accuracy to provide higher level of confidence in data and resulting decisions
- Improved support of other areas within Halifax Water through improved asset accounting, capital funds management and reporting

Business Benefits Realization:

Business benefits are generally achieved as a result of the effective use and adoption of the deliverables of the project, not simply as a result of completing the project that produced the deliverables. As a result, the benefits realized from the project are usually not measurable until some period after the project has completed.

To ensure the expected benefits are realized, it is recommended the project deliver a benefits realization plan that identifies a Benefits Owner(s) named by Halifax Water who will be responsible for measuring the results of the project over time after it has completed and reporting back Halifax Water leadership on the actual business benefits achieved.

PROJECT SCOPE AND HIGH-LEVEL REQUIREMENTS

Scope management is the key to controlling project budget, schedule and quality. Halifax Water's project scope management is the process of identifying and controlling the Halifax Water scope of work as it relates to the overall project objectives. During the planning process the project team strives to ensure project scope includes all the work required and only that work required to satisfy the project requirements.

PROJECT SCOPE AND HIGH-LEVEL REQUIREMENTS

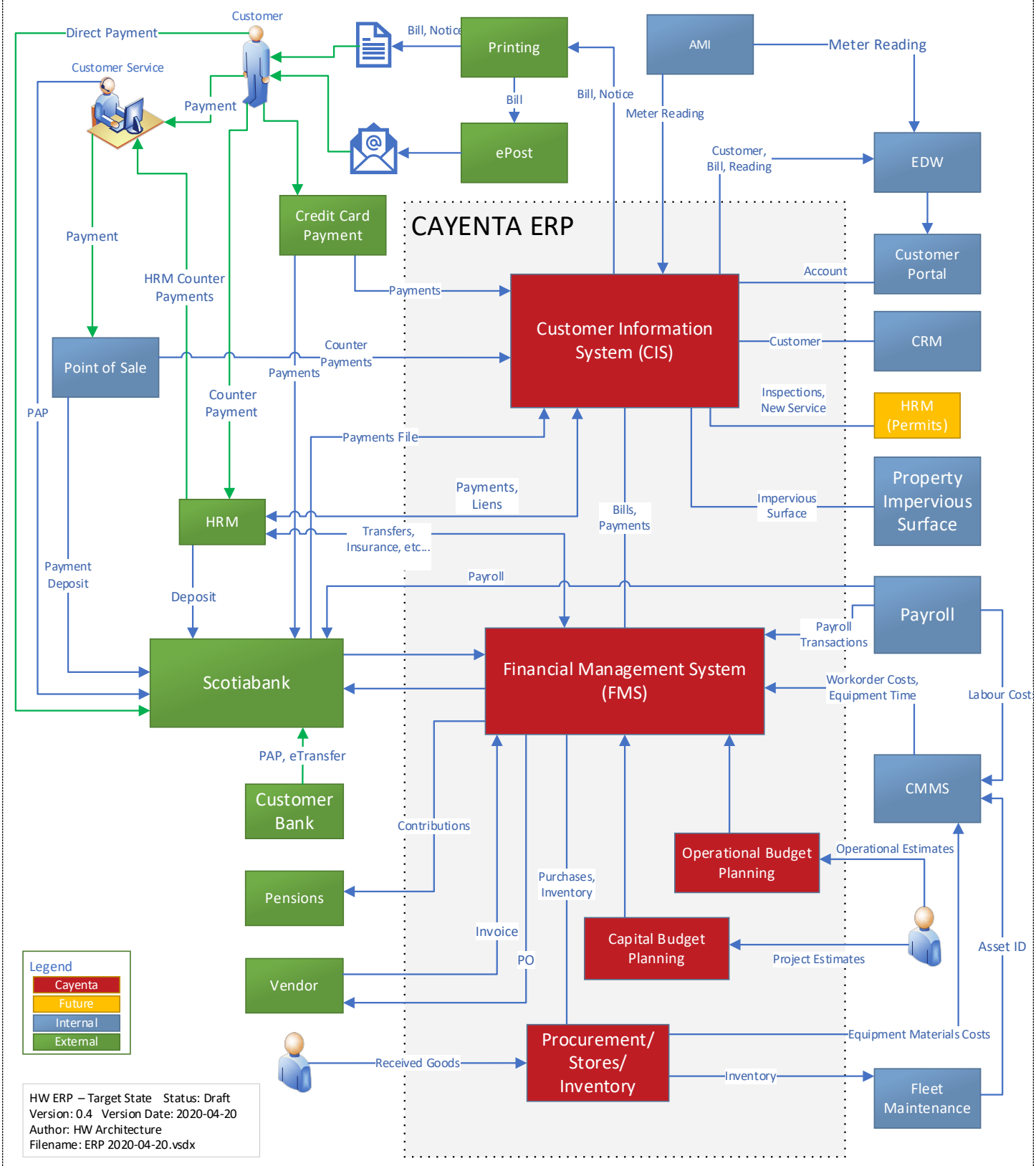
The following Process Areas, and associated business processes are in scope for the ERP Solution Project:

PROCESS AREAS				
Process Level 0	**Billing / Customer Management**	**Financial**	**General**	**Supply Chain**
Process Level 1	o Customer Management o Payment Processing o Utility Billing o Collections	o Accounts Payable o Accounts Receivable o Budgeting o Financial Reporting o Fixed Assets o General Ledger o Project Accounting o Service Orders o Treasury Operations o Capital Funds Management o Unregulated Revenues	o Analytics and Reporting o General Functionality	o Contract Management o Expenses Management o Inventory Management o Procurement o Procurement Cards o Vendor Management o Warehousing

In addition to implementing these modules the project will:

- Deliver a Logical Architecture that supports Halifax Water's Target State
- Complete a Privacy Impact Assessment
- Complete a Threat Risk Assessment
- Complete data migration from SAP to Cayenta
- Provide change management: Stakeholder assessments, change management planning, transition, and training
- Develop integrations between Halifax Water's core systems (e.g. ViP, EDW) and Cayenta CIS/FMS
- Manage any changes required to other systems as a result of migrating from SAP to Cayenta. For example, a major change to the GL structure will require a reconfiguration of the ViP (payroll) system to support the new structure.
- Deliver hosting and management services for Cayenta's CIS and FMS applications
- Identify/inventory SAP Data not being ported to Cayenta's CIS and FMS
- Put a plan in place to decommission SAP prior to contract renewal (*Plan ready by September 2021*)

TARGET STATE



OUT OF SCOPE ITEMS

There are several elements that are not within the scope of the ERP Solution project.

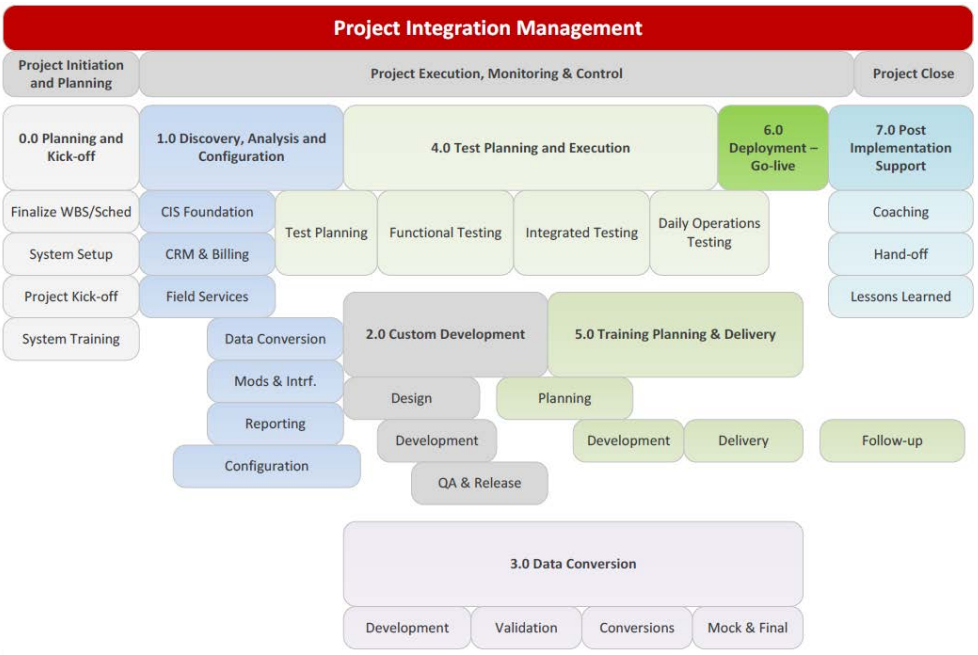
- The design and implementation of any organizational structural changes identified and recommended to better position Halifax Water for the adoption of ERP best practices. Authority for effecting organizational structural changes and changes affecting employment agreements remains with designated departments and managers within Halifax Water.
- Interface with Customer Portal. The real-time interface to Customer Portal will be through the CRM system. Data sharing between the Customer Portal and the ERP will be through the EDW.
- Implementation of a replacement Customer Relationship Management (CRM) solution for the Customer Care Centre.
- Integration with HRM's current Permit system. The future HRM Permits system will continue to manage the collection of Initial Inspection Fees for lateral inspections by Halifax Water on new construction, as well as collecting and managing RDC charges and Deferred RDC charges. Integration with the future HRM Permits system will within the scope of that project.
- Integration between Water Plus and ERP (process will remain manual)

SUMMARY SCHEDULE AND MILESTONES

Time management is critical on this project and the project schedule will be the primary tool for managing the schedule. The project schedule identifies the deliverables, work activities, and tasks for successfully implementing Cayenta CIS and FMS. The project schedule will identify the work task details to a level that will allow for accurate monitoring and control of the project timeline.

The project team will review the schedule with the team and Project Owner during status meetings to adjust, compensate for, and take corrective actions as required by any schedule changes. As such, the project schedule can be considered a working or living document. Schedule delays could result in a modification of the cost of the project. Any changes to approved milestones will require a Change Request.

Implementation of the solution includes integrations with numerous Halifax Water systems along with training for impacted staff and management. Halifax Water will follow Cayenta's implementation methodology to implement the CIS and FMS modules

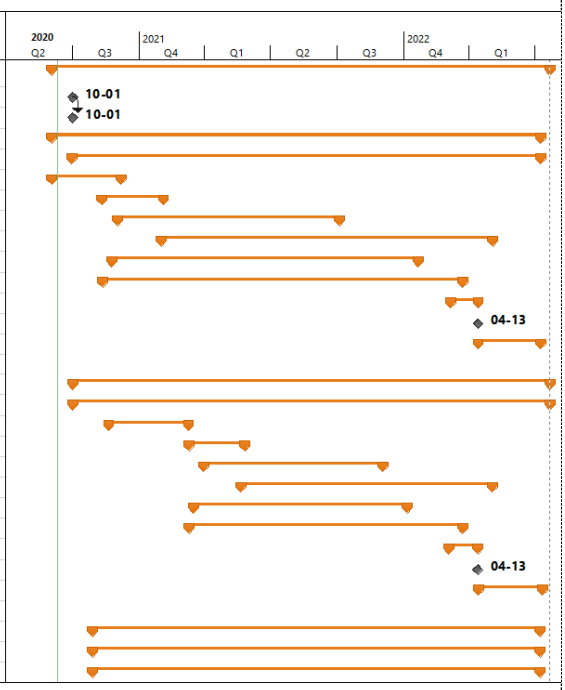


The following schedule is preliminary view. It is split into two parallel implementations Customer Information and Financial. They have a staggered start so that both systems come on line in the same go-live event.

SUMMARY SCHEDULE AND MILESTONES

Upon approval of the project, the first step with the vendor is a detailed business process review. Once completed, and the vendor has a fuller understanding of Halifax Water's ERP environment, the schedule and budget will be reviewed and adjusted if required.

Task Name	Work	Duration	Start
Cayenta Implementation Schedule for Halifax Water (Hosted)	**48,694.64 hrs**	**468 days**	**2020-09-03**
Contract Signing	0 hrs	0 days	2020-10-01
Project Start Date	0 hrs	0 days	2020-10-01
Customer Information System Implementation	**31,916.55 hrs**	**459 days**	**2020-09-03**
CIS Program Monitoring and Control	**4,004 hrs**	**440 days**	**2020-10-01**
1.1 CIS Project Initiation and Preparation	**353.65 hrs**	**64.5 days**	**2020-09-03**
1.2 CIS Analysis & Design	**2,996 hrs**	**57 days**	**2020-11-10**
1.3 CIS Custom Development (as contracted)	**4,970.77 hrs**	**208 days**	**2020-12-03**
1.4 CIS Data Conversion	**1,468.43 hrs**	**312 days**	**2021-02-01**
1.5 CIS Test Planning and Execution	**13,423.55 hrs**	**287 days**	**2020-11-25**
1.6 CIS Training Planning and Delivery	**1,039.5 hrs**	**338.75 days**	**2020-11-12**
1.7 CIS Deployment - Go-Live	**648.2 hrs**	**28 days**	**2022-03-07**
CIS Go-Live	0 hrs	0 days	2022-04-13
1.8 CIS Post Implementation Support and Project Close	**3,012.45 hrs**	**58 days**	**2022-04-14**
Financial System Implementation	**16,059.89 hrs**	**448 days**	**2020-10-02**
FMS Program Monitoring and Control	**1,442.56 hrs**	**448 days**	**2020-10-02**
1.1 FMS Project Initiation and Preparation	**231.15 hrs**	**74 days**	**2020-11-20**
1.2 FMS Analysis & Design	**1,481.9 hrs**	**52 days**	**2021-03-11**
1.3 FMS Custom Development (as contracted)	**1,984.46 hrs**	**169 days**	**2021-03-31**
1.4 FMS Data Conversion	**1,239.88 hrs**	**235 days**	**2021-05-21**
1.5 FMS Test Planning and Execution	**6,635.65 hrs**	**200 days**	**2021-03-17**
1.6 FMS Training Planning and Delivery	**803.25 hrs**	**256.75 days**	**2021-03-11**
1.7 FMS Deployment - Go-Live	**574.7 hrs**	**28 days**	**2022-03-04**
FMS Go-Live	0 hrs	0 days	2022-04-13
1.8 FMS Post Implementation Support and Project Close	**1,666.35 hrs**	**58 days**	**2022-04-14**
FMS/WMS Additional Products	**718.2 hrs**	**420 days**	**2020-10-29**
Web Cayenta Connect Finance (CCF)	**359.1 hrs**	**420 days**	**2020-10-29**
Web Cayenta Connect Vendor (CCV)	**359.1 hrs**	**420 days**	**2020-10-29**



Milestones for the project, supporting this methodology, are listed below. Milestone dates are preliminary

Phase 0 - Contract Signing	**End Date**
Contract Signing	October, 2020

Phase 1 - Planning and Kick-off	**End Date**
Baseline Project Schedule Delivered	November, 2020
Cloud Environment Setup Complete	November, 2020
Pre-Configuration Questionnaires Delivered and Returned	November, 2020
Project PMO Established	November, 2020
Project Tools Delivered	November, 2020
Solution Installed and Ready for Pre-Configuration	November, 2020
Analysis & Design Plan Delivered	December, 2020
Project Kick-Off Meeting Completed	December, 2020

Phase 2 - Analysis & Design	**End Date**
CIS Solution Pre-Configuration Complete	December, 2020
CIS System Overview Training Delivered	December, 2020
CIS Analysis & Design Sessions Complete	February, 2021
CIS Configuration Complete	March, 2021
CIS Gap Analysis Complete	March, 2021
Configuration Change Register Delivered	March, 2021
FMS Business Process Review Workshop(S) Delivered	March, 2021
FMS Business Process Gap Analysis Document Delivered	April, 2021

Phase 3 - Custom Development	End Date
CIS & FMS Modification Workshop Completed	January, 2021
CIS & FMS Custom Modification Specifications Delivered	February, 2021
Reporting Workshop Completed and Reporting Plan Delivered	February, 2021
CIS Interface Workshop Held and CIS Interface Plan Delivered	February, 2021
CIS Bill Print Workshop Held & CIS Bill Print Specification Delivered	April, 2021
FMS Interface Workshop Completed & FMS Interface Plan Delivered	July, 2021
FMS Reporting Plan Delivered	July, 2021
FMS Reporting Workshop Completed and Reporting Plan Delivered	July, 2021

Phase 4 - Data Conversion	End Date
Data Conversion Workshop and Plan Delivered	April, 2021

Phase 5 - Test Planning and Execution	End Date
CIS Business Process Test Plan Delivered	March, 2021
Business Process Testing Complete - Primary	April, 2021
Business Process Testing Complete - Secondary	June, 2021
Batch Process Training Delivered	June, 2021
Converted Testing Database with Audit Report – CONV1	July, 2021
Integrated Test Plan Delivered and Accepted	August, 2021
User Security Setup Training Delivered	September,2021
Integrated Test Execution and Reporting – Cycle 1	September, 2021
Integrated Test Execution and Reporting – Cycle 2	October, 2021
Integrated Test Execution and Reporting – Cycle 3	December, 2021
User Acceptance Testing (UAT) complete	February 2022

Phase 6 - Training Planning & Delivery	End Date
Initial End-user Training Plan and Template Documentation	November 2021

Phase 7 - Deployment & Go-live	End Date
Cut-over Preparations and Close-out Plans Ready	February, 2022
End-user Training Complete	February, 2022
Go-live to Production	March, 2022

Phase 8 - Post Implementation Support	End Date
Month 1 PGL Support	April,2022
Month 2 PGL Support	May, 2022
Month 3 PGL Support	June, 2022
Project Close	June, 2022

BUDGET

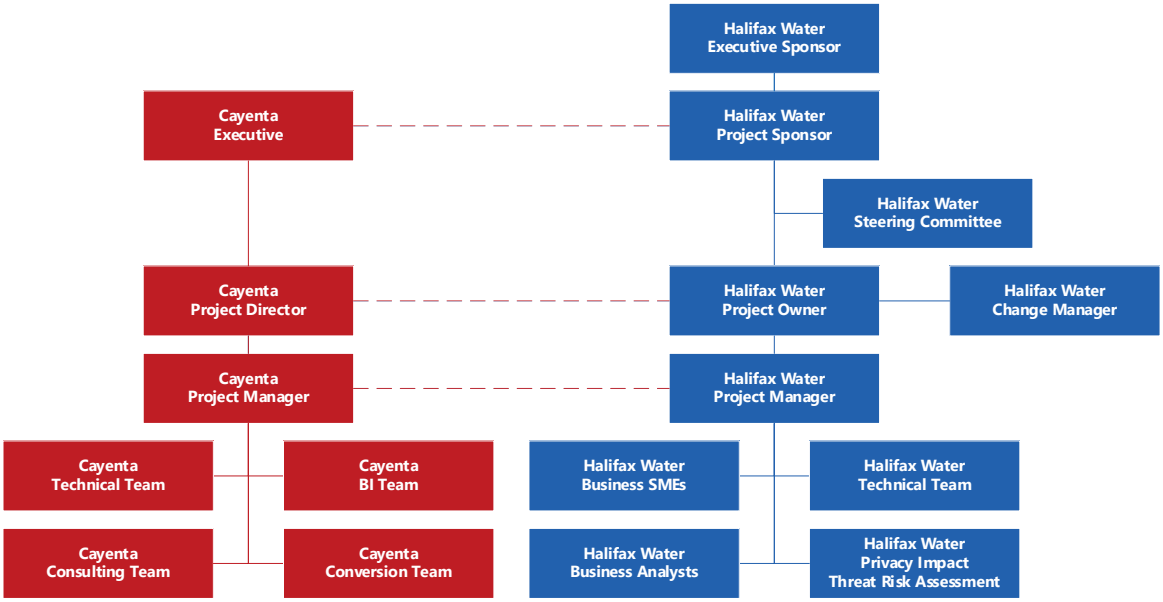
Funding requirements for this project are based on the proposed schedule above. This project requires approval of $16,629,000 to complete the implementation phase, broken down as follows:

Category	Who	2020-2021	2021-2022	2022-2023	Total
External Staffing	Vendor - IBM	230,000	536,000	-	**766,000**
External Staffing	ERP Vendor - Cayenta	1,846,000	4,270,000	431,000	**6,547,000**
External Staffing	HW Contractors	2,395,000	1,975,000	73,000	**4,443,000**
Internal Staffing	HW Employees	1,009,000	817,000	25,000	**1,851,000**
Expenses	Other Expenses (Travel, Meals, etc.	50,000	50,000	-	**100,000**
External Staffing	HW - TRA	100,000	-	-	**100,000**
External Staffing	HW - PIA	100,000	-	-	**100,000**
Expenses	HW - Gartner	50,000	-	-	**50,000**
Expenses	Overhead and Interest	58,000	77,000	6,000	**141,000**
Expenses	IT Facility Overhead	174,000	230,000	16,000	**420,000**
Expenses	Net HST	248,000	328,000	23,000	**599,000**
Implementation Total		**6,260,000**	**8,283,000**	**574,000**	**15,117,000**
			Contingency	**10%**	**1,512,000**
Grand Total					**16,629,000**

**TRA: Threat Risk Assessment*
**PIA: Privacy Impact Assessment*
**Funding requirements identified above do not include costs from previous ERP Solution phases (Phase 0: KPMG assessment, Phase 1: RFP)*

PROJECT GOVERNANCE

The following project governance model provides a high-level overview of the decision-making framework, structure, participants, and roles and responsibilities specific to the ERP Solution Project – Implementation Phase. It highlights a clear line of authority for the project and a clear path for escalation and decision-making requirements.



- **Executive/Project Sponsor:** Acts as a vocal and visible champion; legitimizes the project's goals and objectives, keeps abreast of major project activities, and is a decision-maker for the project.

PROJECT GOVERNANCE

- **Project Owner:** Person or organization that will use the project's product or services. Provides detailed direction and clarification on project scope, timelines and funding.
- **Steering Committee:** Responsible for business issues associated with the project essential to ensuring the delivery of project outcomes. Consists of the Project Sponsor, Project Owner, and representatives from selected stakeholder areas.
- **Project Manager:** Responsible for the delivery of the project's products or services. This role is accountable to the Project Owner and Steering Committee.
- **Subject Matter Experts:** Make recommendations on future state functional process, opportunities from current state. Ensures integration with other functional processes. Responsible for executing tasks and producing deliverables as outlined in individual project plans as directed by the Project Manager.

KEY STAKEHOLDERS	ROLE
Cathie O'Toole, General Manager	Executive Sponsor
Louis De Montbrun, Corporate Services	Project Sponsor
Warren Brake, Corporate Services	Project Owner
Allan Campbell, Corporate Services	Steering Committee
Michelle Comeau, Corporate Services	Steering Committee
Michael Frenette, Engineering and IS	Steering Committee
Jamie Hannam, Engineering and IS	Steering Committee
Shiju Mathew, Corporate Services	Steering Committee
Susan McNeil, Corporate Services	Steering Committee
Dayalan Pillay, Engineering and IS	Steering Committee
Halifax Water, Corporate Services	Informed Participants

CORE PROJECT TEAM	ROLE
Michelle Bennett, Corporate Services	Accounting SME
Warren Brake, Corporate Services	Accounting SME
Michelle Daignault, Engineering and IS	Business Analyst
Greg Duda, Engineering and IS	Technical Architect
Erin Flaim, Engineering and IS	Change Manager
Lisa Nickerson, Corporate Services	Accounts Payable SME
Kim Peterson, Corporate Services	Billing SME
Tim Roberts, Engineering and IS	Project Manager
Amanda Seguin, Corporate Services	Customer Care SME
Tanu Shukla, Engineering and IS	Business Analyst
Ann Marie Sturgeon, Corporate Services	Procurement SME
Cayenta	Implementation Project Team
IBM	SAP Support Team

PROJECT SUCCESS FACTORS

Project success will be evident when

- The ERP Solution project and supporting integrations/interfaces are developed within the identified budget and schedule
- Corporate Services employees are proficient in their use of the Cayenta CIS/FMS systems
- Redesigned business processes are fully adopted within 18 months of the Cayenta CIS/FMS systems being implemented
- Vendors can sign-up for access to the Vendor Portal and manage their passwords and other security processes without any human intervention by Halifax Water staff
- Halifax Water employees begin using the Employee Self Service Portal to enter expenses in Cayenta

PROJECT SUCCESS FACTORS

- Benefits realization measures will be evaluated and tracked by the Benefits Realization Owner(s) and reported to organizational leadership for a minimum of 3 years, or until the target benefits have been achieved

If these factors are met as a result of the project activities, the project will be deemed to be successful.

HIGH-LEVEL ASSUMPTIONS

- Seconded project team members need to remain unencumbered from their previous role. Seconded project team members are not responsible for the day to day management of existing ERP (SAP) practices or procedures. This remains with the designated Halifax Water staff.
- Meter reading data will be sourced from the Enterprise Data Warehouse (EDW)
- Internal resources will be made available to fully support the project and its stated deliverables
- Key project stakeholders will be available to respond in a timely manner to requests for information, deliverable review and approval
- Integrations will be developed to the existing infrastructure (e.g. ViP, EDW); if changes to other enterprise systems cause requirements for interfaces to be modified or replaced after they have been developed as part of this project, it will be the responsibility of those projects to complete the additional integration work
- Cayenta will support the vendors of source data systems in the implementation of the direct and additional supporting interfaces
- The Cayenta solution and all technical environments required by the project will be hosted by Cayenta and managed by Cayenta resources during the project and after project completion

KNOWN CONSTRAINTS

With all the inter-dependencies with other projects and the sensitivity of the data being managed by the solution, there are several known constraints that may impact the scope, budget and schedule of the ERP Solution project

- Because Cayenta CIS/FMS will be a hosted solution integrated with numerous Halifax Water Solutions, issues identified in the Privacy Impact Assessment and Threat Risk Assessment will require careful review and may require an addition to the project scope
- Solution must be implemented in a “window” prior to or after Halifax Water’s year end process to ensure availability of operational staff who will be focused on year-end activities
- SAP Service Packs occur in the October/November time frame each year

KNOWN RISKS

- COVID-19 is reshaping the way the project will be delivered. The original plan is for the Vendor/Client project team to be co-located. Currently, this is not possible. The vendor has experience with remote delivery and is confident a remote delivery model is possible in the original timelines proposed
- The province and IBM are sometimes slow to respond to requests for information. This has the potential of delaying the project. It will be important to have the correct sub-project/contract in place with IBM to ensure a smooth transition away from SAP
- SAP Legacy Data - All current SAP data will not be migrated from SAP to Cayenta. The project needs to ensure that SAP legacy data that is not migrated to Cayenta is extracted and stored outside of SAP or retained in an instance of SAP and has can be queried as required.

SPONSOR AND OWNER SIGN OFFS			
Executive Sponsor:	Cathie O'Toole	**Project Sponsor:**	Louis de Montbrun
Title/Department:	General Manager	**Title/Department:**	Director Corporate Services / CFO
Signature:		**Signature:**	
Date:		**Date:**	

Project Owner:	Warren Brake
Title/Department:	Accounting Manager
Signature:	
Date:	

Halifax Water
Halifax Regional Water Commission

ITEM # 6
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Louis de Montbrun
Digitally signed by Louis de Montbrun
Date: 2020.09.18 11:39:45 -03'00'
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.18 12:00:05 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 18, 2020

SUBJECT: **2020 Fall Debenture**

ORIGIN

Halifax Regional Water Commission (Halifax Water) participation in the Fall 2020 Municipal Finance Corporation (MFC) debenture issue to secure debt financing for 2019/20 and 2020/21 additions to utility plant in service.

RECOMMENDATION

It is recommended that the Halifax Water Board:

1. Approve the financing of $20,000,000 with a twenty-year amortization term and finance over ten or fifteen years, dependent upon which all-inclusive rate at time of pricing is less than 2%. If both are less than 2%, fifteen year financing will be obtained. The maximum all-inclusive rate is not to exceed 5.5%.

BACKGROUND

Halifax Water is legally required to borrow through the MFC. The borrowing proposed in this report is estimated using the Five Year Business Plan, the approved Operating and Capital Budgets for 2019/20 and 2020/21, and the rate schedule approved by the Nova Scotia Utility and Review Board.

DISCUSSION

Long term debt issued for capital projects is normally amortized for a period of twenty years based on the life of the assets being financed. Traditionally the market for twenty year financing in Canada has been more expensive than ten year financing so twenty year amortized debt is usually financed for ten years and the balloon payment refinanced for the remaining ten years. With the all-inclusive rate for the Spring 2020 debenture being below the rates we have traditionally been able to secure (1.86%), Halifax Water has considered another option. Halifax Water proposes to ask MFC to price the debenture over 10 years and 15 years prior to choosing the finance term. If the 15-year all-inclusive rate does not exceed 2%, Halifax Water would lock in the rates for 15 years. Alternatively, Halifax Water would finance the debenture over 10 years.

Though a lower interest rate cost is secured for the first ten or fifteen years, there is a risk that interest rates will be higher at the time the balloon payment is due for refinancing.

The 2019/20 Capital and Operating Budgets were prepared based on funding that included $39.9 million of debt to finance water, wastewater and stormwater additions to utility plant in service. Based on the timing of capital expenditures and cash flow projections, $25.0 million in new debt was acquired in the Spring of 2020 and the remainder is to be acquired through the Fall 2020 debenture issue.

An additional $48.5 million of debt is planned to fund the 2020/21 Capital Budget. A portion of this is to be issued through the Fall 2020 debenture, in the amount of $5.1 million. The acquisition of debt following completion of capital projects aligns with the expectations of MFC.

The $20.0 million will be applied to Water, Wastewater, and Stormwater as follows:

Water	$10.0 million
Wastewater	$6.0 million
Stormwater	$4.0 million

Our current Weighted Average Cost of Debt is 3.0% and the Spring 2020 Debenture had an interest rate of 1.86%. In the recommendation, Halifax Water uses a rate of 5.5% as recommended by MFC. This would be the upper limit that Halifax Water can finance debt. If the actual interest rate is greater than 5.5%, a revised report will be required for the Board. If the actual interest rate is lower than 5.5%, a revised report is not required.

The final timing and interest rates and timing of the debt issues will not be known with certainty until the formal debenture process concludes.

Halifax Water's debt is covered by a blanket guarantee approved by Halifax Regional Municipality (HRM) Council in September 2014. The blanket guarantee will apply to all Halifax Water debt with a condition that Halifax Water must maintain a debt service ratio

of 35% or less. Halifax Water's debt service ratio is 19.95% as of August 31, 2020. The debt service ratio is calculated as the cost of debt interest, principal and discount payments divided by the total Operating Revenue as found on the income statement (NSUARB format).

Halifax Water's outstanding debt at March 31, 2020 (including the current portion) was $220.1 million, and debt is projected to be $245.6 million at March 31, 2021.

BUDGET IMPLICATIONS

The 2020/21 budget includes $30.7 million in debt servicing. Debt servicing costs including the Spring debenture and expected Fall debenture are forecast to be $28 million. Halifax Water'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.

ALTERNATIVES

1. Halifax Water could choose to forgo participation in the 2020 Fall Debenture, however, forecasted expenditures over the remainder of the fiscal year will deplete the cash balance below the threshold Halifax Water is comfortable with, given the uncertainty due to the financial impact of Covid-19.
2. Ten year financing with a ten year term could be secured, but a shorter term is less equitable to customers as it does not consider inter-generational equity and does not distribute the cost among current and future rate payers over the expected useful lives of the capital additions.

ATTACHMENTS

1. Borrowing Resolution for $20.0 million of new debt.
2. Cash Flow Model for 2020/21 based on approved Operating and Capital Budgets and anticipated cash flow.

Report prepared by: Alicia Scallion

Digitally signed by Alicia Scallion
Date: 2020.09.18 11:42:40 -03'00'

Alicia Scallion, CPA, CA, Manager, Accounting, 902-490-4814

Appendix 1

HALIFAX REGIONAL WATER COMMISSION
BORROWING RESOLUTION

WHEREAS the Halifax Regional Water Commission (Halifax Water), is incorporated under the provisions of the *Halifax Regional Water Commission Act*, Ch. 55 of the Acts of 2007 (the "Act");

AND WHEREAS the Act provides that Halifax Water has power to borrow such sums as may be authorized and approved by the Board of the Commission for the purposes of the Commission, subject to the approval of the Nova Scotia Utility and Review Board;

AND WHEREAS Halifax Water wishes to borrow $20,000,000 for the purpose of financing regular additions to utility plant in service for a twenty-year amortization period;

AND WHEREAS a blanket guarantee for Halifax Water Debt was approved by the Halifax Regional Municipality on September 23, 2014;

BE IT RESOLVED THAT:

1. Under the authority of Section 16 of the *Act*, Halifax Water borrow from the Municipal Finance Corporation, for the purpose set forth above, a sum or sums not exceeding $20,000,000 for either a ten or fifteen-year term with a twenty-year amortization schedule at an all-inclusive rate not to exceed 5.5% percent;

2. The sum noted above be borrowed by the issue of debentures of Halifax Water to such an amount as Halifax Water deems necessary and that the debentures be arranged with the Nova Scotia Municipal Finance Corporation, with interest to be paid semi-annually and principal payments made annually; and

3. This resolution remains in force for a period of not more than 12 months from the passing of this resolution.

I certify the above to be a true copy of a Resolution approved at a meeting of the Halifax Water Board of Directors held on September 24, 2020.

_____

Heidi Schedler
General Counsel and Corporate Secretary

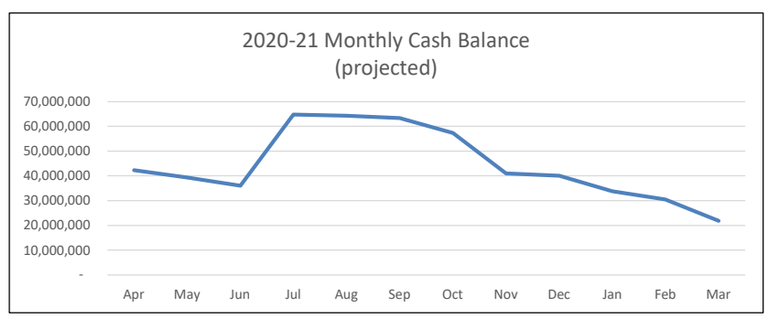
Halifax Water
Cash Flow Model for 2020-21
Actuals to date and forecast

	Original Budget	Forecast	Adjustments for Cash Flow	Planned Cash Flow	Actual Apr	Actual May	Actual Jun	Actual Jul	Forecasted Aug	Forecasted Sep	Forecasted Oct	Forecasted Nov	Forecasted Dec	Forecasted Jan	Forecasted Feb	Forecasted Mar	Forecasted Total
Operating Revenue	138,617,665	138,617,665	-	138,617,665	9,740,005	9,986,701	10,092,911	11,471,242	11,142,357	20,134,236	11,142,357	10,642,357	10,642,357	10,342,357	10,342,357	12,259,863	137,939,098
Operating Expenses	(100,884,123)	(100,884,123)	10,203,601	(90,680,522)	(6,834,402)	(7,041,436)	(6,356,842)	(6,392,129)	(7,340,044)	(7,340,044)	(8,640,044)	(7,340,044)	(7,340,044)	(7,340,044)	(7,340,044)	(7,340,044)	(86,645,157)
Non Op Revenue	618,861	618,861	-	618,861	58,374	53,834	53,548	61,380	51,572	51,572	51,572	51,572	51,572	51,572	51,572	51,572	639,711
Non Op Expenses	(64,504,719)	(64,504,719)	29,820,511	(34,684,208)	-	(4,622,824)	(2,257,779)	(324,560)	(2,667)	(6,309,792)	(2,667)	(12,040,603)	(66,409)	(515,826)	(2,667)	(6,764,084)	(32,909,876)
Operations Total	(26,152,316)	(26,152,316)	40,024,112	13,871,796	2,963,977	(1,623,726)	1,531,838	4,815,934	3,851,218	6,535,972	2,551,218	(8,686,718)	3,287,476	2,538,059	3,051,218	(1,792,693)	19,023,776
Capital Expenditures (incl CCC projects)	(96,514,000)	(82,510,359)	-	(82,510,359)	(5,565,145)	(2,527,521)	(3,003,324)	(2,542,369)	(4,645,000)	(9,222,000)	(9,379,000)	(9,544,000)	(4,973,000)	(10,763,000)	(9,476,000)	(10,870,000)	(82,510,359)
New Long Term Debt	58,730,000	26,700,000	(198,063)	26,501,937	-	-	-	24,897,660	(324,560)	-	-	-	-	-	-	-	24,573,100
Other Incoming Cash (Build Can, RDC, etc)	16,500,000	16,500,000	-	16,500,000	1,214,259	1,028,450	1,236,879	12,469	879,667	1,979,667	879,667	1,979,667	879,667	2,127,667	1,027,667	1,322,668	14,568,391
Changes in working capital	-	-	-	-	(6,227,186)	185,177	(3,092,181)	1,449,638	(250,000)	(150,000)	(100,000)	(100,000)	(100,000)	(100,000)	2,000,000	2,704,999	(3,779,552)
Net Cash Flow	(47,436,316)	(65,462,675)	39,826,049	(25,636,626)	(7,614,095)	(2,937,620)	(3,326,788)	28,633,333	(488,675)	(856,361)	(6,048,115)	(16,351,051)	(905,857)	(6,197,274)	(3,397,115)	(8,635,026)	(28,124,645)
Opening Cash Balance				49,952,991	49,952,991	42,338,896	39,401,276	36,074,488	64,707,821	64,219,146	63,362,785	57,314,670	40,963,619	40,057,762	33,860,488	30,463,373	49,952,991
Ending Cash Balance				24,316,366	42,338,896	39,401,276	36,074,488	64,707,821	64,219,146	63,362,785	57,314,670	40,963,619	40,057,762	33,860,488	30,463,373	21,828,347	21,828,347

Notes

- Adjustments for Cash Flow include removing the non cash portion of the Pension Expense, Depreciation, and Debt Discount
- Debt principle and interest payments are included in the Non Operating Expenses category
- Capital Expenditures includes the 2020-21 Capital Budget projects, projects carried over from 2019-20, and additional CCC project payments
- The new Long Term Debt anticipated in this forecast is for $25.0m in new debt and a $1.7m balloon renewal
- Other Incoming Cash includes $5.5 m in Build Canada and CWWF funding, and $11 million in RDC Collections

Opening Cash Balance highlighted in green
Closing Cash Balance highlighted in blue



Halifax Water
Halifax Regional Water Commission

ITEM # 7
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Heidi Schedler
Digitally signed by Heidi Schedler
Date: 2020.09.18 11:03:50 -03'00'
Heidi Schedler, General Counsel and Corporate Secretary

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.18 11:41:20 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 17, 2020

SUBJECT: **Corporate Governance Manual**

ORIGIN

January 28, 2016 approval of the Halifax Water Corporate Governance Manual.

September 27, 2018 approval of public Board meetings.

March 20, 2019 approval of the Board Meeting Protocol – Public Meetings.

RECOMMENDATION

It is recommended that the Halifax Water Board:

1. approve the Corporate Governance Manual, as attached,
2. approve the terms of reference for the Halifax Water Board committees: Executive, Environment Health and Safety, and Audit and Finance, as attached,
3. approve the creation of the Halifax Water Board Enterprise Risk Management Committee and the terms of reference as attached,
4. approve the Commissioner Code of Conduct, as attached,
5. rescind the January 28, 2016 version of the Corporate Governance Manual; the terms of reference for the Board Executive, Environment Health and Safety and Audit and Finance committees; and the Directors' Code of Ethical Conduct and Policy on Conflicts of Interest,
6. rescind the Board Meeting Protocol – Public Meetings approved by the Board on March 20, 2019.

BACKGROUND

On January 28, 2016, the Board approved its first Corporate Governance Manual. This manual remains in place. On September 27, 2018, the Board approved open and public Board meetings, and then on March 20, 2019, the Board approved a protocol to assist with conducting open, public Board meetings. This protocol remains in place.

DISCUSSION

In 2019, the Board identified a need to review and update the Corporate Governance Manual (Manual), for the purpose of ensuring the document remains relevant and effective. At the Board's governance planning workshop in December 2019, the Board discussed and identified desired updates to the Manual.

Ensuring up-to-date, relevant and effective governance documents is a key principle of good governance.

The attached Manual encapsulates the desired updates and revisions and ensures that the Board upholds principles of good governance. Much of the changes can be attributed to formatting and housekeeping. In addition, the following substantive changes were made:

- the role of staff on the Board is set out separately from that of Commissioners on the Board (Part 4),
- the General Manager is identified as being responsible for various day-to-day management tasks related to Halifax Water (section 4.1), which would include setting and approving non-union compensation in accordance with Halifax Water policies and procedures,
- General Counsel is appointed as the Secretary to the Board (section 4.3),
- The CFO is appointed as the Treasurer to the Board (section 4.5),
- Pension governance is an independent section (Part 5),
- A template board meeting business cycle is attached (section 6.2, Appendix VI),
- Open board meetings, and the associated parameters are identified (section 6.4),
- Authority to chair meetings is given to the Chair, with the ability to delegate that responsibility where necessary (section 6.7),
- The Commissioner Code of Conduct was updated (Appendix I),
- The current committee terms of reference were updated (Appendices II, III, IV),
- The Enterprise Risk Management committee terms of reference were created (Appendix V)

ATTACHMENT

Corporate Governance Manual

Report Prepared by: Heidi Schedler

Digitally signed by Heidi Schedler
Date: 2020.09.18 11:03:29 -03'00'

Heidi Schedler, General Counsel and Corporate Secretary

Halifax Water

Corporate Governance Manual

1. INTRODUCTION

1.1 Legislative Authority

Halifax Water is a corporation continued by the *Halifax Regional Water Commission Act*, S.N.S. 2007 c. 55, as amended (*Act*) for the purpose of acquiring, owning and operating water, wastewater and stormwater systems, facilities and utilities. In accordance with the *Act*, Halifax Water is governed by a Board of Commissioners appointed by Halifax Regional Municipality (HALIFAX) Council.

1.2 Background

Halifax Water has provided potable water and fire protection services to the residents of the former City of Halifax since 1945. In 1996, in conjunction with the Halifax metro municipal amalgamation, the utility took on a regional mandate with the transfer of water assets from the City of Dartmouth and the Halifax County Municipality to Halifax Water. On August 1, 2007, HALIFAX transferred its municipal wastewater and stormwater assets to Halifax Water, at which time these services became regulated under the *Public Utilities Act*, R.S.N.S. 1989, c. 380, as amended.

1.3 Purpose of this Manual

The purpose of this Corporate Governance Manual (Manual) is to ensure that Halifax Water has effective corporate governance systems to guide the organization in achieving its corporate objectives. This Manual is a supplement to the *Act* and the common law principles of corporate governance.

1.4 Approval of the Corporate Governance Manual

The Halifax Water Board of Commissioners (Board) is the approving authority for this Manual and will review it annually or as the Board considers necessary.

2. OBJECTIVES AND ACCOUNTABILITY

2.1 Objectives for governance

Halifax Water's objectives for governance are to ensure that:

a. the Board is representative of and accountable to its stakeholders;
b. accountability, consultation, respect and transparency are reflected in the governance of Halifax Water; and
c. Commissioners are accountable, qualified and possess the necessary skills to direct and guide Halifax Water to effectively manage its opportunities, risks, and ongoing needs.

2.2 Accountability

The Board is accountable to stakeholders for fulfilling the roles and responsibilities set out in the Act and this Manual.

2.3 Governance Style

The Board of Commissioners will govern in accordance with the *Act* and this Manual. In carrying out its roles and responsibilities pursuant to the Act and this Manual, the Board and the Commissioners shall consider the following:

a. All interactions are respectful, courteous, and civil,
b. Respect confidentiality of people and transparency of process,
c. Be accountable for your actions and behaviours,
d. Provide a safe, accessible work environment,
e. Promote an inclusive environment,
f. Treat employees and customers equitably,
g. Lead by example, and
h. Be positive and collaborative.

Commissioners, including non-voting Commissioners, shall participate in discussion as equals and dissenting points of view shall be encouraged for full exploration of an issue. Commissioners shall participate respectfully and productively in any discussion.

3. BOARD OF COMMISSIONERS

3.1 Appointment and Term of Commissioners

Commissioners of the Board are appointed and hold office in accordance with the *Act*.

3.2 Role and Responsibilities of the Board of Commissioners

Further to the *Act*, the Board has the following governance responsibilities:

a. Oversee and approve, as appropriate:
    i. the financial management, including setting the budget and appointing auditors,
    ii. organizational performance measures and objectives,
    iii. the mission, vision, and values,
    iv. strategic plans and budgets,
    v. the development of by-laws and policies,
    vi. organizational performance measures and objectives
    vii. the budget for the Board and its Committees,
    viii. the remuneration and expenses policy for Commissioners,
    ix. standards for Commissioner conduct and ethics, including this Manual,
    x. the creation of and terms of reference for Board Committees,
    xi. protocols, registers, policies for the identification and management of risks,
b. Appoint:
    i. the Board Chair and Vice-Chair;
    ii. the Secretary and Treasurer;
    iii. the General Manager;
c. Approve and adjust as appropriate the terms of employment and remuneration of the General Manager, as negotiated and recommended by the Executive Committee;
d. Review and evaluate the General Manager's performance annually;

e. Delegate to the General Manager, Committees or others such powers and duties as deemed necessary to assist in fulfilling these responsibilities.

3.3 Appointment of Chair and Vice-Chair

It has been customary that the Chair is appointed from among the private resident Commissioners and the Vice Chair from the HALIFAX Council Commissioners. The term of office of the Chair and Vice Chair are as approved by the Board.

3.4 Role and Responsibilities of the Chair

Further to the *Act*, the Chair of the Board has the following responsibilities:

a. Lead, facilitate and encourage fulfillment of the various roles and responsibilities set out in this Manual,
b. Set the time and place for all meetings of the Board, in consultation with the Board and the General Manager,
c. Ensure that all business set out in the agenda of the Board meetings is discussed and, if necessary, brought to resolution,
d. Make all Commissioners aware of the General Manager's terms of employment and annual evaluation, and
e. Sit as Chair of the Executive Committee of the Board.

3.5 Role and Responsibilities of the Vice Chair

Further to the *Act*, the Vice Chair has the following responsibilities:

a. Exercise the roles and responsibilities of the Chair during an absence or vacancy in the office of the Chair,
b. Provide support to the Chair as needed, and
c. Sit as Chair of the Audit and Finance Committee of the Board.

3.6 Role and Responsibilities of Commissioners

Further to the *Act*, Commissioners have the following responsibilities:

a. Act in accordance with the Commissioner Code of Conduct (Appendix I), including acting in the best interest of Halifax Water and reporting conflicts as they arise,
b. Act as an agent and trustee of Halifax Water in the execution of its mandate and the protection of its assets,
c. Participate respectfully in deliberations with fellow Commissioners,
d. Support final decisions and/or motions adopted by the Board,
e. Review all briefing material sent out prior to all meetings,
f. Attend all Board meetings and all Committee meetings, unless otherwise provided leave of the Board,
g. Provide notification to the Chair or the Secretary of any absence from a meeting as soon as possible in advance of that meeting,
h. Sit on Board Committees, as required and approved by the Board,
i. Maintain confidentiality of corporate information as required and/or directed, and

j. Participate in training and development, as appropriate, including attendance at workshops, conferences and seminars relevant to governance.

3.7 Board Committees

The Board approves following committees and their attached terms of reference:

a. Executive Committee (Appendix II),
b. Audit and Finance Committee (Appendix III),
c. Environment, Health and Safety Committee (Appendix IV), and
d. Enterprise Risk Management Committee (Appendix V).

3.8 Role and Responsibilities of Board Committee Chairs

Further to the terms of reference for each Board Committee, Committee Chairs have the following responsibilities:

a. Preside over Committee meetings,
b. Establish meeting agendas in consultation with the General Manager,
c. Fill any vacant position(s) on the Committee in a timely manner;
d. Report to the Board the activities, decisions and recommendations of the Committee.

3.9 Commissioner Code of Conduct

The Commissioner Code of Conduct (Appendix I), shall be reviewed and signed by each Commissioner following appointment or re-appointment and otherwise annually.

3.10 Confidentiality of Information

Commissioners and the Board shall uphold and protect the confidentiality of information received through the Board, including, but not limited to:

a. The content of any Halifax Water customer file,
b. *In camera* deliberations and/or decisions,
c. Personnel matters, and
d. Sensitive commercial information.

Any disclosure of non-confidential information should be limited to such individuals as are necessary to assist Commissioners in effectively carrying out their functions as Commissioners.

3.11 Conflict of Interest

Where a conflict of interest, as defined in the Commissioner Code of Conduct (Appendix I), is declared by a Commissioner or the Chair, the conflicted Commissioner must refrain from voting on and participating in any way in any matter directly or indirectly related to the subject matter of the conflict. This includes refraining from any attempt to influence decision making on any such matter.

4. GENERAL MANAGER, SECRETARY AND TREASURER

4.1 Role and Responsibilities of the General Manager

The General Manager is accountable to the Board and shall be evaluated in accordance with the General Manager performance management process established by the Board of Commissioners.

Further to the *Act*, the General Manager is conferred with full authority, scope and executive powers by the Board to carry out the following responsibilities:

a. Act in the best interest of Halifax Water,
b. Provide strategic leadership and vision to Halifax Water,
c. Supervise and manage the day-to-day operations of Halifax Water in a responsible and sustainable manner, including effectively staffing the organization,
d. Develop and implement appropriate plans and budgets,
e. Encourage and facilitate effective relationships with stakeholders, including development of an effective communications strategy,
f. Ensure policies and procedures are developed, maintained, disclosed and updated as appropriate,
g. Promote a culture of integrity, accountability, respect and civility,
h. Ensure legal, regulatory and environmental compliance,
i. Advise the Chair and/or the Board in a timely manner of any risks, issues, events or pending matters that may impact the Board's roles or responsibilities,
j. Recommend organizational performance measures to the Board,
k. Attend all Board and Board Committee meetings in a non-voting, *ex officio* capacity,
l. Present to the Board an annual succession plan for key positions within Halifax Water, which includes a plan for temporary acting capacity,
m. Delegate such duties and responsibilities as appropriate to ensure effective day-to-day operations, and
n. Any such other duties as the Board may direct or delegate from time to time.

4.2 Limitations of the General Manager

The General Manager shall not cause or allow any practices, activity, decision or organizational circumstances which are contrary to an approved motion of the Board, unlawful or in violation of commonly acceptable business or professional ethics.

The General Manager is not authorized to utilize funds in a manner contrary to the law or regulatory requirements.

4.3 Appointment of Secretary

The Board appoints General Counsel of Halifax Water as Secretary to the Board, who shall hold this position until such time as the Board, by resolution, determines otherwise.

4.4 Role and Responsibilities of the Secretary

The Secretary reports to the Chair and Committee Chairs on matters relating to the Board or Board Committees and to the General Manager for day-to-day operational matters.

Further to the *Act*, the Secretary has the following responsibilities:

a. Notify Commissioners of meetings and communications as directed by the Chair or the General Manager,
b. Attend all Board and Board Committee meetings in a non-voting, *ex officio* capacity,
c. Provide advice to the Board, Chair and/or Board Committees on governance or other issues, as needed,
d. Maintain all official results of the Board and Board Committees, including policy decisions and minutes of all official meetings,
e. Distribute to Commissioners all relevant Board materials and documents as directed by the Chair, the Committee Chairs, or the General Manager,
f. Organize logistical support for Board and Board Committee meetings, including training and development events,
g. Provide other support functions to the Board and the Chair, as needed;
h. Provide support to the General Manager and Treasurer, as needed.

4.5 Appointment of Treasurer

The Board appoints the Chief Financial Officer of Halifax Water as Treasurer to the Board, who shall hold this position until such time as the Board, by resolution, determines otherwise.

4.6 Role and Responsibilities of the Treasurer

The Treasurer reports to the Chair and Committee Chairs on matters relating to the Board or Board Committees and to the General Manager for day-to-day operational matters.

Further to the *Act*, the Treasurer has the following responsibilities:

a. Manage the finances of Halifax Water,
b. Implement appropriate systems of internal financial controls,
c. Manage organizational risk, from a financial perspective,
d. Develop long term financial plans and rate strategies to ensure adequate cash flow,
e. Administer the Halifax Water Employees' Pension Plan and support the Board in their role as Administrators and Trustees of the Pension Plan,
f. Treasury operations and controls,
g. Manage daily cash balances,
h. Track and analyze actual revenues and expenses against the annual budget,
i. Liaise with bankers, auditors and regulators, as appropriate,
j. Provide reports to the Board relating to the finances of Halifax Water,
k. Attend all Board and Audit and Finance Committee meetings in a non-voting, *ex officio* capacity,
l. Inform the Board of key financial events, trends, concerns, and fiscal health, and

m. Report any fraud, significant policy violations or legislative non-compliance to the Chair of the Audit Committee and General Manager.

5. PENSION GOVERNANCE

The Board is responsible for the administration of the Halifax Water Employees' Pension Plan, including establishing the Pension Plan's governance framework and policies. The Board is responsible for approving amendments to the Pension Plan text, the trust agreements, contribution rates and funding, the audited financial statements, actuarial valuations and assumptions.

6. OPERATIONS

6.1 Board Agendas

Board meeting agendas shall be established in consultation with the Board Chair and Vice Chair, the General Manager and Secretary.

The Board approves the meeting agenda at the commencement of each meeting.

Sufficient time shall be allocated for the meeting as a whole and for individual agenda items to enable all views to be heard and considered before a decision is taken.

Items requested by Commissioners may be added to the agenda with the approval of the Board. Such items may be discussed at the meeting introduced, deferred to another meeting, and/or referred to staff.

The Chair or the Board may refer any matter on the agenda to a Board Committee, as appropriate.

6.2 Meetings

At the discretion of the Chair, and in consultation with the General Manager, a minimum of five Board meetings shall be held each fiscal year, not including the annual general meeting. These meetings may follow the Template Board Meeting Business Cycle (Appendix VII).

The Board and Board Committees may meet and/or render decisions in person, virtually, by telephone or via other forum that allows for effective meetings and decision-making.

6.3 Annual General Meeting

The Board shall hold an annual general meeting (AGM) once per year, which shall be open to the public. The agenda of the AGM shall include presentation of strategic initiatives, major capital initiatives, and year-end financial results.

6.4 Open Board Meetings

Halifax Water promotes a high degree of openness and transparency to maintain the confidence of stakeholders. Halifax Water Board meetings are open to the public, which is accomplished by allowing members of the public to attend in-person meetings, live-broadcasting meetings where

possible, and/or posting audio/video recordings of Board meetings on the Halifax Water website in a timely manner.

All Board meeting agendas and materials will be available to the public via the Halifax Water website.

Only at the AGM will members of the public be provided an opportunity to speak and/or ask questions of the Board or Halifax Water staff. At all other public meetings of the Board, members of the public are permitted to observe only. Members of the public may request meetings with Halifax Water staff at any time.

Meetings of Board Committees are not open to the public.

6.5 *In camera* board meetings

Board meetings are open to the public, with the exception of the following matters, which shall be discussed and deliberated *in camera*:

a. Acquiring or disposing of property,
b. Personnel matters,
c. Labour relations issues,
d. Specific customer case files,
e. Contract negotiations,
f. Litigation and potential litigation,
g. Legal advice,
h. Security, and
i. Other confidential matters designated by the Board of Commissioners.

In camera meetings may be attended by the General Manager, Secretary and Treasurer. The Board may meet without Halifax Water staff, as necessary and approved by the Chair of the Board.

Minutes or motions of any Board *in camera* sessions shall be kept separate from published Board minutes and motions.

6.6 Board Committees

The Board may establish standing or ad hoc committees as required to fulfill its responsibilities. Board Committees shall have terms of reference approved by the Board, setting out, among other things, the composition of the Committee.

6.7 Authority to Preside

The Chair of the Board shall preside at all meetings of the Board, except when absent or unable to preside.

Where the Chair is absent or is unable to preside at any meeting of the Board, the Vice Chair shall preside at that meeting of the Board.

Where the Chair and Vice Chair are absent or unable to preside any meeting of the Board, the Chair shall appoint a Commissioner of the Board to preside at that meeting.

6.8 Quorum

In accordance with the *Act*, a quorum of the Board is four voting Commissioners.

6.9 Attendance

Commissioners are expected to attend all Board or Committee meetings. In accordance with the *Act*, a Commissioner of the Board shall cease to be a Commissioner after absence from three consecutive meetings without leave of the Board.

A Commissioner participating virtually or via conference call is deemed present at the meeting.

Any Commissioner unable to attend a Board meeting shall give prior notice to the Chair and/or the Secretary.

The Chair or the Board, in consultation with the General Manager, may invite stakeholders or experts to Board or Board Committee meetings, whether *in camera* or open to the public.

6.10 Meeting Conduct

The Board shall use Robert's Rules of Order to conduct its proceedings.

6.11 Motions and Voting

Motions require a mover and a seconder from the voting Commissioners.

Motions are carried by majority vote.

Commissioners may only abstain from a vote in a case of a conflict of interest recognized by the Chair.

6.12 Meeting Materials

The Secretary shall ensure distribution of all available materials relevant to the meeting agenda to all Commissioners.

6.13 Minutes

The Secretary or staff designate shall record minutes of all Board and Board Committee meetings, which shall include:

a. the date and location of the meeting,
b. attendance of Commissioners, staff and any other presenters,
c. decisions including approval of agenda, previous minutes and motions,
d. any specific reference, comment or discussion point requested for inclusion by a Commissioner, and
e. action items for follow up.

Minutes of *in camera* sessions and Board Committee meetings are confidential.

6.14 Commissioner Orientation

Each new Board Commissioner shall receive, as soon as practicable upon appointment, an orientation to the Board and Halifax Water, which may include items such as:

a. the *Act*, other relevant legislation and regulations,
b. an overview of Halifax Water including relevant financial, statistical and operational information,
c. this Manual,
d. the Commissioner Code of Conduct,
e. an overview of the General Manager evaluation process and remuneration,
f. the Halifax Water Employees' Pension Plan and the Board's role as Administrator and Trustee of the Pension Plan, and
g. other material, as appropriate.

6.15 Commissioner Education

The Board recognizes the importance of providing ongoing training, development and education for its Commissioners on water, wastewater and stormwater issues as well as governance roles and responsibilities.

To facilitate ongoing education, Halifax Water may, from time-to-time, retain membership in relevant professional organizations providing educational opportunities. Commissioners are encouraged to participate in opportunities relevant to the work of the Board identified by the Chair and/or the General Manager.

6.16 Remuneration and Expenses

Commissioners are compensated in accordance with approved polices of the Board.

The *per diem* rate shall be reviewed and approved by the Board annually, based on a comparison group of similar boards.

Commissioners shall be reimbursed by Halifax Water for reasonable expenses incurred on Board business in accordance with Halifax Water's Employment Expense Reimbursement Policy, which shall be reviewed and confirmed by the Treasurer.

6.17 Post-Appointment

Commissioners agree:

a. within six months after leaving office, to not accept appointment to a board of directors with which Halifax Water has had dealings during the six-month period immediately prior to leaving office (excepting employment unrelated to the business of Halifax Water);
b. to not act for, or on behalf of, any person or entity, in respect of any ongoing negotiations before the Board; and
c. to not draw on privileged information, or on the services of Halifax Water's employees, in an effort to secure future employment.

Appendix I

Commissioner Code of Conduct

Purpose

The purpose of this code of conduct is to set Halifax Water's expectation for Commissioners to conduct themselves in an ethical and businesslike manner.

Commissioners are expected to exercise their duties and responsibilities set out in the *Halifax Regional Water Commission Act* (Act) and in the Halifax Water Corporate Governance Manual (Manual) honestly, in good faith, in the best interests of Halifax Water, which supersedes the personal interest of any individual Commissioner.

This code of conduct provides guidance to Commissioners on appropriate behaviours and on recognizing and properly managing conflicts of interest fairly and expeditiously.

Key Responsibilities

Commissioners are expected to:

a. conduct themselves in a manner that instills public confidence in the conduct of Halifax Water,
b. exercise their duties and responsibilities with the degree of care, diligence and skill expected of a competent and prepared director of a board of a public entity,
c. act with honesty and integrity,
d. be respectful of others and their opinions,
e. be independent and impartial,
f. not be influenced by self-interest, outside pressure, expectation of reward or fear of criticism,
g. owe primary business loyalty to Halifax Water,
h. avoid conflicts of interest,
i. disclose any perceived or real conflicts of interest to the Chair of the Board or the Secretary,
j. work collaboratively with the Chair of the Board to resolve and/or manage conflicts of interest, and
k. comply with all other relevant policies and governance documents.

Conflict of Interest

A conflict of interest arises when a Commissioner is placed in a situation where their personal or financial interest, or that of a family member or a close, personal contact, conflicts with the interests of Halifax Water or with the Commissioner's responsibility to Halifax Water.

Conflicts can be actual, potential and/or perceived.

The standard that will be applied to determine whether a conflict of interest exists is that of an independent observer who might reasonably question whether the Commissioner's actions or decisions are determined by or could result in a gain or benefit to the Commissioner, family member or close, personal contact.

A conflict of interest depends on the situation, and not on the character or actions of the Commissioner.

Duty to Disclose

Commissioners must make written, full, timely and ongoing disclosure of conflicts of interest to the Chair of the Board or the Secretary.

This code and the attached acknowledgement form must be reviewed and completed by every Commissioner upon being appointed to the Board. Thereafter, ongoing, written disclosure must be made by Commissioners as conflicts of interest arise.

Early disclosure of conflicts of interest is key to successful resolution.

Deemed Conflicts

A conflict of interest will arise in the following situations:

- When the Commissioner has a financial interest, beyond any compensation approved by the Board, in the outcome of a decision of Halifax Water.
- When the Commissioner is related to, in a close relationship, or in a financial relationship with a supplier or contractor conducting business with Halifax Water.
- When the Commissioner accepts a gift, payment or service in connection with their position on the Board that exceeds $250 in value.
- When the Commissioner uses information gained from their position on the Board for personal gain.
- When the decision of the Board relates to a family member and/or close, personal contact of a Commissioner.
- When the Commissioner offers or accepts monetary or other gifts or payment from an external source in connection with their position on the Board.

Any other situation that could lead to a conflict of interest must be disclosed by the Commissioner, in accordance with this policy, and discussed with the Board Chair or the Secretary.

Commissioner Code of Conduct Acknowledgment

I _____(print name), have read and understand the Commissioner Code of Conduct.

I confirm that I have declared and/or will declare any and all actual, potential and/or perceived conflicts in accordance with the Commissioner Code of Conduct.

I agree to:

1. Exercise the powers of my office and fulfil my responsibilities honestly, in good faith and in the best interests of Halifax Water.

2. Carry out my duties and responsibilities as a Board member in a diligent, reasonable and prudent manner.

3. Keep confidential all information which comes to my attention and possession in my capacity as a Board member unless the Board of Directors determines such information to have a status other than confidential.

4. Conduct myself respectfully, having respect for others, their opinions and the collective decisions of the Board.

5. Declare any conflict of interest immediately upon it coming to or being brought to my attention.

6. Offer my resignation as a Board member upon the Board resolving that I have breached the Commissioner Code of Conduct.

Signature: _____ Date: _____

Witness: _____ Date: _____

Appendix II
Executive Committee
Terms of Reference

Halifax Water Board
Executive Committee
Terms of Reference

1. Role

The role of the Executive Committee (Committee) is to provide oversight over Halifax Water Board (Board) governance and functions and to foster effective relationships between the Board and Halifax Water senior management.

2. Composition and Operations

1. This Committee shall consist of the Chair of the Board, the Vice-Chair of the Board and one member of the Board who shall be a public representative.
2. The General Manager and Secretary shall be non-voting, *ex officio* members of this Committee. The Secretary shall act as recording secretary.
3. The Chair of the Board shall be the Chair of this Committee.
4. Quorum for meetings shall be two voting members.
5. Members may attend meetings in person, via telephone or virtually.
6. The Committee shall meet at least four times per year. The Chair, in consultation with the General Manager, may cancel a meeting at their discretion.

3. Duties and Responsibilities

In fulfilling its role, the Committee shall:

1. Oversee the governance of the Board, Board members and Board committees;
2. Monitor and assess the relationship between the Board and Halifax Water senior management and make recommendations to the Board, where necessary, to ensure the independence of the Board;
3. Review annually the performance of the Board, Board members and Board committees;
4. Recommend and approve, where necessary, education for the Board and/or Board members;
5. Oversee and make recommendations to the Board on the selection and appointment of the Board Chair and a succession plan for the Board Chair;
6. The Board members of the Committee will oversee and make recommendations to the Board on the selection, performance management, and compensation of the General Manager;
7. Set the schedule and agenda for Board meetings;
8. Liaise with external bodies, as necessary, such as Halifax Regional Municipality (HRM);

9. Make recommendations to HRM regarding the recruitment and appointment of Board members, including competency requirements;
10. Make recommendations to the Board regarding Board member compensation, including the Board Chair and committee chairs.
11. Review and approve the Halifax Water Board member insurance policy;

In fulfilling its role and responsibilities, the Committee may:

12. Consult with stakeholders or experts, upon consultation with and in collaboration with the General Manager.

4. Accountability

The Committee is accountable to the Board.

5. Review

The Committee shall review these terms of reference at least once annually and recommend any changes to the Board for approval.

Appendix III
Audit and Finance Committee
Terms of Reference

Halifax Water Board
Audit and Finance Committee
Terms of Reference

1. Role

The role of the Audit and Finance Committee (Committee) is to assist the Halifax Water Board (Board) in overseeing:

1. Halifax Water's financial results, internal controls and independent auditors; and
2. The Halifax Regional Water Commission Employee's Pension Plan (Pension Plan) financial reporting and audit process.

3. Composition and Operations

1. This Committee shall consist of at least three Board members and shall be comprised of a majority of public representative Board members.
2. The General Manager, Treasurer and Secretary are non-voting, *ex officio* members of this Committee.
3. The Committee shall elect a Chair from amongst its public resident members.
4. Quorum for meetings shall be two members. Members may attend meetings in person, via telephone or virtually.
5. Halifax Water shall assign an employee as the staff liaison to the Committee, who shall be a non-voting member of the Committee.
6. The Committee shall meet at least four times per year. The Chair, in consultation with the staff-liaison, may cancel a meeting at their discretion.

4. Duties and Responsibilities

In fulfilling its role, the Committee shall:

1. Review and monitor the Halifax Water and the Halifax Water Employee Pension Plan (Pension Plan) financial information, management certifications, internal controls and other financial reporting for accuracy, fairness and appropriateness;
2. Review and recommend for approval by the Board any significant changes to accounting policies or practices and/or internal control procedures;
3. Monitor the independent audit and recommend for approval by the Board the associated financial statements relating to either Halifax Water or the Pension Plan;
4. Identify and review any significant financial risks to Halifax Water, and report to the Board as appropriate;

5. Review and monitor the progress of plans developed in response to any internal or external audits, and report to the Board as appropriate;

In fulfilling its role and responsibilities, the Committee may:

6. Investigate any matter relating to Halifax Water financial control processes or internal controls;
7. Seek explanation from Halifax Water management of any significant financial variance between reporting periods; and
8. Consult with stakeholders or experts, upon consultation with and in collaboration with the General Manager.

5. Accountability

The Committee is accountable to the Board.

6. Review

The Committee shall review these Terms of Reference at least once annually and recommend any changes to the Board for approval.

Appendix IV
Environment, Health and Safety Committee
Terms of Reference

Halifax Water Board
Environment, Health and Safety Committee
Terms of Reference

1. Role

The role of the Environment, Health and Safety Committee (Committee) is to monitor compliance with and make recommendations to the Halifax Water Board (Board) on organizational policies, standards and practices relating to the environment, occupational health and safety, and organizational security.

2. Composition and Operations

1. This Committee shall consist of at least three Board members and shall be comprised of both public representative Board members and council Board members.
2. The General Manager and Secretary are non-voting, *ex officio* members of this Committee.
3. The Committee shall elect a Chair from amongst its public resident members.
4. Quorum for meetings shall be two members. Members may attend meetings in person, via telephone or virtually.
5. Halifax Water shall assign an employee as the staff liaison to the Committee, who shall be a non-voting member of the Committee.
6. The Committee shall meet at least four times per year. The Chair, in consultation with the staff-liaison, may cancel a meeting at their discretion.

3. Duties and Responsibilities

In fulfilling its role, the Committee shall:

1. Review and monitor compliance with environmental, occupational health and safety and organizational security related regulatory requirements, including sufficiency of resource allocation;
2. Review quarterly and annual environmental, occupational health and safety and organizational security reports;
3. Receive regular updates from the staff liaison and/or management relating to environmental, occupational health and safety and organizational security issues and/or incidents;
4. Review the results of environmental, occupational health and safety and organizational security audits, whether internal or external;
5. Review the organizational Environmental Management System;

6. Be aware of organizational controls in place to detect environmental, occupational health and safety and organizational security weaknesses;
7. Recommend, where appropriate, internal or external investigation of environmental and/or occupational health and safety issues;
8. Report to and make recommendations to the Board, as appropriate;

In fulfilling its role and responsibilities, the Committee may:

9. Consult with stakeholders or experts, upon consultation with and in collaboration with the General Manager.

4. Accountability

The Committee is accountable to the Board.

5. Review

The Committee shall review these Terms of Reference at least once annually and recommend any changes to the Board for approval.

Appendix V
Enterprise Risk Management Committee
Terms of Reference

Halifax Water Board
Enterprise Risk Management Committee
Terms of Reference

1. Role

The role of the Enterprise Risk Management Committee (Committee) is to assist the Board in fulfilling its oversight responsibilities of Halifax Water's risk management practices, procedures and policies.

2. Composition and Operations

1. This Committee shall consist of the chair of the Executive Committee, the chair of the Environmental Health and Safety Committee, and the chair of the Audit and Finance Committee.
2. The Committee shall elect a Chair from amongst its members.
3. The General Manager and Secretary shall be non-voting, *ex officio* members of this Committee.
4. Quorum for meetings shall be two voting members.
5. Members may attend meetings in person, via telephone or virtually.
6. The Committee shall meet at least four times per year. The Chair, in consultation with the General Manager may cancel a meeting at their discretion.
7. Halifax Water shall assign an employee as the staff liaison to the Committee, who shall be a non-voting member and the recording secretary of the Committee.

3. Duties and Responsibilities

In fulfilling its role, the Committee shall:

1. Provide input to the General Manager regarding and recommend to the Board approval of Halifax Water's risk management policy and plan, including:
   a. Risk assessment;
   b. Risk appetite and tolerance;
   c. Risk matrix;
   d. Risk management framework;
2. Review Halifax Water's risk management policy and plan at least annually;
3. Regularly monitor Halifax Water's risk profile and exposure to risk, and advise the Board as appropriate;
4. Review and assess the effectiveness of Halifax Water's risk management processes and recommend for approval by the Board any changes, as appropriate;
5. Promote open discussion of risk;

In fulfilling its role, the Committee may:

6. Request further information from the General Manager relating to any risk or potential risk facing Halifax Water;
7. Request input from other Board committees; and
8. Consult with stakeholders or experts, upon consultation with and in collaboration with the General Manager.

4. Accountability

The Committee is accountable to the Board.

5. Review

The Committee shall review these terms of reference at least once annually and recommend any changes to the Board for approval.

Appendix VI

Template Board Meeting Business Cycle

Halifax Water Template Board Meeting Business Cycle

	June	September	November	January	March
Business Decisions and Key Information	Audited financial statements Corporate balanced scorecard results Benefit plan renewals or adjustments if required Accountability report Cost containment report Lead service line renewal program report Capital cost contribution program report	Completed capital projects for previous fiscal year Annual report Fall debenture	Enterprise risk management update (review of risks and risk tolerance) Special Utility and Review Board applications, if required	Annual business plan Annual operating budget Annual capital budget Customer survey results Employee survey results	Corporate balanced scorecard targets Spring debenture Employee survey results General Manager performance evaluation
	Capital approvals Quarterly operating results New policies and amendment of existing policies requiring Board approval				
Pension	Audited pension financial statements Actuarial valuation, if a valuation year			Pension plan budget Assumptions to be used in actuarial valuation, if a valuation year	
	Quarterly pension plan performance Quarterly pension investment performance				
Info Reports	Financial and capital budget updates Bank balance Quarterly compliance statement				

Other Meetings:

AGM	Strategic initiatives Major capital initiatives Year-end financial results	July, or as otherwise scheduled by the Board
Other Meetings	Ratification of collective agreements Special rate or regulatory applications Commissioner training Governance and strategy workshops	As needed in February, April, May, October or December.

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY:

Louis de Montbrun — Digitally signed by Louis de Montbrun Date: 2020.09.17 16:43:54 -03'00'
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

Reid Campbell — Digitally signed by Reid Campbell Date: 2020.09.17 14:35:52 -03'00'
Reid Campbell, P.Eng. Director, Water Services

Digitally signed by Susheel Arora Date: 2020.09.17 15:07:50 -03'00'
Susheel Arora, M.A.Sc., P.Eng. Director, Wastewater & Stormwater Services

Kenda MacKenzie — Digitally signed by Kenda MacKenzie Date: 2020.09.18 08:39:48 -03'00'
Kenda MacKenzie, P.Eng. Director, Regulatory Services

APPROVED:

Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.18 09:13:38 -03'00'
Cathie O'Toole, MBA, CPA, CGA, ICD.D, 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, 2020 - AUGUST 31, 2020 (5 MONTHS)
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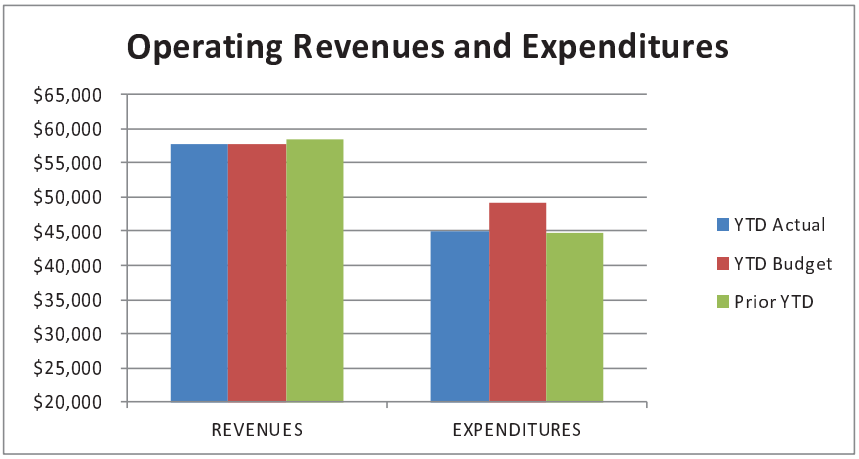
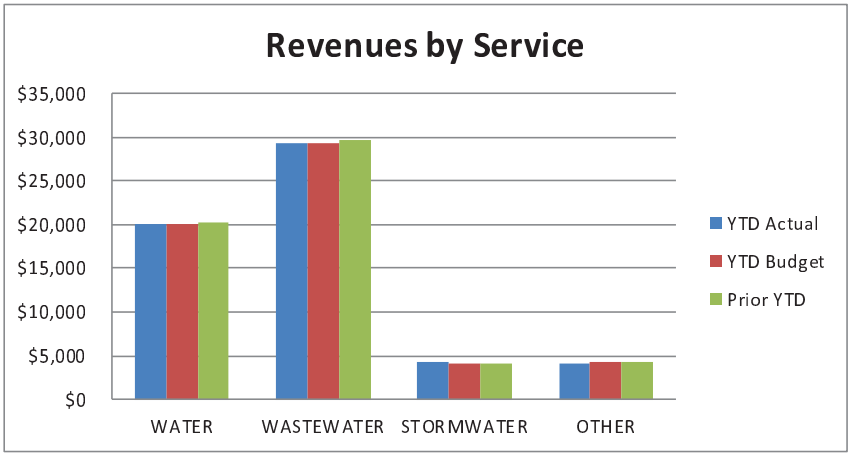


OPERATING REVENUES AND EXPENDITURES

	YTD Actual	YTD Budget	Prior YTD	% of Budget
REVENUES	$57,667	$57,761	$58,522	41.60%
EXPENDITURES	$44,913	$49,217	$44,736	38.03%
	$12,754	**$8,544**	**$13,786**	**62.21%**



REVENUES BY SERVICE (METERED SALES AND SITE GENERATED CHARGE)

	YTD Actual	YTD Budget	Prior YTD	% of Budget
WATER	$20,140	$20,036	$20,313	41.89%
WASTEWATER	$29,260	$29,321	$29,726	41.58%
STORMWATER	$4,203	$4,118	$4,140	42.53%
OTHER	$4,064	$4,286	$4,343	39.51%
	$57,667	**$57,761**	**$58,522**	**41.60%**

HALIFAX WATER
UNAUDITED FINANCIAL INFORMATION
APRIL 1, 2020 - AUGUST 31, 2020 (5 MONTHS)
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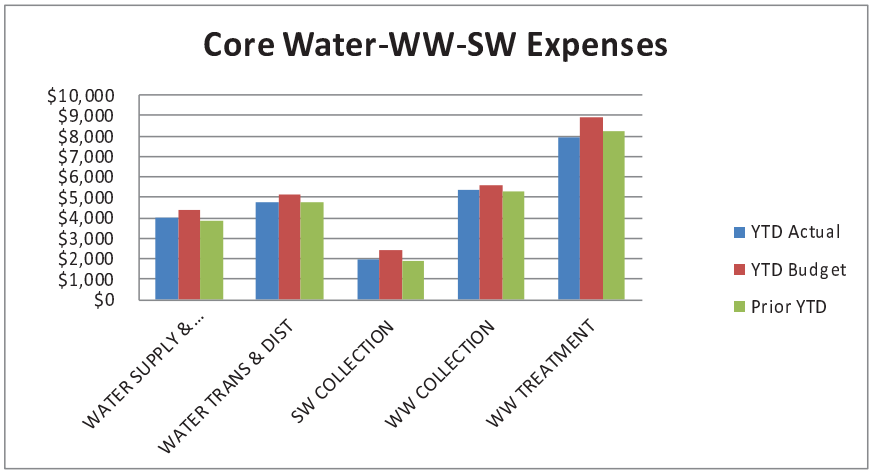
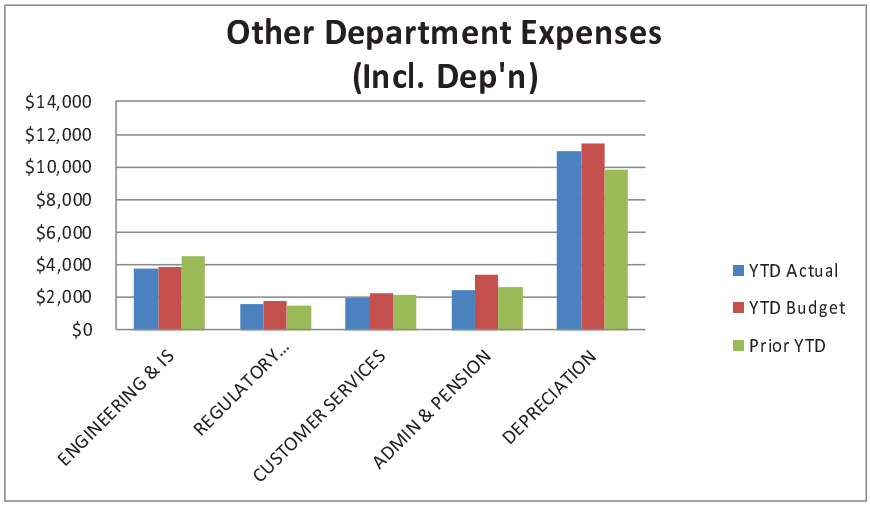


CORE WATER-WW-SW EXPENDITURES

	YTD Actual	YTD Budget	Prior YTD
WATER SUPPLY & TRTMNT	$4,027	$4,413	$3,893
WATER TRANS & DIST	$4,785	$5,130	$4,795
SW COLLECTION	$1,992	$2,426	$1,872
WW COLLECTION	$5,337	$5,625	$5,283
WW TREATMENT	$7,959	$8,923	$8,276
	$24,100	**$26,517**	**$24,119**



OTHER DEPARTMENT EXPENSES (INCL DEP'N)

	YTD Actual	YTD Budget	Prior YTD
ENGINEERING & IS	$3,795	$3,835	$4,538
REGULATORY SERVICES	$1,610	$1,816	$1,484
CUSTOMER SERVICES	$1,996	$2,256	$2,184
ADMIN & PENSION	$2,430	$3,363	$2,618
DEPRECIATION	$10,982	$11,430	$9,793
	$20,813	**$22,700**	**$20,617**

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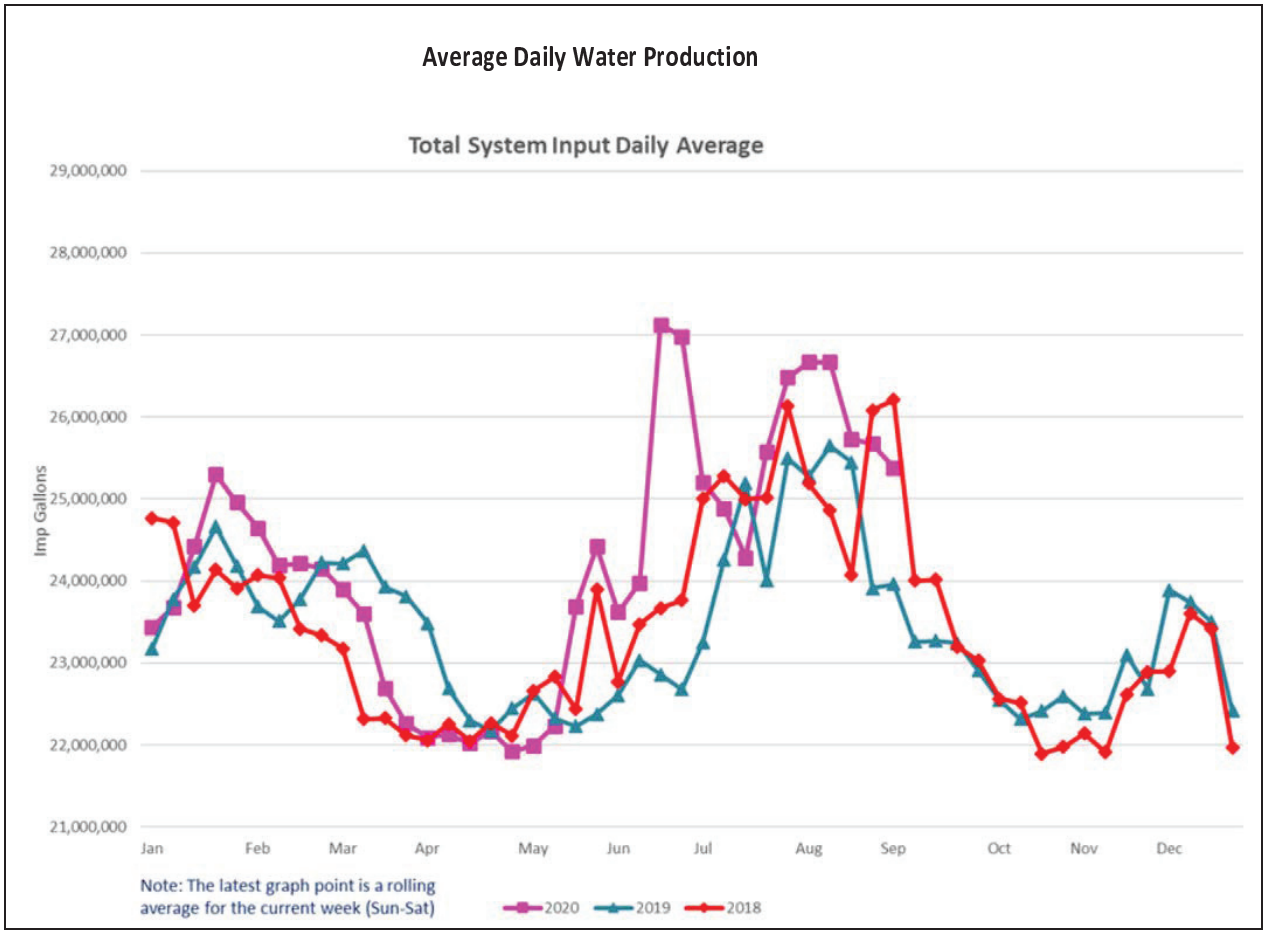

Regional Water Main Break/Leak Data		
Year	**Total Breaks/Leaks**	**Current 12 Month Rolling Total *(up to August 31, 2020)***
2019/20	191	172
2018/19	226	
2017/18	206	
2016/17	216	
2015/16	226	
Total	**1071**	
Yr. Avg.	**214.2**	

Water Accountability
Losses per Service Connection/Day (International Water Association Standard)
Period Ending June, 2020
Real Losses: 177 litres CBS Target: 160

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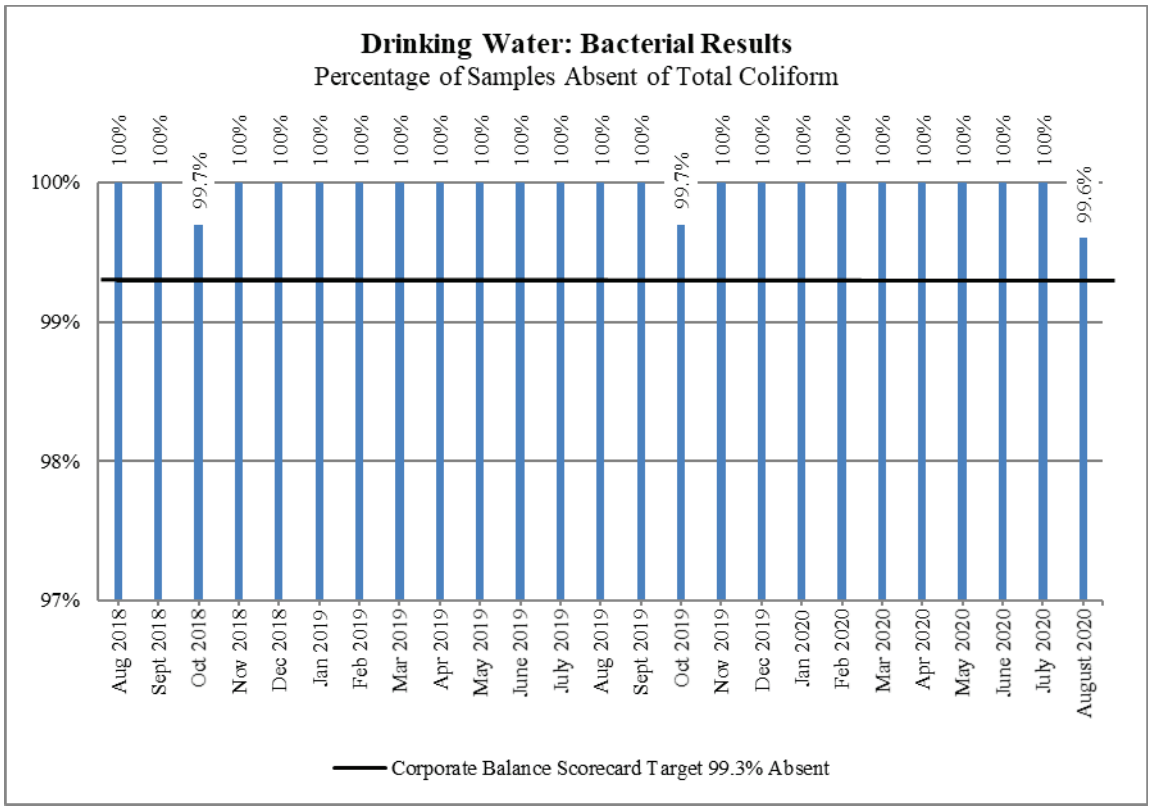

Water Quality Master Plan Objectives 2020-2021 Q1				
Objective	Total Sites	% Sites Achieving Target	All Sites: 90th Percentile < 15 µg/L	CBSC Awarded Points
Disinfection	63	95%	---	15
Total Trihalomethanes	25	88%	---	10
Haloacetic Acids	21	100%	---	20
Particle Removal	5	93%	---	13
Corrosion Control	69	---	3.96	20
Summary Total				78

Score: 78/100

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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 - June, July and August 2020																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	46	40	23	5000	6,850	6-9	6.9	-		-		-		-		Not acutely lethal	Declined
Dartmouth	50	61	40	27	5000	727	6-9	6.7	-		-		-		-		Not acutely lethal	Declined
Herring Cove	50	53	40	25	5000	32	6-9	6.9	-		-		-		-		Not acutely lethal	Declined
Eastern Passage	25	9	25	14	200	83	6-9	7.1	-		-		-		-		Not acutely lethal	Continued
Mill Cove	25	28	25	29	200	70	6-9	6.5	-		-		-		-		Not acutely lethal	Declined
Springfield	20	6	20	21	200	165	6-9	7.2	-		-		-		-		-	Declined
Frame	20	5	20	1	200	10	6-9	6.9	-		-		-		-		-	Continued
Middle Musq.	20	6	20	12	200	22	6-9	7.4	-		-		-		-		-	Continued
Uplands	20	5	20	12	200	10	6-9	6.5	-		-		-		-		-	Continued
Aerotech	5	3	5	1	200	10	6-9	7.4	5.7 W 1.2 S	0.2	0.13	0.08	-		6.5	8.6	Not acutely lethal	Continued
North Preston	10	4	10	3	200	10	6-9	6.7	3	0.1	1.5	0.2	-		-		-	Continued
Lockview	20	4	20	4	200	22	6.5-9	6.9	8.0 S	0.5	1.2 S	0.3	-		-		-	Continued
Steeves (Wellington)	20	5	20	1	200	10	6.5-9	7.0	14.4 S	0.1	1.0 S	0.1	-		-		-	Continued
BLT	15	4	20	16	200	10	6-9	6.9	5 W 3 S	2	3 W 1 S	1	0.02 *	0.05	-		Not acutely lethal	Continued
Avg. of all Facilities	17		14		573		6.9		0.6		0.2		0.05		8.6			

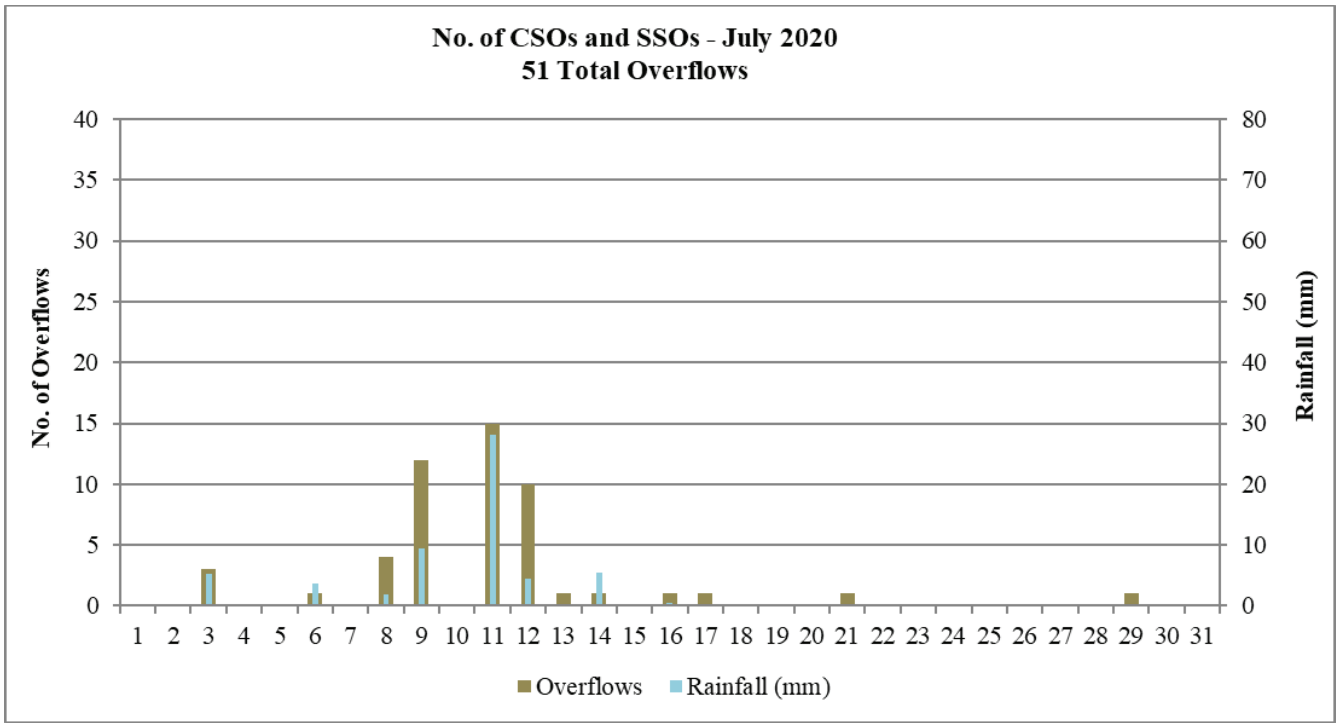
NOTES & ACRONYMS:
$CBOD_5$ - Carbonaceous 5-Day Biochemical Oxygen Demand
TSS - Total Suspended Solids
* TRC - Total Residual Chlorine - Maxxam can only measure 0.10 mg/L residual; results of 0.1 mg/L are compliant
BDL - Below Detection Limit
W / S - Winter / Summer compliance limits
NSE requires monthly 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

LEGEND
NSE Compliant
NSE Non-Compliant

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 seven overflows on days when there was no recorded rainfall, as follows:

1. June 10: The CSO at Fairview CSO was due to a station limit of 35% at Duffus St PS by the HWWTF from previous days rain event.
2. June 16: The CSOs at Lyle St CSO and Ferguson Rd CSO were due to scheduled maintenance.
3. June 18: The CSOs at Lyle St CSO and Ferguson Rd CSO were due to scheduled maintenance.
4. June 20: The CSOs at Sackville St CSO were due to blockages caused by debris.



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 two overflows on days when there was no recorded rainfall, as follows:

    1. July 21: The CSO at Melva St PS & CSO was due to a communication issue with the radio signal for the station.

    2. July 29: The SSO at Herring Cove PS was caused by maintenance activities at Roach's Pond PS.

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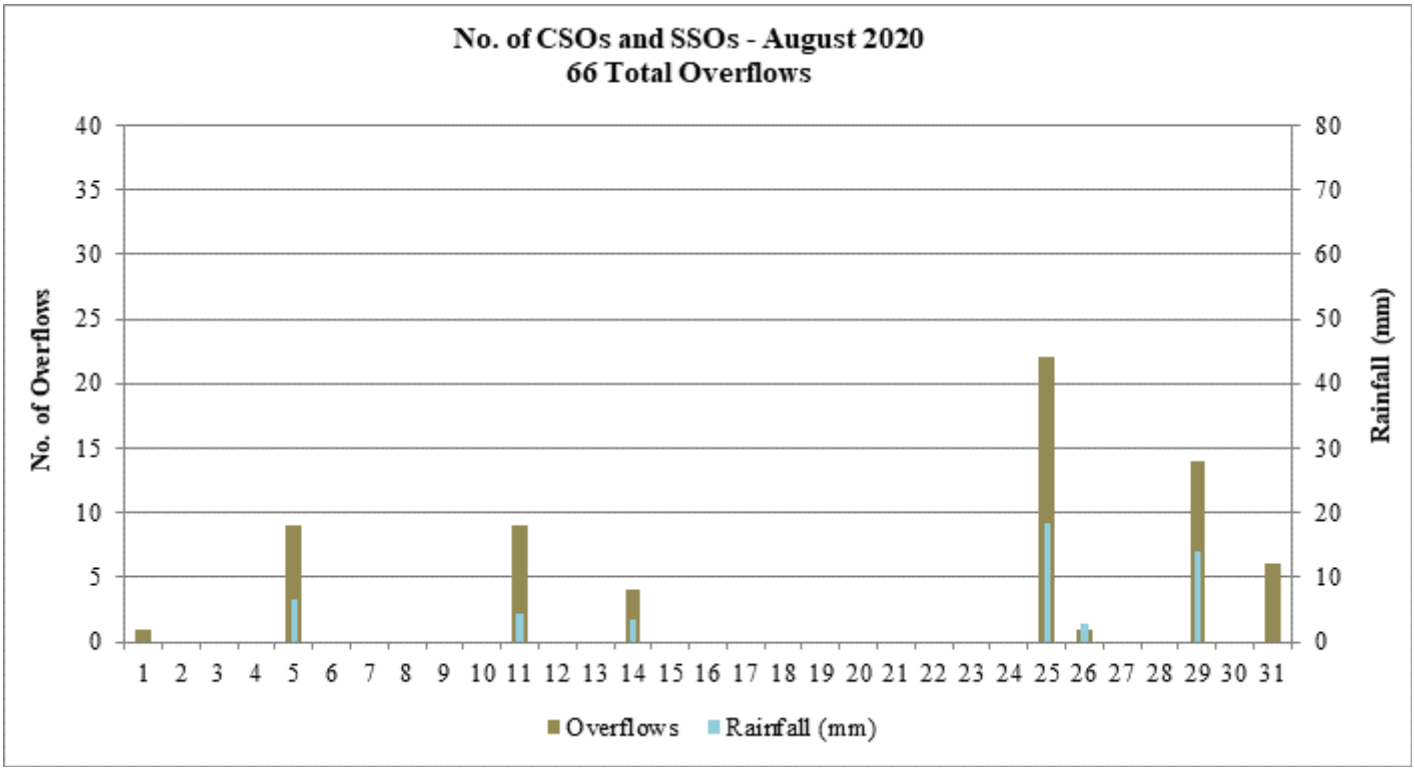
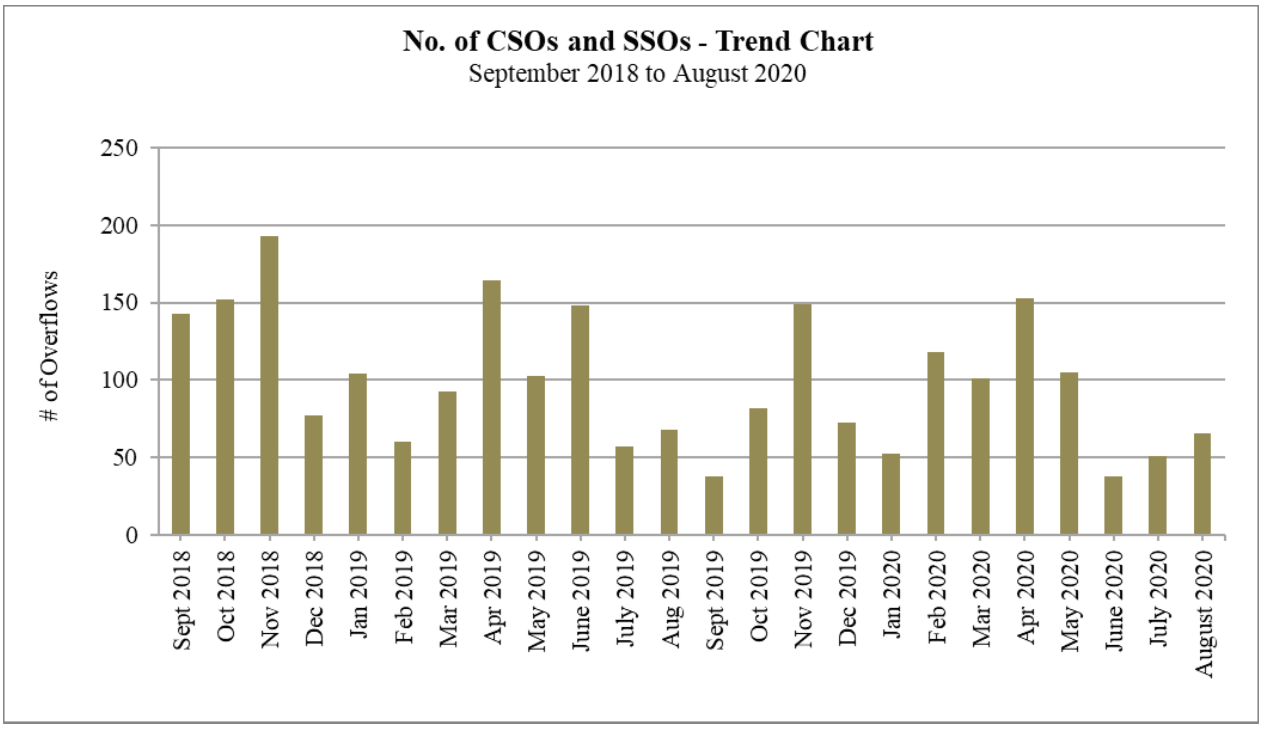


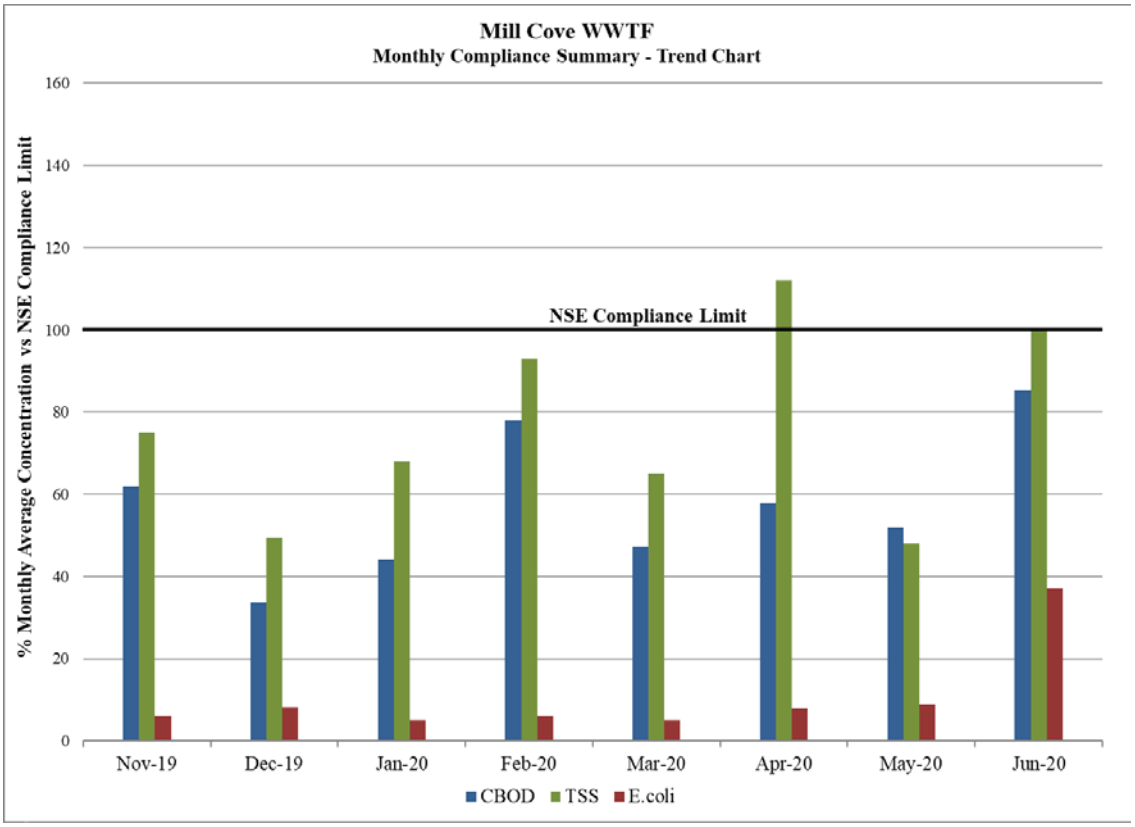
NOTES & ACRONYMS: CSO - Combined Sewer Overflow SSO - Sanitary Sewer Overflow

- Rainfall data is from Halifax Water's rain gauge at the Halifax WWTF.
- There were seven overflows on days when there was no recorded rainfall, as follows:

1. August 1: The SSO at Herring Cove PS was due to a power outage.
2. August 31: The CSOs at Sackville St CSO were due to blockages caused by debris. The CSO at Fairview CSO was due to a station limit of 75% at Duffus St PS by the HWWTF to accommodate maintenance at the HWWTF.

ITEM# 1-I





Lower numbers represent better performance.

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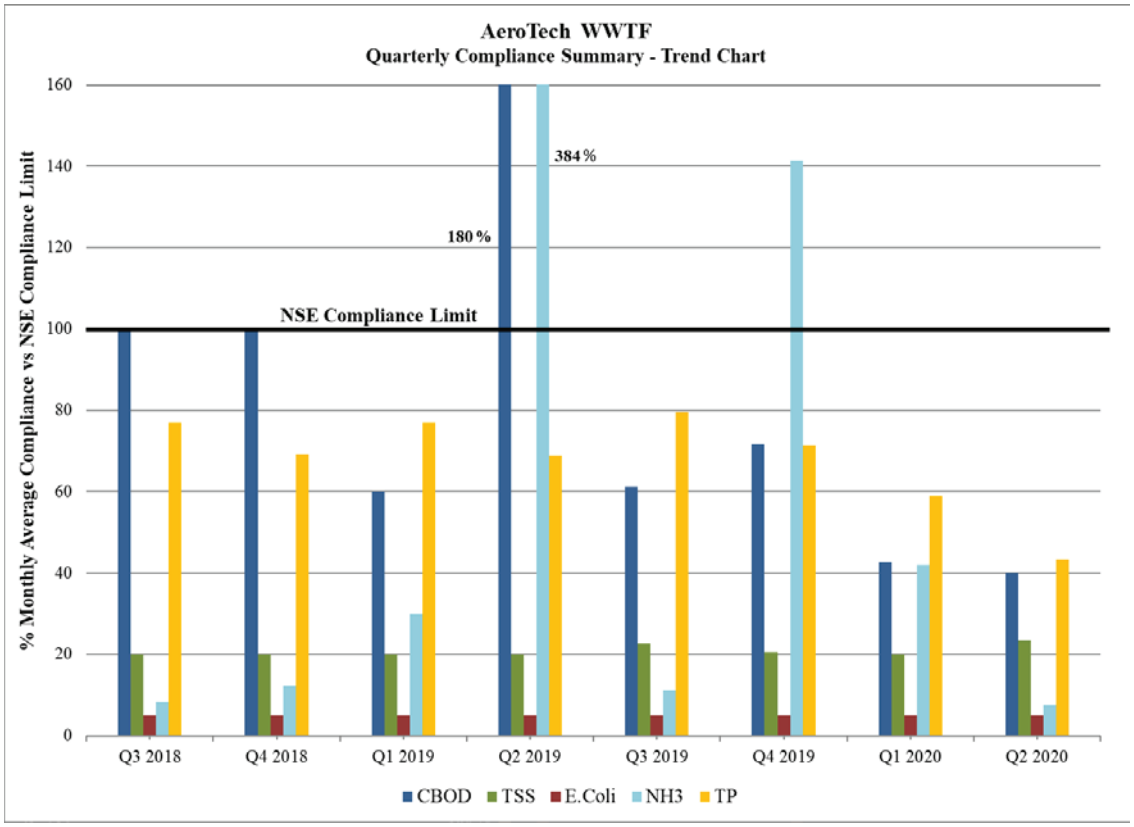

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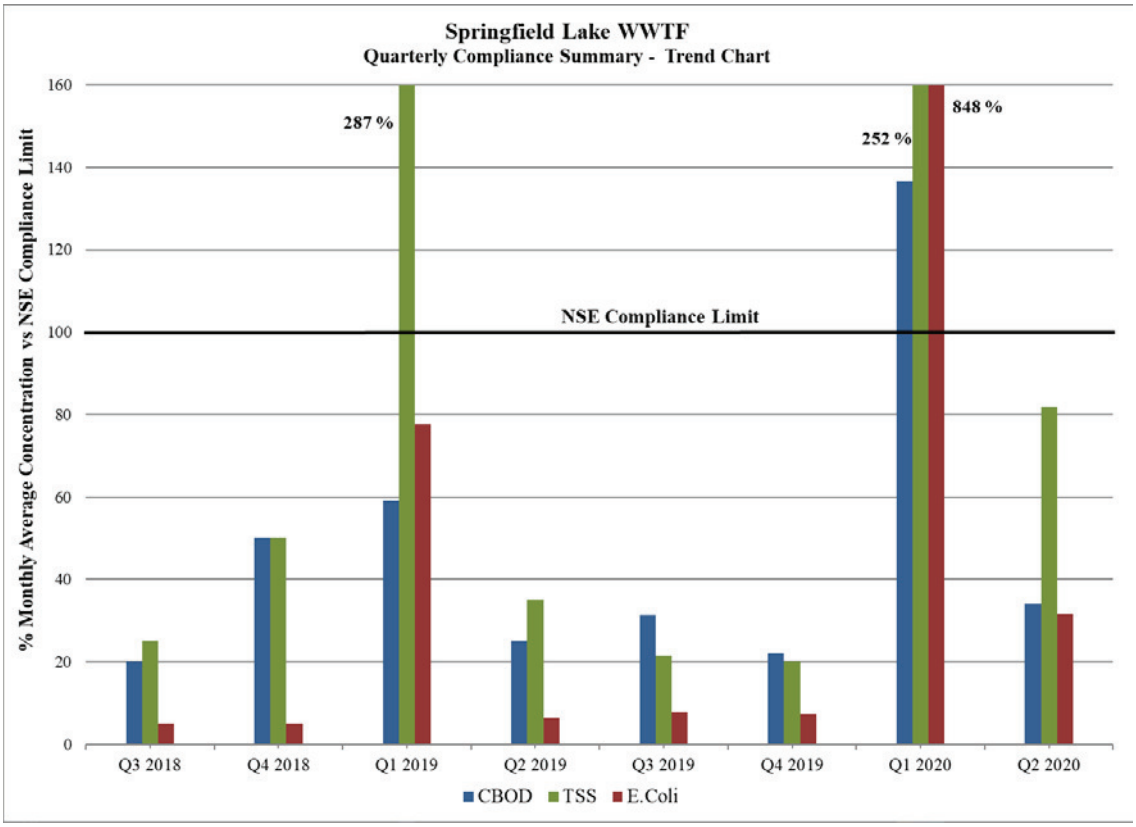

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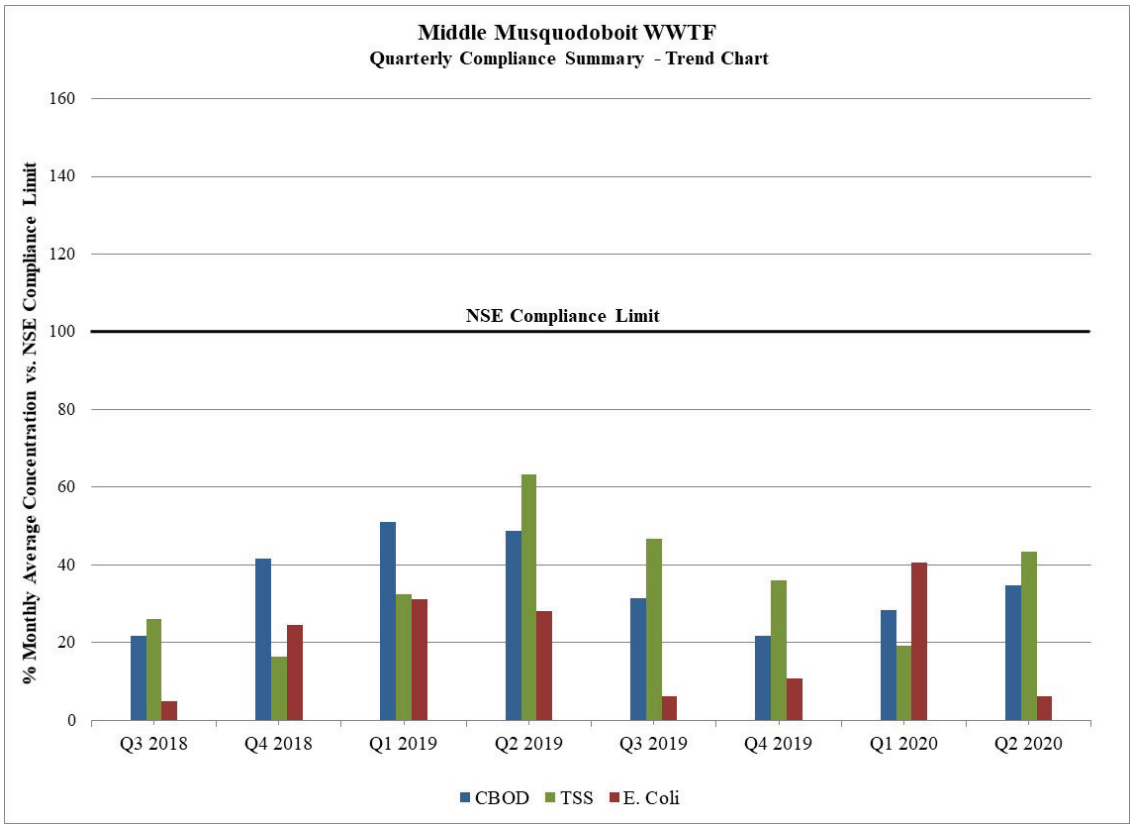

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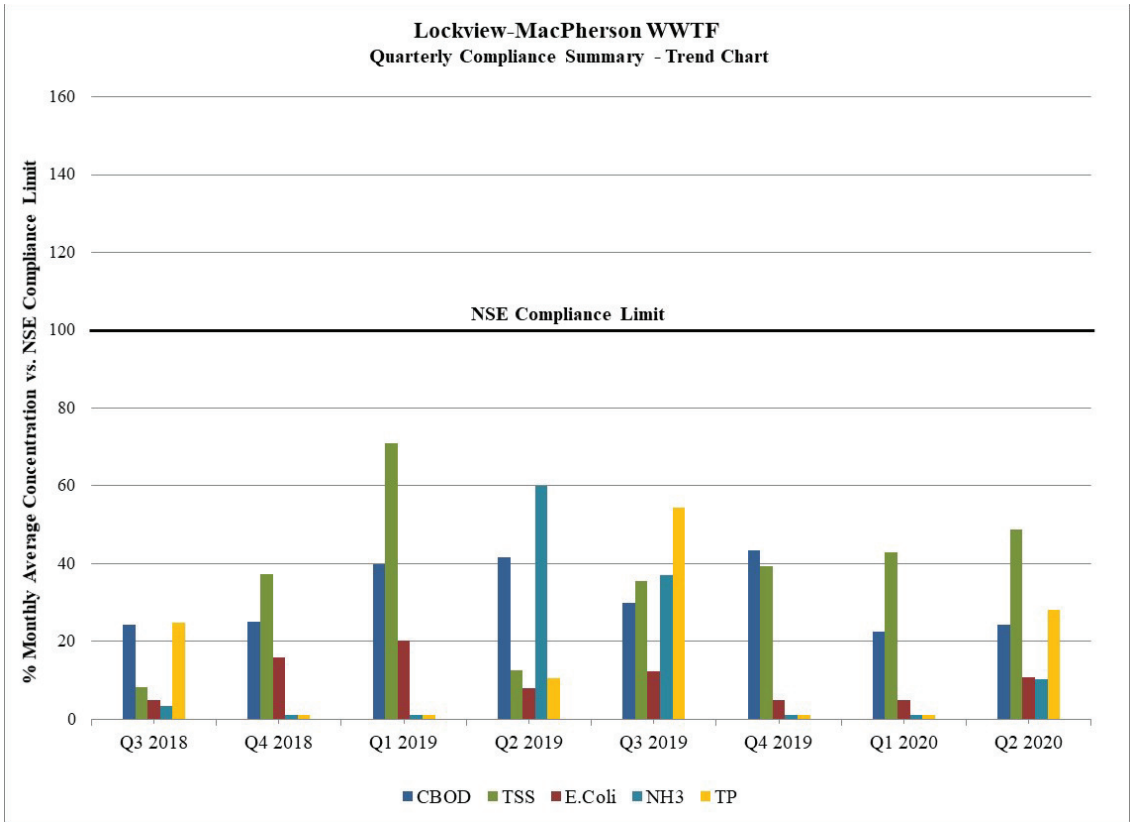

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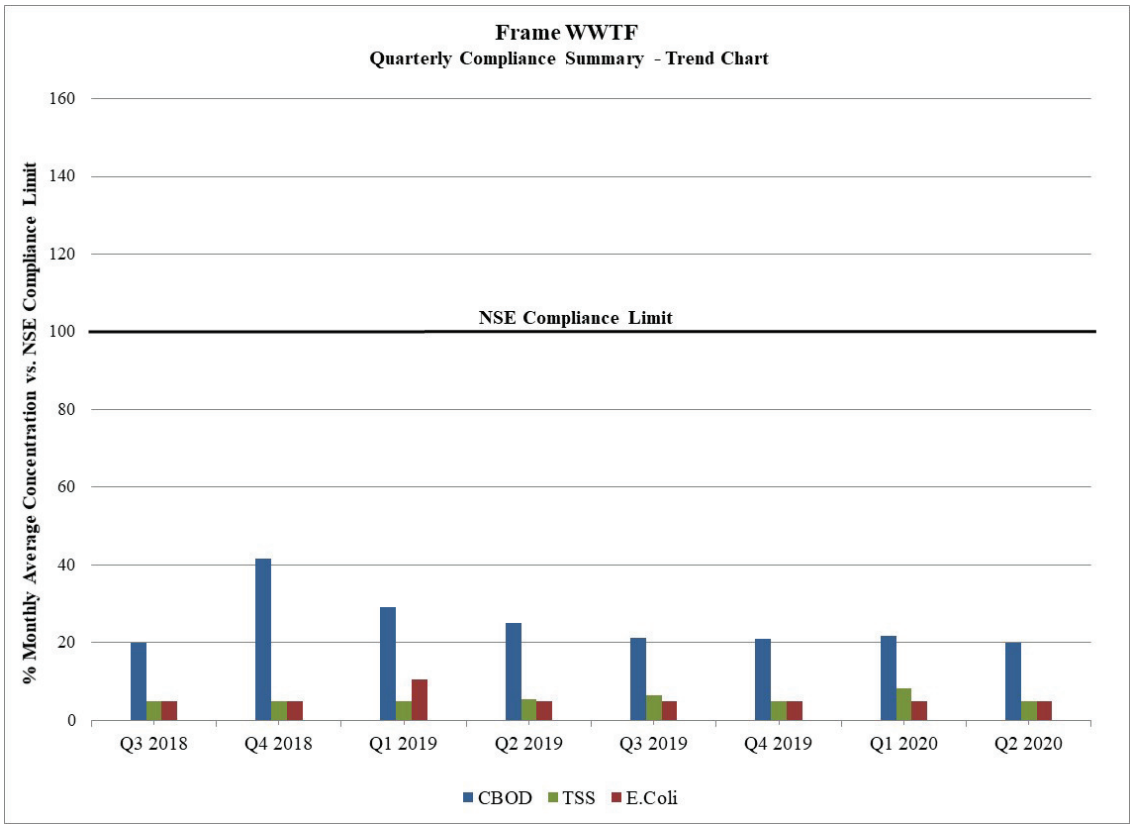

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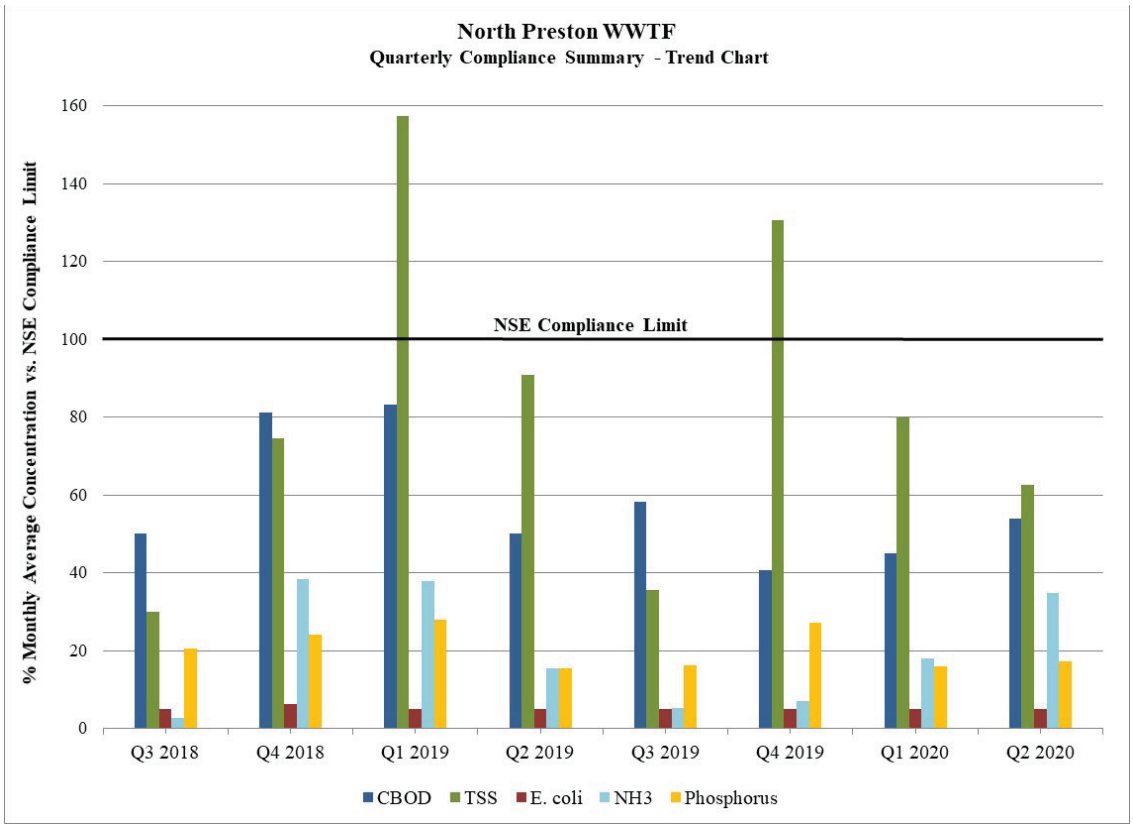

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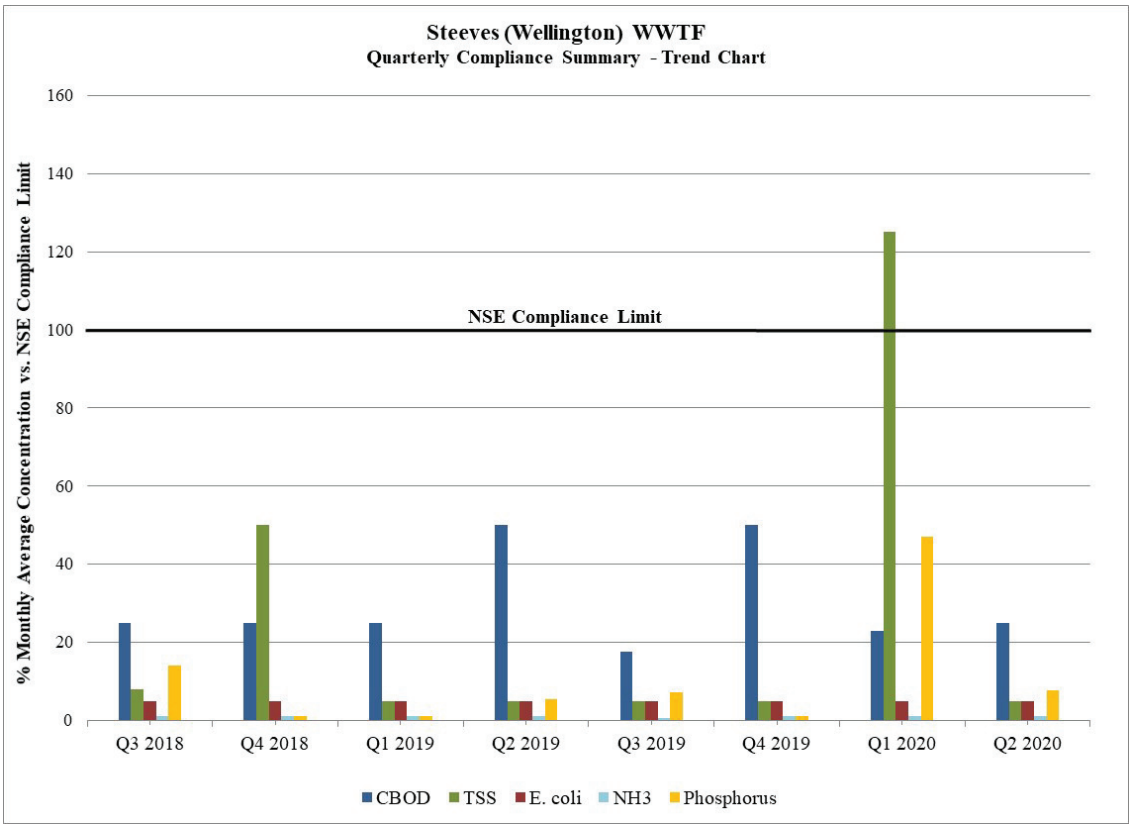

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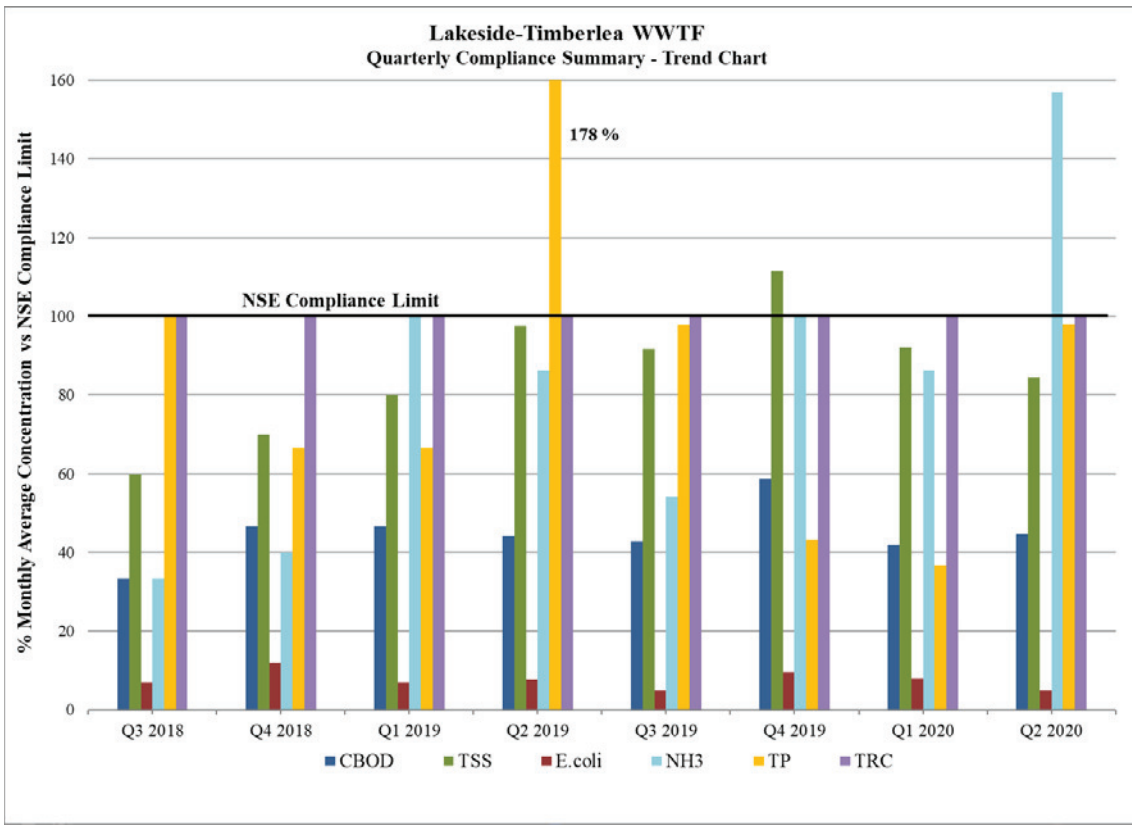

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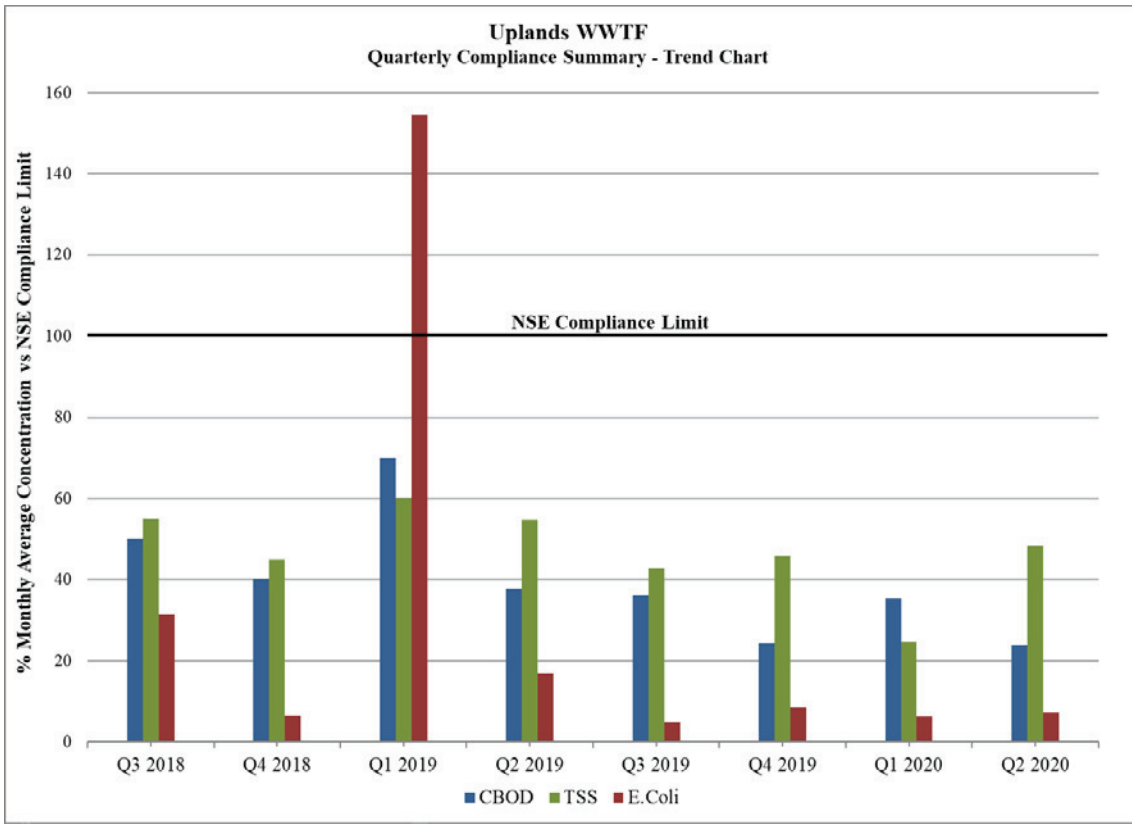

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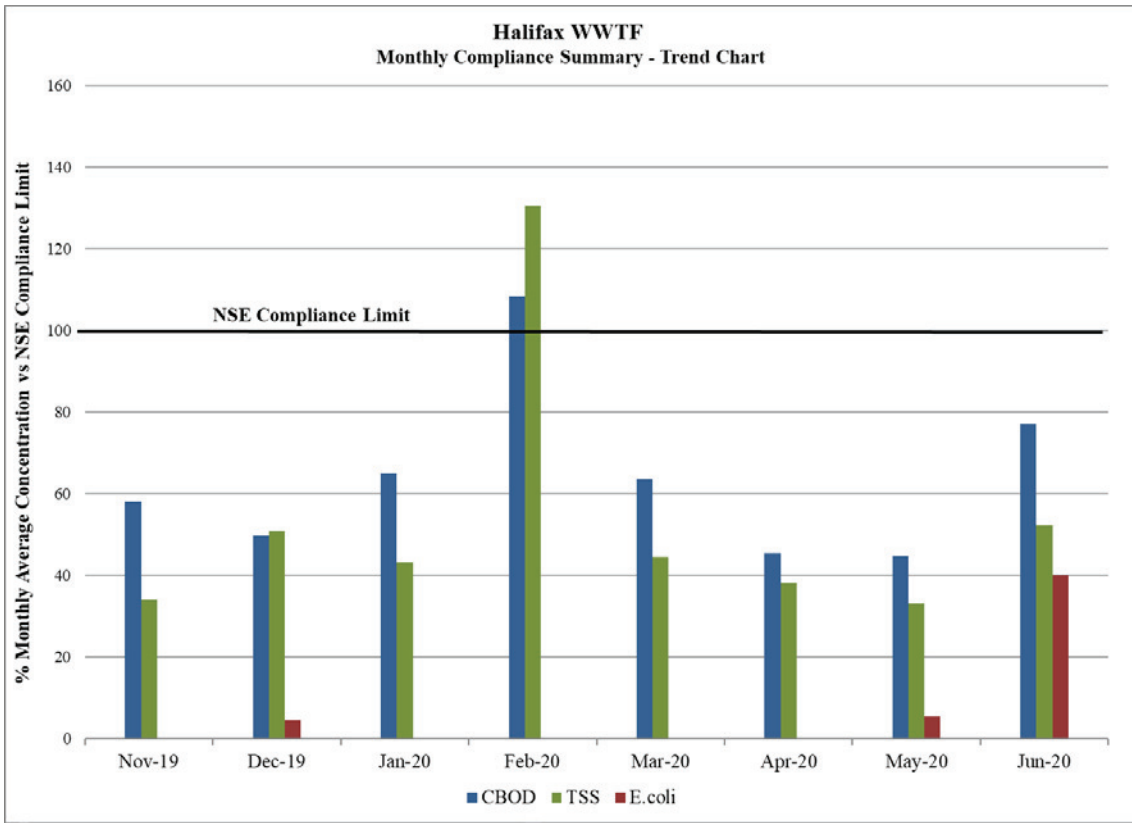

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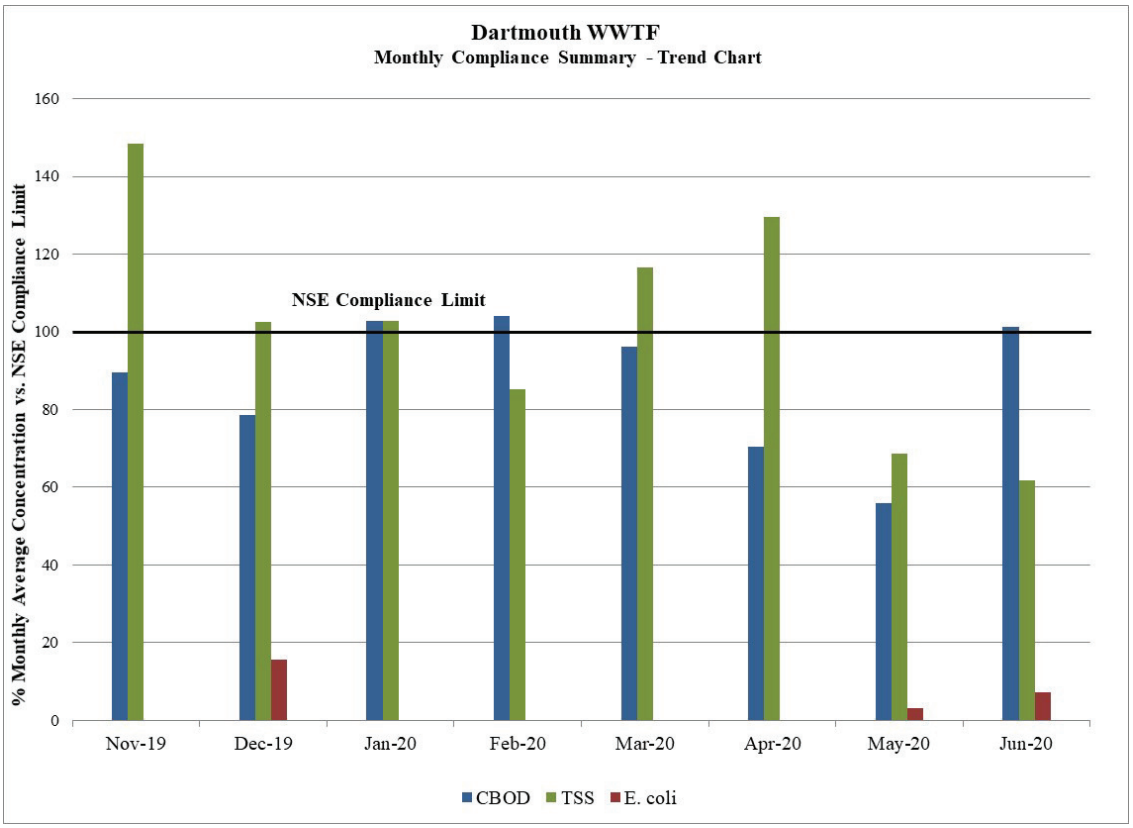

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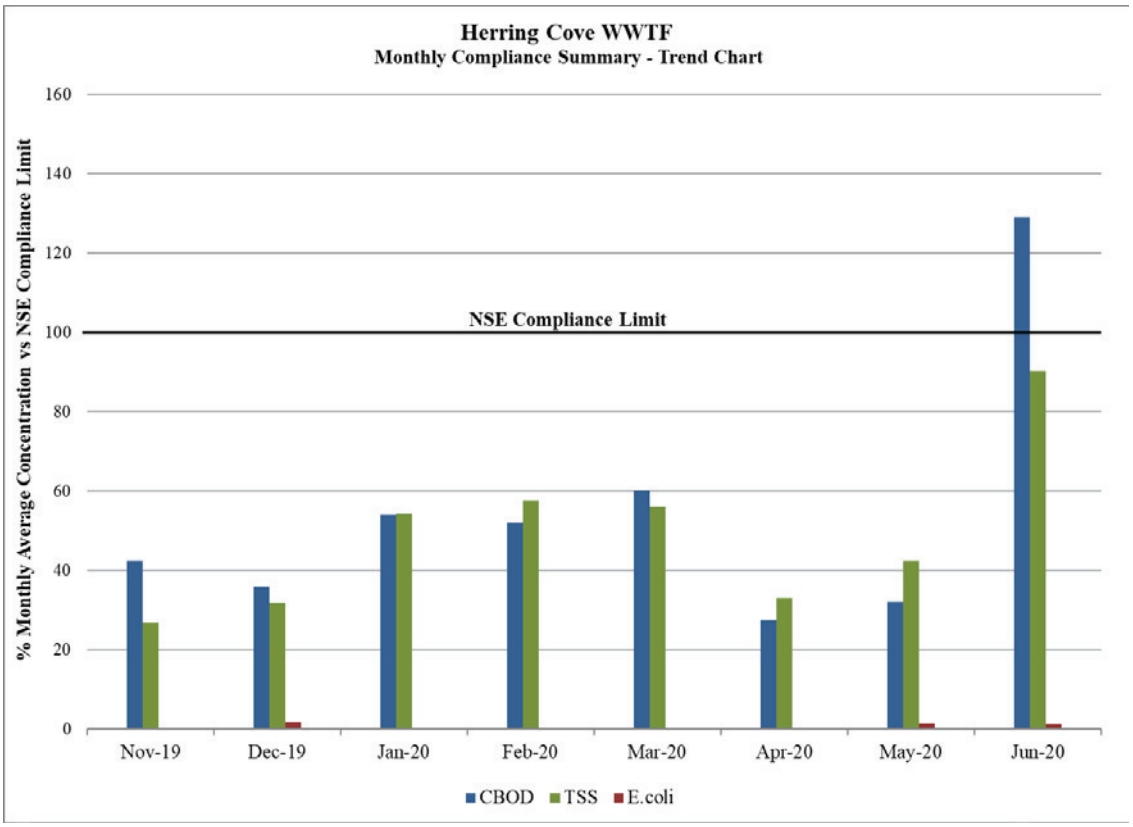

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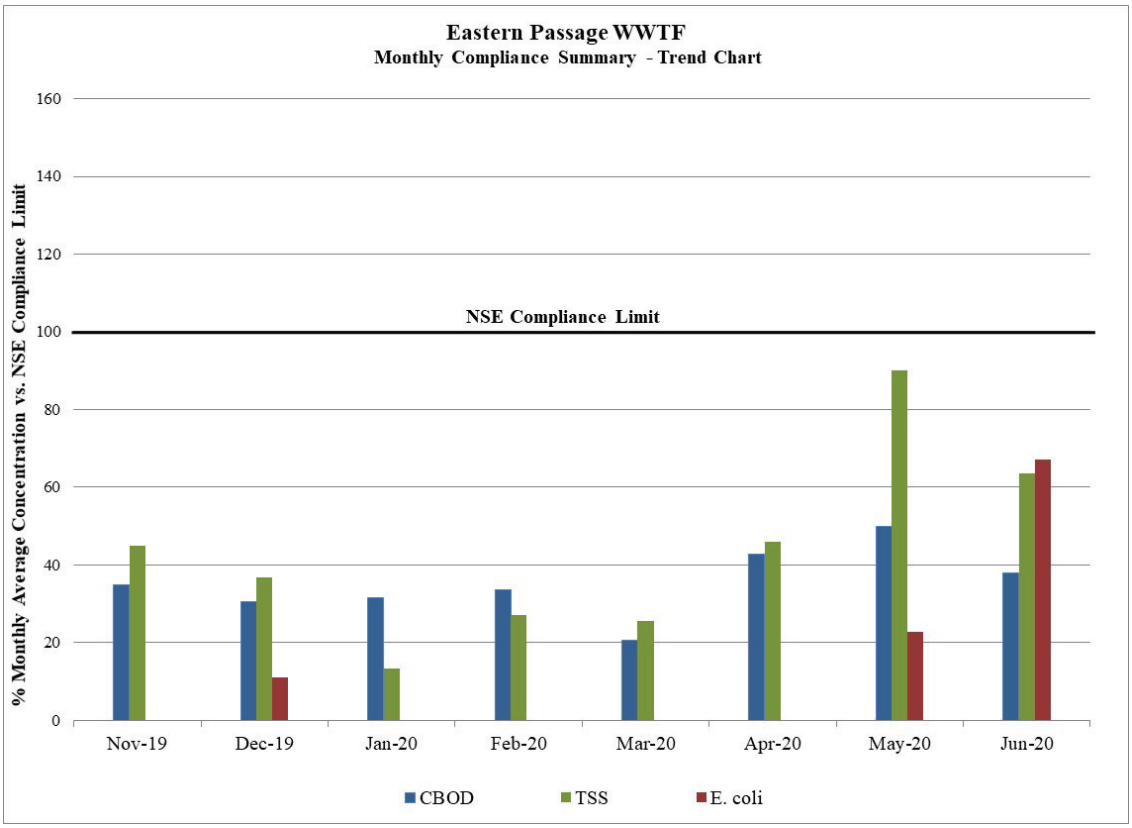
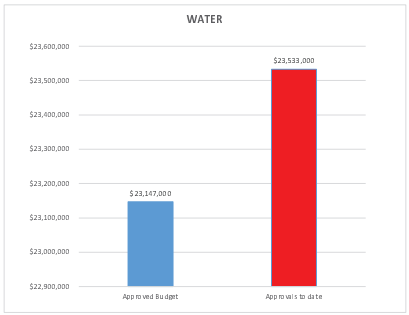


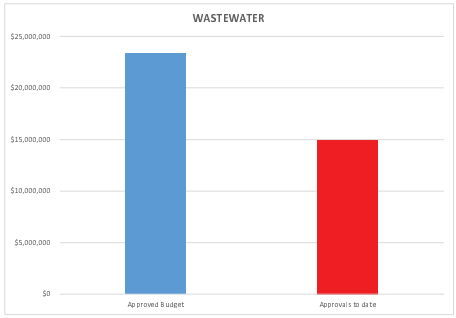
Lower numbers represent better performance.

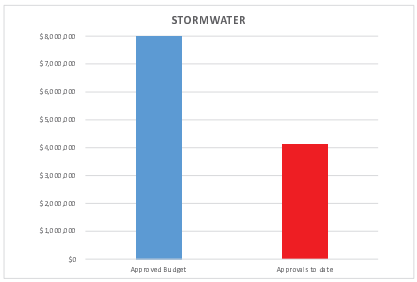
Halifax Water
Halifax Regional Water Commission

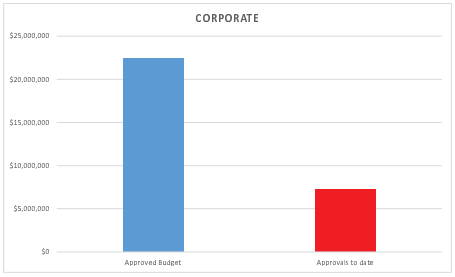
ITEM 2-I
HRWC Board
September 2020

CAPITAL BUDGET APPROVALS TO DATE - 2020 -2021









WATER

Approved Budget	$23,147,000
Approvals to date	**$23,533,000**

WASTEWATER

Approved Budget	$23,336,000
Approvals to date	**$14,968,000**

STORMWATER

Approved Budget	$8,438,000
Approvals to date	**$4,108,000**

CORPORATE PROJECTS

Approved Budget	$22,427,000
Approvals to date	**$7,265,900**

Total Budget:	$77,348,000
Total To Date:	**$49,874,900**
Total %	**64%**

Jamie Hannam

Digitally signed by Jamie Hannam
Date: 2020.09.18 08:58:46 -03'00'

Report Approved: **Date**
Jamie Hannam

HRWC Board Report #2-1
Capital Projects Funding Approvals 2020-2021

Category	Total Approved	Net Impact on Budget	Approval Date
Water			
Distribution			
Automated Flushing Program	$20,000	$20,000	5-Mar-20
Coburg Road Bridge Watermain Replacement	$300,000	$300,000	5-Mar-20
Lead Service Line Replacement Program	$170,000	$170,000	12-Mar-20
Water Distribution - Main Renewal Program	$3,093,000	$3,093,000	0-Jan-00
~ Valves Renewals	$125,000	$125,000	16-Jun-20
~ Hydrants Renewals	$75,000	$75,000	16-Jun-20
~ Service Lines Renewals	$100,000	$100,000	16-Jun-20
South Street CN Bridge Watermain Installation	$25,000	$25,000	5-Mar-20
Water Sampling Station Relocation Program	$10,000	$10,000	5-Mar-20
Meadowbrook PRV Chamber - Replace PRV Valves	$35,000	$35,000	5-Mar-20
Fall River Rechlorination Station	$25,000	$25,000	28-Feb-20
Spring Garden Road - Main Renewal - Design	$37,000	$37,000	5-Mar-20
Energy			
Energy Management Capital Program (Water)		$100,000	
Chamber HVAC Retro-Commissioning Program		$100,000	
Equipment			
Miscellaneous Equipment Replacement	$50,000	$50,000	16-Jun-20
Leak Detection Equipment	$8,000	$8,000	5-Mar-20
Purchase Hydraulic Saws	$45,000	$45,000	22-Jul-20
Land			
Watershed Land Acquisition			
Security			
Security Upgrade Program	$50,000	$50,000	7-Apr-20
Structures			
Eaglewood Pumping Station - New Pump Control Panel	$35,000	$35,000	28-Feb-20
Steel Reservoir Climbing Systems - Safety Upgrades	$225,000	$225,000	3-Mar-20
Bedford South (Hemlock) Reservoir CCC	$8,410,000	$8,410,000	28-May-20
Cowie Hill Reservoir Replacement - Design	$200,000	$200,000	5-Mar-20
Meadowbrook Reservoir Overflow Pipe Replacement	$70,000	$70,000	28-Feb-20
Mount Edward Control Chamber - Extension of Power Supply	$20,000	$20,000	28-Feb-20
Lake Major Dam - Site Improvements	$240,000	$240,000	5-Mar-20
Beaver Bank Booster Station - Pump Upgrades	$30,000	$30,000	10-Apr-20
Transmission			
Bedford West CCC - Various Phases			
Lakeside Timberlea CCC			
Critical Valve Replacements 2020	$30,000	$30,000	9-Jun-20
Chain Control Valve Upgrade Program	$45,000	$45,000	5-Mar-20
Transmission Main Monitroing System Pilot			
Chain Control Transmission - Peninsula Low Upsize - Design	$100,000	$100,000	11-Sep-20
Chain Control Transmission - Peninsula Intermediate Upsize - Design	$100,000	$100,000	11-Sep-20
Herring Cove Road Looping-McIntosh Street			
Tacoma PRV Chamber	$420,000	$420,000	9-Jun-20
Port Wallace Transmission Main - Main Street to Caledonia Road	$6,000,000	$6,000,000	9-Jun-20
North End Feeder Replacement - Design	$200,000	$200,000	21-Aug-20
Cogswell Interchange - Water Transmission Main Realignments			
Treatment Facilities			
Aerotech Booster Station Capital Upgrades			
JD Kline WSP - Process Upgrades - Phase 1 - New Clarifier and Pre-Treatment			
JD Kline WSP - Process Upgrades - Phase 1 - Backwash Optimization			
JD Kline WSP - Process Upgrades - Phase 1 - Building Improvements			
JD Kline WSP - Raw Water Valve Actuators Replacement	$100,000	$100,000	24-Mar-20
JD Kline WSP - Caustic Tank Liner Replacements	$25,000	$25,000	5-Mar-20
JD Kline WSP - Low Lift Pump Replacements			
JD Kline WSP - Replace Westinghouse Electrical Panels	$8,000	$8,000	21-Mar-20
JD Kline WSP - Alum Tank Liner Replacement	$45,000	$45,000	22-Jul-20
J D Kline WSP - New Ultrasonic Level Transmitter	$10,000	$10,000	5-Mar-20
JD Kline WSP - Replace Floc Tank Valve Actuators	$35,000	$35,000	5-Mar-20
J D Kline WSP - Replace Filter Isolation Gates Program	$300,000	$300,000	5-Mar-20
Lake Major WSP - Phase 1 - Temporary Side Stream			
Lake Major WSP - Phase 1 - New Clarifiers and Pre-Treatment	$250,000	$250,000	21-Mar-20
Lake Major WSP - Phase 1 - Filtration System Replacement			
Lake Major WSP - Phase 1 - Raw Water Pump Station			
Lake Major WSP - Phase 1 - Building Additions			
Lake Major WSP - Butterfly Valve Replacement Program	$350,000	$350,000	21-Mar-20
Lake Major WSP - New Boat Launch	$42,000	$42,000	5-Mar-20
Lake Major WSP - Replace Fluoride Tank and Piping	$250,000	$250,000	5-Mar-20
Lake Major WSP - Sludge Drying Beds Improvements			
Lake Major WSP - Roof Replacement			
Lake Major WSP - Emergency Pumps - Sitework Preparations			
Lake Major WSP - Fuel Storage for Generator at Low Lift Station	$120,000	$120,000	20-Aug-20
Bennery Lake WSP - Surge Anticipator Valves Replacement			

Category	Total Approved	Net Impact on Budget	Approval Date
Bennery Lake WSP - Access Road Upgrade	$1,280,000	$1,280,000	
Bomont Equipment Upgrade	$150,000	$150,000	25-Apr-20
Pump Replacement Program - Small Systems	$45,000	$45,000	28-Feb-20
Reservoir Mixing and Residuals Management Upgrade Program	$300,000	$30,000	26-May-20
Water Total	**$23,603,000**	**$23,533,000**	
Wastewater			
Collection System			
Bedford West Collection System CCC			
Lateral Replacements WW (tree roots)	$541,000	$541,000	16-Jun-20
Manhole Renewals WW	$25,000	$25,000	16-Jun-20
Sewer Relocation at South Street CN Bridge			
Wet Weather Management Program	$350,000	$350,000	6-May-20
Integrated Wastewater Projects - Program	$740,000	$740,000	10-Feb-20
Wastewater System - Trenchless Rehabilitation Program	$3,000,000	$3,000,000	
Albro Lakes Watershed Separation	$387,000	$387,000	25-May-20
Local Network Upgrades on Beaver Bank Road - Design	$176,000	$176,000	18-Feb-20
Cogswell Redevelopment - Sewer Relocation			
Punch Bowl PS Elimination	$100,000	$100,000	18-Feb-20
Hines Road Rider Sewer Extension			
Lateral Replacements WW (non tree roots)	$1,720,000	$1,720,000	16-Jun-20
Wyse Road Separation Phase 1	$43,000	$43,000	25-May-20
Young Street - Sewer Separation			
South Park Street - Sewer Separation			
College Street - Sewer Separation			
Prince Albert Road Sewer Separation - Side Streets	$325,000	$325,000	10-Feb-20
Shore Road Bridge Replacement WW Integrated Project	$175,000	$175,000	21-Mar-20
Energy			
NSPI Meter Relocations			
HHSP - BAS + HVAC Recommissioning			
Equipment			
I&I Reduction (SIR) Program Flow Meters and Related Equipment	$25,000	$25,000	16-Jun-20
Miscellaneous Equipment Replacement	$120,000	$120,000	16-Jun-20
Duffus Street PS Flow Meter Replacement	$110,000	$110,000	31-Aug-20
Forcemains			
Akerley Blvd Forcemain Replacement	$65,000	$65,000	18-Feb-20
Pumping Station Oil Tank Replacements			
Morris Lake Forcemain Investigation and Rehabilitation			
New Timberlea Pump Station Forcemain System - Design			
Security			
Security Upgrade Program	$200,000	$200,000	17-Mar-20
Structures			
Autoport Pleasant Street PS Replacement			
CSO Upgrade Program			
Duffus PS CSO - Modification			
Emergency Pumping Station Pump replacements			
Windmill Road PS Replacement	$1,355,000	$1,355,000	7-May-20
Wastewater Pumping Station Component Replacement Program - West Region			
Wastewater Pumping Station Component Replacement Program - East Region			
Wastewater Pumping Station Component Replacement Program - Central Region			
Jamieson Pumping Station - Automatic Bar Screen	$60,000	$60,000	3-Mar-20
Fairfield Holding Tank - Concept Design	$150,000	$150,000	28-Feb-20
Bruce Street Pumping Station Relocation	$150,000	$150,000	21-Feb-20
Wastewater Pumping Station Generator Plug/Switch Installations			
First Lake Pumping Station Upgrades	$70,000	$70,000	14-Apr-20
PS Control Panel / Electrical Replacement	$725,000	$725,000	24-Mar-20
Armscrest Pumping Station - Piping and Valve Upgrades			
Bissett PS Component Upgrade			
Roach's Pond PS Component Upgrade	$550,000	$550,000	17-Apr-20
William's Lake PS Rehabilitation	$100,000	$100,000	21-Mar-20
Upgrade Quigley's Corner Pumping Station			
Optimize Quigley's Corner Pumping Station			
New Timberlea Pumping Station - Design			
Treatment Facilities			
Emergency Wastewater Treatment Facility equipment replacements	$215,000	$215,000	14-May-20
HHSP - OCS Wet Scrubber Chlorine Analyzers	$40,000	$40,000	7-Apr-20
Plant Optimization Audit Program	$16,000	$16,000	11-Aug-20
Wastewater Research Program Pilot Plant			
HSPs - OCS H2S Analyzers			
Duct Work Replacement			
Raw Water Pump Refurbishment	$50,000	$50,000	27-Apr-20
Fixed Gas Meters - Replacement	$150,000	$150,000	27-Apr-20
New Coagulant Dosing System			
New Polymer Dosing System			
Sludge Pumps - New Mechanical Seals	$160,000	$160,000	11-Jan-61
Densadeg Hydraulic Optimization	$100,000	$100,000	2-Apr-20
Grit System - Parts Replacements and New Screws	$50,000	$50,000	27-Apr-20
Sludge Dewatering - Fournier Press Upgrades	$50,000	$50,000	27-Apr-20
Industrial Water System Replacement	$150,000	$150,000	11-Jan-61

Category	Total Approved	Net Impact on Budget	Approval Date
Fine Screens - New Perforated Plate Screens	$1,800,000	$1,800,000	
Densadegs - CFD Analysis and Flow Diversion Vanes			
Heat Exchangers - Refurbishment	$80,000	$80,000	14-Sep-40
Desadegs - Lamella Tube Settler Replacements	$300,000	$300,000	7-May-20
Ballasted Flocculation Pilot	$75,000	$75,000	14-May-20
Duct Work Replacement Program			
Spare Sludge Tank mixer	$25,000	$25,000	1-May-20
Waste Oil System - New Waste Oil Tank	$15,000	$15,000	1-May-20
Electrical System - Spare Transfer Switch	$40,000	$40,000	1-May-20
Secondary Launder Covers			
Road Rehabilitation	$25,000	$25,000	13-May-20
Bioreactors - Short Circuiting Modifications			
Lab - HVAC Modifications			
Centrifuge - Rebuild	$50,000	$50,000	13-May-20
Grit System - Chain and Bucket Replacement	$50,000	$50,000	13-May-20
Springfield Lake - Driveway Replacement	$15,000	$15,000	13-May-20
Building Upgrades			
Conveyor CS1 Liners	$30,000	$30,000	13-May-20
Biofilter Media	$50,000	$50,000	13-May-20
Dryer Upgrades	$70,000	$70,000	13-May-20
Trunk Sewers			
Odour Level of Service and Optimization Review	$100,000	$100,000	25-Apr-20
Fairview Cove Trunk Sewer - Design			
Wastewater Total	**$14,968,000**	**$14,968,000**	
Stormwater			
Culverts/Ditches			
CORONET AVENUE DRIVEWAY CULVERT REPLACEMENT PROJECT			
Driveway Culvert Replacements	$1,200,000	$1,200,000	
KIPAWA CRESCENT			
COLE HARBOUR ROAD, near civic 1560			
ST MARGARET'S BAY ROAD, near civic 2797			
BLUE FOREST LANE, near civic 42			
DEVIL'S HILL ROAD at BOULDERBROOK LANE			
31 KETCH HARBOUR RD, near civic 832			
WAVERLEY ROAD, near civic 832			
Pipes			
Catchbasin Renewals SW	$60,000	$60,000	16-Jun-20
Lateral Replacements SW	$12,000	$12,000	16-Jun-20
Manhole Renewals SW	$15,000	$15,000	16-Jun-20
Stormwater Pipe Condition Inspections (CSP)			
Integrated Stormwater Projects - Program	$608,000	$608,000	14-May-20
Sullivan's Pond Storm Sewer System Replacement - Phase 2 Irishtown Rd to Harbour	$25,000	$25,000	25-May-20
Raymond Street, Phase 2 - Storm Sewer Rehabilitation			
Cogswell Redevelopment - SW Sewer Relocation	$175,000	$175,000	21-Mar-20
Rocky Lake and Bedford Highway Intersection Storm Sewer Upgrade	$75,000	$75,000	1-Sep-20
Thistle Street Storm Drainage System Upgrade - Preliminary Engineering			
Stormwater System Upgrade near Civic #1681 Waverley Road	$38,000	$38,000	1-Sep-20
Structures			
Ellenvale Run Retaining Wall System Phase 4	$1,900,000	$1,900,000	
Stormwater Total	**$4,108,000**	**$4,108,000**	
Corporate			
Facility			
Building Capital Improvements			
East/Central Regional Operational Facility			
Energy Management Capital Program			
Fleet			
Fleet - Stormwater	$269,000	$269,000	16-Jun-20
Fleet - Wastewater	$1,076,000	$1,076,000	16-Jun-20
Fleet - Water	$610,000	$610,000	16-Jun-20
GIS			
Engineering Drawing Database			
GIS Application Support Program	$85,900	$85,900	6-Apr-20
GIS Hardware/Software Program			
Sewer Service Entry			
GIS Data Program			
GIS Data Build - Services (ICI)			
GIS Data Project (CAD schematic retirement)	$150,000	$150,000	28-Apr-20
Utility Network Modeling/Data Modeling			
Stormwater Billing Imagery Acquisition and Analysis	$350,000	$350,000	14-May-20
Information Technology			
Analytics Decision Support System			
Customer Portal			
Desktop Computer Replacement Program	$350,000	$350,000	16-Jun-20
New Payroll System			
Asset Condition			
Capital Planning			
Computerized Maintenance Management System (CMMS) Enhancements	$200,000	$200,000	20-Apr-20
Disaster Recovery			

Category	Total Approved	Net Impact on Budget	Approval Date
Document Management Sharepoint Rollout			
Full Enterprise Data Warehouse	$200,000	$200,000	20-Apr-20
Network Upgrades	$280,000	$280,000	16-Jun-20
SAP Rate Structure Support			
Enterprise Resource Planning Solution			
Security Projects	$190,000	$190,000	25-May-20
SCADA & Other			
GPS Units - Replacement	$70,000	$70,000	21-Feb-20
SCADA Control System Enhancements	$100,000	$100,000	14-Apr-20
ICS Cyber Security Enhancements	$100,000	$100,000	17-Apr-20
Halifax Harbour Solutions Radio Upgrade	$60,000	$60,000	13-May-20
Wastewater Community Plants SCADA System Relocation	$45,000	$45,000	25-Apr-20
PI System Enhancements	$100,000	$100,000	20-Apr-20
Customer Meters - New and Replacement	$500,000	$500,000	16-Jun-20
Asset Management			
Corporate Flow Monitoring Program	$1,870,000	$1,870,000	
Storm Sewer Condition Assessment	$95,000	$95,000	1-Apr-20
Wastewater Sewer Condition Assessment	$215,000	$215,000	1-Apr-20
Vulnerability to Climate Change Risk Assessment-Asset Class Pilot			
Outfall Assessment Project			
SSO Management Program	$100,000	$100,000	11-Sep-20
System Constraints Analysis HRM (was East Additional Flow Monitoring)			
Safe Yield Study	$200,000	$200,000	26-May-20
New Hydraulic Model (infoWater)			
Transmission Main Risk Assessment and Prioritization Framework	$50,000	$50,000	11-Sep-20
Corporate Total	**$7,265,900**	**$7,265,900**	
Grand Total	**$49,944,900**	**$49,874,900**	###########

ITEM # 3-I
HRWC Board
24-Sep-20

FINANCIAL REPORT - Bank Balance

Consolidated Bank Balance		
As Of:	September 11, 2020	$65,806,320
Investment Rate of Return:		
For month of:	August 2020	0.080%
Annual:		0.955%

Halifax Water
Halifax Regional Water Commission

ITEM # 4-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: James Campbell Digitally signed by James Campbell Date: 2020.09.17 14:41:35 -03'00'
James Campbell, Manager of Public Relations & Communications

APPROVED: Cathie O'Toole Digitally signed by Cathie O'Toole Date: 2020.09.17 14:55:10 -03'00'
Cathie O'Toole, CPA, CGA, MBA, ICD.D, General Manager

DATE: September 14, 2020

SUBJECT: **2019/2020 Annual Report**

INFORMATION REPORT

ORIGIN

Ongoing operational requirement.

DISCUSSION

Staff are pleased to present the Annual Report for the 2019/2020 fiscal year. The theme of the 2019/2020 Annual Report is "Seventy-Five Years of Service".

As Halifax Water celebrates its 75th anniversary, it did so in the face of what can be considered one of the most challenging years in its history.

The year saw turnover in key leadership positions including the Board Chair, General Manager, General Counsel, and Director of Corporate Services/Chief Financial Officer. The utility also successfully managed localized flooding caused by post tropical storm Erin; voluntary water conservation measures for customers served by Lake Major; maintained critical services through Hurricane Dorian; navigated supply chain risks caused by the CN Rail blockades; and the emergence of COVID-19 as a global pandemic.

As always, Halifax Water staff rose to the occasion. The fiscal year 2019/2020 was one of the best on record for delivery of the capital program. Then utility completed $94.3 million in capital projects and had $18 million in capital assets under construction at the end of the year. The projects completed include Advanced Metering Infrastructure, JD Kline Water Supply Plant Filtration Replacement, Lake Major Dam Replacement, Lucasville Transmission Main Twinning, Ellenvale Run Retaining Wall System, Wanda Lane Storm Sewer, Corporate Flow Monitoring and $39 million in various other smaller capital projects and programs.

Throughout the response to COVID-19, Halifax Water staff were on the front line maintaining essential water, wastewater and stormwater services that allow homes, buildings, hospitals, long term care facilities, breweries and industry to operate, provide water for fire protection to help protect our environment and public and private property. Staff kept these critical systems running, while working safely and taking steps to benefit and assist our customers.

With 500 dedicated staff working to the same goals, staff can look back on 2019/20 with pride, and look ahead to the next seventy-five years knowing the foundations laid over the last seventy-five years will serve our customers and environment for generations to come.

Copies of the Twenty-fourth Annual Report will be distributed to Regional Council members as an information report in the near future.

BUDGET IMPLICATIONS

Annual Report costs are included in the 2019/2020 operations budget.

ATTACHMENT

2019/2020 Annual Report

Report Prepared by: James Campbell Digitally signed by James Campbell Date: 2020.09.17 14:42:07 -03'00'

James Campbell, Manager of Public Relations & Communications
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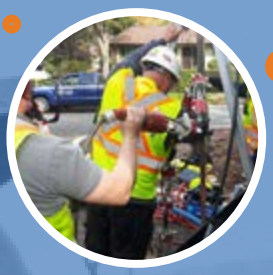
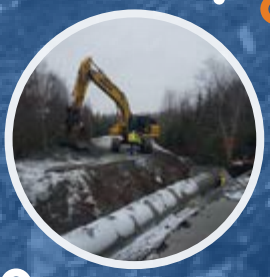




2019-20

Twenty-Fourth

Annual Report

March 31, 2020

75 YEARS 1945 - 2020

Halifax Water

STRAIGHT from the SOURCE

Our Vision

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.

Our Mission

To provide world-class services for our customers and our environment.

Cover Page:

Photos of our past work, current projects, and planning for the future as Halifax Water celebrates 75 Years of Service.

Board of Commissioners

March 31, 2020

Craig MacMullin, MBA, CPA, CGA
Chair

Councillor Russell Walker,
Vice Chair

Brad Anguish,
Commissioner

Colleen Rollings, P.Eng.
Commissioner

Ted Farquhar, P.Eng., CPA
Commissioner

Councillor Steve Adams,
Commissioner

Councillor Richard Zurawski,
Commissioner

Councillor David Hendsbee,
Commissioner

Executive Staff

Cathie O'Toole, MBA, FCPA, FCGA, ICD.D
General Manager

Louis de Montbrun, CPA, CA
Director, Corporate Services/ CFO

Jamie Hannam, MBA, P.Eng.
Director, Engineering & Information Services

Kenda MacKenzie, P.Eng.
Director, Regulatory Services

Susheel Arora, M.A.Sc., P.Eng.
Director, Wastewater & Stormwater Services

Reid Campbell, M.Eng., P.Eng.
Director, Water Services

Letter from the Chair

Craig MacMullin
Board Chair

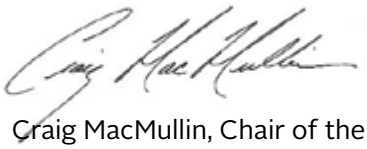
January 1, 2020 marked the 75th anniversary of Halifax Water. Originally known as the Public Service Commission, it was later renamed Halifax Water Commission in 1987, then Halifax Water on August 1, 2007.

The 2019/20 fiscal year brought many challenges and opportunities for Halifax Water in the pursuit of its mission to provide world-class services for our customers and our environment.

The year saw turnover in key leadership positions, including the Board Chair, General Manager, General Counsel, and Director of Corporate Services/Chief Financial Officer. The utility also successfully managed the emergency replacement of a large combined sewer on Chisholm Avenue, triggered by a sinkhole, and some localized flooding caused by post-tropical storm Erin; voluntary water conservation measures for customers served by Lake Major; maintained critical services through Hurricane Dorian; navigated supply chain risks caused by the CN Rail blockades; and the emergence of COVID-19 as a global pandemic. The value of having formalized emergency management and enterprise risk management plans were demonstrated through many of these events.

Throughout the response to COVID-19, Halifax Water staff were on the front line maintaining essential services that allow homes, buildings, hospitals, long-term care facilities, breweries and industry to operate, provide water for fire protection, and kept wastewater and stormwater systems running to help protect our environment and public and private property. Staff kept these critical systems running while working safely and taking steps to benefit and assist our customers.

On behalf of the Halifax Water Board, I wish to convey to customers our commitment to providing responsible governance and oversite in the provision of water, wastewater and stormwater service by Halifax Water. To the employees of Halifax Water, particularly the front-line workers, I wish to extend my sincere appreciation for your service.



Craig MacMullin, Chair of the Board

75 Years of Service

Cathie O'Toole
General Manager

As Halifax Water celebrates its 75th anniversary, it did so in the face of what can be considered one of the most challenging years in its history. Despite that, the utility met its obligations under the HRWC Act and Public Utilities Act, maintained compliance with its operating permits, and staff worked to keep customers in essential water, wastewater and stormwater service during a number of major weather events and a global pandemic.

Last year, Halifax Water continued to focus on delivery of capital projects and long-range planning, recognizing that there are significant short and long-term investments to make in ageing infrastructure. Halifax Water continued to conduct research with Dalhousie University to take a long-term view on optimization of the water and wastewater systems, with a particular focus on adjusting to the unintended consequences of lake recovery in response to a decrease in acid rain and meeting the wastewater system effluent regulations in 2040. Changing source water conditions and meeting wastewater system effluent regulations in 2040 will both have a significant impact on future capital requirements for water and wastewater service, respectively. We are very pleased that through the partnership with Dalhousie University that funding for wastewater research was secured in 2019/20 through the Natural Sciences and Engineering Research Council of Canada (NSERC). Having these on-going science-based research projects, and our linkage to the municipality's HalifACT 2050 initiative will help Halifax Water with its on-going programs and infrastructure investments as we adapt to and prepare for the impacts of climate change.

This year was one of the best on record for delivery of the capital program. Halifax Water completed $94.3 million in capital projects and had $18 million in capital assets under construction at the end of the year. The projects completed during the year include Advanced Metering Infrastructure ($16.6 million), J. D. Kline Filtration Replacement ($10.3 million), Lake Major Dam Replacement ($9 million), Lucasville Transmission Main Twinning ($6.4 million), Ellenvale Run Retaining Wall System ($6 million), Wanda Lane Storm Sewer ($4.9 million), Corporate Flow Monitoring ($1.6 million) and $39 million in various other smaller capital projects and programs.

Several important strategic initiatives that will guide our future activities were completed, including an updated Five-Year Business Plan, a proposal for an Enhanced Lead Service Line Replacement Program, an updated Integrated Resource Plan (IRP) and Regional Development Charge (RDC). These activities supported applications to the Nova Scotia Utility and Review Board (NSUARB) to adjust some rates to keep the utility on a sound financial footing. In light of COVID-19, Halifax Water substantially adjusted the rate increases requested and is now seeking to maintain the rates for water service for the next two fiscal years. A rate increase for wastewater service (April 1, 2021) and the Regional Development Charge (fall/winter 2020) are still required.

Cost containment remains a priority for the utility with an intentional focus on sustainable results over the long term. New cost containment initiatives implemented during the 2019/20 fiscal year resulted in cost savings of $0.7 million.

The 2019 Halifax Water Employee Survey results improved from a B to a B+, and the Customer Survey results indicated 96% of customers were very or somewhat satisfied with Halifax Water's Overall Service Delivery. There is a direct linkage to these results as a satisfied and engaged workforce is key to delivering a high standard of customer service.

All Halifax Water employees contributed to the positive outcomes achieved in 2019/20 described in this report. It was a privilege to lead the team at Halifax Water through a challenging year in 2019/20.

Thank you for your service!

Cathie O'Toole, General Manager

Table of Contents

J. D. Kline Water Supply Plant Pumping Station on Pockwock Lake

Wind Farm Supplying Clean, Renewable Energy to the Local Distribution Grid, Community & J. D. Kline WSP

Get in touch!

24-Hour Emergency Line:
902-420-9287

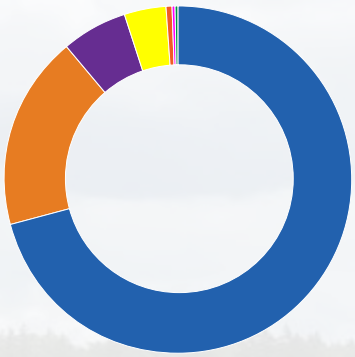
Website
halifaxwater.ca

Customer Care Centre
Hours of Operation:
Monday - Friday
8:00 AM - 8:00 PM
customercare@halifaxwater.ca
902-420-9287

Office Hours:
Monday - Friday
8:30 AM - 4:30 PM
450 Cowie Hill Road
Halifax, NS

Social Media
Monitored:
Monday - Friday
8:30 AM - 4:30 PM
Twitter: @HalifaxWater
Facebook: @HalifaxWater
YouTube: @HalifaxWater
LinkedIn: HalifaxWater

Halifax Water Customers by Service



Halifax Water provides one or more of the following services to our customers: water, wastewater and stormwater. See the table below for a breakdown of the number of customers who receive each type/combination of services.

Customer Numbers by Type		
March 31, 2020 (Fiscal Year: 2019/2020)		
	Number of Accounts	Percentage of Total
Water, Wastewater & Stormwater	74 617	70.93%
Stormwater Only	19 021	18.08%
Water & Wastewater	6 468	6.15%
Water & Stormwater	4 093	3.89%
Wastewater & Stormwater	640	0.61%
Water Only	288	0.27%
Wastewater Only	78	0.07%
Total of All Types	**105 205**	**100%**

General Information of Utility

Year Ended March 31, 2020

Water

Water Supply Plant	Water Source	Treatment Process	Design Average Flows/Day	Filter Quantity & Capacity/Day	Maximum Flow Rate	Design Capacity/Day
J. D. Kline	Pockwock Lake	Dual Media Direct Filtration & Manganese Removal	84 230 m^3	8 Filters 143 m^2/filter	0.137 m^3/m^2 per minute	227 000 m^3
Lake Major	Lake Major	Upflow Clarification, Iron & Manganese Removal	33 840 m^3	4 Filters 85 m^2/filter	0.192 m^3/m^2 per minute	94 000 m^3
Bennery Lake	Bennery Lake	Sedimentation, Dual Media Filtration & Manganese Removal	956 m^3	2 Filters 26.65 m^2/filter	0.10 m^3/m^2 per minute	7 950 m^3
Middle Musquodoboit	Musquodoboit River	Raw Water Infiltration Gallery, Ultra/Nano Filtration	48 m^3	2 Ultra Filters 1 Nano Filter	0.139 m^3/min 0.264 m^3/min	260 m^3
Collins Park	Lake Fletcher	Ultra/Nano Filtration	40 m^3	2 Ultra Filters 1 Nano Filter	0.111 m^3/min 0.145 m^3/min	160 m^3
Bomont	Shubenacadie River	Nano Filtration/ Ionic Exchange Resin	8 m^3	N/A	0.0132 m^3/min	38 m^3
Silver Sands	2 Wells	Green Sand Pressure Filters, Iron & Manganese Removal	27 m^3	2 Filters	0.378 m^3/min	30 m^3
Five Island Lake	1 Well	UV Disinfection	8 m^3	N/A	0.016 m^3/min	N/A

Source Water	Rainfall in 2019-20	Snowfall in 2019-20
Pockwock Lake	1305.0 mm	163.9 cm
Lake Major	1407.5 mm	158.0 cm

Source Water	Watershed Area	Safe Yield /Day
Pockwock Lake	5 661 ha	145 500 m^3
Chain Lake	206 ha	4 500 m^3
Lake Major	6 944 ha	65 900 m^3
Lake Lemont/ Topsail	346 ha	4 500 m^3
Bennery Lake	644 ha	2 300 m^3

Water Supply	Water Production in 2019-20
Pockwock Lake	28 278 461 m^3
Lake Major	11 696 950 m^3
Bennery Lake	284 521 m^3
Small Systems	41 171 m^3
Total	**40 301 103 m^3**

Water Reservoir	Elevation Above Sea Level	Capacity
Lake Major	60 m	9 092 m^3
Pockwock	170 m	13 600 m^3
Geizer 158	158 m	36 400 m^3
Geizer 123	123 m	31 800 m^3
Cowie	113 m	11 400 m^3
Robie	82 m	15 900 m^3
Lakeside	119 m	5 455 m^3
Mount Edward 1	119 m	22 728 m^3
Mount Edward 2	119 m	22 728 m^3
Akerley Blvd.	119 m	37 727 m^3
North Preston	125 m	1 659 m^3
Meadowbrook	95 m	9 091 m^3
Sampson	123 m	12 273 m^3
Stokil	123 m	23 636 m^3
Waverley	86 m	1 364 m^3
Middle Musq.	81 m	275 m^3
Aerotech	174 m	4 085 m^3
Beaver Bank	156 m	6 937 m^3
Total		**259 213 m^3**

Transmission & Distribution System	
Size of Water Mains	19 mm - 1 500 mm
Total Water Mains	1 563 km
Main Valves	15 746
Fire Hydrants	8 453
Distribution Pumping (Booster) Stations	21
Pressure Control & Flow Meter Chambers	141

Water Services & Meters	
Water Sprinkler Systems (25 mm - 300 mm)	2 204
Supply Services (10 mm - 400 mm)	85 466
Water Meters (15 mm - 250 mm)	85 140

Population Served	
Halifax Municipality Est. Population Served	376 000
Consumption per Capita	238 litres/day

General Information of Utility

Year Ended March 31, 2020

Wastewater/Stormwater

Wastewater Treatment Facility	Treatment Process	Design Average Flows/Day	Area(s) Served	Receiving Water	Volume Treated in 2019-20
Halifax	Enhanced Primary UV	139 900 m^3	Halifax	Halifax Harbour	33 284 787 m^3
Dartmouth	Enhanced Primary UV	83 800 m^3	Dartmouth	Halifax Harbour	20 259 836 m^3
Herring Cove	Enhanced Primary UV	28 500 m^3	Halifax & Herring Cove	Halifax Harbour	4 088 956 m^3
Mill Cove	Secondary UV/Pure Oxygen Activated Sludge	28 400 m^3	Bedford & Sackville	Bedford Basin	10 929 599 m^3
Eastern Passage	Secondary UV/Conventional Activated Sludge	25 000 m^3	Cole Harbour & Eastern Passage	Halifax Harbour	5 639 200 m^3
Timberlea	Secondary Sodium Hypochlorite/ RBC	4 540 m^3	Lakeside & Timberlea	Nine Mile River	1 002 400 m^3
Aerotech	Tertiary UV/Membrane Bioreactors	3 000 m^3	Aerotech Park & Airport	Johnson River	328 874 m^3
Springfield Lake	Secondary UV/Activated Sludge	543 m^3	Springfield Lake	Lisle Lake	143 504 m^3
Fall River	Tertiary UV/Activated Sludge & Post Filtration	454.5 m^3	Lockview Road & McPherson Road	Lake Fletcher	59 060 m^3
North Preston	Tertiary UV/SBR & Engineered Wetland	680 m^3	North Preston	Winder Lake	215 157 m^3
Middle Musquodoboit	UV/RBC	114 m^3	Middle Musquodoboit	Musquodoboit River	40 421 m^3
Uplands Park	Secondary UV/Trickling Filter & Wetland	91 m^3	Uplands Park	Sandy Lake	37 168 m^3
Wellington	Tertiary UV/Activated Sludge/ Reed Bleed	68 m^3	Wellington	Grand Lake	6 684 m^3
Frame Subdivision	Tertiary UV/Membrane Reactor	80 m^3	Frame Subdivision	Lake William	9 442 m^3

Wastewater & Stormwater Collection System			
Size of Pipes	50 mm - 3 000 mm	**Total Ditch Length**	602 km
Total Collection System Length	2 303 km	**Holding Tanks & Retention Ponds**	45
Wastewater Services	81 803	**Cross Culverts**	2 369
Total Manholes	38 895	**Driveway Culverts**	Approx. 16 000
Total Pumping Stations	165	**Catchbasins**	24 538

Glossary of Terms
ha - hectare
m - metre
m^2 - square metre
m^3 - cubic metre (1 000 litres)
mm - millimetre
cm - centimetre
km - kilometre

HIGH QUALITY WATER

Lake Recovery

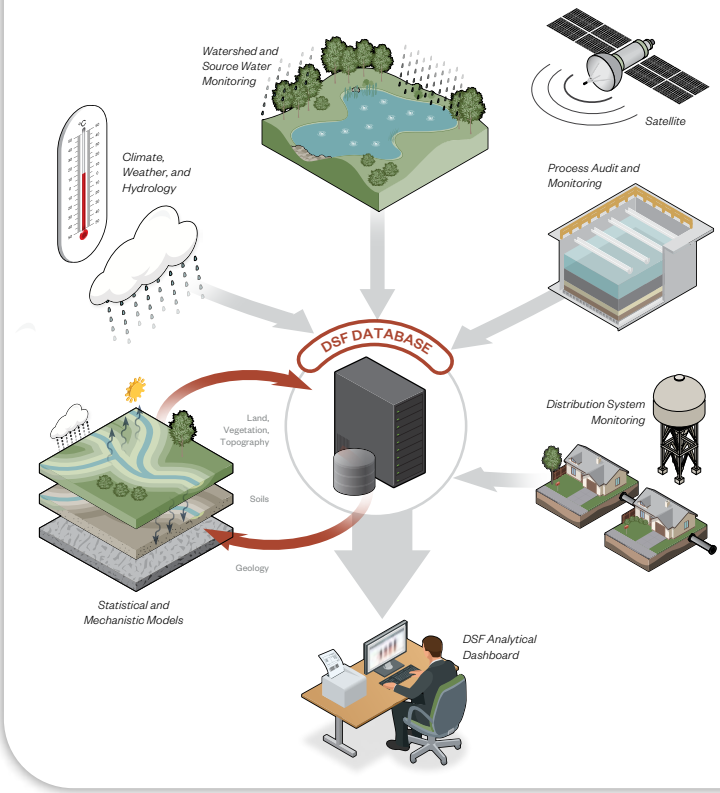
Lakes in Nova Scotia typically have a low pH and, in some cases, a resulting low level of biotic activity. This was believed to be caused by acid rain from prevailing westerly winds bringing coal-burning power plant emissions to Nova Scotia from the Midwest United States.

Great strides have been taken over the last 20 years in both Canada and the US in reducing emissions from coal-fired power generation. This has allowed lakes to recover from the effects of acid rain, resulting in higher pH, higher levels of naturally occurring organic matter in the water, and higher levels of biotic activity. While this is a good news story from an environmental perspective, the source water has changed enough to present treatment challenges that our plants were not designed for.

Decision Support Framework (DSF)

Responding to Changing Water Quality due to Lake Recovery and Climate Change

The proposed DSF will leverage existing data and system resources to enable a unified approach to data analysis and visualization that supports robust decision-making across planning horizons (near-term operations support to long-term capital planning)



In 2018, Halifax Water began a Tailored Collaboration Program project with the Water Research Foundation (WRF) to assist the utility in dealing with the implications of lake recovery. This program offers matching research funding of US$100,000 from the WRF to better understand and monitor source water changes, how to optimize water supply plants and develop a capital improvement plan to manage changing source water quality.

The research is being conducted by Hazen and Sawyer, who have assembled a team of source water, water treatment and water quality experts to develop a decision support framework. The project will conclude in 2020 and will be used to guide Halifax Water in planned upgrades to our large water supply plants.

How does lake recovery impact our customers?

Lake recovery has caused geosmin to appear in our source water. Geosmin is a harmless, naturally occurring compound that gives water an earthy smell and taste.

One teaspoon of geosmin in an olympic swimming pool would be enough for a human to taste and/or smell it.

Research Fund Matched up to US $100,000 by WRF

Developing a Plan to Manage & Treat Changing Source Waters

Project to Guide Future WSP Upgrades Complete in 2020

Funding Sources:
Halifax Water Rates & Water Research Foundation

Algal Monitoring

Cyanobacteria (blue-green algae) are naturally found in our lakes and streams. There are thousands of species of cyanobacteria, and they are a natural part of the ecosystem. Some cyanobacteria species can produce taste and odour compounds like geosmin and MIB (2-Methylisoborneol), and some species can also produce algal toxins, like microcystins.

Due to lake recovery and climate change's combined effects, the biological activity in many lakes in Nova Scotia is changing. Halifax Water first noticed this in 2012 with the detection of geosmin at Pockwock Lake. In response to the changing source water, Halifax Water has developed and implemented an algal toxin monitoring program, which is in line with industry best practices. This program is multi-pronged and makes uses of several different early warning and pre-screening tools to allow proactive responses to algal blooms and any potential water quality impacts. Through both the NSERC Research Chair with Dalhousie University and the National Research Council, Halifax Water is working on developing innovative tools for algal monitoring to enhance understanding and response to algal blooms further.

Algae as Seen Through a Microscope

NSERC Research Chair with Dalhousie University

This year marked the 13th successful year of our research partnership with the National Sciences and Engineering Research Council (NSERC) Halifax Water Industrial Research Chair in Water Quality and Treatment at Dalhousie University. Dalhousie and Halifax Water work cooperatively to develop a five-year research framework to meet both Halifax Water's operational needs and to address broader sector-wide needs for water quality and treatment.

The current research plan has three main themes:

- Understanding Lake Recovery: to understand the water quality changes occurring in our water supply lakes and appropriately design water treatment plant upgrades.
- Treatment Research and Source Water Monitoring: to adapt current treatment processes to changing source water.
- Distribution System Water Quality: Strategies for dealing with lead in drinking water and optimizing corrosion control treatment.

In 2020, public health protocols in response to COVID-19 meant that existing pilot and lab-based projects had been temporarily put on hold. Still, the research team seized the opportunity to develop several targeted projects using literature reviews and review of existing data sources to assist Halifax Water in decision making around current operational challenges, including enhancing source water monitoring approaches, optimizing algal monitoring approaches and gaining a further understanding of corrosion control best practices.

Dr. Graham Gagnon, Ph.D., P.Eng.
NSERC/Halifax Water Industrial Research Chair

WSP Upgrade Program

All of our water supply plants (WSPs) continue to provide high-quality drinking water that exceeds Health Canada requirements, but doing so is costing more and requires greater effort from our operations and maintenance staff.

This year, Halifax Water began a program to upgrade both of our large water supply plants at Pockwock Lake and Lake Major over the next ten years, Halifax Water will be upgrading to more modern technology and upgrading the treatment processes to ensure the plants are capable of meeting tomorrows treatment challenges. Both plants will be more resilient to better enable them to meet treatment challenges arising out of lake recovery and climate change.

Significantly, the J. D. Kline plant will be upgraded from a direct filtration plant to a conventional plant, which will better enable it to respond to changes in source water.

Lead Line Replacement Program

Removing lead service lines from our water system is a top priority for Halifax Water.

For decades, Halifax Water has been working together with the public to remove lead water service lines (LSL) from our system. On August 22, 2017, the NSUARB approved a financial incentive for customers who replace their private LSL. The program provides a 25% rebate, up to $2,500 of the cost of the private replacement. Halifax Water has since developed The Lateral Loan, which assists customers who cannot secure a private loan but wish to replace their LSL.

Program Success

Customer Private LSL Replacements:

128 in 2019-20.
340 since 2017.

Halifax Water Public LSL Replacements:

103 in 2019-20.
300 since 2017.

$197,552 in Rebates Paid to Customers by Halifax Water for 212 LSL Replacements since August 22, 2017.

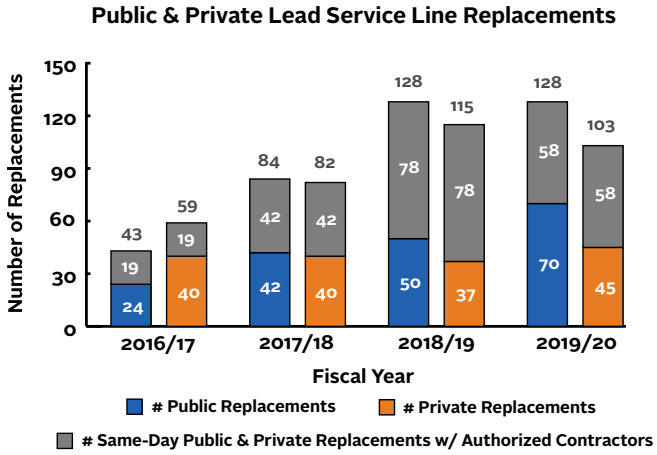
Customers with known LSLs are alerted and offered assistance.

Coordination with HRM to integrate LSL replacements during HRM street improvements.

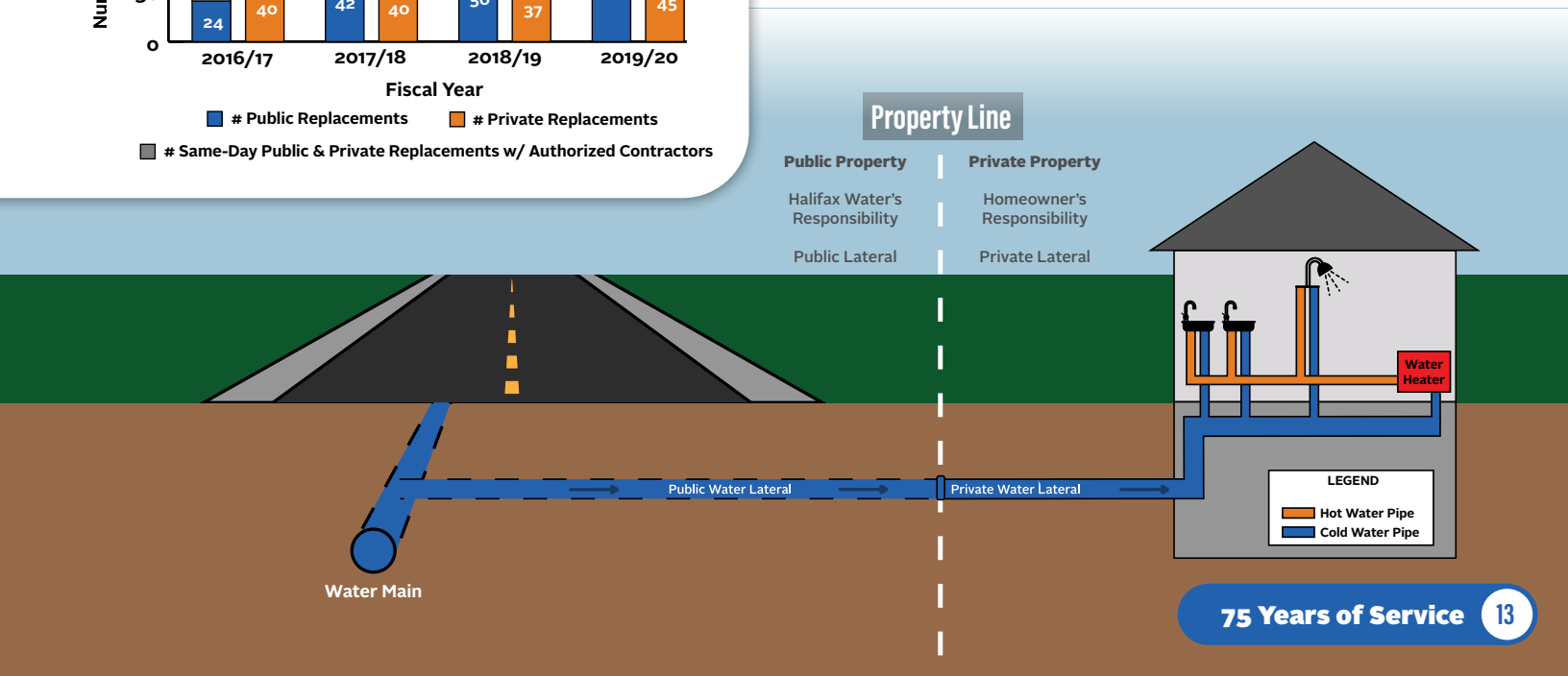
Project Cost & Funding

Total Cost:
$2,592,502 (Since 2017)

Funding Source:
Halifax Water Rates



Referring to the bar graph, a steady rise in replacement numbers can be seen until a slight decline in 2019/2020. Despite the success of the current program there are still significant barriers to private uptake and at the current rate of replacement, the program will run well past the program goal of 2050.



Lead Line Replacement Program Continued...

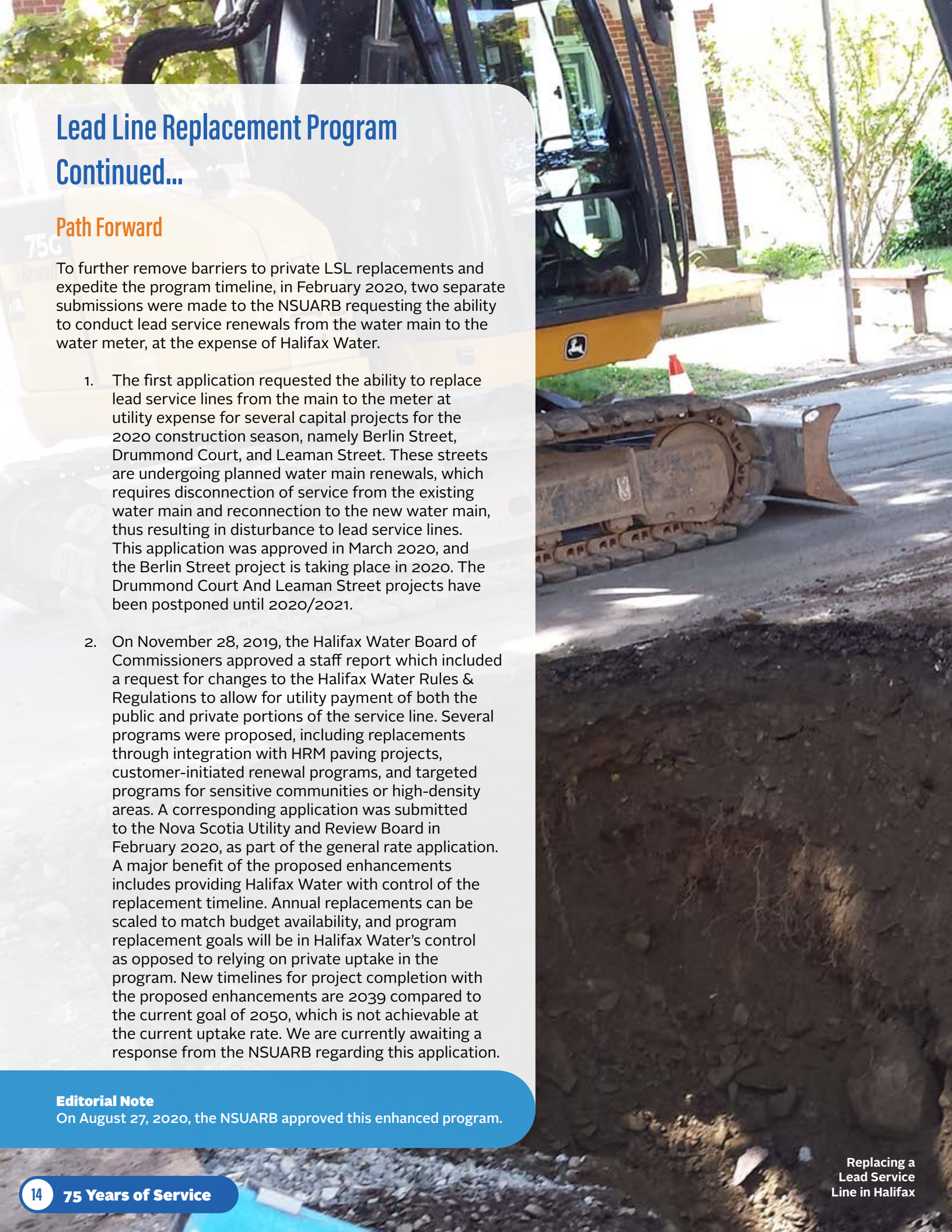
Path Forward

To further remove barriers to private LSL replacements and expedite the program timeline, in February 2020, two separate submissions were made to the NSUARB requesting the ability to conduct lead service renewals from the water main to the water meter, at the expense of Halifax Water.

1. The first application requested the ability to replace lead service lines from the main to the meter at utility expense for several capital projects for the 2020 construction season, namely Berlin Street, Drummond Court, and Leaman Street. These streets are undergoing planned water main renewals, which requires disconnection of service from the existing water main and reconnection to the new water main, thus resulting in disturbance to lead service lines. This application was approved in March 2020, and the Berlin Street project is taking place in 2020. The Drummond Court And Leaman Street projects have been postponed until 2020/2021.

2. On November 28, 2019, the Halifax Water Board of Commissioners approved a staff report which included a request for changes to the Halifax Water Rules & Regulations to allow for utility payment of both the public and private portions of the service line. Several programs were proposed, including replacements through integration with HRM paving projects, customer-initiated renewal programs, and targeted programs for sensitive communities or high-density areas. A corresponding application was submitted to the Nova Scotia Utility and Review Board in February 2020, as part of the general rate application. A major benefit of the proposed enhancements includes providing Halifax Water with control of the replacement timeline. Annual replacements can be scaled to match budget availability, and program replacement goals will be in Halifax Water's control as opposed to relying on private uptake in the program. New timelines for project completion with the proposed enhancements are 2039 compared to the current goal of 2050, which is not achievable at the current uptake rate. We are currently awaiting a response from the NSUARB regarding this application.

Editorial Note
On August 27, 2020, the NSUARB approved this enhanced program.

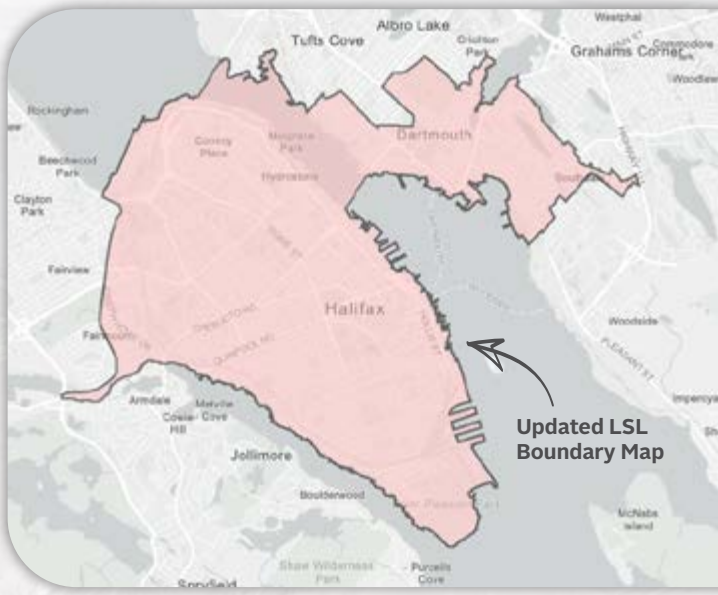


Replacing a Lead Service Line in Halifax

Lead Service Line Boundary & Inventory

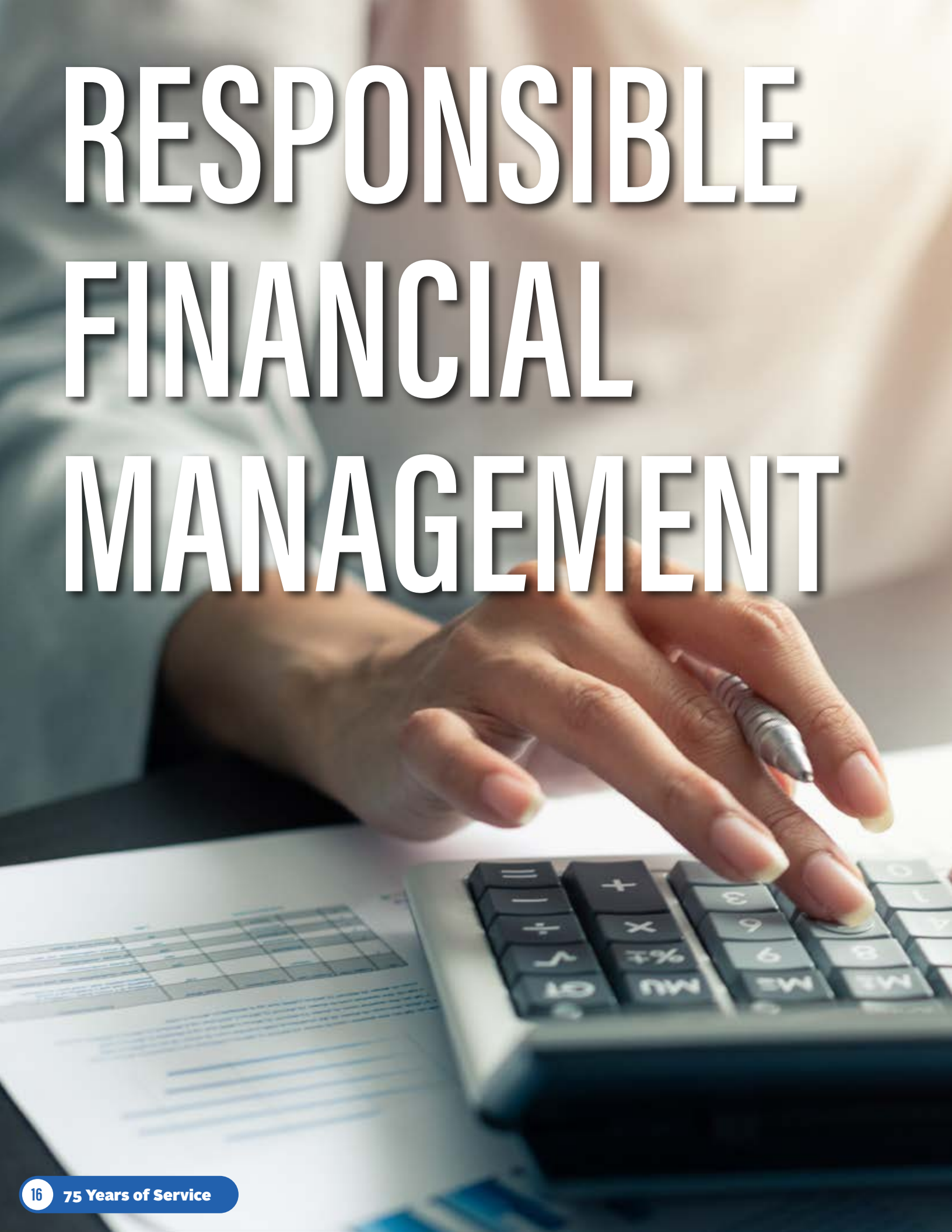
In February 2018, Halifax Water digitized a boundary encompassing peninsular Halifax, old sections of water distribution infrastructure connecting to the Chain Lake Water Supply Plant (now a back-up water supply), and the area of Dartmouth within the boundary of the Highway of Heroes (Hwy #111). Halifax Water was conservative in its approach to publishing a lead service line boundary at the time due to the uncertainty in private service records regarding the service line material composition. With the completion of the water meter installation portion of the Customer Connect project, consultation with staff, and use of historical records, a more accurate boundary was determined.

On January 10, 2020, the lead service line boundary was modified and published for public reference.



Halifax Water has been working to improve its inventory of lead service lines through several means, including refining the boundary as described above, gathering information during the Customer Connect project, and through a property-by-property consolidation of physical and digital records. Through these efforts, in 2020, Halifax Water reduced the 2017 inventory estimate from 2,500 public and 10,000+ private lead service lines to 2,000 public and 3,500 private lead service lines.

RESPONSIBLE FINANCIAL MANAGEMENT



Annual Financial Results

Halifax Water received a clean audit opinion on the financial statements for the fiscal year ended March 31, 2020. The financial statements are presented in accordance with International Financial Reporting Standards (IFRS). Halifax Water also produces financial information in the format required by the Nova Scotia Utility and Review Board (NSUARB) in accordance with the NSUARB Accounting and Reporting Handbook for Water Utilities (Handbook).

The financial statements prepared under IFRS are used primarily for consolidation with the Halifax Regional Municipality's financial statements. In contrast, the financial information prepared under the Handbook is used for setting Water, Wastewater and Stormwater rates.

Summary financial information is presented on page 66 under IFRS and under the Handbook on page 67.

The audited financial statements are audited by Grant Thornton LLP and can be located at ***halifaxwater.ca/publications-reports***. The financial statements contain the independent auditor's report issued by Grant Thornton, IFRS statements and schedules containing financial information prepared in accordance with the Handbook.

The key differences between the IFRS and Handbook financial statements are related to reporting requirements for the recognition of various expenditures as follows:

1. The full actuarial liability of employee future benefits is not considered an expense for the Handbook and could result in either positive or negative impacts on income;
2. Principal payments on long-term debt are an expense for the Handbook but not under IFRS;
3. Depreciation expense on contributed assets is not an expense for the Handbook and amortization of contributed capital is not considered revenue under the Handbook; and,
4. Various depreciation adjustments, including the add-back of losses on the disposal of utility plant in service, componentization of assets and shorter useful lives, results in higher depreciation under IFRS than under the Handbook.

Under IFRS, comprehensive earnings are $20.90M. After the adjustments described above, the loss for the year under the Handbook is $1.56M. The key differences are summarized in the table on this page.

Reconciliation IFRS Results to Handbook Results

	March 31, 2020 '000	March 31, 2019 '000
IFRS comprehensive earnings	**$ 20,899**	**$ 16,138**
Add non-cash pension expense	8,381	6,208
Subtract debt principle appropriation expense	(18,719)	(20,516)
Add depreciation expense on contributed assets	19,025	18,143
Subtract amortization on contributed capital	(19,025)	(18,143)
Add various depreciation adjustments	2,635	3,292
Subtract OCI gain	(14,756)	(3,734)
NSUARB earnings (loss) for the year	**$ (1,560)**	**$ 1,388**

Annual Financial Results Continued...

Cash Balance
On par with last year, higher than projected as a result of Regional Development Charges (RDC) collections & lower capital expenditures.

$50.0M

The liquidity on the balance sheet (ratio of current assets divided by current liabilities) is 1.76 (per NSUARB Handbook reporting).

New Assets Capitalized in the Fiscal Year
Utility plant in services assets, net of accumulated depreciation, are $1,281.0M and is $46.6M or 3.86% higher than last year.

$94.3M

At the end of the fiscal year, there was $18.1M in capital work in progress, compared to $29.6M last year.

Debt continues to be an important funding source for Halifax Water's capital program. Total long-term debt increased to $219.1M. New debt of $30.0M was received

Expenditures on Capital Projects in the Fiscal Year
Meters and associated technology related to the Advanced Metering Infrastructure (AMI) project were capitalized along with other significant projects, including the J. D. Kline Filtration Replacement project and the replacement of the Lake Major Dam.

$69.3M

in November 2019, and repayments during the year were $18.2M.

Debt Service Ratio
Well below the maximum ratio allowed under the blanket guarantee agreement with HRM.

18.91%

The discussion of operating results is based on the Handbook as these are the results on which rates are based. The loss for the year was $1.56M and a decrease of $2.95M from last year.

Actual Loss
From a budget perspective, the loss for the year was below budget by $6.8M.

$1.56M

This lower than expected loss was due to operating expenses and debt servicing being less than expected.

Utility Plant in Service Additions

	Cumulative '000
AMI - Advanced Metering Infrastructure	**$ 16,604**
J. D. Kline Filtration Replacement	**10,299**
Lake Major Dam Replacement	**9,080**
Lucasville Transmission Main Twinning	**6,398**
Ellenvale Run Stormwater Channel Upgrades	**6,027**
Wanda Lane Storm Sewer	**4,935**
All other projects	**40,979**
Total	**$94,322**

Capital Work in Progress

	Cumulative '000
Integrate Service Desk & IT Asset Management	**$793**
Pump Station Control Panel/Electrical Replacement	**926**
Infrastructure & IT Ops Governance	**1,054**
Payroll Replacement Project	**1,192**
Fairview/Clayton Park/Bridgeview I&I Reduction	**1,078**
All other projects	**13,061**
Net assets under construction	**$29,605**

Summarized Consolidated Operating Results

For the year ended	March 31, 2020 '000	March 31, 2019 '000	$ Change
Operating revenues	$ 137,750	$ 138,202	$ (452)
Operating expenses	109,326	105,524	3,802
Earnings from operations	28,424	32,678	(4,254)
Financial & other revenues	1,211	1,899	(688)
Financial & other expenditures	31,195	33,189	(1,994)
Earnings (loss) for the year	**$ (1,560)**	**$ 1,388**	**$ (2,948)**

Summarized Consolidated Operating Results - Comparison to Budget

For the year ended	Budget March 31, 2020 '000	Actual March 31, 2019 '000	$ Change
Operating revenues	$ 138,727	$ 137,750	$ 977
Operating expenses	115,086	109,326	5,760
Earnings from operations	23,641	28,424	(4,783)
Financial & other revenues	1,369	1,211	158
Financial & other expenditures	33,374	31,195	2,179
Earnings (loss) for the year	**$ (8,364)**	**$ (1,560)**	**$ (6,804)**

When compared by service, the primary difference from budget was in Water Services, where chemical costs and debt service costs were lower than budget. The difference in Stormwater Services relates to an adjustment to the billed revenue, and the costs allocated from Wastewater Service and debt service costs were lower than budgeted.

The increase in Water Service earnings is a result of lower debt payments.

Summarized Operating Results by Service - Comparison to Budget

For the year ended	Budget March 31, 2020 '000	Actual March 31, 2019 '000	$ Change
Water	$ (717)	$ 5,205	$ (5,922)
Wastewater	(5,073)	(5,035)	(38)
Stormwater	(2,574)	(1,730)	(844)
Earnings (loss) for the year	**$ (8,364)**	**$ (1,560)**	**$ (6,804)**

Summarized Operating Results by Service - Comparison to Prior Year

For the year ended	Actual March 31, 2020 '000	Actual March 31, 2019 '000	$ Change
Water	$ 5,205	$ 2,759	$ 2,446
Wastewater	(5,035)	(576)	(4,459)
Stormwater	(1,730)	(795)	(935)
Earnings (loss) for the year	**$ (1,560)**	**$ 1,388**	**$ (2,948)**

↑ $2.5M

Water Services Earnings
Total earnings for Water Services were $5.2M. A $2.5M increase from last year.

$5.0M Loss

Wastewater Services Loss
Increased by $4.5M over last year with higher wage, chemical, material & supply costs.

$1.7M

Stormwater Services Loss
Increased by $0.9M with higher wages and a reduction to site generated charge revenues.

Revenue

NO CHANGE

Water, Wastewater & Stormwater Rates
Rates for services did not change in the fiscal year. The last adjustment to Water and Wastewater charges was in 2016, and 2017 for Stormwater.

Operating revenues decreased from last year by $0.5M. Consumption decreased by 0.22% on a volumetric basis resulting in a decrease in consumption revenue. Base charge revenue increased as there were 619 new water accounts. The wastewater rebate, which is available to certain large customers whose wastewater is a lower proportion of their consumed water, decreased $0.4M from the prior year due to a higher than anticipated rebate in the prior year as consumption fluctuates based on environmental factors.

Operating Revenues

For the year ended	March 31, 2020 '000	March 31, 2019 '000	$ Change	% Change
Consumption revenue	**$ 86,054**	$ 86,244	$ (190)	(0.2%)
Base charge revenue	**33,399**	33,191	208	0.6%
Wastewater rebate	**(1,041)**	(1,494)	453	(30.3%)
Metered sales total	**118,412**	117,941	471	0.4%
Stormwater site generated charge	**5,361**	5,906	(545)	(9.2%)
Stormwater right of way	**3,835**	3,835	-	0.0%
Public fire protection	**7,074**	7,074	-	0.0%
Private fire protection	**881**	869	12	1.4%
Other operating revenue	**2,187**	2,577	(390)	(15.1%)
Operating revenue total	**$ 137,750**	$ 138,202	$ (452)	(0.3%)

Stormwater site generated charge revenue is less than the prior year. The decrease relates to an adjustment to revenue billed.

Other operating revenue categories are down $0.4M. This is a result of a decrease in septage tipping revenues as customers have been taking their septage outside of HRM for disposal.

Expenditures

Operating Expenditures

Operating Expenditure Total
As summarized in the table below, reported operating expenditures for 2019/20 are $109.3M, an increase of $3.8M or 3.60% compared to the prior year.

$109.3M

The main driver of the increase was depreciation expense, which increased $2.1M over 2018/19. Salaries and benefits contributed to the increase within Regulatory Services, as a result of the transfer of operations technologists from Water Services. A similar situation occurred between Wastewater and Stormwater Collection, with the wastewater side experiencing an increase related to salaries and benefits. The same wage pool services both Wastewater and Stormwater Collection, so expenditures in any given year could shift between the two based on operational needs. The other significant increase in 2019/20 appeared within Wastewater Treatment Plants, mainly the result of an increase in chemical costs, specifically alum.

Operating Expenditures

For the year ended	March 31, 2020 '000	March 31, 2019 '000	$ Change	% Change
Water supply & treatment	$ 8,245	$ 8,516	$ (271)	(3.18%)
Water transmission & distribution	9,867	10,014	(147)	(1.47%)
Wastewater collection	12,354	11,675	679	5.82%
Wastewater treatment facilities	18,714	18,197	516	2.84%
Stormwater collection	4,752	4,901	(149)	(3.04%)
Small systems & other services	3,247	2,842	405	14.25%
Scada, controlling & pumping	2,641	2,388	253	10.59%
Engineering & information services	8,436	8,156	280	3.43%
Regulatory services	3,781	3,152	629	19.96%
Customer service	5,167	4,920	247	5.02%
Administration & pension	7,044	7,756	(712)	(9.18%)
Depreciation	25,078	23,006	2,072	9.01%
Operating expenditures total	**$ 109,326**	**$ 105,524**	**$ 3,802**	**3.60%**

Major Cost Reduction in 2019/20
There was a major cost reduction of $0.8M within Administration and Pension. As a result of the January 1, 2019 actuarial valuation of the pension plan, Halifax Water was no longer required to make special payments to the plan related to the unfunded liability, as the financial position of the plan was in a surplus position.

$0.8M ↓

Financial & Other Expenditures

Reported financial and other expenditures totalled $31.2M in 2019/20, a decrease of $2.0M or 6.01% compared to the prior year. The decrease was directly attributed to debt servicing costs, including long-term debt principal and interest.

Financial & Other Expenditures

For the year ended	March 31, 2020 '000	March 31, 2019 '000	$ Change	% Change
Long-term debt interest	$ 7,144	$ 7,430	$ (286)	(3.85%)
Long-term debt principal	18,719	20,516	(1,797)	(8.76%)
Amortization debt discount	187	199	(12)	(6.03%)
Dividend/grant in lieu of taxes	5,078	4,999	79	1.58%
Miscellaneous	67	45	22	48.89%
Financial & other expenditures total	**$ 31,195**	**$ 33,189**	**$ (1,994)**	**(6.01%)**

Regulated & Unregulated Activities

Summarized Operating Results by Activity Comparison to Prior Year			
For the year ended	Actual March 31, 2020 '000	Actual March 31, 2019 '000	$ Change
Regulated activities - earnings (loss)	$ (2,260)	$ 22	$ (2,282)
Unregulated activities - earnings	700	1,366	(666)
Earnings (loss) for the year	**$ (1,560)**	**$ 1,388**	**$ (2,948)**

$2.3M Loss

Activities regulated by the NSUARB show a loss of $2.3M compared to the prior year.

Earnings from unregulated activities decreased by $0.7M as septage customers are taking their septage outside of HRM for disposal.

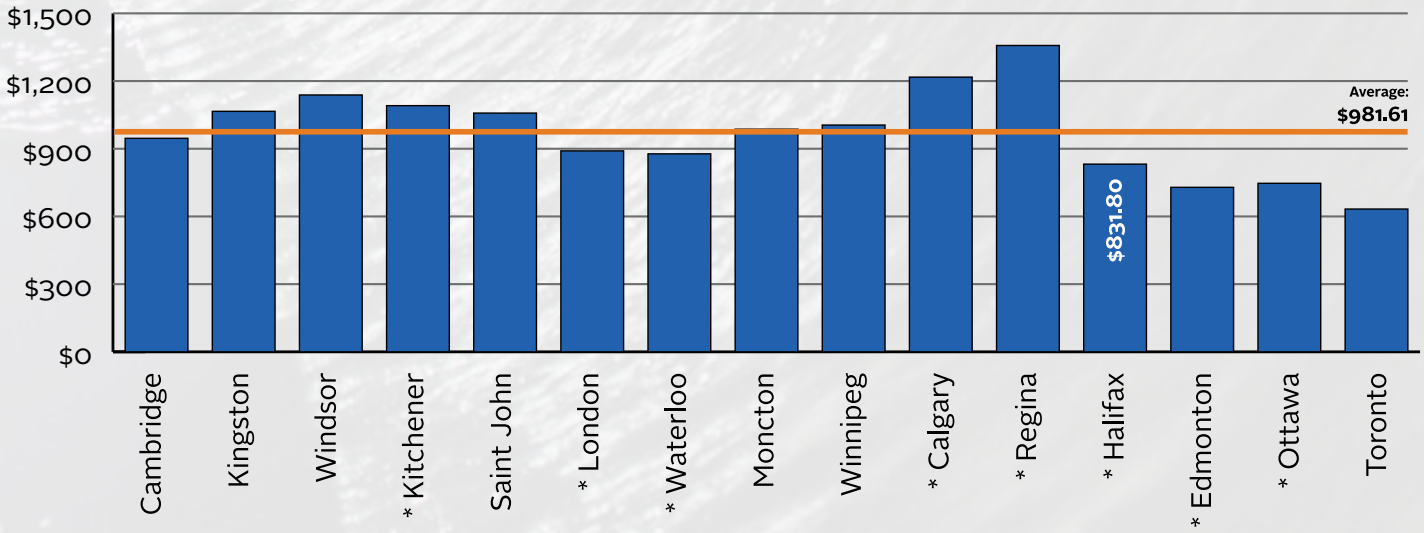
Regulatory Activities

In February 2020, Halifax Water applied to the NSUARB for increases in the rates for Water Services and Wastewater Services. Under the application, the average residential customer would see their annual water and wastewater bill increase by approximately 5.80% starting September 1, 2020, and 5.80% effective April 1, 2021. Even with these proposed increases, the average residential customer in Halifax would pay 1.08% of their income for Water, Wastewater and Stormwater Services. A cost that would continue to be below the average in benchmark communities across Canada.

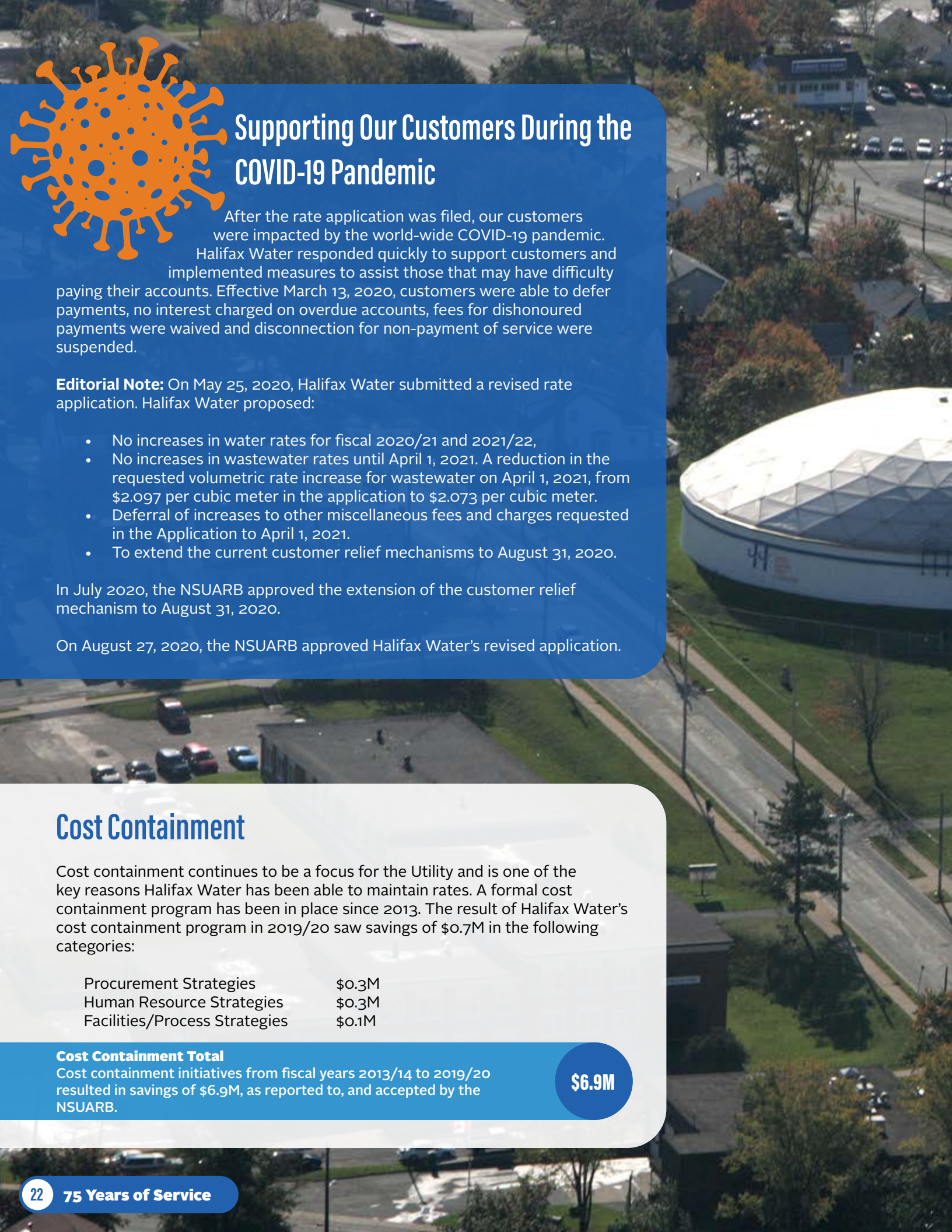
Summary of Rates - Water & Wastewater	
Volumetric Charges (per m³)	Effective April 1, 2016
Water	**$0.976**
Wastewater	**$1.753**
Combined	**$2.729**
Bases Charges (per year)	
Water	**Varies by Meter Size**
Wastewater	**Varies by Meter Size**

Summary of Rates - Stormwater	
Residential - Impervious Area	Effective July 1, 2017
Less than 50 m²	-
50 m² to 200 m²	**$14.00**
210 m² to 400 m²	**$27.00**
410 m² to 800 m²	**$54.00**
Greater than 810 m²	**$81.00**
Culvert only service	**$14.00**
Ici rate per m²	**$0.135**

Annual Average Residential Cost Benchmark Cities



* Includes Water, Wastewater and Stormwater; all others are Water and Wastewater only.



Supporting Our Customers During the COVID-19 Pandemic

After the rate application was filed, our customers were impacted by the world-wide COVID-19 pandemic. Halifax Water responded quickly to support customers and implemented measures to assist those that may have difficulty paying their accounts. Effective March 13, 2020, customers were able to defer payments, no interest charged on overdue accounts, fees for dishonoured payments were waived and disconnection for non-payment of service were suspended.

Editorial Note: On May 25, 2020, Halifax Water submitted a revised rate application. Halifax Water proposed:

- No increases in water rates for fiscal 2020/21 and 2021/22,
- No increases in wastewater rates until April 1, 2021. A reduction in the requested volumetric rate increase for wastewater on April 1, 2021, from $2.097 per cubic meter in the application to $2.073 per cubic meter.
- Deferral of increases to other miscellaneous fees and charges requested in the Application to April 1, 2021.
- To extend the current customer relief mechanisms to August 31, 2020.

In July 2020, the NSUARB approved the extension of the customer relief mechanism to August 31, 2020.

On August 27, 2020, the NSUARB approved Halifax Water's revised application.

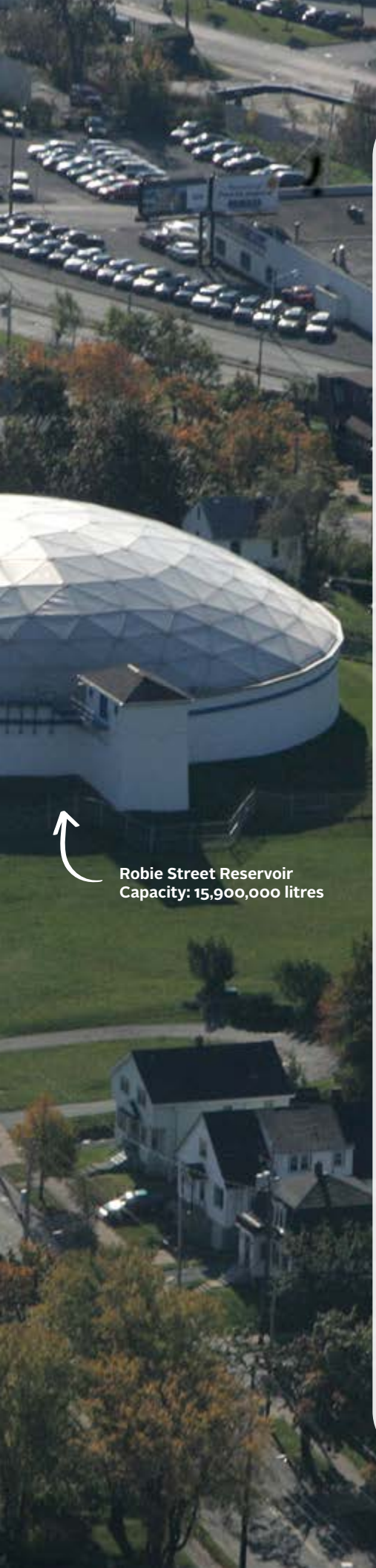
Cost Containment

Cost containment continues to be a focus for the Utility and is one of the key reasons Halifax Water has been able to maintain rates. A formal cost containment program has been in place since 2013. The result of Halifax Water's cost containment program in 2019/20 saw savings of $0.7M in the following categories:

Procurement Strategies	$0.3M
Human Resource Strategies	$0.3M
Facilities/Process Strategies	$0.1M

Cost Containment Total
Cost containment initiatives from fiscal years 2013/14 to 2019/20 resulted in savings of $6.9M, as reported to, and accepted by the NSUARB.

$6.9M



Robie Street Reservoir
Capacity: 15,900,000 litres

Pension Plan

All Halifax Water employees are members of one of two pension plans.

Employees that transferred from HRM, of which 57 remain, are members of the HRM Pension Plan. Halifax Water is obligated to make a contribution for these employees' service to the HRM Pension Plan.

For all other employees, Halifax Water maintains a defined benefit pension plan, the Halifax Regional Water Commission Employees' Pension Plan (HW Pension Plan). The HW Pension Plan has undergone significant changes that have improved the financial position of the plan.

$8.7M SURPLUS

HRWC Employees' Pension Plan Surplus
On December 31, 2019, the HW Pension Plan had a surplus of $8.7M, an increase from $2.1M on December 31, 2018.

In 2019, the net assets available for benefits increased to $141.6M from $126.5M in 2018. The increase was primarily related to an increase in fair value of the investment assets. Over the same period, the pension obligations increased to $132.8M from $124.4M at the end of 2018.

The financial statements for the HW Pension Plan are audited by Grant Thornton LLP and can be located at ***halifaxwater.ca/publications-reports***. The financial statements contain the Independent auditor's report issued by Grant Thornton.

Since December 31, 2019, the outbreak of COVID-19 and related global responses have caused material disruptions to businesses around the world, leading to an economic slowdown. As a result, as of May 31, 2020, the fair value of the HW Pension Plan's investments declined by 2.61% or approximately $3.7M. It is not anticipated that the decline will impact the plan's ability to continue to make benefit payments.

HRWC Employees' Pension Plan
Abbreviated Financial Position at December 31

	2019 '000	2018 '000	$ Change
Net assets available for benefits	$ 141,579	$ 126,459	$ 15,120
Pension obligations	132,841	124,371	8,470
Surplus	**$ 8,738**	**$ 2,088**	**$ 6,650**

HRWC Employees' Pension Plan
Abbreviated Changed in Net Assets Available for Benefits at the Year Ended December 31

	2019 '000	2018 '000	$ Change
Revenue	$ 14,084	$ 4,536	$9,548
Contributions	6,435	6,250	185
Expenses	(5,398)	(4,060)	(1,338)
Increase in net assets available for benefits	**$ 15,121**	**$ 6,726**	**$ 8,395**

SERVICE EXCELLENCE

Customer Care Centre

In March 2020, our full-service Customer Care Centre successfully transformed how we manage our customer connections by deploying a state-of-the-art Contact Management Solution. The new solution provides tremendous insight into the number and nature of our customer connections and allows us to forecast call volume more accurately. With this information, we can more effectively staff our Customer Care Centre and meet our newly established Service Level of 65% of calls to be answered within 20 seconds. The new solution provided the opportunity for staff to continue to be effective as Halifax Water transitioned to working from home in response to the COVID-19 pandemic. The transition was seamless with no interruption to our customers, and we were able to keep our employees working safely.

2019/20 Customer Care Centre Performance						
Total Calls Answered	**Average Daily Calls**	**Abandonment Rate**	**Average Speed of Answer (Seconds)**	**% of Calls Answered Within 20 Seconds**	**Busiest Day of 2019/20**	**Busiest Month of 2019/20**
67,380	347	22%	260	32%	May 21 620 Calls	June 8,839 Calls

The year had its share of performance challenges resulting from continued resource shortfalls combined with higher than normal call volume due to the rollout of the new AMI meters under the Customer Connect Program, and challenges faced by our meter deployment partner. We have turned the corner, and with the implementation of the Contact Management Solution in March, Halifax Water is surpassing the Service Level target of 65% of calls to be answered within 20 seconds. Our current performance is 85% of calls are answered within 20 seconds.

Halifax Water Helping Customers

In 2019/20, Halifax Water continued to provide programs that benefit customers with low incomes.

H2O (Help to Others) Program – Since 2011, Halifax Water has partnered with the Salvation Army to provide emergency assistance to low-income customers through the H2O Program. The amount of assistance available is a grant of $275 once in a 24-month period. The income eligibility thresholds are $21,000 for single income and $39,000 for family income. Halifax Water continues to improve its communication about the program and the application process.

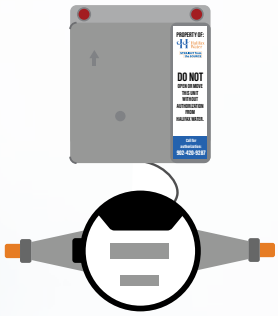
$36,926

H2O Fund Grants Provided to Customers
Our communication approach is working, and, for the second year in a row, all available funds in the annual program were utilized. In 2019/20, $36,926 in grants were provided to 150 customers.

Advanced Metering Infrastructure (AMI)

The Advanced Metering Infrastructure (AMI) project was initiated in 2016/17 and involved installing meters and a fixed network of radiofrequency devices over the service area to remotely read meters on a much more frequent basis (typically hourly). The technology reduced the need for meter readers to walk or drive a route to read meters with portable radio frequency devices. In addition, AMI promises many features that will improve the level of service Halifax Water can offer in the future to its customers, including:

- The ability to offer monthly billing to residential and small commercial customers, making it easier for customers to manage cash flow and automated payments.
- The increase in customer consumption data will be used to proactively provide improved and more timely notification to customers on high consumption due to things like plumbing leaks.
- Halifax Water is also developing a Customer Portal that will allow customers to manage their water accounts and consumption and to see the effect of any conservation measures they take.



AMI has been providing much more data about the water being consumed by customers and the operations of the distribution system. The combination of customer and distribution data will allow Halifax Water to identify issues within the distribution system, including leaks. The ability to use this data will result in reduced costs for billing and collection and reduce the need for the high-cost activity of sending technicians to customer homes.

The AMI project was officially completed in 2020. Commercial meters greater than 3" are proactively being converted to AMI by Halifax Water's metering staff and should be completed by March 31, 2021.

82,878 INSTALLED

AMI Project Completed Installations
82,878 meters, or 97% of the total, were converted to AMI. The remaining 2,650 meters, or 3%, are being converted to AMI as part of the regular maintenance program.

Customer Portal

Halifax Water has an aggressive timeline to launch our highly anticipated Customer Portal in Fall 2020! This will modernize how Halifax Water provides information to our customers, including billing information, potential high consumption alerts. It will also allow customers to maintain and update their account information, submit requests, and monitor usage in real-time. In Spring 2021, the Customer Portal will allow customers to use webchat to communicate with staff, an additional option for customers to communicate with Halifax Water.

EFFECTIVE ASSET MANAGEMENT

Capital Infrastructure Projects

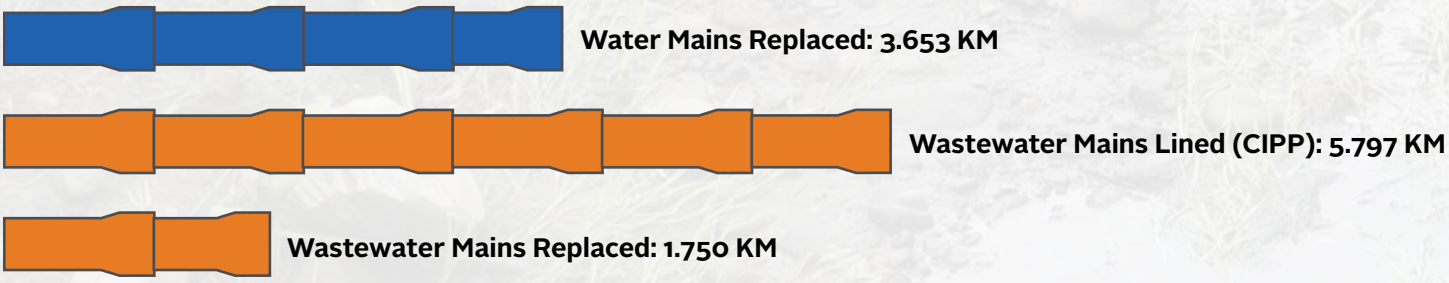
Integrated Water, Wastewater & Stormwater Projects with HRM Street Program

Integrated Infrastructure Upgrades
Halifax Water invested approximately $8.25M to upgrade infrastructure systems within this program in 2019/20.

$8.25M

Halifax Water proactively replaces and rehabilitates water, wastewater and stormwater infrastructure in conjunction with municipal street reconstruction projects. Working with HRM to complete this work in conjunction with paving/street renewals reduces project costs.

Water & Wastewater Main Replacements & Linings in 2019/20



Water Mains Replaced: 3.653 KM

Wastewater Mains Lined (CIPP): 5.797 KM

Wastewater Mains Replaced: 1.750 KM

Pumping Station Control Panel Electrical Replacement

Control panels at eleven pumping stations were upgraded in 2019. Components were near the end of their service life (monuments, electrical conduits and boxes, communication equipment, etc.).

$1.05M

Project Cost & Funding Source
This project was funded by Halifax Water Rates.

Ellenvale Run Stormwater Channel Upgrades

The Ellenvale Run conveys the stormwater from Lemont Lake to Morris Lake. The overall project focuses on the portion of Ellenvale Run between Main Street and Portland Street, which has been significantly urbanized and now, almost entirely (90%), consists of a constructed channel instead of a natural stream.

The retaining walls along the channel consist of various materials and types; gabion basket, masonry stone walls, steel sheet piles, and precast concrete blocks. The condition of the retaining walls also varies with some walls in relatively good condition while others are failing, and temporary bracing has been installed. This project includes energy dissipation pools, natural pool and riffle sequencing, and natural stone on the bottom of the channel liner to stabilize the channel walls, 'naturalize' the channel, and reestablish or improve the natural habitat. These improvements provide a naturalized stream bottom that reduces velocities, creates pools and meanders, and helps to improve fish passage.

The past year saw three additional sections of the Ellenvale Run rehabilitated near John Cross Drive, Elwin Crescent and Wanda Lane. Each section was entirely replaced with concrete channel liners complete with textured faces and naturalized bottoms. Construction was challenging due to the close proximity of the adjacent private properties. Our contractor, consultant, and staff had to work collaboratively with the property owners to complete the project, and ensure that reinstatement was satisfactory. Detailed design continues on the remaining sections requiring rehabilitation, and we anticipate two further sections will be replaced next year.

$6.0M

Project Cost & Funding Source
This project was funded by Halifax Water Rates.

Ellenvale Run Channel Upgrades

Capital Infrastructure Projects

Lake Major Dam Replacement Project

Construction of the Lake Major Dam was completed in 2019. The new concrete structure replaced a timber crib/rock dam that dated back to the 1940s. The new dam will also help maintain and protect the water supply to the Lake Major Water Supply Plant, which in turn provides drinking water to Dartmouth, Cole Harbour, Eastern Passage, North Preston, Westphal and Burnside.

Resilience
The new dam offers better control of lake levels.

Fish Passage
A fish ladder allows fish to go upstream into Lake Major.

Reliability
The expected lifespan of the new dam is 50+ years.

Project Cost & Funding

Cost:
$5.7M
$3.4M

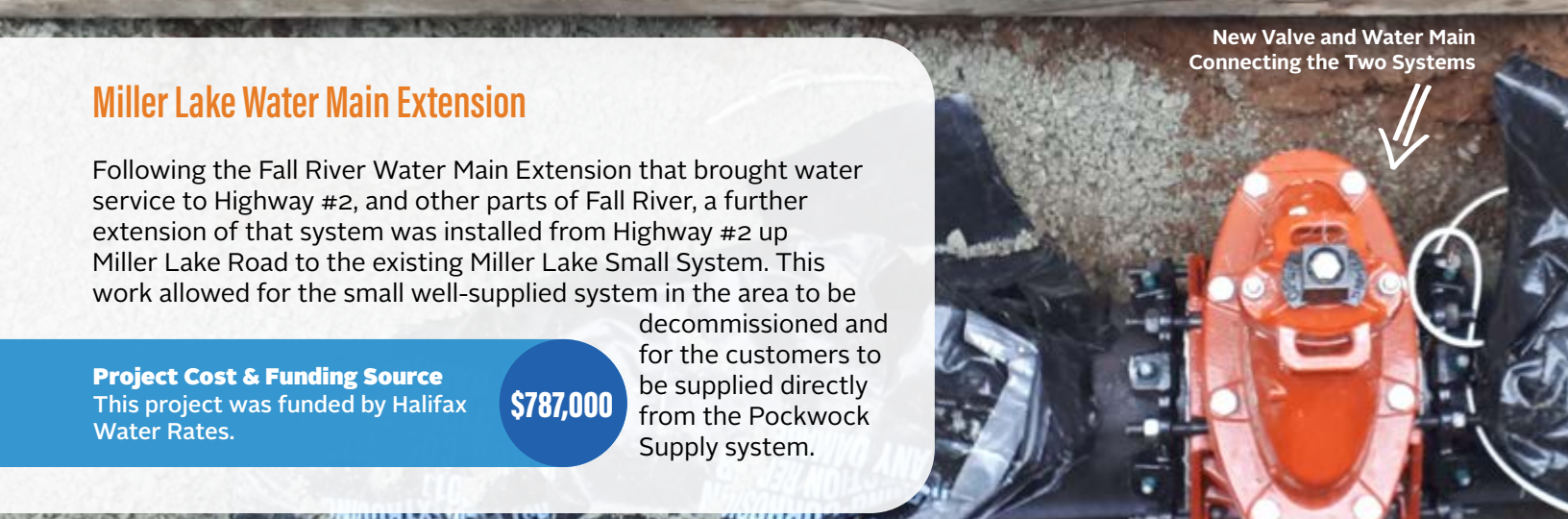
Funding Sources:
Halifax Water Rates
Clean Water & Wastewater Fund

J. D. Kline Water Supply Plant Filtration System Replacement

This was a multi-year project to remove and replace the underdrains and filter media in all eight filter galleries of the J. D. Kline Water Supply Plant. The work included concrete rehabilitation, wiring and control upgrades and the construction of a new air scouring system.

$10.3M

Project Cost & Funding Source
This project was funded by Halifax Water Rates.



Miller Lake Water Main Extension

Following the Fall River Water Main Extension that brought water service to Highway #2, and other parts of Fall River, a further extension of that system was installed from Highway #2 up Miller Lake Road to the existing Miller Lake Small System. This work allowed for the small well-supplied system in the area to be decommissioned and for the customers to be supplied directly from the Pockwock Supply system.

Project Cost & Funding Source
This project was funded by Halifax Water Rates.

$787,000

Lucasville Road Transmission Main Extension - Phase 1

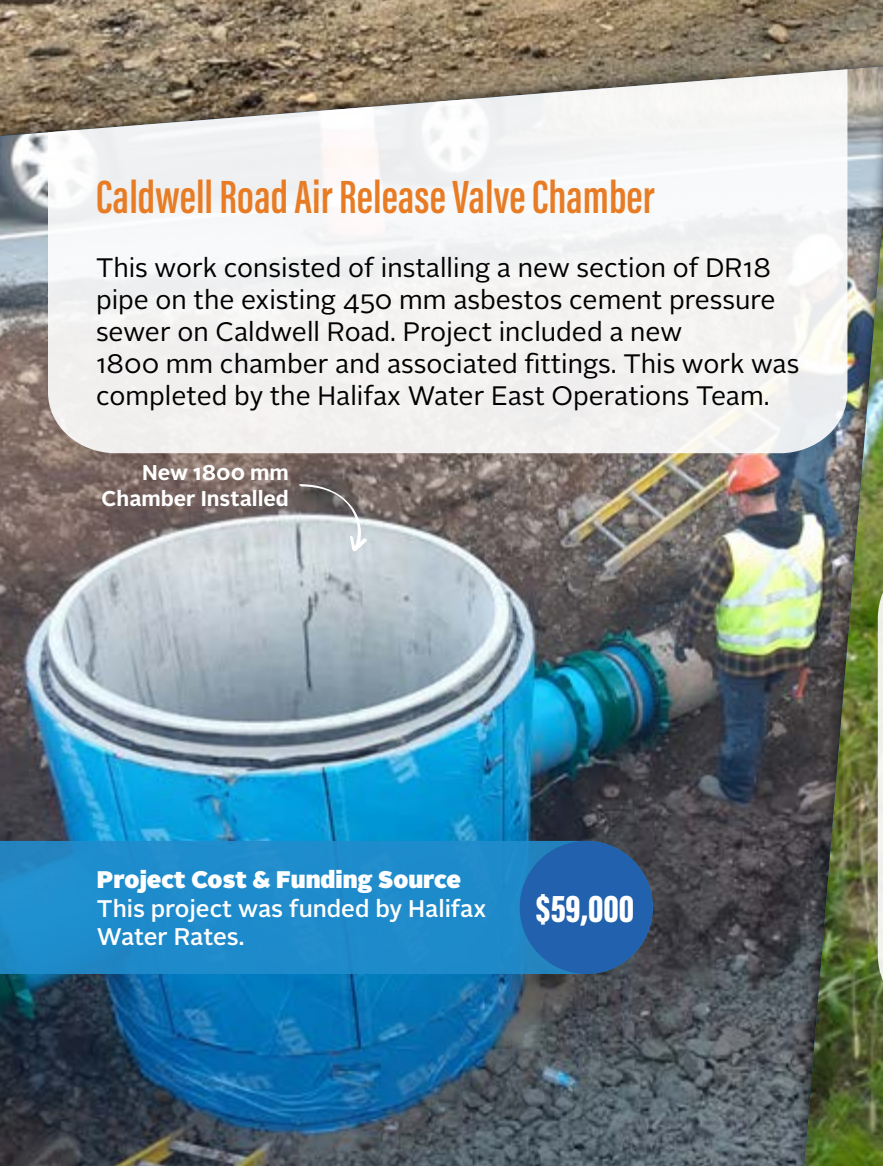
The first phase of the Lucasville Transmission Main was completed in 2019. This project is part of a long term plan to upgrade the transmission capacity to the Sackville service area, improving the resilience of the water supply to this region.

$6.4M

Project Details, Cost & Funding Source
This work involved the installation of 3700 metres of 600 mm diameter transmission main along the Lucasville Road. This project was funded by Halifax Water Rates.

Caldwell Road Air Release Valve Chamber

This work consisted of installing a new section of DR18 pipe on the existing 450 mm asbestos cement pressure sewer on Caldwell Road. Project included a new 1800 mm chamber and associated fittings. This work was completed by the Halifax Water East Operations Team.



Project Cost & Funding Source
This project was funded by Halifax Water Rates.

$59,000

Beaver Crescent Pumping Station Forcemain

The East Region Wastewater Operations Team installed approximately 650 metres of 150 mm diameter DR18 PVC wastewater forcemain pipe on Atholea Drive, between Caldwell Road and Beaver Crescent.

$463,339

Project Cost & Funding Source
This project was funded by Halifax Water Rates.

New Burnside Operations Centre Update

Aligning with our capital plan, over the last year Halifax Water explored alternate lots within the Burnside Business Park for our new consolidated Burnside Operations Centre. Lots were reviewed to ensure the lot selected was appropriately sized and shaped, had access to major traffic corridors, provided site development opportunities, offered curb appeal with privacy and was available for purchase. In April 2020, a 14.09 Acres lot on Jennett Avenue in the Burnside Business Park was purchased.

From a customer perspective, the new facility will:

- Maintain current high levels of customer service while improving facilities for the employees.
- Position the utility well for future areas of growth – the Dartmouth to Bedford corridor along the Magazine Hill, and the Dartmouth to Fall River corridor

From a corporate perspective, the new facility will:

- Reduce life cycle costs compared to owning and operating the four (4) existing facilities or two new regional facilities
- Provide building operational cost-savings
- Offer economies of shared storage spaces, equipment and materials
- Provide for the ease of managing fewer facilities
- Create enhanced opportunities for Interdepartmental, integrated collaboration

Shipyard Road Wastewater Pump Station Wetwell Installation

Shipyard Road Wastewater Pump Station

The Shipyard Road pump station, just off of Shore Drive in Bedford, collects wastewater from approximately 30 properties along the shore of the Bedford Basin. The Lions Club pump station, which was approximately 120 meters away from the Shipyard Road pump station, discharged into the Shipyard Road pumping station. Both stations were constructed in the mid 1970s and had reached the end of their useful life.

As both of these stations were in need of replacement (and because of their proximity to one another), it was an excellent opportunity to install a slightly deeper wetwell at the Shipyard Road pump station, convey flows from the Lions Club station to the Shipyard station by the installation of a gravity sewer, and remove the Lions Club pump station. This work was conducted in the Spring of 2019. Halifax Water now has one less pump station in its inventory, resulting in reduced operational and maintenance costs and fewer headaches for staff.

Replacement of the Shipyard Road pump station was achieved using pre-fabricated components (wetwell, valve chamber & control panels). This unique approach resulted in a reduced construction schedule, thus fewer impacts on adjacent properties and no impact on the Lions Club Pool, which was able to open on schedule.

Project Cost & Funding Source
This project was funded by Halifax Water Rates.

$1.2M

Halifax Peninsula Sewer Separation

The sewer separation program within the peninsula of Halifax is an outcome of the West Region Wastewater Infrastructure Plan (WRWIP) and the HRM Regional Centre Local Wastewater Servicing Capacity Analysis (LoWSCA). The program was identified in the WRWIP and carried forward in the Halifax Water Infrastructure Master Plan (IMP). Generally defined, sewer separation is the establishment of distinct wastewater and stormwater sewers in replacement of a single combined sewer. Sewer separation removes or reduces stormwater flow in the wastewater system. The treatment requirements of wastewater (including combined sewage) result in a higher capital cost to construct and higher costs to operate when compared to the stormwater system. It was determined that the Young Street, Kempt Road, and Spring Garden Road areas provide the greatest opportunities for sewer separation within the Halifax Peninsula.

Construction on the first two projects in the Kempt Road area began in the spring of 2020 and are expected to be complete by November. This includes the installation of a new stormwater pipe on Romans and Federal Avenue, as well as the replacement of the water main. A new, separate storm pipe is being installed on Bayers Road as part of an integrated project with HRM.

Construction is also expected to begin in Fall 2020 on the first project in the Spring Garden Road area. New stormwater pipe will be installed on South Park Street and Cathedral Lane with construction finishing in Spring 2021 on University Avenue. Detailed design continues in all project areas with further construction expected in the Spring Garden Road area and Young Street area next year.

Engineering Information

The Engineering Information section continues to provide administration, maintenance and on-going development of the corporate Geographic Information System (GIS) and related applications. These applications include core desktop GIS, as well as Cityworks and FORMS applications. Also, a number of purpose-built Web GIS apps are now available to meet specific business needs. This year also saw continued gains in data gap improvements, especially as it relates to the conversion of our historical hard copy service records, which are being entered into our GIS database.

GIS/Cityworks Upgrade & New GIS Dashboard

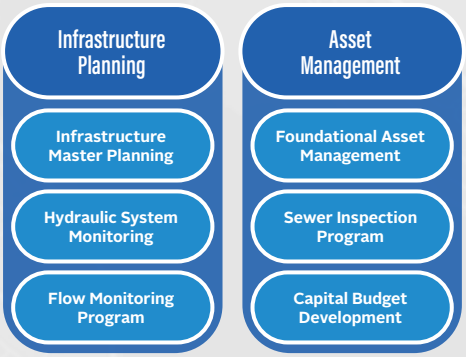
Our most significant project this past year included an upgrade to our GIS and Cityworks environments as well as the launch of a new Web GIS application, GIS Dashboard. This application has become the go-to app for most staff who need to access Halifax Water infrastructure information.

Web GIS Growth

Web GIS applications continued to grow within the organization both for internal business unit use and also for public access. The public access of these apps is via a Public App Gallery contained on the Halifax Water website.

Asset Management

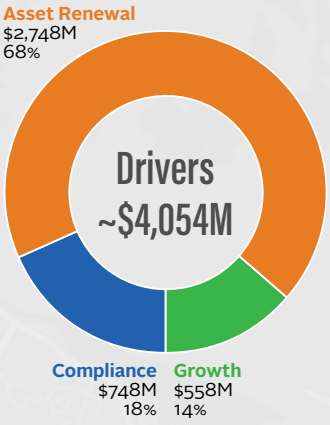
The Asset Management (AM) Team is responsible for long-term infrastructure planning and the corporate asset management program. Key achievements in 2019/20 included completion of the Infrastructure Master Plan and the Integrated Resource Plan (IRP) Update; preparatory work to build an extended period simulation (EPS) hydraulic water model; updating the Asset Management Plan (AMP) for fiscal 2019; and completing year four of both the corporate flow monitoring program and the sewer inspection program. The AM Team also leads the preparation of the annual and five-year capital budgets.

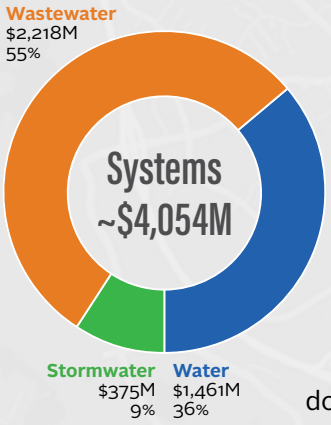


Integrated Resource Plan Update

The Integrated Resource Plan (IRP) is a key component of Halifax Water's planning process. The process was initiated in 2012 with the first IRP and continued with further understanding of the infrastructure systems and development of studies and frameworks, capital delivery and financial planning.

The 2019 IRP Update is built on the foundation of the 2012 IRP and helps define Halifax Water's required programs and resources for a 30-year period covering each of the three drivers: Growth, Asset Renewal, and Regulatory Compliance.





The 2019 IRP presents an infrastructure plan with a projected expenditure of approximately 4 billion dollars over the next 30 years. The 2019 report was a background document in the 2020 general rate application.

Long-Term Planning Framework

The Long-Term Planning Framework (LTPF) defines the direction of long-term water, wastewater and stormwater infrastructure planning activities. Halifax Water took the opportunity to update the LTPF to incorporate lessons learned from the IRP Update and supporting studies.

The framework considers all drivers of infrastructure management, including growth, asset renewal, and regulatory compliance.

2019/20 Asset Management Plans

With official sign-off of the 2019/20 AMP, the AM Team continued working with Asset Management Implementation Teams (AMITs), focusing initially on Water Transmission Mains, Wastewater Forcemains, and Stormwater Cross Culverts.

Corporate Flow Monitoring Program

Year four of the corporate flow monitoring program resulted in a total of 115 active flow monitoring sites within Halifax Water's wastewater, combined, and stormwater systems and 11 rain gauge locations. Of the 115 sites, 85 represent sites essential for ongoing calibration of Halifax Water's wastewater model and are referred to as Flow Monitoring Zones (FMZs). The other 30 sites are priority sewersheds identified as part of Halifax Water's Wet Weather Management Program (WWMP). In addition to the active corporate flow monitor sites, there were multiple flow monitors installed for a short period to support various capital projects.

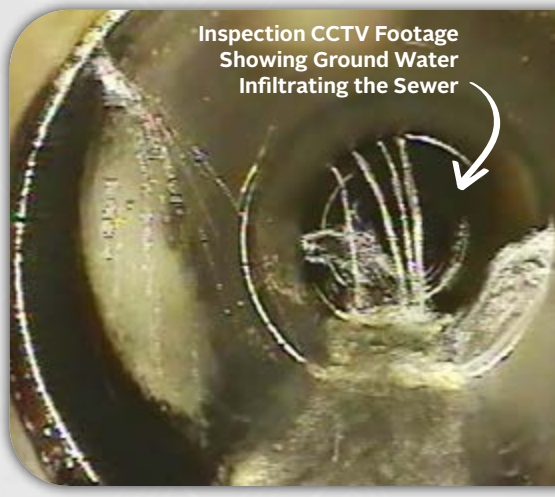
Sewer Inspection Program

Staff have worked to integrate the inspection software with Halifax Water's GIS to optimize the process for uploading data into the corporate GIS using ESRIs CCTV Manager. CCTV Manager will simplify updating of pipe material, size, and condition with information collected directly from the inspections.

54,695 METRES

Year four of the sewer inspection program was productive: 54,695 metres of sewers, and 1,873 structures (1,493 manholes and 380 catchbasins) were inspected in 2019/20.

In 2019/20, the sewer inspection program focused mainly on HRM-HW integrated projects in Lower Sackville, Cole Harbour, Eastern Passage, North Preston and Bridgeview, Halifax.



Inspection CCTV Footage Showing Ground Water Infiltrating the Sewer

Image Credit:
Alice Lin, GM BluePlan

Energy Management

Energy use in municipal water and wastewater/stormwater treatment facilities and their respective distribution and collection systems remains among the highest in North America. With this in mind, Halifax Water has continued its efforts to improve its energy footprint.

2019/20 Energy Savings of
2,722,000 kWh_e

2019/20 Cost Savings of
$286,000

2019/20 Greenhouse Gas Emissions Reduction of
1700+ Tonnes

- The Energy Management Plan was updated to identify specific annual energy reduction targets and activities to be completed in 2019/20.
- Various equipment and infrastructure upgrades were completed, as well as several ongoing annual operating initiatives.
- Additions to the Energy Management Information System this year include monitoring water consumption for all Halifax Water facilities, water and wastewater treatment flow data for larger facilities, and applicable greenhouse gas (GHG) tracking for facilities and fleet.
- The early-stage development of the Cogswell District Energy System (DES) continued this year. Further development of a DES by-law has been completed, along with the ongoing updating of the business case. Next steps include preparation for stakeholder engagement, ongoing updates to the business case, completion of the detailed design for the DES infrastructure Halifax Water will be responsible for, the development of the required building specifications and overall utility development efforts.
- We continue to consider energy efficiency and sustainability at the design stage of infrastructure projects. Current projects include the new Burnside Operations Centre, the upcoming Mill Cove WWTF upgrade, and the Aerotech Biosolids Processing Facility upgrade.
- When appropriate, Halifax Water has also taken advantage of provincial energy efficiency rebate programs offered by Efficiency Nova Scotia, which help to reduce capital costs and improve project payback.

2019/20 saw an overall utility annual energy reduction of 2.1%, an aggregate decrease in water and wastewater flows of 0.4%, and an aggregate decrease in GHG emissions of 10.6%. Direct GHG emissions (i.e. fossil fuels used for heating) were 1,754 tonnes CO2e, while indirect emissions (i.e. emissions from electricity use via NSPI) were 34,599 tonnes CO2e.

Information Technology Five-Year Strategic Plan

Halifax Water continues to execute its IT Strategic Plan to improve organizational efficiency, effectiveness and customer service through technology and organizational change.

Six strategic themes characterize the plan:

- **Customer Experience**
- **Information Integration with Location**
- **Analytics-Driven Decision Making**
- **Managed Knowledge and Workflow**
- **Enable Employees Anywhere**
- **Secure IT Foundation**

The IT Strategy Five-Year Roadmap 2021/22 is a high-level snapshot of the sequence of programs to deliver on the approved technology vision and recommended architecture.

$6.75M The plan has a project value of $6.75M in 20/21 and a total of over $28M for the balance of the plan.

Completed Projects

- Advanced Metering Infrastructure
- Asset Register
- Customer-facing website
- Desktop Replacement Program
- Document management guidelines
- GIS and Cityworks Upgrade
- GIS Dashboard Replacement
- Internal website (Intranet)
- Telephony
- WI-FI Infrastructure in Pockwock

Projects Coming Up in 2021-2022

- Analytics and Dashboard Linkage
- Approval Forms Framework
- Asset Condition
- Enterprise SharePoint rollout for Document Management
- General Analytic Tools
- Electronic Content Management Linkage
- Team Collaboration

Projects Underway

- Analytics Decision Support System Phase One and Phase Two
- Capital Planning
- Computerized Maintenance Management System Enhancements
- Customer Portal
- Disaster Recovery Planning
- Document management pilot
- Enterprise Resource Planning Solution
- Full Enterprise Data Warehouse
- Impervious Surface Updates
- IT Help Desk software replacement
- IT Security assessment and roadmap
- IT Server Hosting
- Mobile Device Management software installation
- New Payroll System
- Office 365 migration
- Permit Approvals
- Quality Data Management and Reporting

REGULATORY COMPLIANCE

P2 Staff Investigating Pollution in a River

Environmental Management System

An Environmental Management System (EMS) is a system of procedures, records and processes to manage environmental issues and assist with regulatory compliance. It also makes day to day operations more sustainable and engages employees in these operational activities. The EMS program can be audited against ISO 14001 standards, and if found to comply, receives certification through ISO.

Staff have successfully obtained certification for the J. D. Kline, Lake Major and Bennery Water Supply Plants and the Herring Cove and Dartmouth Wastewater Treatment Facilities. Preliminary work has been completed to prepare Halifax, Eastern Passage, Mill Cove and Aerotech Wastewater Treatment Facilities for future audits. In addition, a project to develop the framework to implement an EMS system corporately has commenced.

Engineering Approvals

The Engineering Approvals group is focused on adherence to the Halifax Water Design Specifications, the Supplementary Standard Specification and the Schedule of Rates, Rules and Regulations with respect to connections to, and expansions of the Halifax Water Systems. The administration of the new service connections includes the inspection of the new services and renewals and the administration of Regional Development Charge.

In 2019/20, the Engineering Approvals group processed:

Results by Activity		
Application Type	**2019/20**	2018/19
Building Permit Applications	**1,338**	747
New Service & Renewal Applications	**443**	408
Subdivision Applications	**273**	198
Metres of New Water Main	**2,205**	9,328
Metres of New Wastewater Main	**2,191**	1,865
Metres of New Stormwater Main	**2,509**	4,854
Demolition Permits	**118**	113
Clearance Letters	**40**	23
Tender Reviews	**83**	100
New Backflow Prevention Applications	**112**	140
Backflow Prevention Devices Are Active	**7,182**	7,050

Regional Development Charge

The Regional Development Charge (RDC), approved in 2014, is collected from new development or redevelopments to fund growth's share of regional water and wastewater infrastructure. In developing the RDC, staff reviewed the projected population growth and identified the upgrades, and associated costs, to regional wastewater and water infrastructure to accommodate growth over the next 20 years.

With the completion of the Infrastructure Master Plans, staff were able to commence the detailed five-year update to the RDC. The update considered current population projections, household sizes, design flows for both water and wastewater, the formalized benefit to existing and costing frameworks and detailed 20-year financial model. The proposed RDC considered capacity growth gained from inflow and infiltration reduction projects and reduced the amount of "big pipe" solutions. As part of the process, Halifax Water hosted stakeholder engagement in the summer and fall of 2019.

The proposed updated charge was submitted to the NSUARB in November 2019. The RDC hearing was initially scheduled for March 2020, but was rescheduled to June 2020 and held virtually.

Environmental Engineering

The Environmental Engineering group oversees the Pollution Prevention (P2) Program, the Inflow/Infiltration (I&I) Reduction Program, and Regulatory Compliance. The purpose of the P2 and I&I programs is to regulate the quantity and quality of discharge from customer connections to the wastewater and stormwater systems. Non-compliant discharges can impact the health and safety of Halifax Water workers, the public, and the environment, and create operational and compliance issues with Halifax Water infrastructure and treatment plants.

Landscaping Work Allowing Soil into the Stormwater System

The P2 program began developing a new 'pretreatment requirements' manual that customers will be able to reference when designing, selecting and installing pretreatment systems for food and vehicle service establishments, sediment interception and others. With the goal of having new installations compliant from the outset, thus saving customers from having to retrofit or modify improper installations.

P2 is responsible for regulating situations where a private wastewater system is inadvertently connected to a stormwater system. Two wastewater to stormwater cross connections were resolved over the past year. Staff also investigate the origin of spills or non-compliant discharges into wastewater and stormwater systems.

Smoke Test Showing an Illegal Downspout Connection to the Wastewater System

The I&I Reduction program identifies and resolves private property connections where stormwater is entering the wastewater system. Staff have completed a number of private side assessments on a priority basis across the Halifax Municipality and works closely with the Wet Weather Management Program to reduce the amount of stormwater entering the wastewater system.

The I&I team also works with the Halifax Water engineering department to coordinate infrastructure upgrade projects and achieve private property I&I compliance during the project's planning, communication and construction activities. This past year, the addition of a stormwater main on Wanda Lane provided better street drainage as well as a stormwater discharge location for private properties.

14,888 Metres of Wastewater Mains Smoke Tested

985 Private Wastewater Laterals Smoke Tested

66 Properties Inspected for Regulatory Compliance

35 Locations Flow Metered Throughout HRM

Water Quality

Providing our customers with safe, reliable, affordable, high-quality drinking water requires investment in infrastructure, research, and robust quality assurance/quality control programs. Halifax Water has made considerable investments in all of these areas.

To ensure that quality control is optimized, we maintain ISO 14001 Environmental Management System Registration at the J. D. Kline (Halifax), Lake Major (Dartmouth), and Bennery Lake (Halifax Airport) Water Supply plants.

Drinking Water Compliance Summary: Total Coliform Results April 2019 - March 2020

System	Number of Samples	Number of Exceedances	% Absent
Pockwock	847	1	99.88%
Pockwock Central	545	0	100%
Lake Major	1210	0	100%
Bennery	156	0	100%
Five Islands	104	0	100%
Silver Sands	106	0	100%
Middle Musquodoboit	103	0	100%
Collins Park	106	0	100%
Miller Lake	67	0	100%
Bomont	105	0	100%
Total	3349	1	99.97%
Absent (A)	3348		99.97%
Present (P)		1	0.03%

Halifax Water undertakes a comprehensive water testing program. Bacteriological testing is done weekly at 51 locations within the urban core, and at each of the small systems.

99.9% Approximately 3,350 tests for total coliform bacteria are conducted each year. Results of 99.9% of samples with bacteria absent are consistently achieved.

Additional testing of drinking water includes:

- Chlorine residual, pH, and turbidity of treated water leaving each plant as well as multiple locations within the plant, to monitor and optimize the treatment process.
- Quarterly sampling of treated water at 2-3 locations within the distribution system for approximately 40 chemical parameters.
- Quarterly sampling of raw lake water and water from contributing streams for approximately 40 chemical parameters.
- Bi-annual sampling of Lake Major and Pockwock Lake raw and treated water for all parameters in the Guidelines for Canadian Drinking Water Quality (Health Canada).
- Bi-annual testing and sampling for giardia and cryptosporidium for treated and raw water for all surface water systems.

Water test results are reported to Nova Scotia Environment and the Nova Scotia Medical Officer of Health on a regular basis. Protocols have been established between Halifax Water, and the provincial Health and Environment departments to clearly delineate roles and responsibilities in advance, in the unlikely event of a disruption in water quality.

Wastewater Treatment Facility Compliance

Nova Scotia Environment regulates wastewater treatment facilities in Nova Scotia. They set effluent discharge limits for all wastewater facilities. The limits define maximum concentrations of parameters such as CBOD, TSS, and Fecal Coliform. For some facilities, parameters such as nutrients (nitrogen and phosphorus, which cause excess growth of algae and plants) or pH are also regulated.

Halifax Water oversees five large harbour facilities and nine smaller, community-based facilities.

Halifax Water continues to complete several optimization projects that involve the reduction of wet weather influences, equipment upgrades and process enhancements, which have resulted in improved compliance results.

Compliance for the harbour facilities is measured on monthly averages. There has been a significant improvement with the compliance at the five harbour facilities with Herring Cove and Eastern Passage fully complaint for the year.

Definitions:

$CBOD_5$: Carbonaceous Biochemical Oxygen Demand – a measure of the amount of organic material.

TSS: Total Suspended Solids – a measure of the number of particles in the wastewater.

E. Coli: Bacteria which are present in the treated sewage.

pH: A measure of the acidity of water.

N/A: Not Applicable

Wastewater Treatment Facility Compliance Summary
April 2019 - March 2020

WWTF	April 2019					May 2019					June 2019				
	$CBOD_5$	TSS	E.Coli	pH	Toxicity Pass	$CBOD_5$	TSS	E.Coli	pH	Toxicity Pass	$CBOD_5$	TSS	E.Coli	pH	Toxicity Pass
Halifax	24	21	N/A	7	YES	31	27	2034	7	YES	29	27	747	7	YES
Herring Cove	13	13	N/A	7	N/A	16	18	28	7	YES	15	14	174	7	N/A
Dartmouth	23	73	N/A	7	YES	34	40	514	7	YES	28	40	818	7	YES
Eastern Passage	7	11	N/A	7	N/A	7	4	10	7	YES	8	6	10	7	N/A
Mill Cove	8	16	16	7	N/A	11	16	10	7	YES	10	11	12	7	N/A
	July 2019					August 2019					September 2019				
Halifax	46	22	1321	7	YES	61	29	9010	7	YES	51	19	6431	7	YES
Herring Cove	40	15	21	7	N/A	39	16	25	7	YES	35	14	28	7	N/A
Dartmouth	60	45	1214	7	YES	91	49	18391	7	NO	70	42	10794	7	YES
Eastern Passage	27	15	27	7	N/A	29	9	29	7	YES	15	12	15	7	N/A
Mill Cove	14	14	14	7	N/A	24	27	22	7	YES	22	26	12	6	N/A
	October 2019					November 2019					December 2019				
Halifax	51	13	3587	7	YES	29	14	N/A	7	YES	25	20	223	7	YES
Herring Cove	26	14	153	7	N/A	21	11	N/A	7	YES	18	13	93	7	N/A
Dartmouth	65	41	3259	7	YES	45	59	N/A	7	YES	39	41	785	7	YES
Eastern Passage	6	7	19	7	N/A	9	11	N/A	7	YES	8	9	22	7	N/A
Mill Cove	31	26	20	6	N/A	16	19	12	7	YES	8	12	16	7	N/A
	January 2020					February 2020					March 2020				
Halifax	33	17	N/A	7	YES	54	52	N/A	7	YES	32	18	N/A	7	YES
Herring Cove	27	22	N/A	7	N/A	26	23	N/A	7	YES	30	22	N/A	7	N/A
Dartmouth	51	41	N/A	7	YES	52	34	N/A	7	YES	48	47	N/A	7	YES
Eastern Passage	8	3	N/A	7	N/A	8	7	N/A	7	YES	5	6	N/A	7	N/A
Mill Cove	11	17	10	7	N/A	20	23	12	6	YES	12	16	10	7	N/A

N/A due to seasonal disinfection and toxicity requirements

Specific parameter limit achieved
Specific parameter limit not achieved

Performance assessments for the nine smaller wastewater treatment facilities are based upon quarterly averages. Results for April 2019 to March 2020 are presented below:

Wastewater Treatment Facility Compliance Summary
April 2019 - March 2020

WWTF	CBOD$_5$	TSS	E.Coli	Phosphorus	Ammonia	pH	Dissolved Oxygen	Total Chlorine	Toxicity
Q1 - April 2019 to June 2019									
Aerotech	9	1	10	0.1	4.6	7.4	8.1	N/A	YES
Frame *	5	1	10	N/A	N/A	6.8	N/A	N/A	N/A
Lakeside - Timberlea	7	20	16	2	3	6.9	N/A	0.1	YES
Lockview - MacPherson *	8	3	16	0.1	5	6.7	N/A	N/A	N/A
Middle Musquodoboit *	10	13	56	N/A	N/A	7.6	N/A	N/A	N/A
North Preston	5	9	10	0.2	0.5	6.7	N/A	N/A	N/A
Springfield	5	7	13	N/A	N/A	6.7	N/A	N/A	N/A
Steeves (Wellington) *	10	1	10	0.1	0.1	7.2	N/A	N/A	N/A
Uplands Park *	8	11	34	N/A	N/A	6.7	N/A	N/A	N/A
Q2 - July 2019 to September 2019									
Aerotech	3	1	10	0.1	0.1	7.5	7.5	N/A	YES
Frame *	4	1	10	N/A	N/A	6.6	N/A	N/A	N/A
Lakeside - Timberlea	6	18	10	1	2	7.0	N/A	0.1	YES
Lockview - MacPherson *	6	7	25	0.7	3	6.9	N/A	N/A	N/A
Middle Musquodoboit *	6	9	13	N/A	N/A	7.3	N/A	N/A	N/A
North Preston	6	4	10	0.2	0.2	6.9	N/A	N/A	N/A
Springfield	6	4	16	N/A	N/A	7.2	N/A	N/A	N/A
Steeves (Wellington) *	4	1	10	0.1	0.1	7.6	N/A	N/A	N/A
Uplands Park *	7	9	10	N/A	N/A	6.6	N/A	N/A	N/A
Q3 - October 2019 to December 2019									
Aerotech	4	1	10	0.09	8.1	7.3	8.2	N/A	YES
Frame *	4	1	10	N/A	N/A	6.9	N/A	N/A	N/A
Lakeside - Timberlea	9	22	19	1	5	7.2	N/A	0.1	YES
Lockview - MacPherson *	9	8	10	0.3	1	7.0	N/A	N/A	N/A
Middle Musquodoboit *	4	7	22	N/A	N/A	7.5	N/A	N/A	N/A
North Preston	4	13	10	0.4	0.2	6.8	N/A	N/A	N/A
Springfield	4	4	14	N/A	N/A	6.9	N/A	N/A	N/A
Steeves (Wellington) *	10	1	10	0.1	0.2	7.0	N/A	N/A	N/A
Uplands Park *	5	9	17	N/A	N/A	6.5	N/A	N/A	N/A
Q4 - January 2020 to March 2020									
Aerotech	2	1	10	0.1	2.4	7.4	9.2	N/A	YES
Frame *	4	2	10	N/A	N/A	6.2	N/A	N/A	N/A
Lakeside - Timberlea	6	18	16	1	4	6.9	N/A	0.1	YES
Lockview - MacPherson *	5	13	10	0.3	1	6.8	N/A	N/A	N/A
Middle Musquodoboit *	6	4	81	N/A	N/A	7.2	N/A	N/A	N/A
North Preston	5	8	10	0.2	0.5	6.8	N/A	N/A	N/A
Springfield	27	50	1696	N/A	N/A	7.3	N/A	N/A	N/A
Steeves (Wellington) *	5	25	10	0.5	0.1	7.0	N/A	N/A	N/A
Uplands Park *	7	5	13	N/A	N/A	7.0	N/A	N/A	N/A

* WWTF Fully Compliant for Entire Year

	Specific parameter limit achieved
	Specific parameter limit not achieved

Installing a Liner for a CIPP
Wastewater Main Lining

STEWARDSHIP OF THE ENVIRONMENT

Deploying the UV Lights to Cure the Resin in the CIPP Liner

Wet Weather Management Program

Like many municipalities and utilities across North America, sections of Halifax Water's sanitary sewer system are subject to dramatic flow increases in response to precipitation events. Wet weather flows in the form of inflow and infiltration (I/I) can lead to sanitary sewer overflows, capacity reduction, sewer backups/basement flooding, treatment process upsets and increased operation and maintenance costs.

To address this issue, Halifax Water has developed a proactive approach to address the negative impacts of wet weather events on the sanitary sewer system. Since its inception in 2013, the goal of Halifax Water's Wet Weather Management Program (WWMP) has been to develop a long-term strategy to cost-effectively address wet weather generated flows. The first phase was a comprehensive pilot program to study the effectiveness and cost of various rehabilitation activities in six sewersheds. An additional pilot studied the effectiveness of "private-only" interventions. The second phase of the program was to deliver a full scale I/I rehabilitation project (Fairview/Old Clayton Park/Bridgeview Sewersheds).

The table below summarizes the rehabilitation activities in the pilot areas as well as full-scale project areas. The results shown are cumulative to date.

WWMP Pilot Project Summary

Sewershed	Rehabilitation Activity					Private Side Inspections	Peak Flow Reduction (L/sec)	Peak Flow RDII Reduction (%)
	Mainline Lining	Lateral Lining	Manhole Lining	Deep Storm	Public-Side Repairs			
Fairview/Old Clayton Park/Bridgeview (Phase 1)	✓						166	65%
Stuart Harris Drive	✓	✓				✓	13	37%
Leiblin Park	✓	✓					40	33%
Balsam Subdivision					✓		1	8%
Uplands Park					✓	✓	0	0%
Wanda Lane				✓		✓	TBD	TBD
Crescent Avenue (MH182)	✓	✓	✓			✓	43	74%
Crescent Avenue (MH174)	✓	✓	✓			✓	41	92%

Fairview, Clayton Park & Bridgeview: Project Summary

The analysis of flow monitoring data, undertaken as part of the West Region Wastewater Infrastructure Plan, identified the potential for a significant reduction in Rainfall Derived Inflow and Infiltration (RDII) in the Fairview, Old Clayton Park and Bridgeview areas. With the goal of reducing peak flows by 212 l/s, a multi-year I/I reduction program was initiated in 2017.

11,500 METRES

Project Totals to Date
The project saw approximately 11,500 m of CIPP wastewater main lining in the Fairview sewershed.

The first phase of the project in the summer/fall of 2018, represented the first large scale RDII reduction project undertaken by Halifax Water outside of the pilot program. The first two years of post-monitoring results indicate a reduction of 166 l/s of peak flow with the expectation that the target of 212 l/s will be achieved once the second phase of the wastewater main lining is complete. Phase 2 involves approximately 9,500 m of wastewater main lining in the Old Clayton Park and Bridgeview sewersheds and has been underway since Fall 2019, with a planned completion of Summer 2020. A cumulative reduction of peak flow for the combined sewersheds will be calculated and reported following post-rehabilitation flow monitoring of the Phase 2 project area.

Flow monitoring and data analysis will continue to be performed to confirm RDII reductions for the full project area.

Next steps have the WWMP continuing with monitoring of pilot activities, including one focused on private-side only intervention and investigating identified sewersheds in the Central and East regions (Eastern Passage and Fish Hatchery sewersheds).

2019/20 Wastewater Mainline Trenchless Lining Projects

In 2019, Halifax Water conducted two separate sewer lining project phases. These projects consisted of the trenchless and non-disruptive construction application of cured-in-place pipe (CIPP) technology to rehabilitate ageing wastewater and combined (wastewater and stormwater) sewer mains.

Phase 1 included the rehabilitation of sewer mains at 12 street sites in peninsular Halifax and one street in Dartmouth. The total lining for this phase was approximately 4,365 meters. Phase 2 included the rehabilitation of wastewater sewers at 29 street sites predominately in the Fairview area. The total lining for this phase was approximately 9,035 meters of sewers. Phase 2 lining provided the added benefit of sealing the existing sewer pipe and reducing storm and groundwater infiltration.

The lining work included significant communication efforts with stakeholders and area residents throughout all stages of the work. Portions of both phases remain for next year.

5,895 METRES

2019/20 Sewer Lining Totals
Overall, ending March 2020, a total of 5,895 m of sewers for both phases had been lined, which represented 44% of both phases of work overall. The final estimated value for Phase 1 is $1.77 M, and Phase 2 is $1.99 M.

Halifax Water launches Horizon 2040: Wastewater Treatment Innovation for Continuous Improvement of Effluent Quality

Halifax Water, in collaboration with Dalhousie University, was successful in securing a grant from Natural Sciences and Engineering Research Council of Canada (NSERC) for wastewater treatment innovation for continuous improvement of effluent quality.

Halifax Water operates three chemically enhanced primary wastewater facilities. Stricter compliance requirements are on the horizon with respect to the Federal Wastewater Systems Effluent Regulations, and the three plants are close to meeting these requirements as they operate today. It is recognized that capital investment in the order of $425 million would be required to achieve compliance with Wastewater System Effluent Regulations by 2040.

There are numerous opportunities for optimization of the existing processes that may bring the plants into compliance without the need for upgrades to secondary treatment. Optimization can occur through exploration and development of new process monitoring tools for chemical dosing decision making, understanding and addressing hydraulic issues within the process, and optimization of chemical additives (alternative coagulants, coagulant aids, etc.). Improvements to TSS and BOD removal within the plants will also improve UV transmittance and lower operation and maintenance costs associated.

Halifax Water currently supports the NSERC/Halifax Water Industrial Research Chair and has seen tremendous value in this partnership, including direct improvements to treatment processes, reduced capital and operating costs, and implementation of policies for improvement to public health. There have been equally important benefits of; developing a strong, highly qualified personnel training program; building a network of excellence for water treatment in the Atlantic Region; and enabling Halifax Water to be at the leading edge of innovations in the drinking water industry. Halifax Water is looking forward to expanding our research to embrace opportunities in the wastewater sector and enhance our commitment to environmental stewardship. Halifax Water sees the same potential benefits and value in engaging in this research partnership as a start to developing a strong wastewater research program in Atlantic Canada.

Dr. Amina Stoddart, P.Eng.
Assistant Professor, Dalhousie University
(Photo Credit: Danny Abriel)

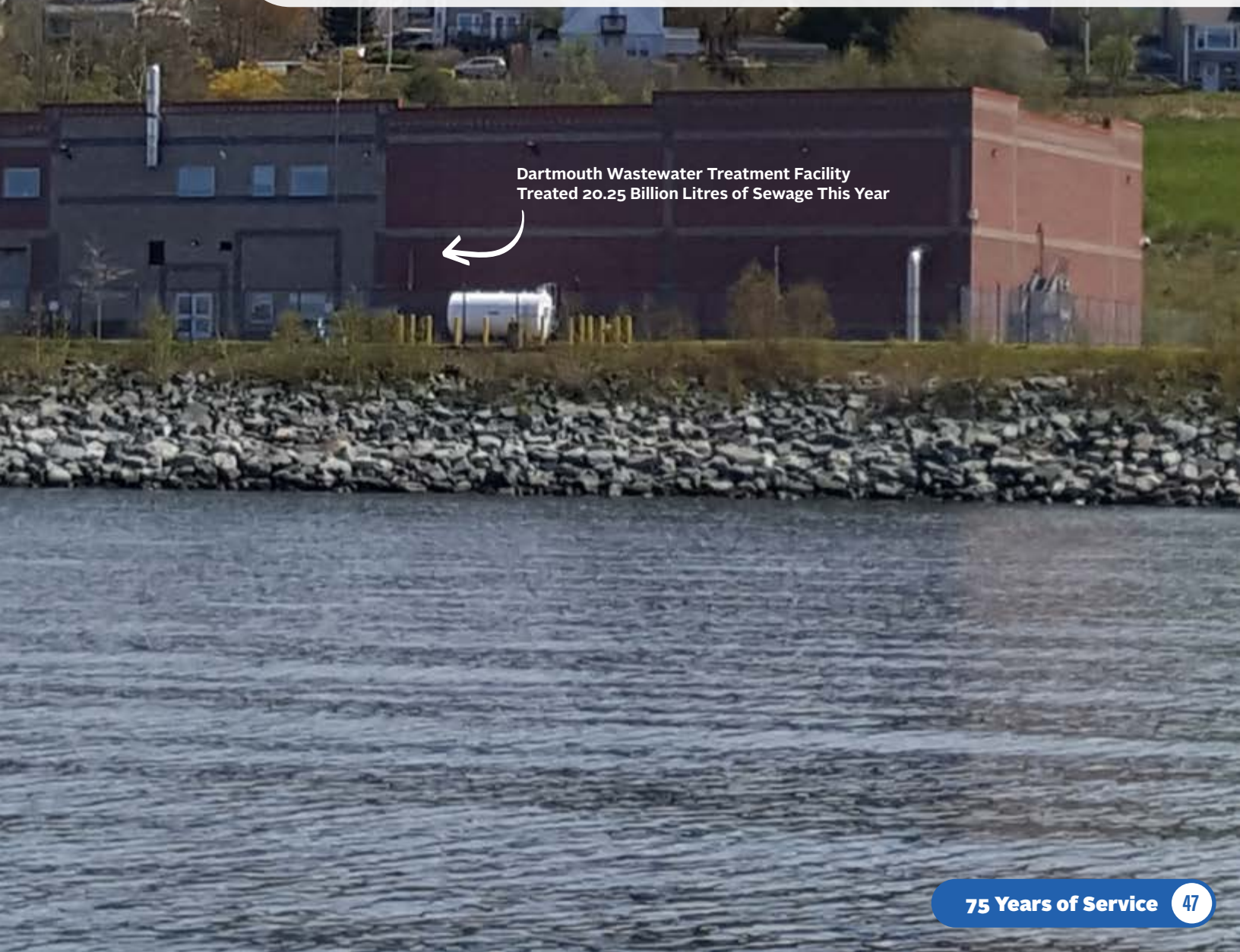
Research efforts at Dalhousie University focus on five Signature Research Clusters that are designed to align with the United Nations' 2030 Agenda for Sustainable Development, which includes 17 Sustainable Development Goals (SDGs). The proposed research aligns with Dalhousie's Clean Tech, Energy, the Environment research cluster and the Clean Water and Sanitation SDG. The Faculty of Engineering will support the proposed research with dedicated laboratory space to establish a research hub for municipal wastewater treatment research. The research will also use advanced analytical equipment available in the Clean Water Technology Laboratory to expand the overall research capacity of the team.

The objective of this project is to improve effluent quality. The research project is driven by the following thematic research questions:

Theme 1. Chemically Enhanced Primary Treatment Optimization: Can effluent standards be achieved by chemically enhanced primary treatment systems through coagulation optimization?

Theme 2. UV Disinfection Optimization: What factors control effective UV disinfection following chemically enhanced primary treatment?

Theme 3. Removal of Contaminants of Emerging Concern: Can contaminants of emerging concern be effectively controlled by chemically enhanced primary treatment?



SAFETY & SECURITY

Safety Audits & Training

Halifax Water and its Employees are committed to providing a healthy and safe work environment to prevent occupational illness and injury. This commitment is based upon our understanding that health and safety is a core business function for our organization and is treated as a priority in our work.

To ensure this, Halifax Water continues to evaluate, develop and improve safety and security initiatives across the organization. A key part of Halifax Water's Occupational Health and Safety program is to involve all employees in the identification of hazards or potential hazards when performing work and to develop Standard Operating Procedures (SOP's) for critical tasks. To ensure the effectiveness and understanding of these SOP's Halifax Water continues to review, update and educate our employees on all SOP's they perform utilizing tools such as weekly safety talks.

Halifax Water's Joint Occupational Health and Safety Committees continue to function at a high level, performing facility inspections, reviews Near Miss report and monthly audits and conducting incident investigations. This year, the committees completed ten incident investigations that resulted in changes to safe work practices, standard operating procedures and the purchasing of new equipment.

Halifax Water has been able to see the success of these initiatives, with the average score on internal safety audits being 89%, and there were only 1.6 lost time accidents per 100 employees this past year.

89%

Incident Command System

The Incident Command System (ICS) is a standardized approach to the command, control, and coordination of emergency response providing a common hierarchy within which responders from multiple agencies can be effective. Halifax Water continues to utilize the ICS system when managing water main and forcemain breaks, and as a planning tool for larger multi-facetted projects.

The regular use of ICS allowed for staff to manage operations through Hurricane Dorian when it arrived on September 7, 2019. Staff began preparing the week leading up to the hurricane, getting the appropriate organizational structure within ICS in place.

Halifax Water activated it's Emergency Operations Centre (EOC) at 455 Cowie Hill and had representatives at the HRM EOC in Woodside for the first 36 hours. The Incident Commander (IC) oversaw the operation activities and made decisions on what was required to ensure continued service to customers and protection of the environment, all while working safely. The ICS structure allowed for resources, employees, equipment and fuel, to be deployed to the priority areas and coordination with HRM, NSPI and NSE as needed throughout the event.

After the event had passed and normal operations resumed, a debrief was held to discuss and document some "lessons learned" to be even bettered prepared for the next similar event.

Hurricane Dorian Damage

MOTIVATED & SATISFIED EMPLOYEES

Staff & Management Signing New Collective Agreements in June 2019

The 2019/20 fiscal year was one that saw many changes at Halifax Water. Managing change is critical to helping ensure employees are engaged, motivated and satisfied.

In response to the annual Employee Satisfaction Survey, a committee was established to focus on items in the survey that declined more than 10% from the previous fiscal year. Employee communications, recognition, development, diversity and inclusion and wellness were the key areas that were enhanced to provide for a better employee experience.

New five-year collective agreements were signed and implemented in June 2019 for CUPE Local 227 and 1431. These new agreements provide more clear gender-neutral language and wage parity as well as the phasing out of the pre-retirement leave.

Having a workplace that is Psychological Healthy and Safe is paramount at Halifax Water. In the fall of 2019, Halifax Water provided Psychologically Safe Workplace training to all Managers and Supervisors. This training will be rolled out to the remaining staff in 2020-21.

Work continued on the new Telus ViP payroll system. Telus ViP will provide Manager and Employee self-service portals, making the reporting of time and requesting of leave easier, while providing immediate access to pay-related information. The solution is robust, easy to use, flexible and accessible from anywhere on any device. This implementation was delayed due to COVID-19, however, the project team has worked diligently and are on track to go live in summer 2020.

Editorial Note: The ViP Payroll system launched in August 2020.

Employee Recognition Program

Halifax Water's Employee Recognition Program is a utility-wide program designed to encourage employees to congratulate or thank each other for a job well done, putting in an extra effort, or for on-going superior performance that helps Halifax Water to provide world class services for our customers and our environment. There were 341 Employee recognitions received in 2019/20.

The Carolyn Bruce Customer Service Excellence Award

For more than 22 years, Carolyn Bruce set the standard for customer service excellence as a Customer Service Representative and a Customer Care Supervisor. Sadly, Carolyn passed away in January 2011. Carolyn left a legacy of passionate and dedicated service to all she dealt with.

In honour and memory of Carolyn, the Carolyn Bruce Customer Service Excellence Award was created in 2012 and is presented once a year at the annual Service Awards Banquet. Employees recognized for providing exemplary Customer Service may be selected to receive this award. In addition, direct nominations from Halifax Water employees are encouraged. Once again this year, many nominations were received, and the award was presented to David Hiscock for his exemplary customer service.

To further enhance this program, a perpetual plaque for The Carolyn Bruce Customer Service Excellence Award was created to recognize past and present award recipients. In addition to receiving their personal award, the recipient's name will appear on the perpetual plaque. Each employee who has received this award since its inception in 2012 will be remembered and recognized for all to see.

Service Awards

30 Years of Service

Wastewater and Stormwater Services
- Randy Shrum

Water Services
- Terrance Nelson
- Anthony Tooke
- Alan Ossinger

25 Years of Service

Engineering and Information Services
- Jamie Hannam

Water Services
- John Gaudet
- Kevin Kelloway

20 Years of Service

Corporate Services
- Greg Harding

Regulatory Services
- Chris Marks

Water Services
- Glen Campbell
- Paul Boiduk

15 Years of Service

Corporate Services
- Amanda Seguin
- Ann Marie Sturgeon

Engineering and Information Services
- Darcy Josey
- Kim Fawcett
- Michelle MacDonald

Wastewater and Stormwater Services
- Richard Lowe
- Belinda Dickson

Water Services
- Bill Stevens
- Cheryl MacEachern
- Kenneth Eisnor
- Trish Simms

Employee commitment and dedication to service mean a great deal to Halifax Water, and we wish to continue the tradition of recognition and show our appreciation to our employees. Keep up the excellent work!

10 Years of Service

Administration
- James Campbell
- Rebecca Rowe

Corporate Services
- Amanda Jodrey
- Heather Britten
- Ingrid Elliott
- Jennifer Hiscock
- Shiju Matthew
- Tanya Houlihan

Engineering and Information Services
- Brad Baxter
- David Waterfield
- Evan Embree
- Kevin Healy
- Lucie Kendell
- Steven Doucet
- Susan Dwyer

Regulatory Services
- Amanda O'Neil
- Kevin Gray
- Marielle Pearce
- Mary Anne Orman

Wastewater and Stormwater Services
- Bruce Mellor
- Christian Caron
- Christian Croft
- Dwayne Bell
- Gregory Merrick
- Jean-Paul Michaud
- Justin Beaver
- Katie MacDougall
- Matthew Iorianni
- Melvin Gilliam
- Michael Deagle
- Nigel Crouse
- Pierre Noel
- Robert Carroll
- Robert MacKenzie
- Shawn Borden
- Stephen Henneberry

Water Services
- Colin Waddell
- Justin Wilson
- Kevin Healey
- Mike Doucette

CORPORATE SOCIAL RESPONSIBILITY

Halifax Water Trucks Ready for The World's Largest Truck Convoy with Special Olympics NS

Halifax Water strives every day to provide world-class water, wastewater and stormwater services to customers. We also work to be part of the community throughout the year, supporting a wide variety of events, causes and groups.

For years, Halifax Water has supported Special Olympics Nova Scotia. The World's Largest Truck Convoy is one that allows staff to show their pride in their machines and put a smile on the faces of many Special Olympians. The 2019 Convoy left CFB Shearwater with 200 trucks winding their way through Dartmouth, Cole Harbour, and Eastern Passage before returning to CFB Shearwater. Along with a $1,500 sponsorship of the event, Halifax Water was well represented with an impressive fleet of eight trucks. The pride in their trucks was evident as each machine was in showroom condition.

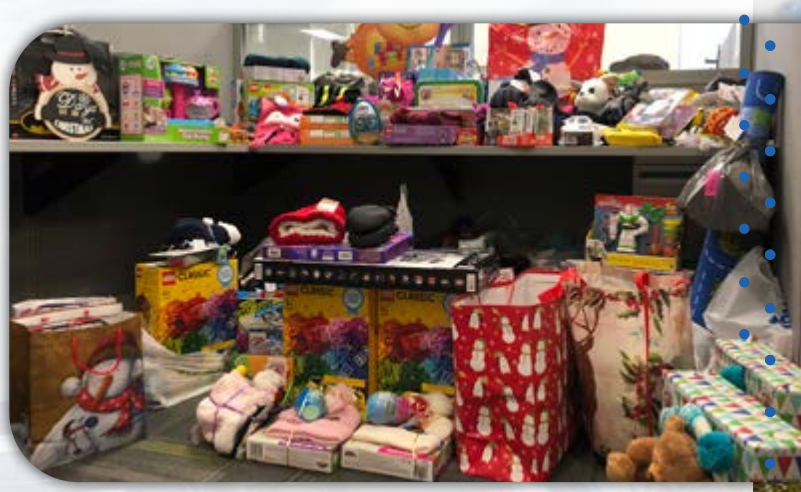
Halifax Water Employees Fundraising Activities

Halifax Water employees take their role in helping to better the community seriously. That is reflected in the many fundraising initiatives such as United Way Halifax. In 2019 Halifax Water employees raised $945.00 for United Way Halifax through fundraising events.

Halifax Water's H2O (Help to Others) Fund raised a total of $4,111.00 to assist customers who truly need help with their water/wastewater/stormwater bill. This internal staff fundraising is in addition to the $25,000.00 Halifax Water provides in funding. Halifax Water also matches funds donated by Halifax Water employees.

$190,000

H2O Fund Total
Since its launch in 2011, the H2O Fund has dispersed over $190,000.



Halifax Water employees also donated $9,980.00 to Water for People to support the digging of wells to provide clean drinking water in 9 different countries for 4 million people.

The Christmas Families Fundraising initiatives donated $2,802.75. The funds were divided equally between Byrony Hours, Feed NS, Hope Cottage, Souls Harbour Mission and the H2O Fund.

For many years Halifax Water staff have supported the Salvation Army's Angel Tree program. This year staff committed to sponsoring 100 children. We exceeded our goal by collecting toys, hats and mittens for 105 children.

Halifax Water employees also regularly participate in drives to provide gently used coats, footwear, clothes and even some used toys to those in need. This year seven large bags of goods were donated.

First Nations Water Authority

Access to safe, reliable water and wastewater services is something most of us take for granted. But for many First Nations in our region and across the country, there is no access to safe drinking water or wastewater service.

Since 2017 Halifax Water, in conjunction with industry professionals and researchers, has been working with the Atlantic Policy Congress of First Nations Chiefs Secretariat (APC) to address the issue of water and wastewater services on member communities in Atlantic Canada. The goal, create a regional water authority owned and operated by First Nations people that will not only improve public health and safety but support economic growth and protect the environment. The work continued throughout 2019.

In June 2020, the Atlantic First Nations Water Authority (AFNWA) and the Government of Canada announced the signing of a framework agreement that creates a path for the transfer of water and wastewater services for 15 First Nations communities in Atlantic Canada from Indigenous Services Canada (ISC) to the AFNWA. This agreement is a key milestone as the AFNWA continues to work towards self-determination and greater control of First Nation services delivery by First Nations.

Supporting Events in the Community

Halifax Water was again very actively involved in the community in 2019 with its Portable Water Station Program. The program, which has been in place since 2009, supports a wide variety of community groups ranging from large venues such as the Jazzfest and multicultural events to smaller community block parties and sporting activities. This support helps groups reduce or eliminate their use of bottled water and the associated waste generated by plastic water bottles, promotes conservation and the use of tap water. In the 2019 season, Halifax Water provided water stations to 38 events.

Thirty Halifax Water employees took to the streets for the 2019 Scotiabank Bluenose Marathon. "The Running Jokes" as they have named themselves, were no joke when it came to raising funds for Special Olympics Nova Scotia. Through a BBQ, 50/50 draw and individual fundraising efforts, the team raised $2008. The Shed wrapped up its second successful season on the Halifax waterfront after having spent July and August at its prime boardwalk location near the beach volleyball/sand beach area. Visitors took part in water taste tests (bottled vs. tap), trivia questions, viewed a variety of educational videos, enjoyed a glass of cool, refreshing tap water, took part in games and activities, and generally enjoyed the relaxed atmosphere and fantastic waterfront location.

The Shed was a hit with local residents and visitors from around the world who came to see why Halifax Water is known internationally as a world-class utility.

The map pictured on this page was at The Shed this summer. Visitors who dropped by were asked where they were from, and a stick pin was placed in that location. The map shows visitors from every continent made their way to Halifax municipality and The Shed.

An estimated 13,000 visitors visited The Shed in 2019, up from an estimated 9,000 in 2018.

13,000 VISITORS

The Shed on the Boardwalk in Downtown Halifax

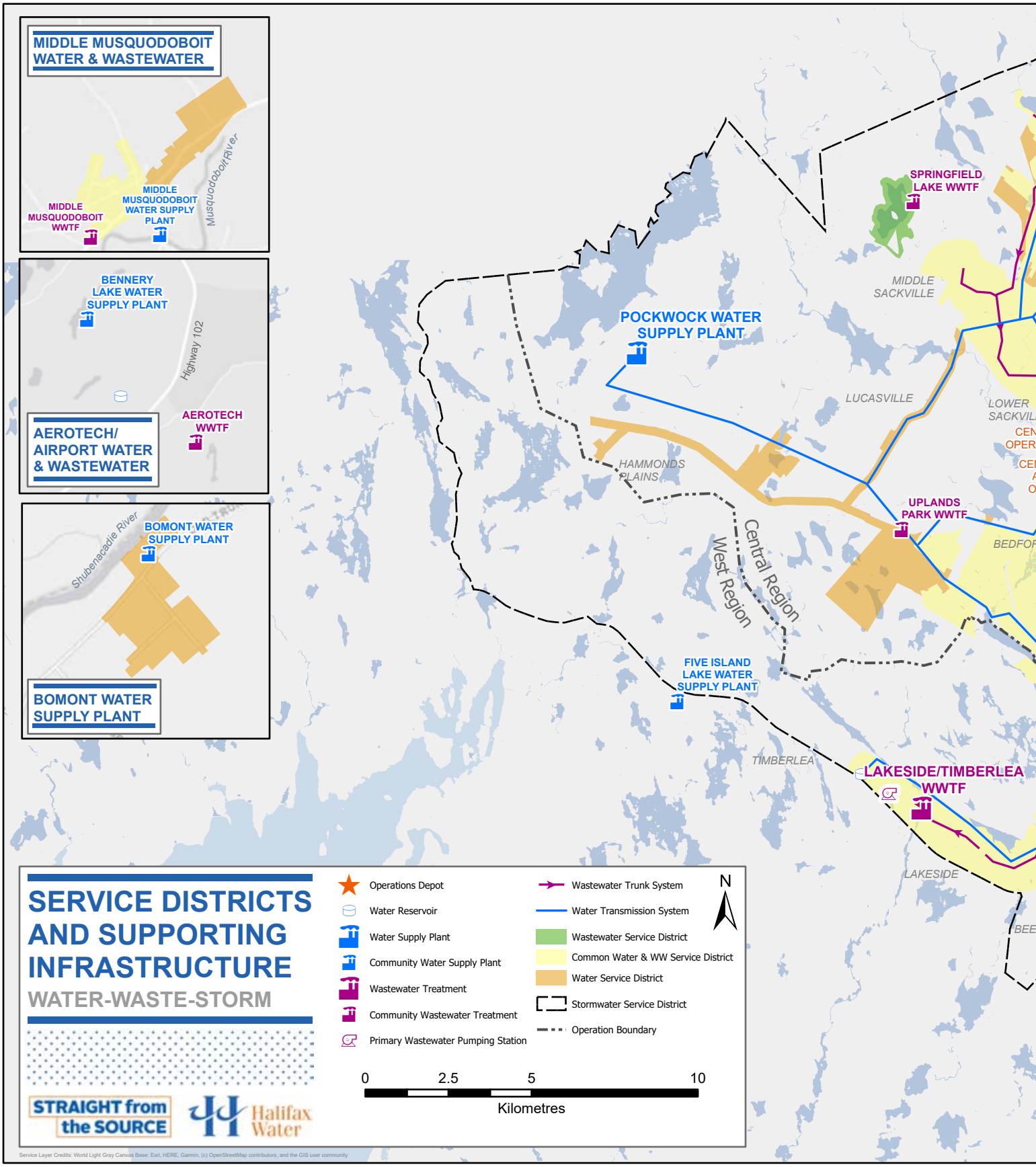
Scholarships

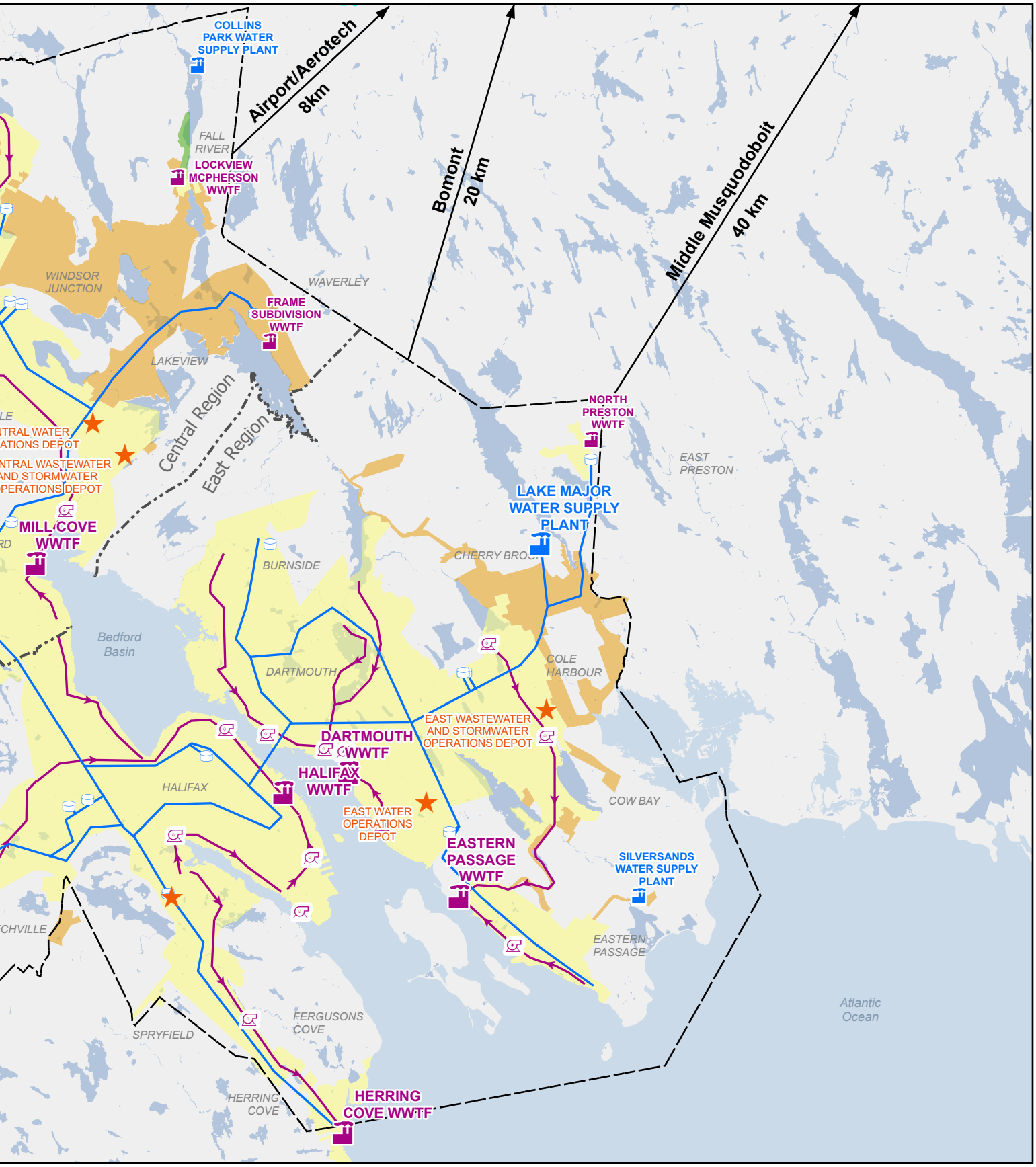
Halifax Water has supported the educational growth of our community since 2008 through scholarships provided to the Nova Scotia Community College. The scholarships not only benefit the community and recipients, but they have also provided Halifax Water many highly skilled and motivated employees over the years. Along with the four scholarships provided annually, Halifax Water has added a new scholarship for 2020/21:

- Robert T. Peacock Achievement Award –1 @ $2,000 awarded each Fall
- Jipuktuk etli apatua'timk Award – 1 @ $4,000 awarded each Spring; 1 @ $4,000 awarded each Fall
- Halifax Water Achievement Award – 1 @ $2,000 awarded each Fall
- Arnold D. Johnson Sr. Award for Water Resources – 1 @ $3,600 awarded each Spring

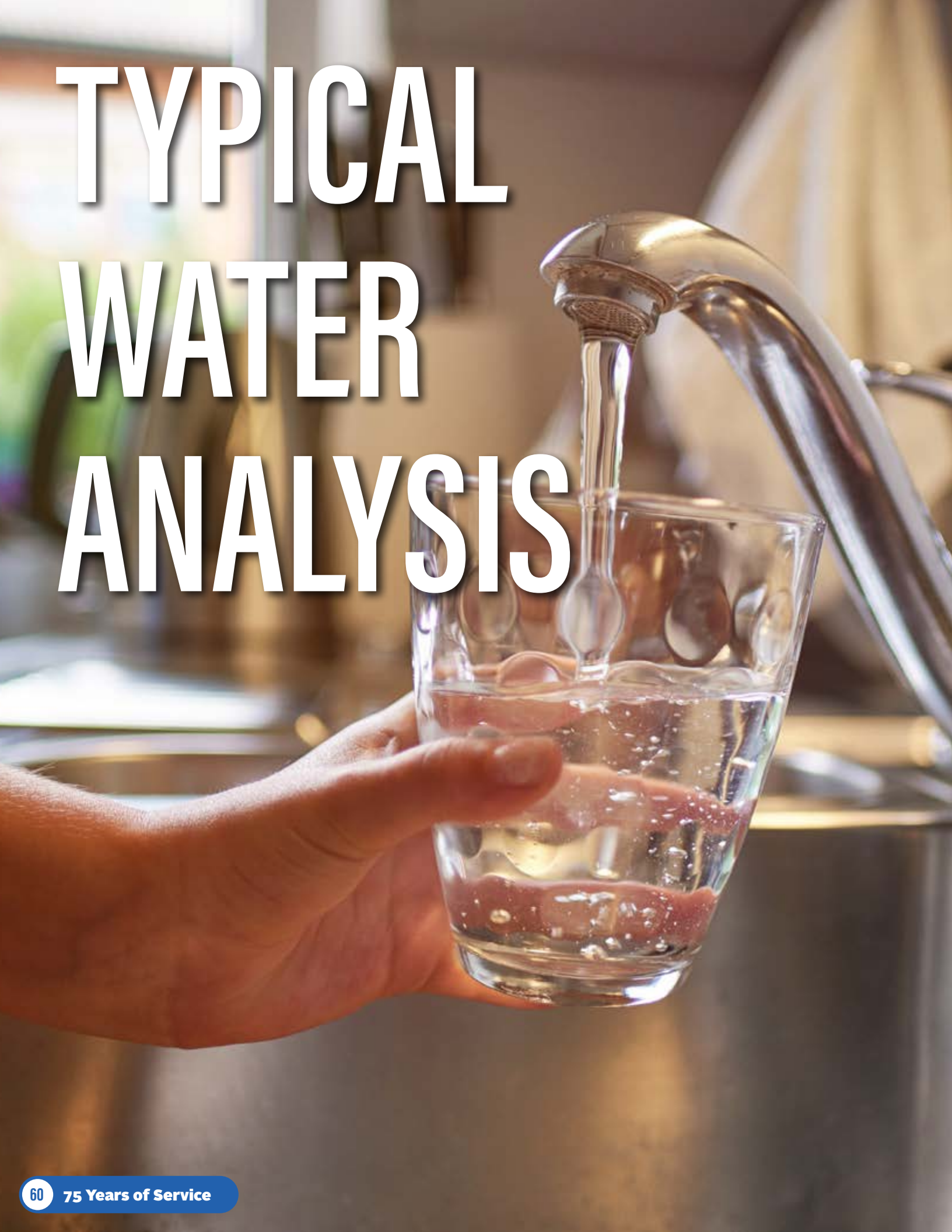
NEW IN 2020/21

Halifax Water has a new scholarship, Women in Non-Traditional Careers; 1 @ $2,000 to be awarded each Fall. This award is open to women entering one of the following programs at NSCC: Plumbing, Electrical Construction and Industrial - Diploma, Civil Engineering Technology, Environmental Engineering Technology, Geographic Information Systems Advanced Diploma, or Geographic Information Systems Technician


MIDDLE MUSQUODOBOIT WATER & WASTEWATER
MIDDLE MUSQUODOBOIT WWTF
MIDDLE MUSQUODOBOIT WATER SUPPLY PLANT
Musquodoboit River
BENNERY LAKE WATER SUPPLY PLANT
Highway 102
AEROTECH/ AIRPORT WATER & WASTEWATER
AEROTECH WWTF
Shubenacadie River
BOMONT WATER SUPPLY PLANT
BOMONT WATER SUPPLY PLANT
SPRINGFIELD LAKE WWTF
MIDDLE SACKVILLE
POCKWOCK WATER SUPPLY PLANT
LUCASVILLE
LOWER SACKVIL
HAMMONDS PLAINS
UPLANDS PARK WWTF
BEDFOR
Central Region
West Region
FIVE ISLAND LAKE WATER SUPPLY PLANT
TIMBERLEA
LAKESIDE/TIMBERLEA WWTF
LAKESIDE
SERVICE DISTRICTS AND SUPPORTING INFRASTRUCTURE
WATER-WASTE-STORM
STRAIGHT from the SOURCE
Halifax Water
Operations Depot
Water Reservoir
Water Supply Plant
Community Water Supply Plant
Wastewater Treatment
Community Wastewater Treatment
Primary Wastewater Pumping Station
Wastewater Trunk System
Water Transmission System
Wastewater Service District
Common Water & WW Service District
Water Service District
Stormwater Service District
Operation Boundary
N
0
2.5
5
10
Kilometres
Service Layer Credits: World Light Gray Canvas Base: Esri, HERE, Garmin, (c) OpenStreetMap contributors, and the GIS user community


COLLINS PARK WATER SUPPLY PLANT
Airport/Aerotech 8km
Bomont 20 km
Middle Musquodoboit 40 km
FALL RIVER
LOCKVIEW MCPHERSON WWTF
WINDSOR JUNCTION
WAVERLEY
FRAME SUBDIVISION WWTF
LAKEVIEW
Central Region
East Region
NORTH PRESTON WWTF
EAST PRESTON
LAKE MAJOR WATER SUPPLY PLANT
CHERRY BROOK
BURNSIDE
MILL COVE WWTF
Bedford Basin
DARTMOUTH
COLE HARBOUR
EAST WASTEWATER AND STORMWATER OPERATIONS DEPOT
DARTMOUTH WWTF
HALIFAX WWTF
HALIFAX
EAST WATER OPERATIONS DEPOT
COW BAY
EASTERN PASSAGE WWTF
SILVERSANDS WATER SUPPLY PLANT
EASTERN PASSAGE
Atlantic Ocean
FERGUSONS COVE
SPRYFIELD
HERRING COVE
HERRING COVE WWTF

TYPICAL WATER ANALYSIS



TYPICAL ANALYSIS OF POCKWOCK LAKE & LAKE MAJOR WATER

2019 - 2020

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	(Halifax) POCKWOCK		(Dartmouth) LAKE MAJOR		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	<5.0	18.0	<5.0	19.0	-	-
Aluminum	0.104	[A]0.088	0.197	[A]0.014	-	[A]0.20/0.10
Ammonia (N)	<0.050	<0.050	<0.050	<0.050	-	-
Arsenic	<0.001	<0.001	<0.001	<0.001	0.010	-
Calcium	1.0	4.3	1.0	14.0	-	-
Chloride	6.4	8.7	6.0	7.6	-	≤250
Chlorate	<0.10	<0.10	<0.10	<0.10	1.0	-
Chlorite	<0.10	<0.10	<0.10	<0.10	1.0	-
Colour (True Colour Units)	17.0	<5.0	39.0	<5.0	-	≤15.0
Conductivity (µS/cm)	32.0	72.0	32.0	110.0	-	-
Copper (Total)	0.0450	<0.0005	0.0537	0.0013	2.0	≤1.0
Fluoride	<0.10	0.52	<0.10	[B]0.49	1.5	-
Hardness (as CaCO3)	3.9	13.0	4.0	32.0	-	-
HAA5 (avg.)	-	0.014	-	0.028	0.080	-
Iron (Total)	0.03	<0.05	0.09	<0.05	-	≤0.3
Langelier Index @ 4°C	-	-2.41	-	-1.97	-	-
Langelier Index @ 20°C	-	-2.16	-	-1.72	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	5.0	-
Magnesium	0.390	0.402	0.395	0.410	-	-
Manganese (Total)	0.022	0.015	0.053	<0.002	0.12	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	<0.050	<0.050	<0.050	<0.050	10.0	-
Nitrite (as N)	<0.010	<0.010	<0.010	<0.010	1	-
pH (pH Units)	6.1	7.3	5.9	7.2	-	7.0 - 10.5
Potassium	0.230	0.290	0.250	0.240	-	-
Sodium	4.3	12.0	4.0	9.3	-	≤200
Solids (Total Dissolved)	31.0	57.0	31.5	84.0	-	≤500
Sulphate	3.2	8.8	3.2	28.0	-	≤500
Turbidity (NTU)	0.33	[C]0.06	0.39	[C]0.04	[C]0.15/0.2	-
Total Organic Carbon (TOC)	3.80	3.00	5.50	1.90	-	-
THM's (avg.)	-	0.027	-	0.039	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.098	<0.005	0.088	-	≤5.0
PCB (µg/l)	<0.05	<0.05	<0.05	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.10/<0.10	<0.10/<0.10	<0.10/<0.10	<0.10/<0.10	0.5 / 1.0	-

[A]Aluminum objective is related to type of plant filtration; the aluminum objective for direct filtration (Pockwock) is <0.20 mg/l and conventional filtration (Lake Major) is <0.10 mg/l.

[B]Fluoride was not being added to the finished water at the Lake Major WSP approximately 65% of the time due to system maintenance.

[C]The Pockwock and Lake Major plants analyze turbidity immediately post-filtration. Each filter must produce water with a turbidity of <0.15 NTU 95% of the time at the Pockwock Water Supply Plant and <0.20 NTU 95% of the time at the Lake Major Water Supply Plant. Both Water Supply Plants must produce water with a turbidity <1.00 NTU 100% of the time, as required by Provincial Permit.

TYPICAL ANALYSIS – SMALL SYSTEMS

2019 - 2020

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	BENNERY LAKE		FIVE ISLAND LAKE		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	10.2	41.0	31.0	32.0	-	-
Aluminum	0.099	0.016	<0.005	<0.005	-	0.2
Ammonia (N)	<0.050	<0.050	0.115	<0.050	-	-
Arsenic	<0.001	<0.001	0.004	0.004	0.010	-
Calcium	2.6	19.0	9.9	9.5	-	-
Chloride	7.6	9.5	9.2	9.8	-	≤250
Chlorate	<0.10	0.28	<0.10	0.19	1.0	-
Chlorite	<0.10	<0.10	<0.10	<0.10	1.0	-
Colour (True Colour Units)	35.0	<5.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	36.0	140.0	88.0	88.0	-	-
Copper (Total)	0.059	0.018	0.002	0.010	2.0	≤1.0
Fluoride	<0.10	<0.10	0.33	0.37	1.5	-
Hardness (as CaCO3)	8.6	48.0	30.0	28.0	-	-
HAA5 (avg.)	-	0.025	-	<0.005	0.080	-
Iron (Total)	0.33	<0.05	<0.05	<0.05	-	≤0.3
Langelier Index @ 4°C	-	-1.41	-2.07	-1.48	-	-
Langelier Index @ 20°C	-	-1.16	-1.82	-1.23	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	5.0	-
Magnesium	0.555	0.645	1.2	1.1	-	-
Manganese (Total)	0.185	0.020	<0.002	<0.002	0.12	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	0.059	0.069	<0.050	<0.050	10.0	-
Nitrite (as N)	<0.010	<0.010	<0.010	<0.010	1.0	-
pH (pH Units)	6.5	7.6	7.0	7.6	-	7.0 - 10.5
Potassium	0.280	0.320	0.50	0.49	-	-
Sodium	4.5	15.0	6.0	6.9	-	≤200
Solids (Total Dissolved)	45.5	114.0	56.0	65.0	-	≤500
Sulphate	10.8	29.0	3.3	3.7	-	≤500
Turbidity (NTU)	3.73	[A]0.04	0.41	[B]0.04	[A]0.2/1.0 [B]1.0	-
Total Organic Carbon (TOC)	3.90	2.10	<0.50	<0.50	-	-
THM's (avg.)	-	0.036	-	<0.001	0.100	-
Uranium (µg/l)	<0.10	<0.10	10.00	9.90	20.0	-
Zinc (Total)	0.013	0.040	0.006	<0.005	-	≤5.0
PCB (µg/l)	<0.05	<0.05	<0.05	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.10/<0.10	<0.10/<0.10	0.35/0.53	0.42/<0.10	0.5 / 1.0	-

[A]The Bennery Lake plant analyzes turbidity immediately post-filtration and must produce water with a turbidity of <0.20 NTU 95% of the time and <1.00 NTU 100% of the time.

[B]The Five Island Lake plant must produce water with turbidity of <1.00 NTU 95% of the time, as required by Provincial Permit. Treated water turbidity is calculated from clearwell monitoring.

TYPICAL ANALYSIS - SMALL SYSTEMS

2019 - 2020

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	COLLINS PARK		MIDDLE MUSQUODOBOIT		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as CaCO3)	11.0	10.0	49.0	160.0	-	-
Aluminum	0.047	0.005	0.005	0.006	-	0.2
Ammonia (N)	<0.050	0.051	<0.050	<0.050	-	-
Arsenic	0.003	<0.001	<0.001	<0.001	0.010	-
Calcium	6.1	0.7	15.0	2.7	-	-
Chloride	37.0	17.0	12.0	4.3	-	≤250
Chlorate	<0.10	0.17	<0.10	<0.10	1.0	-
Chlorite	<0.10	<0.10	<0.10	<0.10	1.0	-
Colour (True Color Units)	19.0	<5.0	<5.0	<5.0	-	≤15.0
Conductivity (µS/cm)	140.0	60.0	150.0	240.0	-	-
Copper (Total)	0.0008	<0.0005	0.0006	0.0014	2.0	≤1.0
Fluoride	<0.10	<0.10	<0.10	<0.10	1.5	-
Hardness (as CaCO3)	19.0	1.6	59.0	11.0	-	-
HAA5 (avg.)	-	<0.005	-	<0.005	0.080	-
Iron (Total)	0.10	<0.05	<0.05	<0.05	-	≤0.3
Langelier Index @ 4°C	-2.64	-3.59	-1.85	-1.34	-	-
Langelier Index @ 20°C	-2.39	-3.33	-1.60	-1.09	-	-
Lead (Total) (µg/l)	<0.50	<0.50	<0.50	<0.50	5.0	-
Magnesium	0.85	<0.10	5.10	0.99	-	-
Manganese (Total)	0.056	<0.002	<0.002	<0.002	0.12	≤0.05
Mercury (µg/l)	<0.013	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	0.093	0.073	1.160	0.900	10.0	-
Nitrite (as N)	<0.010	<0.010	<0.010	<0.010	1	-
pH (pH Units)	7.2	7.2	7.0	7.9	-	7.0 - 10.5
Potassium	0.87	0.36	1.00	0.51	-	-
Sodium	22.0	13.0	6.6	55.0	-	≤200
Solids (Total Dissolved)	91.0	40.0	100.0	150.0	-	≤500
Sulphate	7.0	2.0	12.7	<2.0	-	≤500
Turbidity (NTU)	1.00	[A]0.04	0.14	[A]0.06	[A]0.1/0.3	-
Total Organic Carbon (TOC)	4.50	<0.50	0.68	<0.50	-	-
THM's (avg.)	-	0.008	-	0.002	0.100	-
Uranium (µg/l)	<0.10	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	<0.005	0.081	<0.005	0.042	-	≤5.0
PCB (µg/l)	<0.05	<0.05	<0.05	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	<0.10/<0.10	<0.10/<0.10	<0.10/<0.10	<0.10/<0.10	0.5 / 1.0	-

[A]Ultra-filtration membrane plants must produce water with turbidity of <0.10 NTU 99% of the time and <0.30 NTU 100% of the time, as required by Provincial Permit. Treated water turbidity is calculated from clearwell monitoring.

TYPICAL ANALYSIS OF BOMONT WATER

2019 - 2020

(in milligrams per litre unless shown otherwise)

Note: All Regulatory Compliance Analysis are Processed by Third Party Laboratories

PARAMETERS	BOMONT		Silver Sands		GUIDELINES FOR CANADIAN DRINKING WATER QUALITY	
	[A]Raw Water	Treated Water	Raw Water	Treated Water	Maximum Acceptable Concentration	Aesthetic Objective Concentration
Alkalinity (as $CaCO_3$)	-	18.0	69.0	70.0	-	-
Aluminum	-	0.071	<0.005	<0.005	-	0.2
Ammonia (N)	-	<0.050	0.140	<0.050	-	-
Arsenic	-	<0.001	0.002	<0.001	0.010	-
Calcium	-	4.5	38.0	36.0	-	-
Chloride	-	9.8	64.0	66.0	-	≤250
Chlorate	-	0.36	<0.10	0.35	1.0	-
Chlorite	-	<0.10	<0.10	<0.10	1.0	-
Colour (True Colour Units)	-	<5.0	23.8	<5.0	-	≤15.0
Conductivity (µS/cm)	-	80.0	350.0	360.0	-	-
Copper (Total)	-	0.001	<0.0005	0.0106	2.0	≤1.0
Fluoride	-	<0.10	0.23	0.18	1.5	-
Hardness (as $CaCO_3$)	-	13.0	110.0	110.0	-	-
HAA5 (avg.)	-	0.066	-	<0.005	0.080	-
Iron (Total)	-	<0.05	1.08	<0.05	-	≤0.3
Langelier Index @ 4°C	-	-2.39	-0.75	-0.69	-	-
Langelier Index @ 20°C	-	-2.13	-0.50	-0.44	-	-
Lead (Total) (µg/l)	-	<0.50	<0.50	<0.50	5.0	-
Magnesium	-	0.400	5.000	4.700	-	-
Manganese (Total)	-	0.006	1.163	0.005	0.12	≤0.05
Mercury (µg/l)	-	<0.013	<0.013	<0.013	1.0	-
Nitrate (as N)	-	<0.050	<0.050	<0.050	10.0	-
Nitrite (as N)	-	<0.010	<0.010	<0.010	1	-
pH (pH Units)	-	7.4	7.7	7.6	-	7.0 - 10.5
Potassium	-	0.280	0.900	0.870	-	-
Sodium	-	13.0	23.0	27.0	-	≤200
Solids (Total Dissolved)	-	82.0	220.0	250.0	-	≤500
Sulphate	-	17.7	20.0	19.0	-	≤500
Turbidity (NTU)	-	[B]0.28	14.5	[C]0.09	[B]0.1/0.3 [C]1.0	-
Total Organic Carbon (TOC)	-	2.0	<0.50	<0.50	-	-
THM's (avg.)	-	0.057	-	<0.001	0.100	-
Uranium (µg/l)	-	<0.10	<0.10	<0.10	20.0	-
Zinc (Total)	-	0.085	<0.005	<0.005	-	≤5.0
PCB (µg/l)	-	<0.05	<0.05	<0.05	-	-
Gross Alpha / Gross Beta (Bq/L)	-	<0.10/<0.10	<0.10/<0.10	<0.10/<0.10	0.5 / 1.0	-

[A]Raw water samples were not collected from the Bomont raw water source this past year. Treated water was supplied from either the Lake Major or Pockwock water systems.

[B]The Bomont Water Supply Plant must produce water with turbidity of <0.10 NTU 99% of the time and <0.30 NTU 100% of the time, as required by Provincial Permit. Treated water turbidity is calculated from clearwell monitoring.

[C]The Silver Sands Water Supply Plant must produce water with turbidity of <1.00 NTU 95% of the time, as required by Provincial Permit. Treated water turbidity is calculated from clearwell monitoring.

FINANCIAL OVERVIEW

Financial Overview

Abbreviated Financial Overview (IFRS)

	Year ended March 31, 2020 '000	Year ended March 31, 2019 '000	$ Change
ASSETS			
Total current assets	$ 92,131	$ 90,008	$ 2,123
Utility plant in services			
Cost	1,524,594	1,433,062	91,532
Accumulated depreciation	(243,584)	(199,622)	(43,962)
Net utility plant in service	1,281,010	1,233,440	47,570
Intangible assets	18,951	15,418	3,533
Capital work in progress	18,104	29,605	(11,501)
Total non-current assets	1,318,065	1,278,463	39,602
Regulatory deferral account	2,812	3,004	(192)
Total assets and regulatory deferral account	**$ 1,413,008**	**$ 1,371,475**	**$ 41,533**
LIABILITIES AND EQUITY			
Payables, deposits and unearned revenue	$ 31,852	$ 26,258	$ 5,594
Long term debt	219,146	207,441	11,705
Deferred contributed capital	893,948	881,648	12,300
Employee benefit obligations	63,365	72,330	(8,965)
Total liabilities	1,208,311	1,187,677	20,634
Total equity	204,697	183,798	20,899
Total liabilities and equity	**$ 1,413,008**	**$ 1,371,475**	**$ 41,533**

	Year ended March 31, 2020 '000	Year ended March 31, 2019 '000	$ Change
EARNINGS AND COMPREHENSIVE EARNINGS			
Operating revenues	$ 137,750	$ 138,202	$ (452)
Operating expenses (excluding depreciation and amortization)	(92,630)	(88,726)	(3,904)
Depreciation and amortization	(46,410)	(44,060)	(2,350)
Earnings from operations	(1,290)	5,416	(6,706)
Financial and other revenues	20,236	20,041	195
Financial and other expenditures	(12,611)	(12,861)	250
Earnings for the year	6,335	12,596	(6,261)
Regulatory deferral account depreciation	(192)	(192)	0
Re-measurement on defined benefits plans	14,756	3,734	11,022
Total comprehensive earnings for the year	**$ 20,899**	**$ 16,138**	**$ 4,761**

Financial Overview

Abbreviated Financial Overview (NSUARB Handbook)

	Year ended March 31, 2020 '000	Year ended March 31, 2019 '000	$ Change
ASSETS			
Total current assets	$ 92,131	$ 90,008	$ 2,123
Utility plant in services			
Cost	1,836,187	1,739,067	97,120
Accumulated depreciation	(506,040)	(463,924)	(42,116)
Net utility plant in service	1,330,147	1,275,143	55,004
Capital work in progress	18,104	29,605	(11,501)
Total non-current assets	1,348,251	1,304,748	43,503
Regulatory deferral account	2,812	3,004	(192)
Total assets and regulatory deferral account	**$ 1,443,194**	**$ 1,397,760**	**$ 45,434**
LIABILITIES AND EQUITY			
Payables, deposits and unearned revenue	$ 31,852	$ 26,258	$ 5,594
Long term debt	219,146	207,441	11,705
Employee benefit obligations	63,365	72,330	(8,965)
Total liabilities	314,363	306,029	8,334
Total equity	1,128,831	1,091,731	37,100
Total liabilities and equity	**$ 1,443,194**	**$ 1,397,760**	**$ 45,434**

	Year ended March 31, 2020 '000	Year ended March 31, 2019 '000	$ Change
EARNINGS AND COMPREHENSIVE EARNINGS			
Operating revenues	$ 137,750	$ 138,202	$ (452)
Operating expenditure (excluding depreciation and amortization)	(79,170)	(77,519)	(1,651)
Dividend/grant in lieu of taxes	(5,078)	(4,999)	(79)
Depreciation and amortization	(25,078)	(23,006)	(2,072)
Earnings from operations	28,424	32,678	(4,254)
Financial and other revenues	1,211	1,899	(688)
Financial and other expenditures	(31,195)	(33,189)	1,994
Earnings (loss) for the year	**$ (1,560)**	**$ 1,388**	**$ (2,948)**

STRAIGHT from the SOURCE

Halifax Water

ITEM # 5-I
HRWC Board
September 24, 2020

Halifax Water Compliance Statement
Quarterly Certification

For the period of April 1, 2020 to June 30, 2020

We hereby certify that the Halifax Regional Water Commission is current in making all statutory remittances for payroll taxes, Harmonized Sales Tax and other remittances as required under the laws of the Government of Canada and its Provinces (the significant remittances are noted in the appendix) and that all legal claims have been disclosed.

Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.17 14:13:27 -03'00'

Cathie O'Toole, MBA, FCPA, FCGA, ICD.D
General Manager

Louis de Montbrun — Digitally signed by Louis de Montbrun Date: 2020.09.17 13:56:21 -03'00'

Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

Dated:

September 17, 2020

Halifax Water Compliance Statement
Quarterly Certification
Appendix I

Significant statutory remittances for payroll taxes, Harmonized Sales Tax and other remittances as required under the laws of the Government of Canada and its Provinces for the Halifax Regional Water Commission.

Statutory Payroll Remittances

- **Canada Revenue Agency (CRA) -** Statutory employee payroll deductions and employer related contributions for:
  - Income Tax
  - Canada Pension Plan (CPP)
  - Employment Insurance (EI)

- **Workers' Compensation Board of Nova Scotia (WCB)** – Employer remittance based on employee payroll

Other Payroll Remittances

- **Northern Trust -** Employee payroll deductions and employer contributions to Halifax Water and HRM defined benefit pension plans

- **Industrial Alliance** – employer and employee contributions to defined contribution pension plan

- **Medavie Blue Cross & SSQ** – employee payroll deductions and employer related contributions for Health & dental, LTD, and Life benefit coverage, and payroll deductions for AD&D

- **Canadian Union of Public Employees** – Employee payroll deductions of union dues
  - CUPE Local 227
  - CUPE Local 1431

HST and Other Remittances

- **Canada Revenue Agency (CRA) -** Harmonized Sales Tax (HST) is filed online and a refund issued as HST paid is greater than HST collected

- **Workers' Compensation Board of Nova Scotia (WCB)** – Remittance for sub-contractors

ITEM # 5-I
HRWC BOARD
September 24, 2020

Quarterly Remittance Certification

Appendix II

Period: **April to June** **2020**

Vendor	Vendor #	Items Remitted	Total remitted	Exceptions
Statutory Payroll Remittances				
CRA	174	Tax, CPP, EI, WCB	$ 3,763,928.55	
Other Payroll				
Northern Trust	1215	HW Pension Plan	$ 1,736,395.85	
Northern Trust	1216	HRM Pension Plan	$ 291,283.52	
Manulife Financial	1171	Bedford Pension Plan	$ 2,055.90	
Industrial Alliance	2971	DCPP	$ -	
Medavie Blue Cross	340, 3101	Health, Dental, Life, LTD	$ 740,870.60	
SSQ Insurance	429	AD&D	$ 4,938.20	
CUPE	160	Union Dues 1431	$ 31,274.16	
CUPE	161	Union Dues 227	$ 57,621.76	
Other payroll not noted				
United Way, Credit Union, Garnishments (WCB, CRA, Family Court, Sherriff's Office), Water for People, Salvation Army, Racially Visible Caucus				
HST and Other				
CRA	N/A	HST (refunds)	$ (2,060,526.68)	
Receiver General	210	WCB subcontractors	$ 719.18	

Exceptions, errors and/or late remittances

Halifax Water
Halifax Regional Water Commission

ITEM # 6-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Louis de Montbrun
Digitally signed by Louis de Montbrun
Date: 2020.09.17 13:55:33 -03'00'
Louis de Montbrun, CPA, CA,
Director, Corporate Services / CFO

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.17 14:14:13 -03'00'
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 14, 2020

SUBJECT: **Halifax Regional Water Commission Employees' Pension Plan Financial Report Second (2nd) Quarter, 2020**

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 the end of the 2nd Quarter (January 1 to June 30, 2020). Favourable or unfavourable variances reported compare actual results to pro-rated budget amounts, for the six (6) month period ended June 30, 2020. Year-end audited results for 2018 and 2019 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 $0.1 million for the six (6) month period ending June 30, 2020. The pro-rated budget forecasted an increase in net assets available of $3.4 million. Actual results for the period of $0.1 million compared to the budget of $3.4 million results in an unfavourable variance in the amount of ($3.3) million.

The annual budget forecasted revenue of $6.0 million. Revenue for the period was ($0.5) million, which when compared to the pro-rated budget of $3.0 million results in an unfavourable variance of ($3.5) 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 significant decrease in the fair value of the investment assets at the end of the 2nd Quarter. The decrease in the fair value of investment assets for the period totaled ($2.3) million compared to the pro-rated budget of $1.5 million, a difference of ($3.8) million. Investment income for the period performed above expectations, showing a favorable variance of $0.3 million or 17%.

Contributions of $3.2 million are tracking as expected showing a slight variance of $20 thousand or 1% over the pro-rated budget.

Expenses of $2.6 million for the period are lower than the pro-rated budget of $2.8 million resulting in a favourable variance of $0.2 million or 8%. The main contributor to this variance is termination payments which are lower than the pro-rated budget estimate.

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 for the 2nd Quarter (April 1st to June 30, 2020) 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 service provider, Eckler Partners Ltd., and estimated Halifax Water staff time.

The overall results outlined for the 2nd Quarter as reported in Appendix D show, out of 9 requests, six were delivered within the standard days proposed under the threshold limits. Response time of the actuary remains consistent with the 1st Quarter report showing 6 of the 9 requests coming in within the service standard. For the actuary, average service days for Retirement Estimates and Termination Estimates were 21 and 10 days respectively compared to a standard of 11. The 21-day average for the retirement estimates by the

actuary was caused by one retirement estimate request that took 36 days. This was an anomaly and one addressed at the time with the actuary.

For the administrative staff, average service days for Retirement Estimates and Termination Estimates were 5 and 10 days respectively compared to the standard of 12 days. Of the 9 requests, 7 came in within the standard. It is noted the urgency of requests is considered by administrative staff resulting in some requests being deferred while other tasks take priority.

After reviewing results over the past 2 years, with regards to standards and administrative processes, changes have been implemented for 2020 in an effort to enhance service standard reporting taking into account types of requests and circumstances that may affect timing of responses. Discussions have taken place with internal staff, focusing on efficiency and process improvement. The response time from Eckler has shown improvement, exhibiting their commitment to respond within the prescribed service standards set.

ATTACHMENTS

APPENDIX A – Financial Report:
Statement of changes in net assets available for benefits, for the six (6) month period ended June 30, 2020

APPENDIX B – Regulatory Filing Requirements – 2020

APPENDIX C – Administrative Reporting Requirements – 2020

APPENDIX D – Service Standards Report - 2020

Report Prepared by: Heather Britten Digitally signed by Heather Britten Date: 2020.09.17 13:39:51 -03'00'

Heather S. 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 six (6) month period ended June 30, 2020

	June 30, 2020						
				Variance		Actual	Actual
			Prorated	Actual versus Pro-rated Budget		(Audited)	(Audited)
	2020		Budget	Favourable (Unfavourable)		2019	2018
	Budget	**Actual**	*50%*	*$*	*%*		
Revenue							
Net investment income:							
Total investment income	**$3,240,000**	$1,893,545	*$1,620,000*	*$273,545*	*17%*	$3,644,079	$2,939,026
Investment manager fees	**($230,000)**	($103,538)	*($115,000)*	*$11,462*	*(10%)*	($202,574)	($165,670)
Increase (decrease) in the fair value of investment assets	**$3,000,000**	($2,295,949)	*$1,500,000*	*($3,795,949)*	*(253%)*	$10,642,209	$1,763,098
	$6,010,000	**($505,942)**	*$3,005,000*	*($3,510,942)*	***(117%)***	$14,083,715	$4,536,454
Contributions							
Participants:							
Current service (including additional voluntary contributions)	$3,236,000	$1,626,943	*$1,618,000*	*$8,943*	*1%*	$3,463,328	$2,845,791
Sponsors:							
Current service	$3,155,000	$1,587,989	*$1,577,500*	*$10,489*	*1%*	$2,972,138	$2,578,842
Unfunded liability	$0	$0	*$0*	*$0*	*#DIV/0!*	$0	$825,200
	$6,391,000	**$3,214,932**	*$3,195,500*	*$19,432*	***1%***	$6,435,466	$6,249,833
Expenses[3]							
Benefit payments:							
Benefit payments	$4,642,000	$2,264,462	*$2,321,000*	*$56,538*	*2%*	$4,226,855	$3,848,218
Termination payments	$800,000	$250,010	*$400,000*	*$149,990*	*37%*	$960,187	$79,849
Death benefit payments	$0		*$0*	*$0*	*n/a*	$0	$0
Administrative:							
Actuarial & consulting fees	$75,000	$11,598	*$37,500*	*$25,902*	*69%*	$118,659	$50,409
Audit & accounting fees	$9,000	$0	*$4,500*	*$4,500*	*100%*	$8,530	$8,441
Bank custodian fees	$25,000	$14,444	*$12,500*	*($1,944)*	*(16%)*	$28,636	$32,303
Insurance	$9,000	$8,760	*$4,500*	*($4,260)*	*(95%)*	$8,760	$8,347
Miscellaneous	$15,000	$10,885	*$7,500*	*($3,385)*	*(45%)*	$20,610	$16,195
Professional fees	$15,000	$8,509	*$7,500*	*($1,009)*	*(13%)*	$23,261	$13,440
Registration fees	$3,000	$0	*$1,500*	*$1,500*	*100%*	$2,500	$2,337
Training (Trustees/ Administration/ Pension Committee)	$2,000	$0	*$1,000*	*$1,000*	*100%*	$0	$0
	$5,595,000	**$2,568,668**	*$2,797,500*	*$228,832*	***8%***	*$5,397,997*	*$4,059,539*
Increase (decrease) in net assets available for benefits	**$6,806,000**	**$140,322**	*$3,403,000*	*($3,262,678)*	***(96%)***	*$15,121,184*	*$6,726,748*
Net assets available for benefits, beginning of period	**$141,579,813**	**$141,579,813**				**$126,458,630**	**$119,731,882**
Increase (decrease) in net assets available for benefits	**$6,806,000**	**$140,322**				**$15,121,184**	**$6,726,748**
Net assets available for benefits, end of period	**$148,385,813**	**$141,720,136**				**$141,579,813**	**$126,458,630**

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 - 2020
as at June 30, 2020

	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 19, 2020	DB Plan	Filed directly with the Trustee, Northern Trust, for the DB Plan.
				February 18, 2020	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	March 13, 2020	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 16, 2020	DB Plan	Audited financial statements were completed and approved by the HW Board on June 25th, 2020. (Extension granted in 2020)
				July 16, 2020	DC Plan	Audited financial statements are not prepared for this pension plan. However, Industrial Alliance provides a Financial Report detailing all pertinant details of the plan. This report is submitted to the regulatory body prior to June 30th each year. (Extension granted in 2020)
4	Annual Information Returns (AIR)	Superintendent of Pensions	June 30th	July 16, 2020	DB Plan	Extension granted in 2020
				July 16, 2020	DC Plan	Extension granted in 2020
5	Actuarial Valuation*	Superintendent of Pensions Canada Revenue Agency	September 30th	September 27, 2019 September 27, 2019		Actuarial Valutaion was conducted as of January 1, 2019.
6	Plan Amendments	Superintendent of Pensions	60 days after the amendment approved by the Board	September 27, 2019	DB Plan	Amendment #12 approved by the Board June 20, 2019; Submitted to the Superintendent September 27, 2019. The amendment was persuant to the contribution rate change as dictated by the Actuarial Valuation of January 1, 2019.
		Canada Revenue Agency		September 27, 2019		
		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.

* 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 - 2020
as at June 30, 2020

	Report	Filing Deadline/ Recurrance	Date last filed/ Performed		Comments
1	Pensioners' Payroll	Monthly	September 1, 2020		Pensioners are paid the 1st of each month; no exceptions to report for the Second Quarter 2020.
2	Contributions to the Trustee	Monthly	August 18, 2020	DB Plan	Remittances due to Northern Trust within 30 days of monthend; no exceptions to report for Second Quarter 2020.
			January 15, 2020	DC Plan	Remittances due to Industrial Alliance within 30 days of monthend; no exceptions to report for 2020.
			n/a	Notional Agreement*	
3	Pension Plan Financial Statements	Quarterly	September 24, 2020	DB Plan	Second Quarter (January - June 2020)
			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 annually.
			n/a	Notional Agreement*	Financial statements not required.
4	Investment Performance Review & Compliance with SIP&P	Quarterly	September 24, 2020	DB Plan	1st Quarter (January - March 2020) Report prepared quarterly by administration staff for the HW Board of Directors, in conjunction with the quarterly HRM Pension Plan Committee meeting documentation. SIP&P is reviewed annualy and was last reviewed and approved on December 5, 2019.
5	Annual Pension Statements to Members	June 30th	June 18, 2020	DB Plan	Statements issued annually by June 30th.
			June 18, 2020	DC Plan	Statements issued annually in conjuction with the DB Plan statements. Members also have access to online, real-time reporting.
			June 18, 2020	Notional Agreement*	Statements issued annually in conjuction with the DB Plan statements.
6	Fiduciary Liability Insurance	Annually	November 13, 2019	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 - 2020

Quarter 2 (as at September 4, 2020)			Eckler				HW Staff				
Transaction	**Standard**		**Total # Completed**	**# Past Standard**	**% within Standard**	**Average Service Days**	**Total # Completed**	**# Past Standard**	**% within Standard**	**Average Service Days**	**Total Average Service Days**
Retirement Estimates	23	Business Days	2	1	50%	21	2	0	100%	5	26
Marriage Breakdown Calculations	33	Business Days	0	0			0	0			0
Post-Retirement Death Letter	15	Business Days	0	0			0	0			0
Pre-Retirement Death Benefit	33	Business Days	0	0			0	0			0
Termination Estimates/ Calculations											
- Standard	23	Business Days	7	2	71%	10	7	2	71%	10	20
- Non Standard (incl RTAs)	33	Business Days	0	0			0	0			0
Total			**9**	**3**	**67%**	**15**	**9**	**2**	**78%**	**7**	

	Total # Completed	**# Past Standard**	**% within Standard**
Combined Total (Eckler & Halifax Water)	**9**	**3**	**67%**

Halifax Water
Halifax Regional Water Commission

ITEM # 7-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Louis de Montbrun — Digitally signed by Louis de Montbrun Date: 2020.09.18 10:43:32 -03'00'
Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO

APPROVED: Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.18 11:38:39 -03'00'
Cathie O'Toole, MBA, CPA, CGA, ICD.D
General Manager

DATE: September 17, 2020

SUBJECT: **2020/21 Cost Containment Initiatives**

INFORMATION REPORT

ORIGIN

- The Cost Containment Process as approved by the Halifax Regional Water Commission (HRWC) Board, October 3, 2013.
- April 14, 2015, Nova Scotia Utility and Review Board (NSUARB) Decision - HRWC General Rate Application (M06540).

BACKGROUND

The process for cost containment as approved by the HRWC Board on October 3, 2013, called for the implementation of a number of recommended actions that would assist HRWC in addressing the Nova Scotia Utility and Review Board's (NSUARB) request for a more rigorous approach to cost containment. One key recommendation was the establishment of a reporting structure whereby, "*on a quarterly basis, the monthly financial report of the HRWC Board will also include an update on Cost Containment Initiatives*".

In the Decision on the 2015 Rate Hearing, the NSUARB directed HRWC to file annual reports on its efforts to contain operating costs of the utility, with this report to be filed no later than June 30 of each year.

DISCUSSION

A Summary Report - Cost Containment Initiatives for 2020/21 is attached, with updated information as at September 11, 2020. This report shows the cost containment initiatives effecting operations for 2020/21 as a result of new initiatives implemented during the year and ongoing initiatives from fiscal years 2013/14 to 2019/20 inclusive. The inclusion of initiatives and amounts from prior years reflects an intentional focus on sustainable results over the long term. Estimated cost savings for 2020/21 are $6.7 million as outlined by category in Figure #1 below:

Figure #1

Procurement Strategies	**$1,016,153**	**15.3%**
Human Resource Strategies	**$3,475,530**	**52.2%**
Information Technology Strategies	**$108,700**	**1.6%**
Facilities/Process Strategies	**$1,902,130**	**28.6%**
Reduce Paper and Printing Costs	**$38,415**	**0.6%**
Technology and Business Process Chang	**$112,138**	**1.7%**
	$6,653,066	**100.0%**

As shown above, cost containment initiatives are impacted most in the areas of Human Resource, and Facilities/Process and Procurement Strategies. Under Human Resource Strategies, the effects of pension plan re-design initiated in 2015/16 is one of the main contributors to cost containment savings in the current year. Annual savings related to pension plan re-design approximates $1.7 million, which represents 49% of the savings within Human Resource Strategies and 26% of the total projected cost savings for 2020/21. In addition, effective January 1, 2019, special payments made by the HRWC to fund the unfunded liability of the pension plan were eliminated resulting in cost savings of $0.8 million annually. Prior to January 1, 2016, special payments to fund the unfunded liability of the pension plan were approximately $3.0 million. The next actuarial valuation is required on or before January 1, 2022.

Facilities/Process Strategies contain initiatives of varying nature, however one of the main contributors in this category is Halifax Water's Energy Efficiency Program. Projects under this Program account for approximately $1.0 million of projected savings for the current year, representing 54% of savings within the category and 16% of the total projected savings for 2020/21. Some of the prominent initiatives under the program related to energy savings include the annual shutdown of the ultraviolet disinfection systems ($0.2 million), heat recovery processes ($0.1 million) and lighting upgrades at various facilities.

Through Procurement Strategies, staff continue to negotiate the best pricing for products and services enabling the utility to operate in an efficient manner.

New cost containment initiatives implemented thus far during the 2020/21 fiscal year result in projected cost savings of approximating $0.1 million and are highlighted for ease of reference on the Summary Report - Cost Containment Initiatives attached.

As part of the recent 2020 Rate Application to the NSUARB, Halifax Water committed to generating savings of approximately $1.7 million associated with operating expenses during 2020/21. Details respecting these savings, as well as other initiatives, will be documented in future cost containment reports to the Halifax Water Board.

BUDGET IMPLICATIONS

Available information on cost containment initiatives were taken into consideration in developing the 2020/21. Initiatives that impact future fiscal periods will be incorporated into budget cycles and processes of these future periods.

ATTACHMENTS

Summary Report – Cost Containment Initiatives

Report Prepared by: Louis de Montbrun Digitally signed by Louis de Montbrun Date: 2020.09.18 10:45:21 -03'00'

Allan Campbell, B. Comm, CPA, CMA
Manager, Finance, (902) 490-4288

#	Initiative	Comments	Year Initiated	2020/21 Cost Savings
1	**General Budget Strategies**			
	Sub-total			$0
2	**Procurement Strategies**			
	Insurance adjustment services - sole source relationship over a 10 year period	Halifax Water (HW) participated in a joint tender with Halifax Regional Municipality(HRM). Costs will be approximately 20% lower.	2013/14	$5,460
	Standardized uniforms and clothing	Issuance of a bulk tender; centralization of purchasing and distribution function; possible policy change to "as required" rather than a quota system	2013/14	$20,000
	Standardized boots	Issuance of a bulk tender; centralization of purchasing and distribution function; possible policy change to "as required" rather than a quota system	2013/14	$5,000
	Mobile devices - switched supplier and carrier	HW participated in a joint tender with HRM	2013/14	$51,624
	Customer account collections	Coordination of collection services related to closed customer accounts in conjunction with the Provincial Public Procurement Act, rather than outsourcing to private organizations	2014/15	$10,000
	Lab Testing	Savings as a result of contract tendering	2013/14	$60,000
	NSPI rate reclassification	Eastern Passage Wastewater Treatment Facility (WWTF)	2014/15	$16,000
	NSPI rate reclassification	Duffus Street Pumping Station	2015/16	$15,000
	Chemical purchasing	Able to purchase a corrosion inhibitor with a higher concentration of active ingredient, thus foregoing additional costs that would have resulted under current dosage requirements	2015/16	$400,000
	Replacement of wireless headsets for Customer Care staff	Wireless headsets were not performing as expected, therefore a switch was made to wired headsets which resulted in savings on a per unit cost basis, and also savings regarding the frequency and cost of replacement associated with the wired headsets.	2015/16	$1,500
	Mobile devices - switched supplier and carrier	HW leveraged the mobility contract of the Province of Nova Scotia	2016/17	$48,000
	Garbage collection - JD Kline Plant	A request for proposal (RFP) was put out to consolidate the garbage collection, which resulted in a cost savings with respect to internal man-hours and use of HW	2016/17	$1,370
	Utilizing HW staff to setup excavations sites	Using trained HW staff as TWS for job sites, unless outside traffic control personal are required	2016/17	$50,000
	RFP for biosolids transport	As a result of a recent RFP, the is expected to be an approximate 33% cost reduction related to transporting biosolids from the Halifax, Dartmouth, Herring Cove and Eastern Passage WWTF	2017/18	$220,000
	Traffic control	Using trained HW staff for the purposes of traffic control while working on HW excavations sites will result in cost savings of $750/day. This is based on an 8 hour day, including setup costs typically paid to the contractor.	2017/18	$50,000
	Insourcing (Halifax Water's Annual Report)	The ability to perform in-house graphic design work versus contracting this work outside created savings with respect to the 2018 report of approximately $100/page. Recurring annual savings will fluxuate depending on the size of the report in subsequent years.	2018/19	$9,200
	Equipment calibration	Internal staff are now able to calibrate fixed gas detectors instead of outsourcing this to a MSA technician service provider.	2019/20	$3,000
	Reduction in sampling	Reduced the amount of lab testing over the year as greater reliance and confidence was placed on the new, in-line analyzers.	2019/20	$5,000
	Implementation of the new telephony platform	With the implementation of the new telephony platform, Customer Care was able to transition from the use of landlines.	2020/21	$45,000
	Sub-total			$1,016,154
3	**Human Resource Strategies**			
	Heavy Truck and Equipment Service	the addition of a new Heavy Equipment Technician provides in-house maintenance service capabilities for the HW fleet.	2013/14	$100,000
	Beeper Pay	Elimination of an inconsistency between Water and Wastewater Services, as Water Services staff do not receive beeper pay. This involves 10 non-union staff in total.	2013/14	$75,000
	Accessing on-line training opportunities	More use of on-line training versus the traditional methods, including WHMIS and TDG renewals	2014/15	$2,241
	Background Checks	Out-sourced background checks to a new contractor.	2015/16	$654
	Workload, labour force assessment	A reduction in number of staff in Development Approvals. The volume of work did not warrant 6 planning technologists, and as a result this number has been reduced to 4.	2015/16	$140,000

Halifax Water
Summary Report - Cost Containment Initiatives
2020/2021 Fiscal Year

	Pension plan re-design	Through the collective bargaining process, HW was able to negotiate pension plan re-design to make the plan more sustainable. It is estimated the employer's share contributions will decrease from the current 12.95% to 9.85% effective January 1, 2015.	2015/16	$1,700,000
	Re-structuring within the organization to create a new "Corporate Services" sector	January 1, 2016 saw the elimination of two (2) full time positions and a re-design of several other jobs.	2015/16	$35,000
	Workload, labour force assessment	January 1, 2016 saw the elimination the administrative assistant within Regulatory Services.	2015/16	$57,000
	Workload, labour force assessment	November, 2016 saw the elimination of a Compliance Sampling position as a result of a reduction in sampling requirements.	2016/17	$81,966
	Overtime reductions	Overtime has been reduced at the Harbour Solutions Plants with respect to sick leaves, vacation, etc. when weather conditions allow and operational needs are met. Also, Halifax WWTF staff are responding to after hours calls at the Dartmouth and Herring Cove facilities in an effort to minimize the need for overtime call-outs.	2016/17	$40,000
	Change in benefit provider	The selection of a new benefit provider for life and long term disability (LTD) resulted in significant cost savings over the next three (3) years…2018-2021	2017/18	$125,000
	Actuarial Valuation - January 1, 2019	The actuarial valuation performed January 1, 2019 reported a surplus for the pension plan. As a result, special payments by Halifax Water to fund the unfunded liability are no longer required for at least 3 years when the next valuation is to be performed..	2018/19	$825,200
	Modifications to the Pre-Retirement Leave Program	In June 2019, employees were given the opportunity to withdraw their accrued benefit under the Pre-Retirement Leave Program in the form of a lump-sum payment, rather than continuing to accrue a benefit under a modified program. The Pre-Retirement Leave Program had been closed to new, non-union employees hired after March 31, 2018, and is now effectively closed for all other employees hired after June 7, 2018.	2019/20	$260,000
	Elimination of "Option 1" mileage reimbursement	Halifax Water previously offered two options to employees for the reimbursement mileage travelled while conducting business on behalf of the utility. Upon manager approval, "Option 1" reimbursed employees traveling in excess of 1,200 kilometers per year at a rate of $0.24/kilometer, plus a monthly allowance of $215, "Option 2" reimbursed employees at a rate of $0.52/kilometer up to 5,000 kilometers, and at $0.46/kilometer thereafter. Option 1 was eliminated May 15, 2020.	2020/21	$33,469
		Sub-total		$3,475,530
4	**Information Technology Strategies**			
	Xerox managed print solutions	Rationalization and replacement of photocopiers and printers	2013/14	$20,000
	Network	Change in cost model by Eastlink, giving HW the new pricing	2013/14	$80,000
	Telephone land lines	Rationalization of services and eliminate duplication of resources as required	2013/14	$8,700
		Sub-total		$108,700
5	**Facilities/Process Strategies**			
	Chlorine Utilization - Pockwock	Discontinuation of the pre-chlorination process	2013/14	$40,000
	Lab Testing	Price benefits from purchasing product from a different source mainly affecting the Harbour Solution Plants	2013/14	$105,000
	Pumper Truck Utilization	pilot project to be scheduled initially for stormwater customers only as a test	2013/14	$130,000
	Waste oil boiler system - Herring Cove WWTF	new system to allow the use of waste oil from Metro Transit as an alternative heating source	2014/15	$13,250
	System sampling for HPC's	sampling was reduced from weekly to monthly	2014/15	$8,025
	NSE system assessments	Assessment reports are being completed in-house rather that being outsourced	2014/15	$25,000
	Decommissioning of the Bedford South pumping station	The developer driven system expansion will permit the use of gravity and pressure reduction rather than the pumping station	2014/15	$15,000
	Lighting upgrades - Bennery Lake WSP		2014/15	$4,793
	Insulation upgrades - Bennery Lake WSP		2014/15	$36,000
	Lighting upgrades - Eastern Passage WWTF		2014/15	$7,880
	Lighting upgrades - Dartmouth WWTF		2014/15	$22,542
	Lighting upgrades - Herring Cove WWTF		2014/15	$13,744
	Lighting upgrades - Halifax WWTF		2014/15	$29,845
	Lighting upgrades - Aerotech BPF		2014/15	$19,109
	HVAC upgrades - Eastern Passage WWTF		2014/15	$20,711
	HVAC upgrades - Roach's Pond pumping station		2014/15	$13,500
	MCC 190 cooling and heat recovery - Halifax WWTF		2014/15	$13,164
	Aeration system upgrades - Eastern Passage WWTF		2014/15	$76,382
	Orchard Park in-line turbine project		2014/15	$31,494

Wind farm - Pockwock WSP		2014/15	$130,399
Biogas CHP system - Mill Cove		2014/15	$86,000
Disposal of water treatment plant solid residual material	A new location for the disposal of the residual material was found	2014/15	$36,000
Advanced investigative tool for leaks and structural condition of pipes	The current program has been halted as a cost containment initiative and as a result of the information received.	2014/15	$150,000
E-delivery	Transitioning from traditional billing methods to e-delivery	2014/15	$20,000
Change in Recycling Pickups	By changing the schedule for recycling pickups from bi-weekly to every three (3) weeks, the anticipated annual savings will range from $2,500 to $2,700.	2015/16	$2,700
Highway #7 Booster Station Upgrade	Expected energy savings	2015/16	$14,300
Dartmouth WWTF - UV Channel Isolation	Expected energy savings	2015/16	$59,460
Halifax WWTF - Fixed Compressed Air Leaks	Expected energy savings	2015/16	$2,293
Halifax WWTF - UV Channel Isolation	Expected energy savings	2015/16	$62,115
Herring Cove WWTF - MCC 190 Cooling/Heat Recovery	Expected energy savings	2015/16	$8,496
Herring Cove WWTF - Ventilation Air Heat Recovery	Expected energy savings	2015/16	$18,755
Sampling	Using internal staff at the Mill Cove facility to perform the required daily sampling at the facility, rather than the compliance staff, limiting their site visits to once a week.	2015/16	$4,160
Staff utilization	Using trained HW staff for traffic control on HW job sites unless contractors are required.	2015/16	$50,000
Process alternative	A centrifuge was rented for the Mill Cove WWTF (with the option to purchase) on a trial basis to dewater liquid sludge that typically would be transported to the Aerotech WWTF. The transport of the liquid sludge resulted overtime costs, as well as reducing the time available for HW truck to service other facilities. This process assisted the Aerotech in reaching its compliance goals and reduced overtime costs by an estimated 50%. This equipment will enable HW proceed with a digester clean out project, which would otherwise be sub-contracted at a cost of $200,000.	2015/16	$40,000
Process change	It was decided that flanges for meter sizes greater than 2" would be the responsibility of the customer, since when meters are replaced, the flanges are not replaced.	2015/16	$4,854
UV disinfection shutdown - HHSP and Eastern Passage WWTFs	Annual shutdown of UV disinfection system resulted in cost savings associated with electrical energy savings, peak demand reduction,	2016/17	$193,540
Halifax WWTF - Ventilation Air Heat Recovery System	Implemented October, 2016	2016/17	$42,069
Halifax WWTF - Carbon Scrubber By-Pass	Implemented April, 2016	2016/17	$38,405
Tools developed internally	Tools developed internally to install new operating nuts on buried valves. Previously nuts were lost on buried valves resulting in a need to excavate the valve and install new nuts. Cost savings are achieved regarding excavation and reinstatement.	2016/17	$20,000
Spruce Hill transmission main	Two long term leaks were discovered in the transmission main resulting in cost savings from the perspective of water loss control.	2016/17	$3,000
Utilization of industrial water	A new filter system was installed at the Eastern Passage WWTF that provides the capability to use the current industrial water system rather than potable water to deliver water to the polymer feed systems.	2016/17	$26,000
Cost reductions (material transport)	Modifications to the screening/grit skip eliminated the need to purchase 2 new screening compactors, which also resulted in the amount of material transported of approximately 28 metric tonnes.	2017/18	$2,000
Herring Cove WWTF - Carbon Scrubber By-Pass	Implemented April, 2017	2017/18	$9,378
Dartmouth WWTF - Ventilation Air Heat recovery	Expected energy savings - Implemented March, 2018	2017/18	$56,092
Servicing oxygen monitors in-house	Technical Service staff have been trained by the manufacturer to service the fleet of personal gas monitors in-house, specifically the replacement of the oxygen sensor. These monitors, 165 in total, are used by all operation and treatment departments throughout the organization.	2018/19	$30,000
Pumping Station Starters (4160V)	The pumping station starters were upgraded to vacuum starters, thus eliminating the need for annual servicing of the starters to be outsourced. Any maintenance can now be handled by in-house industrial electricians.	2018/19	$1,500
Automated Flushing Stations	Automated flushing stations are now used to ensure the proper chorine residuals are achieved in all areas of the transmission and distribution system. Previously this operation was performed manually on a daily basis from approximately June to September. As a result labour and vehicle costs have been reduced accordingly.	2018/19	$8,000
Corrosion Sampling	Corrosion sampling in the distribution system was reduced from bi-weekly to monthly in June, 2018, since enough baseline data has been collected and there are no immediate plans to change corrosion control in the near future.	2018/19	$12,600

Alternative product	An alternative timing belt was introduced to replace the normal v-belt/sheave configuration, which reduced slippage between the v-belts and sheaves resulting in a reduction in power demand. The product has been installed at both the Halifax and Herring Cove WWTF, with the expectation of implementation at other wastewater and water facilities.	2018/19	$40,000
Dosage Optimization	Desiccant filters were fitted to the polymer totes to prevent warm, moist air from contaminating the polymer dosed to thicken centrifuge and drum thickener solids. The polymer no longer reacts early with water before being dosed, thus allowing the optimization of the dose and preventing polymer waste, leading to reduced consumption.	2019/20	$20,000
Alternative product	The HP biofilter exhaust fan motor belts will be replaced with syncrodrive timing belts, saving energy (electricity) through the prevention of slippage. Belts and sheaves have been purchased and will be installed in October, 2019.	2019/20	$4,500
Building maintenance	Installed new weather stripping in the overhead door in the truck bay at the AeroTech plant to reduce heating costs	2019/20	$1,500
Polymer optimization	Began polymer optimization in an effort to ensure good quality biosolids as well as a good quality centrate without having excess amounts of polymer. Were able to reduce the feed rate from 60% to 21%.	2019/20	$15,000
Improvements to aeration train	Installed a curtain in the aeration train to enable better mixing of the microorganisms with the chemical, thereby reducing chemical costs and providing better quality treatment.	2019/20	$15,000
Optimization of polymer dosing (Mill Cove)	By implementing daily jar testing to determine the startup dose setpoint, polymer dosing was optimized.	2019/20	$14,000
Belt drive change-out (Mill Cove)	Replacing the belt drive with a synchronous chain drive on a 30 horsepower blower resulted in a cost savings associated with energy consumption.	2019/20	$1,275
Upgrading equipment (Mill Cove)	Upgrading the water flow meter used in the dilution of polymer resulted in lowering water usage in the process by approximately 20,000 litres per day.	2019/20	$12,000
Fan belt/ pulley replacements - Mill Cove WWTF	Expected energy savings - based on 12,750 kWh	2019/20	$1,300
Fan belt/ pulley replacements - Dartmouth WWTF	Expected energy savings - based on 177,980 kWh	2019/20	$20,000
Sub-total			$1,902,130
6 Reduce Paper and Printing Costs			
Electronic HRWC Board Packages	Send Board packages out electronically rather than issuing hard copies	2013/14	$7,500
Paperless Office within the HR Department	Creating electronic workflow	2013/14	$4,804
Stewardship Report	The Stewardship Report will be published electronically only, with no hard copies	2013/14	$3,000
Changes to document archiving	Transitioning file storage from outside contractor to public resources	2013/14	$3,175
Changes to document archiving	Transitioning file storage from outside contractor to public resources	2016/17	$9,000
Cost reduction associated with off-site storage	There has been an effort to reduce the number of boxes (documents) stored in facilities such as Iron Mountain, by sorting and purging documents in accordance with the document retention policy of the Commission.	2018/19	$10,000
Cost reduction associated with the 23rd Annual Report (General Manager's office)	The annual report for the year ended March 31, 2019 saw the number of copies produced drop from 275 copies in the previous year to 150 copies. This represents not only a cost savings but also an environmental benefit associated with paper reduction.	2019/20	$936
Sub-total			$38,415
7 Technology and Business Process Changes			
Workload, labour force assessment	Through the utilization of technology, such as a Customer Relationship Management (CRM) system, a budgeted addition (customer service representative) has been removed.	2015/16	$47,605
Workload, labour force assessment	Re-structuring by management within the advanced metering infrastructure (AMI) project as a result of technological efficiencies anticipated.	2015/16	$64,533
Sub-total			$112,138
			$6,653,066

Halifax Water
Halifax Regional Water Commission

ITEM # 8-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and
Members of the Halifax Water Board of Commissioners

SUBMITTED BY: Kenda MacKenzie
Digitally signed by Kenda MacKenzie
Date: 2020.09.18 09:33:30 -03'00'
Kenda MacKenzie, P.Eng.,
Director, Regulatory Services

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.18 10:22:06 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D,
General Manager

DATE: September 2, 2020

SUBJECT: **Capital Cost Contribution Charge Areas - Financial Status Report for the Fiscal Year ended March 31, 2020**

INFORMATION REPORT

ORIGIN

Capital cost contributions approved by Halifax Water and the Nova Scotia Utility and Review Board (NSUARB) and NSUARB reporting requirements

BACKGROUND/DISCUSSION

Halifax Water oversees twelve (12) capital cost contribution (CCC) charge areas for oversized water, wastewater and stormwater infrastructure. The Halifax Water Board and subsequently the NSUARB directly approved eleven (11) area specific CCC charges consistent with our CCC policy, with one being inherited and endorsed at the time of the wastewater/stormwater merger in 2007. The overall CCC policy and the specific charge rates were developed for the equitable facilitation of master water,wastewater and stormwater infrastructure within new development areas or new service extension areas.

In accordance with the approved policy, Halifax Water is obligated to provide an accounting of all funds received and all costs incurred with respect to the infrastructure improvement. Attached is an annual report showing the cumulative accounting of all CCC funds received and disbursed as of the end of the fiscal year at March 31, 2020. The format

provides a detailed entry of each individual debit and credit transaction with a cumulative total to date for each individual charge area from inception to the applicable year-end.

As of March 31, 2020, the results show that six (6) charge areas are in a negative cash position and six (6) are in a positive cash position. Combined, the net current deficit is $2.3 million with the implementation of $34.1 million in infrastructure projects. The current net deficit is a $0.3 million improvement over the net deficit of $2.6 million reported last year. The CCC program is anticipated to be cost neutral within each charge area and fulfilling the desired facilitation role within these development areas.

This report will be forwarded to the NSUARB for information in accordance with the policy requirements.

ATTACHMENT

1. Halifax Water Capital Cost Contribution Report – Summary to March 31, 2020

Report Prepared by:

Heather Britten
Digitally signed by Heather Britten
Date: 2020.09.18 10:04:31 -03'00'

Heather Britten, BComm.
Quality Assurance Officer
(902) 490-1895

Report Reviewed by:

Original Signed by:

Kevin Gray, MURP, P.Eng.,
Manager, Engineering Approvals
(902) 490-5939

HALIFAX WATER

Capital Cost Contribution Report

Summary to March 31, 2020

Capital Cost Contribution Area		Receipts	Disbursements	Cumulative
Beaverbank		$1,336,109	($1,762,046)	($425,936)
Bedford South - Water		$3,090,708	($2,074,291)	$1,016,417
Bedford South - Wastewater		$2,300,357	($1,022,796)	$1,277,561
Bedford West - Water		$5,237,781	($5,019,667)	$218,115
Bedford West - Wastewater		$12,202,023	($16,717,442)	($4,515,420)
Birch Cove North - Water		$2,240,790	($2,200,334)	$40,455
Herring Cove		$1,453,418	($698,579)	$754,839
Lakeside Timberlea		$805,862	($1,264,666)	($458,803)
Morris Russell Lake		$1,128,095	($363,291)	$764,804
Northgate		$585,772	($788,960)	($203,188)
Sackville Lively		$430,254	($567,455)	($137,201)
Geizer Hill		$967,154	($1,623,241)	($656,087)
Grand Total		**$31,778,323**	**($34,102,768)**	**($2,324,445)**

HALIFAX WATER
BEAVERBANK - WATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$1,336,109.32**	**($1,762,045.74)**	**($425,936.42)**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$1,336,109.32**	**($1,762,045.74)**	**($425,936.42)**

Project Information

Nova Scotia Utility & Review Board Approval Date: September 11, 2018
Total Acreage: 1,302.03
Acreage Developed to Date: 804.81 (61.8%)
Acreage Rate: $850/acre
Total Infrastructure Cost: $3,198,896.00
Benefit to Existing Halifax Water Customer Base - 0%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 34.6%
Infrastructure to be completed: None

HALIFAX WATER
BEDFORD SOUTH - WATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$3,090,707.95**	**($2,074,291.42)**	**$1,016,416.53**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$3,090,707.95**	**($2,074,291.42)**	**$1,016,416.53**

Project Information

Nova Scotia Utility & Review Board Approval Date: June 19, 1998
Total Acreage: 598.0
Acreage Developed to Date: 498.41 (83.35%)
Acreage Rate: $4,621.00
Total Infrastructure Cost: $6,155,269.00
Benefit to Existing Halifax Water Customer Base - 33.4%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 42%
Infrastructure to be completed: Reservoir under construction 2020

HALIFAX WATER
BEDFORD SOUTH - WASTEWATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$2,300,357.05**	**($1,022,795.90)**	**$1,277,561.15**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$2,300,357.05**	**($1,022,795.90)**	**$1,277,561.15**

Project Information

Nova Scotia Utility & Review Board Approval Date: August 1, 2007
Total Acreage: 624
Acreage Developed to Date: 535.97 (85.89%)
Acreage Rate: $3305.29
Total Infrastructure Cost: $2,273,400.00
Benefit to Existing Halifax Water Customer Base - 0%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 100%
Infrastructure to be completed: oversized piping

HALIFAX WATER
BEDFORD WEST - WATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$4,977,673.58**	**($4,898,750.67)**	**$78,922.91**
West Bedford CCC fees Block INT2-1 7.789 acres W	$25,390.99		
West Bedford Ph 7-1A CCC #21853 - 9.301ac	$28,703.84		
West Bedford Ph 7-1B CCC #21854 - 12.205ac	$37,665.88		
Cresco CCC Fees Hogan Crt Block HC04	$31,445.68		
Cresco CCC Fees Hogan Crt Block CR2	$52,961.97		
West Bedford Q-R18 CCC - 1.841 ac	$5,095.86		
Legal Fees - Cox & Palmer		($9,795.65)	
West Bedford Holding Block INT 2-1 7.789 ac	$2,463.53		
Fire Protection - West Bedford Ph 7-1A (3-2844)	$32,925.86		
Halifax Water - benefit to existing customers (3-2844) - West Bedford Ph 7-1A	$3,324.53		
Closeout - West Bedford Ph 7-1A (3-2844)		($52,738.42)	
Fire Protection - West Bedford Ph 7-1B (3-2860)	$13,000.25		
Halifax Water - benefit to existing customers (3-2860) - West Bedford Ph 7-1B	$1,312.64		
Closeout - West Bedford Ph 7-1B (3-2860)		($20,822.92)	
Fire Protection - West Bedford Ph 7-2 (3-3003)	$23,449.04		
Halifax Water - benefit to existing customers (3-3003) - West Bedford Ph 7-2	$2,367.66		
Closeout - West Bedford Ph 7-2 (3-3003)		($37,559.09)	
Fiscal 2020 Yearly Totals	*$260,107.73*	*($120,916.08)*	*$139,191.65*
Balance as of March 31/20	**$5,237,781.31**	**($5,019,666.75)**	**$218,114.56**

Project Information

Nova Scotia Utility & Review Board Approval Date: December 2019
Total Acreage: 1579.82
Acreage Developed to Date: 733.481 (46.43%)
Acreage Rate: $3,629.73 (2008)
Total Escalated Infrastructure Cost: $10,516,523
Benefit to Existing Halifax Water Customer Base - 5.93%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 57.07%
Infrastructure to be completed: Proportionate amount of Bedford South Reservoir, PRV's, and Pipe Oversizing

HALIFAX WATER
BEDFORD WEST - WASTEWATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$11,967,547.49**	**($16,707,646.83)**	**($4,740,099.34)**
West Bedford CCC fees Block INT2-1 7.789 acres WW	$18,891.08		
West Bedford Ph 7-1A CCC #21853 - 9.301ac	$23,038.72		
West Bedford Ph 7-1B CCC #21854 - 12.205ac	$30,231.98		
West Bedford Q-R18 CCC - 1.841 ac	$4,090.12		
Cresco CCC Fees Hogan Crt Block HC04	$43,255.05		
Cresco CCC Fees Hogan Crt Block CR2	$114,968.43		
Legal Fees - Cox & Palmer		($9,795.64)	
Fiscal 2020 Yearly Totals	*$234,475.38*	*($9,795.64)*	*$224,679.74*
Balance as of March 31/20	**$12,202,022.87**	**($16,717,442.47)**	**($4,515,419.60)**

Project Information

Nova Scotia Utility & Review Board Approval Date: December 2019
Total Acreage: 1579.82
Acreage Developed to Date: 733.481 (46.43%)
Acreage Rate: $11,236.72 (2008)
Total Infrastructure Cost: $25,714,518
Benefit to Existing Halifax Water Customer Base - 14.42%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 74.78%
Infrastructure to be completed: Forcemains, Pumping Stations and Pipe Oversizing

HALIFAX WATER
BIRCH COVE NORTH - WATER
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$2,240,789.63**	**($2,200,334.45)**	**$40,455.18**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$2,240,789.63**	**($2,200,334.45)**	**$40,455.18**

Project Information

Nova Scotia Utility & Review Board Approval Date: September 17, 1999
Total Acreage: 494.0
Acreage Developed to Date: 335.36 (67.89%)
Acreage Rate: $5,060.00
Total Infrastructure Cost: $3,717,646.00
Benefit to Existing Halifax Water Customer Base - 0%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 63%
Infrastructure to be completed: Reservoir and Pipe Oversizing

HALIFAX WATER
HERRING COVE
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$1,385,726.23**	**($698,578.68)**	**$687,147.55**
Fisherman's View Estates Ph 1 (Kevin Marriott) 1.726 acres	$6,203.13		
Fisherman's View Estates Ph 2 & 3 (Kevin Marriott) 16.976 acres	$61,488.57		
Fiscal 2020 Yearly Totals	*$67,691.70*	*$0.00*	*$67,691.70*
Balance as of March 31/20	**$1,453,417.93**	**($698,578.68)**	**$754,839.25**

Project Information

Nova Scotia Utility & Review Board Approval Date: April 10, 2002; Revised: October 26, 2005
Total Acreage: 787.7
Acreage Developed to Date: 499.56 (63.42%)
Acreage Rate: $3,622.00
Total Infrastructure Cost: $4,957,204
Benefit to Existing Halifax Water Customer Base - 0%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 63%
Infrastructure to be completed: None

HALIFAX WATER
LAKESIDE TIMBERLEA
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$805,862.37**	**($1,264,665.78)**	**($458,803.41)**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$805,862.37**	**($1,264,665.78)**	**($458,803.41)**

Project Information

Nova Scotia Utility & Review Board Approval Date: December 14, 2012
Overall Acerage 277.79
Acreage Developed to Date: 47.838 (17.22%)
Acreage Rate: $14,926.23
Total Infrastructure Cost: $ 8,062,204.55
Benefit to Existing Halifax Water Customer Base - 2.7%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 60.3%
Infrastructure to be completed: Pipe Oversizing

HALIFAX WATER
MORRIS RUSSELL LAKE
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$1,128,094.67**	**($363,290.75)**	**$764,803.92**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$1,128,094.67**	**($363,290.75)**	**$764,803.92**

Project Information

Nova Scotia Utility & Review Board Approval Date: Interim June 10, 2002

Total Acreage: 1,178.7

Acreage Developed to Date: 574.84 (48.77%)

Acreage Rate: $1,300.00

Total Infrastructure Cost: $2,641,851.00

Benefit to Existing Halifax Water Customer Base - 8.2%

Benefit to HRM Fire Protection - 37%

Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 54.8%

Infrastructure to be completed: Pipe Oversizing

HALIFAX WATER
NORTHGATE
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$585,772.08**	**($788,960.44)**	**($203,188.36)**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$585,772.08**	**($788,960.44)**	**($203,188.36)**

Project Information

Nova Scotia Utility & Review Board Approval Date: September 28, 2008
Total Acreage: 485.4 (plus 16.8 acres of adjacent benefitting lands)
Acreage Developed to Date: 188.9 (38.91%)
Acreage Rate: $1,168.00
Total Infrastructure Cost: $900,041.00
Benefit to Existing Halifax Water Customer Base - 13.4%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 49.6%
Infrastructure to be completed: Pipe Oversizing

HALIFAX WATER
SACKVILLE LIVELY
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/19	**$430,253.71**	**($567,455.00)**	**($137,201.29)**
Fiscal 2020 Yearly Totals	*$0.00*	*$0.00*	*$0.00*
Balance as of March 31/20	**$430,253.71**	**($567,455.00)**	**($137,201.29)**

Project Information

Nova Scotia Utility & Review Board Approval Date: October 29, 2007
Total Acreage: 335.5 acres
Acreage Developed to Date: 216.87 (64.6%)
Acreage Rate: $1,253.00 / acre
Total Infrastructure Cost: $567,455
Benefit to Halifax Water Existing Customer: $26,133 (25 acres)
Benefit to HRM through LIC: $50,746 (40.5 acres)
Benefit to HRM Fire Protection: $205,972.71
Total Infrastructure of the Project, including financing: $667,497
Percentage of Total Infrastructure Cost to be recovered through CCC Charge:50.2%
Infrastructure to be completed: 0%

HALIFAX WATER
GEIZER HILL
Summary to March 31, 2020

Transaction Description	Receipts	Disbursements	Cumulative
Balance as of March 31/18	**$967,153.88**	**($1,504,805.54)**	**($537,651.66)**
Clayton Reimbursement Geizer Hill (re: 2014 CCC Overpayment)		($118,435.00)	
Fiscal 2020 Yearly Totals	*$0.00*	*($118,435.00)*	*($118,435.00)*
Balance as of March 31/19	**$967,153.88**	**($1,623,240.54)**	**($656,086.66)**

Project Information

Nova Scotia Utility & Review Board Approval Date: December 2019
Total Population: 4,218 people
Population Developed to Date: 1,416 people (33.57%)
CCC charge per person: $255.65
Total Infrastructure Cost: $1,548,000
Benefit to Existing Halifax Water Customer Base - 0%
Benefit to HRM Fire Protection - 37%
Percentage of Total Infrastructure Cost to be recovered through CCC Charge - 63%
Infrastructure to be completed: Water Main Extension

Halifax Water
Halifax Regional Water Commission

ITEM # 9-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Louis de Montbrun — Digitally signed by Louis de Montbrun Date: 2020.09.18 10:49:35 -03'00'
Louis de Montbrun, CPA, CA, Director, Corporate Services/CFO

APPROVED: Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.18 11:42:45 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 16, 2020

SUBJECT: **General Rate Hearing Decision and Implementation**

INFORMATION REPORT

ORIGIN

Item# 4.4 January 30, 2020 Water and Wastewater Rate Application

BACKGROUND

On February 10, 2020 Halifax Water submitted a two-year rate application to increase water and wastewater rates effective September 1, 2020, and April 1, 2021, and requested various amendments to the Halifax Water Regulations.

The 2020 application did not include stormwater service and it is anticipated an application may be made in 2021 to adjust rates for stormwater service.

DISCUSSION

Rates for water and wastewater service have not increased since April 1, 2016, but the cost of providing those services has increased. Through a combination of prudent financial management, cost containment, and some good fortune, Halifax Water has been able to maintain the rates for four years, while gradually increasing capital spending and improving long-term capital planning.

Since the last rate increase in April 2016, Halifax Water has invested $225 million in water, wastewater and stormwater infrastructure. Over 30 years (2019-2049), it is estimated the utility will be required to invest approximately $4 billion ($2.7 billion in today's dollars) in its

infrastructure. The services provided by Halifax Water are fundamental to the economic well-being of our municipality, the health of residents, and protection of our environment.

With the advent of COVID-19 Halifax Water took immediate action in response to the pandemic. On April 1, 2020 Halifax Water announced measures to assist customers by suspending collection activities, re-connecting disconnected customers, waiving interest during the state of emergency, and offering flexible payment arrangements. With these measures in place, the utility then focused on determining what else could be done to support customers, and the local economy.

In a letter to the NSUARB dated April 30th, Halifax Water conveyed its intent to reduce and/or defer the rate increases in its application. The utility proposed to maintain current rates for water service for two years, and for wastewater service this fiscal year. A rate increase for wastewater service is required on April 1, 2021 so that Halifax Water can continue to provide its level of service. The strategy contained in the revised proposal to adjust revenue requirements and modify the requested rates means that Halifax Water has significantly less capacity to manage financial risk, particularly with respect to its wastewater service.

Halifax Water does not assume this risk lightly. The pandemic has caused heightened uncertainty. However, two important facts remain consistent:

1. Halifax Water services are essential and will always be required.
2. Many of the costs to provide water and wastewater service are fixed, tied to long term contracts, and based on maintaining and operating assets that are already constructed and in service.

Given the pandemic, maintaining the level of service with the modest rate increase for wastewater in the revised proposal and moving forward with planned capital and strategic initiatives while assuming more risk is prudent and in the best interest of customers.

The rate hearing was held on June 1, 2020 and the Decision was released on August 27, 2020. All materials related to the hearing are available on the Nova Scotia Utility and Review Board (NSUARB) website under matter number M09589. Halifax Water recently completed a compliance filing, and it is anticipated an order will be forthcoming. Certain of the proposed changes to the regulations will become effective at the date of the order, with increased wastewater rates and the balance of the proposed changes to the regulations becoming effective April 1, 2021.

The NSUARB decision approved:

- The strategy to hold the water rates in 2020/21 and 21/22 by utilizing a combination of cost reductions and accumulated operating surplus,
- The strategy to hold wastewater rates in 2020/21 by utilizing a combination of cost reductions, reserve withdrawals and accumulated operating surplus, and to increase the wastewater consumption charge effective April 1, 2021 from $1.753 to $2.073 per 1000 litres,
- An enhanced lead service line replacement program, that will enable us to eliminate public and private lead service lines by 2039,
- The dividend/grant in lieu of taxes to HRM on wastewater and stormwater service,

- Revisions to manual meter read fee, such that it will apply to any customer that opts out of the AMI meter program,
- Various housekeeping changes to the Halifax Water Regulations that will become effective the date of the order,
- Increases in various fees and charges to become effective April 1, 2021.

The Decision also provides guidance that will shape future activities and improvements at the utility. Below is a table summarizing the direction from the NSUARB and its current status.

	Direction	Status
1.	Continue close monitoring of facilities for operational, compliance and capacity issues.	Ongoing
2.	Continue to collaborate with NSUARB consultants on broader planning processes.	Ongoing
3.	Continue to find reasonable ways to contain costs.	Ongoing
4.	Compare projected costs to at least three years of actual costs in future rate applications.	To be implemented into future applications
5.	Initiate a separate cost of service and rate design hearing and propose an appropriate allocation of costs to unregulated activities.	In discussion
6.	Communicate to remaining non-AMI customers the changes to how manual meter read fee will be applied and provide them with an opportunity to have AMI meters installed.	In progress
7.	Ensure appropriate bulk water rate and fire protection rates are added to the Regs, prorated to the date of the Board order once known.	Complete
8.	Finalize enhanced lead service line replacement program details.	In progress
9.	File compliance filing, including all amended rates and Regulations.	Complete

Report Prepared by: Louis de Montbrun Digitally signed by Louis de Montbrun Date: 2020.09.18 10:49:02 -03'00'
Louis de Montbrun, Director of Corporate Services/CFO (902) 490-3685

Halifax Water
Halifax Regional Water Commission

ITEM # 10-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Reid Campbell
Digitally signed by Reid Campbell
Date: 2020.09.17 12:32:41 -03'00'
Reid Campbell, M.Eng., P.Eng., Director, Water Services

APPROVED: Cathie O'Toole
Digitally signed by Cathie O'Toole
Date: 2020.09.17 10:06:32 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 14, 2020

SUBJECT: **Cobequid Road/Glendale Avenue Water Main Break**

INFORMATION REPORT

ORIGIN

On July 3, 2020, staff in the Central Region Water Distribution group received a report at 6:50 am of a watermain break on Cobequid Road, immediately south of the intersection with Glendale Avenue. This is a 600 mm diameter watermain which is the sole feed to approximately 3500 customers east of the intersection, including Stonemount and Lakeview subdivisions, Windsor Junction, Fall River, Miller Lake and Waverley. The repair took a considerable amount of time and resulted in two service interruptions with the second one of a longer duration, and a precautionary boil water advisory (PWBA). The length of the service outage, complexity of the repair, issuance of a boil water advisory, and configuration of the distribution system in that area made this an unusual event for Halifax Water. This report will update the Halifax Water Board on the event and future activities planned to mitigate the impact of similar future events.

BACKGROUND

The pipe in question is a 600 mm diameter (24 inch) transmission main. The pipe is the primary supply to the Samson and Stokil reservoirs in Sackville, by way of Glendale Avenue. The section of pipe on the north side if Glendale is the only supply to approximately 3500 customers along that part of Cobequid Road, and in the communities of Stonemount, Lakeview, Windsor Junction, Fall River, Waverley and Miller Lake.

The pipe is a cement lined CL-52 ductile iron pipe installed in 1976. In addition to being an important part of the Sackville system, the repair also took place adjacent to a busy

intersection. Further complicating the repair, this pipe network intersection was lacking a valve on Cobequid, south of Glendale. As a result, it was necessary to isolate the repair north of Glendale which cut off the areas north of Glendale from Sackville reservoirs, thus interrupting service to 3500 customers.

The pipe at this location is approximately 8 feet below grade, compared to Halifax Water's standard of 4.5 to 6 feet. A deeper pipe results in a deeper and wider excavation lengthening the time spent excavating and backfilling, as well as increasing restoration costs.

This is the second break in this location with the previous one occurring in 2017. The cause of the break appears to be external corrosion.

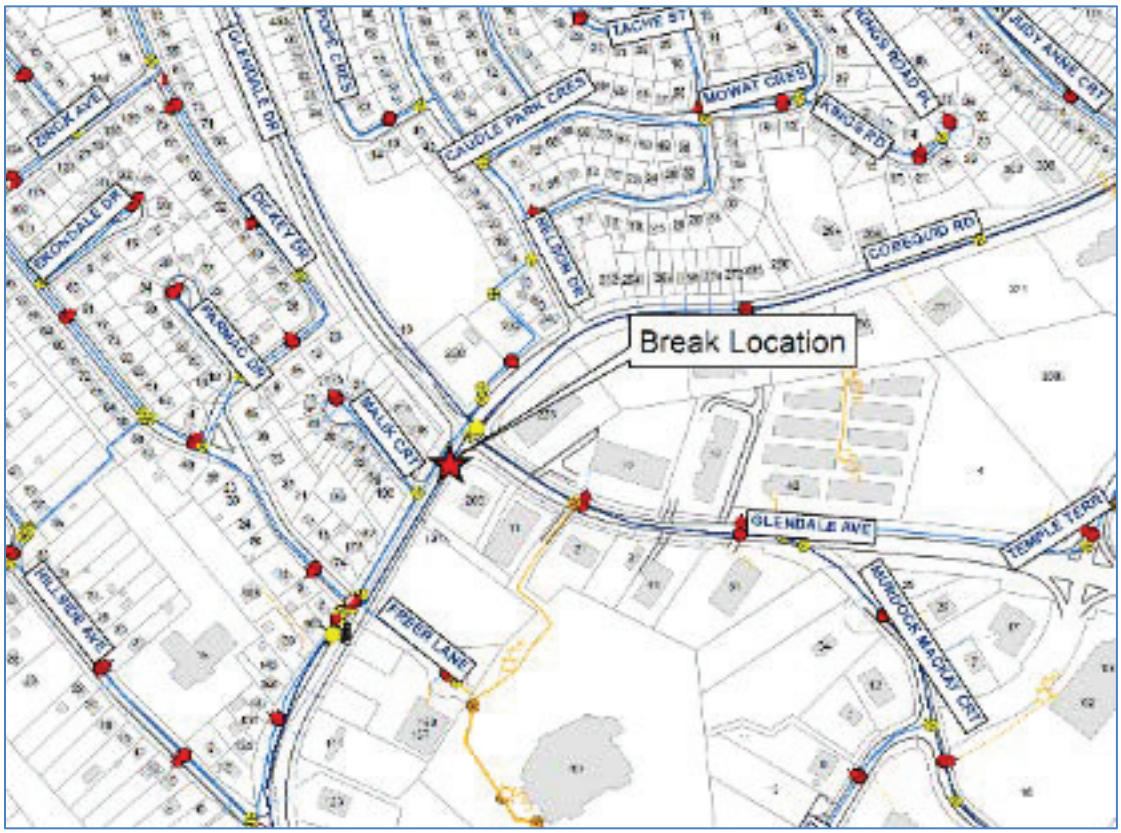


Fig. 1 – Cobequid Location

DISCUSSION

Initial Repair

With this pipe being a transmission main, and due to its location near a busy intersection, preparing for the repair has multiple steps, including requesting locates, arranging traffic control, making public regulatory notifications and configuring the system to send water to customers through alternate routes.

By 9:30 am on Friday July 3, the break was isolated, and the system was reconfigured. Excavation work began by 11:00 am. By 1:00 pm the pipe was uncovered, and three corrosion holes were discovered, all within 300 mm of each other.

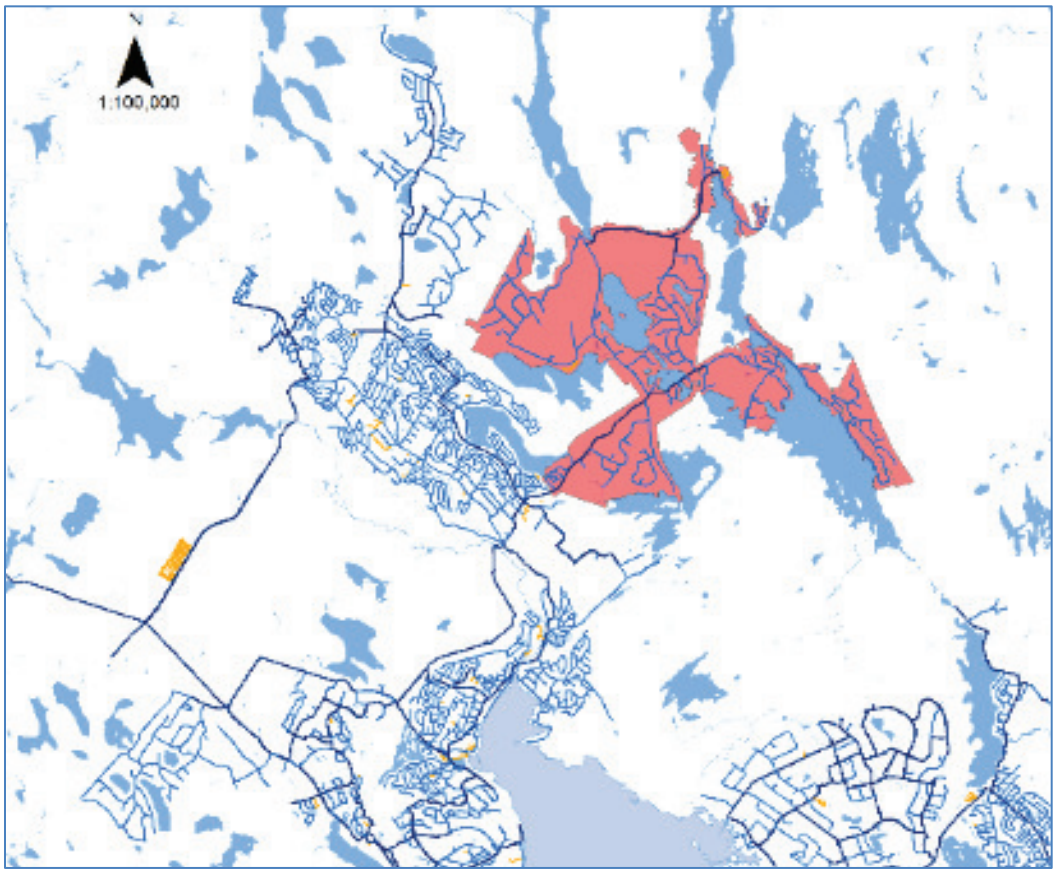


Fig. 2 – Interruption Area

There are two common repair methods for repairing a water main leak: installing a repair clamp or dressing in a new section of pipe.

Repair clamps are stainless steel bands lined with a rubber gasket. They are generally used for small holes or circumferential cracks. The clamp is wrapped around the full circumference of the pipe and tightened down, sealing off the leak. Dressing in a section of pipe is a procedure where a length of pipe is cut out and replaced by a section of new pipe, connected to the old pipe by coupling on each end. Dressing in pipe is typically used when the pipe damage exists in more than a localized area of the pipe, longer than the length of a repair clamp.

Installing a repair clamp is a quicker repair in that the size of the excavation is smaller and it is a relatively quick operation to install and tighten the clamp. Repair clamps are, however, dependent on the integrity of the pipe around the clamp. Dressing in pipe produces a more certain outcome but takes considerably longer. The excavation takes longer, and the time taken to cut out the old pipe and to cut the new pipe to length takes time. On larger pipe sizes, such as in this case, the cutting operation itself can take 6- 8 hours.

In this instance, because the pipe leak appeared localized, and because of the number of customers without service, the decision was made to install a repair clamp. The clamp was installed by 7:00 pm and the trench partially backfilled.

Second Leak

At 10:00 pm, while re-pressurizing the pipe, water was detected emerging from the trench wall indicating another leak. The trench was re-excavated and expanded, revealing a second leak and a second repair clamp was installed by 11:00 pm. A second crew was called in to work the overnight hours. Backfilling and pressure testing began at that time and by 3:00 am the crew began refilling the distribution system.
At about 10:45 pm on Friday, July 3, Water Quality staff monitoring the distribution system, noted very low chlorine residuals in Fall River and that the Waverly reservoir was close to being drained. The decision was made for Halifax Water to issue a precautionary boil water advisory (PBWA). Nova Scotia Environment was advised and then issued a formal PBWA at 1:23 am, specifying procedures for monitoring and ending the advisory. Ending a BWA requires two consecutive tests, separated by 24 hours, absent for total coliform, once the problem is resolved. The tests take 18- 24 hour to process meaning the PBWA would extend to at least Monday.

Full-service restoration was achieved by 1 pm on Saturday, July 4.

Saturday Leak Notice

At about 2 pm on Saturday, July 4th, crews flushing for water quality purposes noticed water emerging from the recently backfilled trench, indicating either another leak in the vicinity, or an issue with one of the repair clamps installed the day before. Staff assessed the situation and decided to plan to repair the leak on Sunday morning. This decision was made, recognizing that customers had just endured an extended shut down and that Halifax

Water needed time to allow the system to stabilize and refill reservoirs. Scheduling the shutdown for Sunday morning also provided Halifax Water the opportunity to give advance notice of the Sunday shutdown and to allow customers to prepare for it. There was some risk that the leak could progress suddenly but this was mitigated by partially closing some valves and having a staff member attend the site so the leak could be shut down quickly.

A PSA was issued early Sunday evening advising of a shutdown of service beginning at 7:00 am on Sunday, July 5.

Sunday Repair

Crews began working at 7:00 am on Sunday, July 5 and the shutdown of water service to the affected area was completed by 10:00 am. By noon on Sunday, it was determined that the second clamp installed on Friday was leaking. Repairs were made to this clamp and the process of pressure testing and refilling the system began during the early afternoon.

By late afternoon, the excavation was partially backfilled, and the process of restoring water service had begun. Leak detection staff were brought in to do an acoustic check for leaks prior to completing backfilling and restoration of service. A leak noise was detected and staff on site made the decision to suspend the service restoration process and investigate the leak noise. The leak noise was determined to be in the location of the first clamp installed on Friday and work began to re-excavate in that area. By early evening, the leak was confirmed to be coming from the first clamp installed on Friday. Staff worked for a couple of hours attempting to repair this clamp. When this effort proved unsuccessful a decision was made to install a new larger clamp in this location.

This second clamp at this location was installed by 10:00 pm and pressure testing began. This clamp also leaked, and after some efforts to try to seal this clamp in place, it was determined that it could not be successfully sealed. At approximately midnight on Sunday, it was determined that the only course of action available at this point would be to dress in a new section of pipe.

The necessary decision to dress in pipe at this time had a couple of implications for customers. To complete the repair would take a minimum of an additional 8 hours plus further time to refill and pressurize the water system. This would extend a shut down that had already been in place since 8 am Sunday morning into the next day, past 24 hours. The second implication was that the two storage reservoirs in Sackville had dropped to levels below their normal operating elevation. With flows expected to increase as Monday morning approached, it was important to make efforts to refill the Sackville reservoirs to the degree possible.

To put water into the Sackville reservoirs with the Cobequid main shut down, it was necessary to increase flows through the secondary feed to the Sackville system along Lucasville Road. It was anticipated that this would cause discolored water complaints

which can happen any time a flow direction or velocity is experienced that is outside normal operating ranges.

Work proceeded on the repair and 6 m (20 feet) of pipe was replaced. The superintendent in charge also made the decision to install a new valve as part of this repair. This isolation valve on Cobequid Rd., south of the intersection, did not previously exist. Installing the new valve added a couple of hours to the repair, but now enables Halifax Water to keep more customers in service should a further failure take place in a similar location.

This repair was complete by 10:00 am, at which point, staff began the process of restoring service. By 1:30 pm, the trench was backfilled, and work focused on restoring operation of the distribution system.

Restoration of Service

When Halifax Water started re-filling the system on Monday, July 6 at 1:30 pm, water service had been interrupted to 3,500 customers for approximately 30 hours. During this time, the system was shut down, water drained from the system from the high elevations in Fall River and Waverley to lower elevation near the site of the repair, as customers at lower elevations were able to continue to use water at reduced pressure by drawing on water stored in the pipes. After the system was turned back on, some customers still had to wait a considerable period as the system was re-filled in a controlled manner. As a result, the service interruption and inconvenience to customers varied greatly. Some customers immediately downstream of the repair had water service the entire time, albeit at reduced pressure. Customers located at the extremes of the system at high elevation did not receive water service until late Monday night or early Tuesday morning. All customers had service restored by noon on Tuesday, July 7.

Regulatory Issues

Boil Water Advisory:

As indicated above, Water Quality staff monitoring the repair noted that the Waverley reservoir was near empty and there was an absence of chlorine residual in water tests at some hydrants in the extremes of the system. Chlorine residual can dissipate in reservoirs and can stratify with respect to chlorine residual. This is typically only an operational challenge under normal operating conditions as water cycles in and out of the reservoir. With the Waverley reservoir rapidly draining, this resulted in water with no chlorine residual going into the system, which is not permitted by our Approval from NSE and contrary to good water supply practice.

Halifax Water advised Nova Scotia Environment we were declaring a PWBA and a Public Service Advisory was issued at 1:10 am on Saturday, July 4. Shortly thereafter, Nova Scotia Environment issued an order, formalizing the PBWA and setting the terms for its removal. As with most BWA's Halifax Water was required to achieve two consecutive test

results absent for total coliform and was also required to monitor across the system for chlorine residual at various locations.

Once the system was refilled and service was restored on Saturday morning, chlorine residuals were maintained, and all total coliform test results were absent. The PBWA was lifted on schedule at 2:45 PM on Monday, July 6.

Manganese:

In 2019, Health Canada changed its guideline for manganese from an aesthetic parameter to a health-related parameter. Halifax Water has always understood that when we have discolored water events, that manganese deposits scoured from pipe interior walls is often a component of the discoloration. With manganese now a health-related parameter, distribution system water quality changes through discolored water is potentially of greater concern.

Understanding the risks of high levels of manganese, Halifax Water began monitoring distribution system water quality in central Sackville and Beaver Bank where we anticipated discolored water from the decision to move more water through Lucasville Road in the overnight hours of Monday morning.

Testing on Monday, July 6 did indicate the presence of manganese at levels above the health-related parameter. Accordingly, consumers in the discolored water areas were advised to let water run until it was clear. Discolored water and manganese levels quickly returned to normal, later Monday.

This was Halifax Water's first experience with high manganese levels in the distribution system since the guideline change. Halifax Water proactively monitored for manganese and responded appropriately; and will review the approach in the near future with Nova Scotia Environment.

Trench Water:

Nova Scotia Environment has appropriate controls and restrictions in place for the discharge of sediment laden trench water to water courses. Where this is a concern, Halifax Water can manage trench water disposal by allowing it to flow to the storm sewer system via a catch basin, and through appropriate sedimentation controls such as a filter fabric.

During the repair on Friday, July 3, an inspector from Nova Scotia Environment visited the site and forbade catch basin disposal despite filter fabric being in place and field measurements indicating that sediment levels were not excessive. As a result, Halifax Water had to dispose of trench water to the sanitary sewer system which had the potential to create operational problems at the Mill Cove Wastewater Treatment Plant. Further, it was not possible to string hose to a sanitary manhole due to the busy intersection. As a result, Halifax Water retained a contract vacuum truck to remove and dispose of trench water.

While this had some operational benefits in that it could quickly remove water from a trench, it added an additional cost to the repair, as well as extra time waiting for the truck to dump and return to the site. Halifax Water will be pursuing this issue with Nova Scotia Environment to promote an approach that balances protection of the environment with the need to prevent unnecessary costs and to avoid pro-longing service outages for Halifax Water customers.

Communication

Halifax Water communication staff were an important part of the team that responded to this repair. PSA's were issued regularly, and each PSA was also issued though Halifax Water's social media feeds on Twitter and Facebook. Communications staff also monitored social media, responded to questions and concerns posted through Twitter and Facebook, provided updates to our after-hours answering service, and communicated with councilors and the media. The following PSA's were issued during the event.

1. 8:25 am, Friday, July 3, advising of the watermain repair and disruptions in traffic and service.
2. 1:10 am, Saturday July 4, advising of the PWBA.
3. 6:49 am, Saturday, July 4, advising customers of expected service restoration between 8:00 am and Noon.
4. 1:36 pm, Saturday, July 4, confirming previous messages.
5. 7:38 pm, Saturday July 4, advising of a service interruption the following day.
6. 12:21 am, Monday July 5, advising that service would not be restored until noon on Monday and to expect discolored water.
7. 10:39 am, Monday July 5, advising service restoration expected between 2 and 4 pm.
8. 4:14 pm, Monday July 5, advising watermain repair was complete.
9. 4:33 pm, Monday July 5, advising that the PBWA is lifted.

Halifax Water received some comments directly and through social media that updates were not frequent enough. Frequency and content of updates during water main breaks will be reviewed.

One item that caused confusion for customers was the fact that on Monday, there was a PWBA for the area with reduced or no water service, and a discolored water notice for consumers in Sackville who had full water service. Colour coded maps were issued with the PSA distinguishing the two areas but this message remained confusing for many customers.

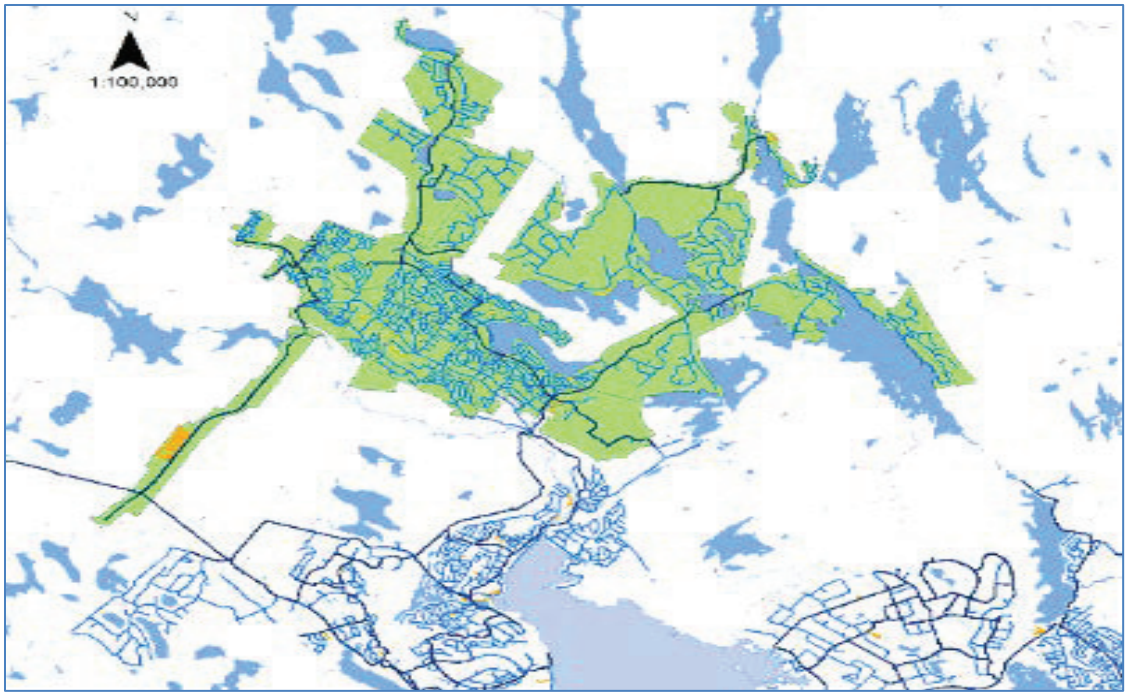


Fig. 3 – Discolored Water Area

On Monday, July 6, the customer care centre received 750 calls compared to a typical daily average of 250. The increase was almost entirely due to discolored water in central Sackville. The customer care centre did a very good job of handling the increase in calls.

During the day on Monday, July 6, water quality and customer care staff worked together to develop a system for displaying complaint locations in Halifax Water's geographic information system (GIS), according to time. This was very helpful in giving operations staff the ability to track in close to real time, the spread of discolored water across the system. This was also very helpful in directing resources to system flushing to mitigate discolored water.

Postmortem

Anytime service is interrupted to many customers, or a repair goes on for over four days, is considered a significant event.

Positively, approximately 35 staff from two separate depots, regulatory services, communications, water quality and customer care worked throughout the weekend, in an Incident Command System (ICS) structure, to restore service to customers. In addition, the entire call center dealt with customer calls on Monday. There are several examples of staff who worked two 16-hour shifts, worked multiple overnight shifts, delayed vacation, or came in on vacation to complete the repair.
The main issue contributing to this event is the fact that there is a single transmission main serving approximately 3,500 customers. Any interruption to the service provided by this

main impacts many customers. As well, the fact that it is a large diameter main means that the repair will take longer and the impact on the system is greater.

Good design practice dictates that large areas of the network not be fed by a single supply and typically this principal applies across the distribution system, however, the Fall River – Waverley area is one of a small number where development patterns and physical barriers result in a single supply to a large area.

The second issue of concern regarding this incident, is that there have been three corrosion related failures of this transmission main in the vicinity of this intersection since 2017. These premature failure events are concerning, and it is possible that there will be future events.

There are three strategies that will be employed to mitigate both the possibility of another incident in this location and to reduce the impact as follows:

- Alternate feed: There is an opportunity to complete a loop in our transmission system on Windgate Drive in Windsor Junction. When this 850 m gap in the system is completed there will be an alternate feed to the Fall River and Windsor Junction areas. This gap is identified in Halifax Water's infrastructure master plan for future years; however, the recent leaks justify moving this forward. Design activity on this pipe will begin this Fall with an aim to including construction in the 2021-22 capital budget.

- Capital Replacement of the existing main: Given the premature failure experienced on this pipe, engineering and water services will work together to conduct analysis to try to determine the extent of the corrosion problem and if appropriate, develop a capital project to replace the affected section of pipe.

- Mitigation measures: Several measures are underway or are being considered to reduce or mitigate the on-going corrosion process, and reduce the impact of another leak. The valve installed in the intersection as part of the repair is an important measure. As discussed below, there was another failure on Labour Day in the same location and the installation of this valve was instrumental in being able to limit the shut down to 8 hours at a time chosen to minimize customer disruption Other measures include installing small diameter piping in a chamber to connect two pressure zones which would provide continuous service at reduced pressure and installing anodes to arrest corrosion.

Another issue of concern to customers and public is why the repair took so long. This is attributed to the decision on Friday, July 3, and again on Sunday, July 5 to install a clamp instead of dressing in pipe. This decision, particularly on a large diameter main, in a deep trench is a tradeoff between speed of repair and certainty of a successful repair.

With the benefit of hindsight, had the decision been made to dress in pipe, the repair would have been completed on Saturday, July 4; however, service restoration time would have been approximately 8 hours later on Saturday, and would not have avoided the precautionary boil water advisory.

The decision to use repair clamps was based on an assessment that clamps could be successfully deployed in this circumstance and an appropriate priority being placed on the importance of returning customers and the system to normal service as soon as possible. Staff involved possessed the appropriate knowledge and experience and deployed appropriate judgment in making this decision. Notwithstanding, a number of lessons were learned in the use of repair clamps that will be incorporated in future repairs.

Another factor that has led to customer concern, when combined with the long outage time on July 5 – 6, was the fact that, on a couple of occasions, service restoration time estimates were not met. Estimation of completion time is a difficult proposition at the best of times and there were several complicating factors in this repair that compounded this. One of the most difficult things to estimate is the time required to refill the system on completion. The refill time on Monday, and into Tuesday was considerably longer than what was incorporated into the return to service estimates.

A formal de-briefing session was held with staff involved in this repair to document lessons learned for use in future similar events. Several lessons were learned related to communication with customers throughout the event and related to weekend and overnight staffing of the customer care center to deal with customer concerns.

Fig. 4a – Hole in Pipe

Fig. 4b – Repair Clamps

Fig. 4c – New Pipe and Valve

Labour Day Leak

As a postscript, the Board should be aware that a subsequent leak in this area was reported at 8 am on Labour, Day, Monday, September 7. The failure mechanism was corrosion, similar to the 2017 and July events. Because a valve was installed as part of the July repair, water service was maintained for customers once the leak was valved-off and preparatory work for the repair took place.

Due to some technical details related to the repair, it did become necessary to shut of the Cobequid main to Fall River to complete the actual repair. The shutdown was scheduled for 10:00 pm on Labour Day and a PSA was sent out in advance around 7 pm.

Recognizing that the following day was the first day of school and the anxiety in the community related to this, Halifax Water entered into a discussion with staff from the Halifax Regional Center for Education. The repair time was selected to minimize the impact of the shutdown on customers, provide advance notice of the shutdown and ensure that service was restored early enough on Tuesday morning to meet HRCE deadlines for opening schools in the affected area.

The repair consisted of dressing in a 2 m section of pipe. The repair was completed by 4 am on Tuesday, September 8. Most customers had service restored with reduced pressure by our target time of 6:00 am and full service was restored by 7:00 am.

Report Prepared by: Reid Campbell Digitally signed by Reid Campbell Date: 2020.09.17 12:33:10 -03'00'

Reid Campbell, M.Eng., P.Eng., Director, Water Services
902-490-4877

Halifax Water
Halifax Regional Water Commission

ITEM # 11-I
HRWC Board
September 24, 2020

TO: Craig MacMullin, MBA, CPA, CGA, Chair, and Members of the Halifax Regional Water Commission Board

SUBMITTED BY: Jamie Hannam — Digitally signed by Jamie Hannam Date: 2020.09.18 11:52:00 -03'00'
Jamie Hannam, P.Eng.
Director, Engineering & IS

APPROVED: Cathie O'Toole — Digitally signed by Cathie O'Toole Date: 2020.09.18 13:09:03 -03'00'
Cathie O'Toole, MBA, FCPA, FCGA, ICD.D, General Manager

DATE: September 17, 2020

SUBJECT: **Enhanced Capital Project Reporting**

INFORMATION REPORT

ORIGIN

The 2020/21 Capital Budget.

BACKGROUND

The approved Halifax Water Capital Budget for 2020/2021 was valued at $96,514,000. In addition to the proposed projects within the current annual capital budget, a series of projects, funded from previous years capital budgets, remained as work in progress moving into the 2020/2021 fiscal year. The total budget available of active capital projects to March 31, 2020 is $86,649,000.

DISCUSSION

In consideration of both the new and carried forward projects and budget adjustments made to re-allocate funds to prior year projects as they completed, the total planned capital budget available for 2020/2021 is $181,448,000. The following table provides the current status of capital projects as of August 31, 2020:

Budget Category	Budget to March 31, 2020	Budget 2020-21	Budget 2020-21 adjustments	Total Budget Available	Expenditures to March 31, 2020	Expenditures 2020-21	Total Expenditures to August 31, 2020	Budget Available
Water	$ 40,577,000	$ 54,507,000	$ (1,566,000)	$ 93,518,000	$ 11,436,000	$ 12,003,000	$ 23,439,000	$ 70,079,000
Wastewater	$ 44,002,000	$ 33,906,000	$ (10,000.00)	$ 77,898,000	$ 7,101,000	$ 5,083,000	$ 12,184,000	$ 65,714,000
Stormwater	$ 2,070,000	$ 8,101,000	$ (139,000)	$ 10,032,000	$ 500,000	$ 1,327,000	$ 1,827,000	$ 8,205,000
	$ 86,649,000	**$ 96,514,000**	**$ (1,715,000)**	**$ 181,448,000**	**$ 19,037,000**	**$ 18,413,000**	**$ 37,450,000**	**$143,998,000**

The total expenditures to date as a percentage of total budget available is 20.6%. Historical capital expenditure patterns are strongly weighted to the second half of the fiscal year. Thus, it is anticipated that the total expenditures will be closer aligned with the total approved budget as we move towards year end. Detailed capital expenditure forecasting as part of the enhanced capital project reporting will allow for a more accurate projection of capital expenditures in the near future and will be further reported at the November Halifax Water Board meeting.

Enhanced Capital Project Reporting

The approved budget and expenditures to date for each capital project is accounted for and reported by Accounting through the corporate ERP system (SAP).

Historically, the individual capital project expenditure information was available through SAP on a query basis and was aggregated and reported annually in a capital expenditure summary. To improve monitoring, control and accountability of capital expenditures throughout the fiscal year, staff from Accounting and Engineering are working on an enhanced reporting approach. The enhanced reporting approach will provide monthly updates to capital budget managers, Halifax Water Executives, and the Halifax Water Board on individual and aggregate capital project expenditures to date as well as project status and expenditure forecast information.

The project status will indicate projects on hold, projects that are deferred, projects cancelled, projects started, pending General Manager approval, pending Halifax Water Board approval, pending NSUARB approval, projects in process (tracked by % of completion), and projects that are completed.

Some capital projects are managed by groups other than Engineering. Water Operations, Wastewater & Stormwater Operations, and Corporate Services all have some capital projects under their direct management. As part of enhancing the capital reporting process, clear accountabilities are being established, and common processes, expectations, and tools and schedules for reporting.

Implementing these kind of organizational processes changes requires communication, change management activities, training and follow up for staff. These activities will occur in October.

The enhanced Capital Project Summary report is in a first draft version and is currently being reviewed by staff for functionality and final data addition. Staff plan to have this report ready to use as a control, monitoring and reporting tool by mid-October and will utilize the document to present improved capital reporting to the Board by the November Board meeting.

Report Prepared By: Jamie Hannam
Digitally signed by Jamie Hannam
Date: 2020.09.18 13:53:09 -03'00'

Jamie Hannam, P.Eng.
Director, Engineering & Information Services

Financial Review By: Louis de Montbrun
Digitally signed by Louis de Montbrun
Date: 2020.09.18 12:50:25 -03'00'

Louis de Montbrun, CPA, CA
Director, Corporate Services/CFO